Hewlett-Packard Company

TPC Benchmark™ C
Full Disclosure Report
for
ProLiant ML350T03 X3.06/533 512 SA641
using
IBM DB2 UDB Express Edition v8.1
and
SUSE Linux Enterprise Server 9

First Edition
July 16, 2004

First Edition – July 2004

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Benchmark results are highly dependent upon workload, specific application requirements, and system design and implementation. Relative system performance will vary as a result of these and other factors. Therefore, TPC Benchmark C should not be used as a substitute for a specific customer application benchmark when critical capacity planning and/or product evaluation decisions are contemplated.

All performance data contained in this report were obtained in a rigorously controlled environment. Results obtained in other operating environments may vary significantly. HP does not warrant or represent that a user can or will achieve similar performance expressed in transactions per minute (tpmC) or normalized price/performance ($/tpmC). No warranty of system performance or price/performance is expressed or implied in this report.

Printed in U.S.A., 2004

Table of Contents

Preface

The TPC Benchmark C was developed by the Transaction Processing Performance Council (TPC). The TPC was founded to define transaction processing benchmarks and to disseminate objective, verifiable performance data to the industry. This full disclosure report is based on the TPC Benchmark C Standard Specifications Version 5.3, released April 2004.

TPC Benchmark C Overview

The TPC describes this benchmark in Clause 0.1 of the specifications as follows:

TPC Benchmark™ C (TPC-C) is an OLTP workload. It is a mixture of read-only and update intensive transactions that simulate the activities found in complex OLTP application environments. It does so by exercising a breadth of system components associated with such environments, which are characterized by:

- The simultaneous execution of multiple transaction types that span a breadth of complexity
- On-line and deferred transaction execution modes
- Multiple on-line terminal sessions
- Moderate system and application execution time
- Significant disk input/output
- Transaction integrity (ACID properties)
- Non-uniform distribution of data access through primary and secondary keys
- Databases consisting of many tables with a wide variety of sizes, attributes, and relationships
- Contention on data access and update

The performance metric reported by TPC-C is a "business throughput" measuring the number of orders processed per minute. Multiple transactions are used to simulate the business activity of processing an order, and each transaction is subject to a response time constraint. The performance metric for this benchmark is expressed in transactions-per-minute-C (tpmC). To be compliant with the TPC-C standard, all references to tpmC results must include the tpmC rate, the associated price-per-tpmC, and the availability date of the priced configuration.

Although these specifications express implementation in terms of a relational data model with conventional locking scheme, the database may be implemented using any commercially available database management system (DBMS), database server, file system, or other data repository that provides a functionally equivalent implementation. The terms "table", "row", and "column" are used in this document only as examples of logical data structures.

TPC-C uses terminology and metrics that are similar to other benchmarks, originated by the TPC or others. Such similarity in terminology does not in any way imply that TPC-C results are comparable to other benchmarks. The only benchmark results comparable to TPC-C are other TPC-C results conformant with the same revision.

Despite the fact that this benchmark offers a rich environment that emulates many OLTP applications, this benchmark does not reflect the entire range of OLTP requirements. In addition, the extent to which a customer can achieve the results reported by a vendor is highly dependent on how closely TPC-C approximates the customer application. The relative performance of systems derived from this benchmark does not necessarily hold for other workloads or environments. Extrapolations to any other environment are not recommended.

Benchmark results are highly dependent upon workload, specific application requirements, and systems design and implementation. Relative system performance will vary as a result of these and other factors. Therefore, TPC-C should not be used as a substitute for a specific customer application benchmarking when critical capacity planning and/or product evaluation decisions are contemplated.

Abstract

Overview

This report documents the methodology and results of the TPC Benchmark C test conducted on the HP ProLiant ML350T03. The operating system used for the benchmark was SUSE Linux Enterprise Server 9. The DBMS used was IBM DB2 UDB Express Edition v8.1.

TPC Benchmark C Metrics

The standard TPC Benchmark C metrics, tpmC (transactions per minute), price per tpmC (three year capital cost per measured tpmC), and the availability date are reported as:

18,661 tpmC
$1.61 USD per tpmC

The availability date is December 15, 2004.

Standard and Executive Summary Statements

The following pages contain executive summary of results for this benchmark.

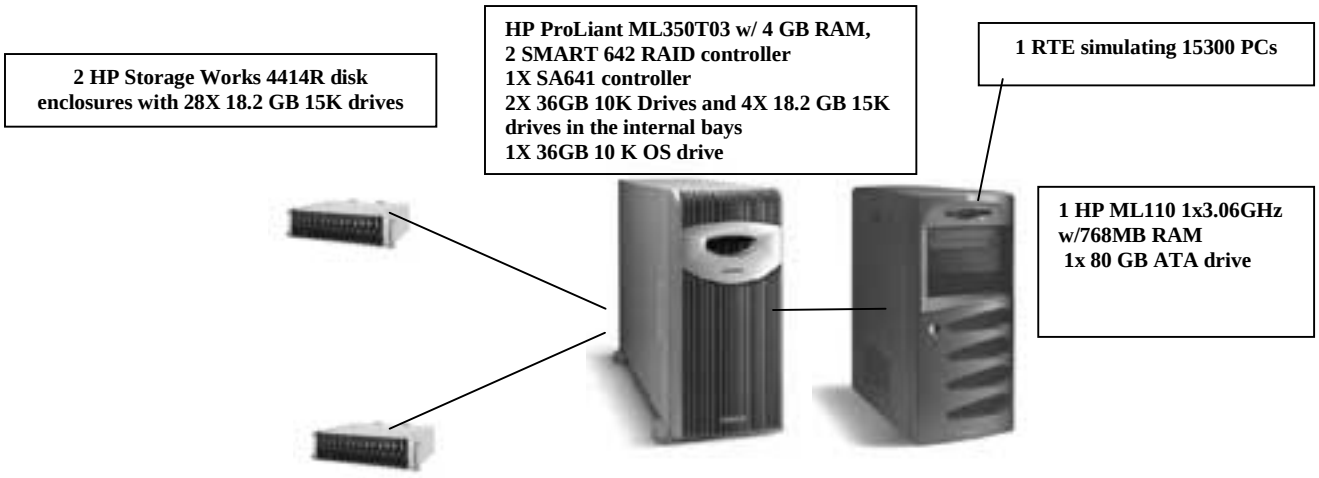
Auditor

The benchmark configuration, environment and methodology were audited by Lorna Livingtree of Performance Metrics, Inc. to verify compliance with the relevant TPC specifications.

Hewlett Packard Company	ProLiant ML350T03 X3.06/533 512 SA641 C/S with HP ML110	TPC-C Rev. 5.3 Report Date: July 16, 2004

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
$29,990 USD	**18,661 tpmC**	**$1.61 USD/tpmC**	**December 15, 2004**

Processors	Database Manager	Operating System	Other Software	Number of Users
1 Intel Xeon 3.06 GHz – 512 K L3 cache – Server 1 Intel Xeon 3.06 GHz – Clients	IBM DB2 UDB Express Edition v8.1	SUSE Linux Enterprise Server 9	Microsoft Visual C++ Microsoft COM+	**15300**



	Server		Each Client	
System Components	Quantity	Description	Quantity	Description
Processor	1	3.06GHz Intel Xeon w/ 512 K Cache	1	3.06 GHz Intel Xeon w/ 512K cache
Memory	4	1GB DDR	1	256 MB DDR
			1	512MB DDR
Disk Controllers	1	SA 641 Controller	1	IDE Controller
	2	SMART 642 Array Controller		
	1	Internal SCSI Controller		
Disk Drives	3	36.4 GB SCSI Drives	1	80 GB ATA
	32	18.2 GB SCSI Drives		
Total Storage		691.6 GB		80GB

Hewlett-Packard Company	ML350T03 X3.06/533 512 SA641 Client/Server					TPC-C Rev. 5.3 Report Date:	16-Jul-04
Description	**Part Number**	**Third Party Brand**	**Pricing**	**Unit Price**	**Qty**	**Extended Price**	**3 yr. Maint. Price**
Server Hardware							
ML350T03 X3.06/533 512 SA641 US	333371-001	HP	1	2,149	1	2,149	
1GB PC2100 DDR SDRAM DIMM WW	287497-B21	HP	1	499	4	1,996	
S5500 15" monitor	P9006A#ABA	HP	1	119	1	119	
StorageWorks MSA30 S-B ALL	302969-B21	HP	1	2,978	2	5,956	
SmartArray642 U320 Intrl.RAID Ctrl. WW	291967-B21	HP	1	649	2	1,298	
Pro UPS 500 127V US	136386-001	HP	1	146	1	146	
18.2GB 15Krpm U320 UNI HDD	286775-B22	HP	1	269	32	8,608	
18.2GB 15Krpm U320 UNI HDD (10% spares)	286775-B22	HP	1	269	3		807
36GB 10K U320 Pluggable Hard Drive WW	286713-B22	HP	1	299	2	598	
36GB 10K Ultra320 NHP Hard Drive WW	271832-B21	HP	1	259	1	259	
HP CP 3Y 4H 24x7 HW Entry300 4-Hour 24 x 7 Coverage 3 Years	162675-002	HP	1	599	1		599
FM-4E724-36 3YR 24X7/4HR EMPTY DISK ENCL	171242-002	HP	1	157	2		314
					Subtotal	**21,129**	**1,720**
Server Software							
1 Year Maintenance and Support SUSE Linux Enterprise Server 9 for x86	TBD	SUSE	2	399	3		1,197
IBM DB2 UDB Express Edition v8.1	D535PLL	IBM	3	4,874	1	4,874	
IBM DB2 UDB Exp. Ed. Maintenance renewal (annual)	E013SLL	IBM	3	975	2		1,950
					Subtotal	**4,874**	**3,147**
Client Hardware							
ML110T01 P3.0/800HT 256 ATA-80 US	359661-001	HP	1	829	1	829	
512 UNREG PC3200 1X512 ML110 WW	354560-B21	HP	1	299	1	299	
NC1020 PCI Gigabit NIC 10/100/1000 WOL (Wake on LAN)	353377-B21	HP	1	99	1	99	
S5500 15" monitor	P9006A#ABA	HP	1	119	1	119	
HP CP 3Y 4H 24x7 HW ML110 4-Hour 24 x 7 Coverage 3 Years	321653-002	HP	1	448	1		448
					Subtotal	**1,346**	**448**
Client Software							
Microsoft Windows 2000 Server	C1100016	Microsoft	4	679	1	679	
Visual C++ Standard	254-00257	Microsoft	4	94	1	94	
					Subtotal	**773**	**0**
User Connectivity							
7ft CAT 5e Network Patch Cables	CBLC5C7	LanAdapters	5	1	3	3	
					Subtotal	**3**	**0**
Large Purchase and Net 30 discount (See Note 1)	14.0%		1			**($3,147)**	**($304)**
					Total	**$24,979**	**$5,011**

Prices used in TPC benchmarks reflect the actual prices a customer would pay for a one-time purchase of the stated components. Individually negotiated discounts are not permitted. Special prices based on assumptions about past or future purchases are not permitted. All discounts reflect standard pricing policies for the listed components. For complete details, see the pricing sections of the TPC benchmark pricing specifications. If you find that the stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.

Three-Year Cost of Ownership: $29990 USD

tpmC Rating: 18,661

$ / tpmC: $1.61 USD

Pricing: 1=HP 2=SUSE 3=IBM 4=BuyCheapSoftware.com 5=LanAdapters.com

Note 1 = Discount based on HP Direct guidence with large purchase and Net 30 discount.

Note:The benchmark results and test methodology were audited by Lorna Livingtree of Performance Metrics, Inc.

Numerical Quantities Summary

MQTH, Computed Maximum Qualified Throughput **18,661 tpmC**

Response Times (in seconds)	**Average**	**90%**	**Maximum**
New-Order	0.54	1.06	8.06
Payment	0.38	0.87	8.31
Order-Status	0.48	0.97	6.18
Delivery (interactive portion)	0.10	0.10	0.83
Delivery (deferred portion)	0.71	1.06	3.11
Stock-Level	2.77	4.04	9.48
Menu	0.10	0.10	0.85

Transaction Mix, in percent of total transaction	
New-Order	44.92%
Payment	43.02%
Order-Status	4.02%
Delivery	4.02%
Stock-Level	4.02%

Emulation Delay (in seconds)	**Resp.Time**	**Menu**
New-Order	0.10	0.10
Payment	0.10	0.10
Order-Status	0.10	0.10
Delivery (interactive)	0.10	0.10
Stock-Level	0.10	0.10

Keying/Think Times (in seconds)	**Min.**	**Average**	**Max.**
New-Order	18.01/0.00	18.01/13.01	18.02/130.00
Payment	3.01/0.00	3.02/12.02	3.04/120.00
Order-Status	2.01/0.00	2.02/10.02	2.04/97.94
Delivery (interactive)	2.01/0.00	2.02/5.03	2.03/49.56
Stock-Level	2.01/0.00	2.02/5.02	2.04/47.70

Test Duration	
Ramp-up time	88 minutes
Measurement interval	120 minutes
Transactions (all types) completed during measurement interval	4,985,827
Ramp down time	53 minutes

Checkpointing	
Number of checkpoints	N/A
Checkpoint interval	N/A

General Items

Test Sponsor

A statement identifying the benchmark sponsor(s) and other participating companies must be provided.

This benchmark was sponsored by Hewlett-Packard Company. The benchmark was developed and engineered by Hewlett-Packard Company. Testing took place at HP benchmarking laboratories in Houston, Texas.

Application Code and Definition Statements

The application program (as defined in clause 2.1.7) must be disclosed. This includes, but is not limited to, the code implementing the five transactions and the terminal input output functions.

Appendix A contains all source code implemented in this benchmark.

Parameter Settings

Settings must be provided for all customer-tunable parameters and options which have been changed from the defaults found in actual products, including by not limited to:

- *Database options*
- *Recover/commit options*
- *Consistency locking options*
- *Operating system and application configuration parameters*

This requirement can be satisfied by providing a full list of all parameters.

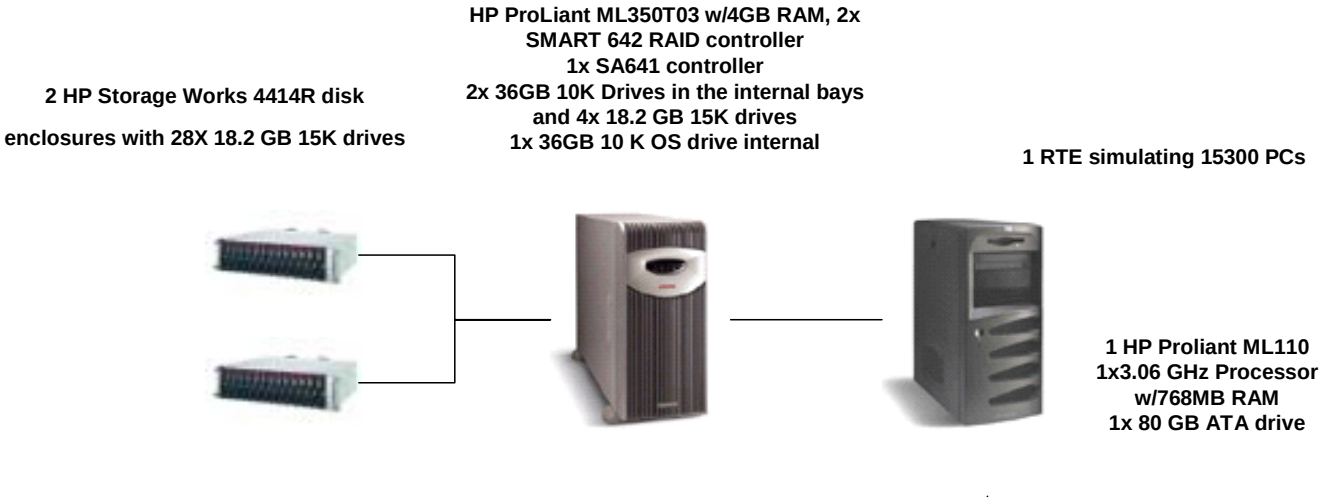
Appendix C contains the tunable parameters to for the database, the operating system, and the transaction monitor.

Configuration Items

Diagrams of both measured and priced configurations must be provided, accompanied by a description of the differences.

The configuration diagrams for both the tested and priced systems are included on the following pages.

Figure 1.1 Priced and Benchmarked Configuration



Clause 1 Related Items

Table Definitions

Listing must be provided for all table definition statements and all other statements used to set up the database.

Appendix B contains the code used to define and load the database tables.

Physical Organization of Database

The physical organization of tables and indices within the database must be disclosed.
The tested configuration consisted of: (28) 18.2 GB 15K drives for the database data connected to 2 SA642 RAID controllers and 1 SA641 controller with (2) 36.4 GB 10K drives and (4) 18.2 GB 15K drives for the transaction log and more database data. (1) 36.4 GB 10K drive connected to the embedded SCSI controller served as the operating system drive.

Benchmarked Configuration:

Integrated SCSI Controller		
LOGICAL DRIVE C:	Total Capacity = 36.4 GB	Standard SCSI partition
SUSE Linux Enterprise Server 9,		
SA-641 Controller, Slot 1, Array A		
LOGICAL DRIVE /dev/db2/log:	Total Capacity = 36.4 GB	RAID 0+1
Database Log		
SA-641 Controller, Slot 1, Array B		
LOGICAL DRIVE /dev/db2/orl	Total Capacity = 60.8 GB	RAID 0
Ts_orderline_01		
LOGICAL DRIVE /dev/db2/hist	Total Capacity = 4507 MB	RAID 0
Ts_history_01		
LOGICAL DRIVE /dev/db2/ordi	Total Capacity = 2097 MB	RAID 0
Is_order_01		
LOGICAL DRIVE /dev/db2/nori	Total Capacity = 1570 MB	RAID 0
Ts_neword_01		
LOGICAL DRIVE /dev/db2/nor	Total Capacity = 1570 MB	RAID 0
Ts_neword_01		
LOGICAL DRIVE /dev/db2/item	Total Capacity = 29 MB	RAID 0
Ts_item_01		
LOGICAL DRIVE /dev/db2/ware	Total Capacity = 20 MB	RAID 0
Ts_ware_01		
LOGICAL DRIVE /dev/db2/dist	Total Capacity = 20 MB	RAID 0
Ts_dist_01		
SA-642 Controller, Slot 2, Array A		
LOGICAL DRIVE /dev/db2/stk1	Total Capacity = 28.1 GB	RAID 0
Ts_stock_01		
LOGICAL DRIVE /dev/db2/cst1	Total Capacity = 20.4 GB	RAID 0
Ts_customer_01		
LOGICAL DRIVE	Total Capacity = 2619 MB	RAID 0
Free space		
LOGICAL DRIVE /flat	Total Capacity = 189.1 GB	RAID 5
Backup space		

SA-642 Controller, Slot 3, Array A

LOGICAL DRIVE /dev/db2/stk2	Total Capacity = 28.1 GB	RAID 0
Ts_stock_01		
LOGICAL DRIVE /dev/db2/cst2	Total Capacity = 20.4 GB	RAID 0
Ts_customer_01		
LOGICAL DRIVE /dev/db2/ord	Total Capacity = 2306 MB	RAID 0
Ts_order_01		
LOGICAL DRIVE /dev/db2/csti	Total Capacity = 2724 MB	RAID 0
Is_customer_01		
LOGICAL DRIVE /flat1	Total Capacity = 186.8 GB	RAID 5
Backup space		

Priced Configuration vs. Measured Configuration:

The measured configuration is identical compared to the priced configuration.

Insert and Delete Operations

It must be ascertained that insert and/or delete operations to any of the tables can occur concurrently with the TPC-C transaction mix. Furthermore, any restrictions in the SUT database implementation that precludes inserts beyond the limits defined in Clause 1.4.11 must be disclosed. This includes the maximum number of rows that can be inserted and the minimum key value for these new rows.

All insert and delete functions were fully operational during the entire benchmark.

Partitioning

While there are a few restrictions placed upon horizontal or vertical partitioning of tables and rows in the TPC-C benchmark, any such partitioning must be disclosed.

No partitioning was used in this benchmark.

Replication, Duplication or Additions

Replication of tables, if used, must be disclosed. Additional and/or duplicated attributes in any table must be disclosed along with a statement on the impact on performance.

No replications, duplications or additional attributes were used in this benchmark.

Clause 2 Related Items

Random Number Generation

The method of verification for the random number generation must be described.

The srandom(), getpid() and gettimeofday() functions are used to produce unique random seeds for each driver. The drivers use these seeds to seed the srand(), srandom() and srand48() functions. Random numbers are produced using wrappers around the standard system random number generators.
The negative exponential distribution uses the following function to generate the distribution. This function has the property of producing a negative exponential curve with a specified average and a maximum value 4 times the average.

```
const double RANDOM_4_Z = 0.89837799236185
const double RANDOM_4_K = 0.97249842407114
double neg_exp_4(double average {
        return – average * (1/RANDOM_4_Z * log (1 – RANDOM_4_K * drand48()))};
}
```

The seeds for each user were captured and verified by the auditor to be unique. In addition, the contents of the database were systematically searched and randomly sampled by the auditor for patterns that would indicate the random number generator had affected any kind of a discernible pattern; none were found..

Input/Output Screen Layout

The actual layout of the terminal input/output screens must be disclosed.

All screen layouts followed the specifications exactly.

Priced Terminal Feature Verification

The method used to verify that the emulated terminals provide all the features described in Clause 2.2.2.4 must be explained. Although not specifically priced, the type and model of the terminals used for the demonstration in 8.1.3.3 must be disclosed and commercially available (including supporting software and maintenance).

The terminal attributes were verified by the auditor. The auditor manually exercised each specification on a representative HP ProLiant web server.

Presentation Manager or Intelligent Terminal

Any usage of presentation managers or intelligent terminals must be explained.

Application code running on the client machines implemented the TPC-C user interface. No presentation manager software or intelligent terminal features were used. The source code for the forms applications is listed in Appendix A.

Transaction Statistics

Table 2.1 lists the numerical quantities that Clauses 8.1.3.5 to 8.1.3.11 require.

Table 2.1 Transaction Statistics

Statistic		Value
New Order	Home warehouse order lines	99.00%
	Remote warehouse order lines	1.00%
	Rolled back transactions	1.00%
	Average items per order	10.00
Payment	Home warehouse payments	85.04%
	Remote warehouse payments	14.96%
	Accessed by last name	59.99%
Order Status	Accessed by last name	60.08%
Transaction Mix	New Order	44.92%
	Payment	43.02%
	Order status	4.02%
	Delivery	4.02%
	Stock level	4.02%

Queuing Mechanism

The queuing mechanism used to defer the execution of the Delivery transaction must be disclosed.

Microsoft COM+ on each client machine served as the queuing mechanism to the database. Each delivery request was submitted to Microsoft COM+ asynchronously with control being returned to the client process immediately and the deferred delivery part completing asynchronously.

The source code is listed in Appendix A.

Clause 3 Related Items

Transaction System Properties (ACID)

The results of the ACID tests must be disclosed along with a description of how the ACID requirements were met. This includes disclosing which case was followed for the execution of Isolation Test 7.

All ACID property tests were successful. The executions are described below.

Atomicity

The system under test must guarantee that the database transactions are atomic; the system will either perform all individual operations on the data or will assure that no partially completed operations leave any effects on the data.

Completed Transactions

A row was selected in a script from the warehouse, district and customer tables, and the balances noted. A payment transaction was started with the same warehouse, district and customer identifiers and a known amount. The payment transaction was committed and the rows were verified to contain correctly updated balances.

Aborted Transactions

A row was selected in a script from the warehouse, district and customer tables, and the balances noted. A payment transaction was started with the same warehouse, district and customer identifiers and a known amount. The payment transaction was rolled back and the rows were verified to contain the original balances.

Consistency

Consistency is the property of the application that requires any execution of a database transaction to take the database from one consistent state to another, assuming that the database is initially in a consistent state.

Consistency conditions one through four were tested using a script to issue queries to the database. The results of the queries verified that the database was consistent for all four tests.

A run was executed under full load lasting over two hours.

The script was executed again. The result of the same queries verified that the database remained consistent after the run.

Isolation

Sufficient conditions must be enabled at either the system or application level to ensure the required isolation defined above (clause 3.4.1) is obtained.

Isolation tests one through nine were executed using shell scripts to issue queries to the database. Each script included timestamps to demonstrate the concurrency of operations. The results of the queries were captured to files. The captured files were verified by the auditor to demonstrate that the required isolation had been met.

In addition, the phantom tests and the stock level tests were executed and verified.

For Isolation test seven, case A was followed.

Durability

The tested system must guarantee durability: the ability to preserve the effects of committed transaction and insure database consistency after recovery from any one of the failures listed in Clause 3.5.3.

Loss of Data and Log

To demonstrate recovery from a permanent failure of durable medium containing DBMS logs and TPC-C tables, this test was executed on a fully scaled database of 1530 warehouses running at 10% of the reported tpmC rate with 1530 users. The following steps were executed:

- The total number of New Orders was determined by the sum of D_NEXT_O_ID of all rows in the DISTRICT table giving the beginning count.
- The RTE was started with 1530 users.
- The test was allowed to run for a minimum of 5 minutes.
- One log disk was removed from the drive cabinet.
- Since the disk was mirrored, processing was not interrupted. This was verified by checking the users status on the RTE.
- One of the data disks was removed from the drive cabinet.
- When IBM DB2 UDB Express Edition recorded errors about not being able to access the database, the RTE was shut down.
- A new log disk was inserted into the log drive cabinet. A new data disk was inserted into the data drive cabinet. After the RAID recovery process finished, the system was rebooted and IBM DB2 UDB Express Edition was started.
- The database was restored from backup and the transaction log was rolled forward.
- Consistency condition #3 was executed and verified.
- Step 2 was repeated and the difference between the first and second counts was noted.
- An RTE report was generated for the entire run time giving the number of NEW-ORDERS successfully returned to the RTE.
- The counts in step 13 and 14 were compared and the results verified that all committed transactions had been successfully recovered.
- Samples were taken from the RTE files and used to query the database to demonstrate successful transactions had corresponding rows in the ORDER table.

Instantaneous Interruption and Loss of Memory :

Because loss of power erases the contents of memory, the instantaneous interruption and the loss of memory tests were combined into a single test. This test was executed on a fully scaled database of 1530 warehouses under a full load of 15300 users. The following steps were executed:

- The full database was started.
- The total number of New Orders was determined by the sum of D_NEXT_O_ID of all rows in the DISTRICT table giving the beginning count.
- The RTE was started with 15300 users.
- The test was allowed to run for a minimum of 5 minutes.
- The system crash and loss of memory were induced by physically removing the power cord from the SUT. No battery backup or Uninterruptible Power Supply (UPS) were used to preserve the contents of memory.
- The RTE was shutdown.
- Power was restored and the system restarted.
- IBM DB2 UDB Express Edition v8.1 was restarted and performed an automatic recovery.
- Consistency condition #3 was executed and verified.
- Step 2 was repeated and the difference between the first and second counts was noted.
- An RTE report was generated for the entire run time giving the number of NEW-ORDERS successfully returned to the RTE.
- The counts in step 10 and 11 were compared and the results verified that all committed transactions had been successfully recovered.
- Samples were taken from the RTE files and used to query the database to demonstrate successful transactions had corresponding rows in the ORDER table.

Clause 4 Related Items

Initial Cardinality of Tables

The cardinality (e.g. number of rows) of each table, as it existed at the start of the benchmark run, must be disclosed. If the database was over-scaled and inactive rows of the WAREHOUSE table were deleted, the cardinality of the WAREHOUSE table as initially configured and the number of rows deleted must be disclosed.

Table 4.1 Number of Rows for Server

Table	Cardinality as built
Warehouse	1,530
District	15,300
Customer	45,900,000
History	45,900,000
Orders	45,900,000
New Order	13,770,000
Order Line	459,004,838
Stock	153,000,000
Item	100,000
Deleted Warehouses	0

Database Layout

The distribution of tables and logs across all media must be explicitly depicted for tested and priced systems.

The benchmarked configuration used 2 SA642 Array controllers with 2 SCSI channels and 1 SA641 controller. The SA642 controller is capable of accessing up to 14 disk drives per channel, and supports RAID 0, RAID 0+1, and RAID 5 per each logical volume configured.
Each SA642 controller had one array consisting of (14) 18.2GB 15k drives, with RAID 0 logical drives for storing data tables. The SA641 controller had two arrays. One array, containing RAID 0 volumes, consisting of (4) 18.2GB 15K drives for database data, and one array consisting of (2) 36.4 GB 10K drives with a RAID 0+1 logical volume for the database log. The Array Accelerators were not installed in the SA642 controllers. All RAID volumes used hardware RAID. The SA641 controller had cache on only for the RAID 0 volumes.

Section 1.2 of this report details the distribution of database tables across all disks. The code that creates the tablespaces and tables is included in Appendix B.

Type of Database

A statement must be provided that describes:

- *The data model implemented by DBMS used (e.g. relational, network, hierarchical).*
- *The database interface (e.g. embedded, call level) and access language (e.g. SQL, DL/1, COBOL read/write used to implement the TPC-C transaction. If more than one interface/access language is used to implement TPC-C, each interface/access language must be described and a list of which interface/access language is used with which transaction type must be disclosed.*

The database manager used for this testing was DB2 UDB 8.1. DB2 UDB is a relational DBMS. DB2 remote stored procedures and embedded SQL statements were used. The DB2 stored procedures were invoked via SQL CALL statements. Both the client application and stored procedures were written in embedded C code.

Database Mapping

The mapping of database partitions/replications must be explicitly described.

The database was not replicated.

60 Day Space

Details of the 60 day space computations along with proof that the database is configured to sustain 8 hours of growth for the dynamic tables (Order, Order-Line, and History) must be disclosed.

To calculate the space required to sustain the database log for 8 hours of growth at steady state, the following steps were followed:

- During steady state DB2 monitoring counters were reset
- 30 minutes later "Log pages written" DB2 counter was recorded
- The space used was divided by the number of NEW-ORDERS giving a space used per NEW-ORDER transaction.
- The space used per transaction was multiplied by the measured tpmC rate times 480 minutes.

The details of both the 8-hour transaction log space requirement and the 60-day space requirement is shown in Appendix D.

Clause 5 Related Items

Throughput

Measured tpmC must be reported

Measured tpmC	18,661 tpmC
Price per tpmC	$1.61 USD per tpmC

Response Times

Ninetieth percentile, maximum and average response times must be reported for all transaction types as well as for the menu response time.

Table 5.2: Response Times

Type	Average	90th %	Maximum
New-Order	0.54	1.06	8.06
Payment	0.38	0.87	8.31
Order-Status	0.48	0.97	6.18
Interactive Delivery	0.10	0.10	0.83
Deferred Delivery	0.71	1.06	3.11
Stock-Level	2.77	4.04	9.48
Menu	0.10	0.10	0.85

Keying and Think Times

The minimum, the average, and the maximum keying and think times must be reported for each transaction type.

Table 5.3: Keying Times

Type	Minimum	Average	Maximum
New-Order	18.01	18.01	18.02
Payment	3.01	3.02	3.04
Order-Status	2.01	2.02	2.04
Interactive Delivery	2.01	2.02	2.04
Stock-Level	2.01	2.02	2.04

Table 5.4: Think Times

Type	Minimum	Average	Maximum
New-Order	0.00	13.01	130.00
Payment	0.00	12.02	120.00
Order-Status	0.00	10.02	97.94
Interactive Delivery	0.00	5.03	49.56
Stock-Level	0.00	5.02	47.70

Response Time Frequency Distribution Curves and Other Graphs

Response Time frequency distribution curves (see Clause 5.6.1) must be reported for each transaction type.

The performance curve for response times versus throughput (see Clause 5.6.2) must be reported for the New-Order transaction.

Think Time frequency distribution curves (see Clause 5.6.3) must be reported for each transaction type.

Keying Time frequency distribution curves (see Clause 5.6.4) must be reported for each transaction type.

A graph of throughput versus elapsed time (see Clause 5.6.5) must be reported for the New-Order transaction.

Figure 3. New Order Response Time Distribution

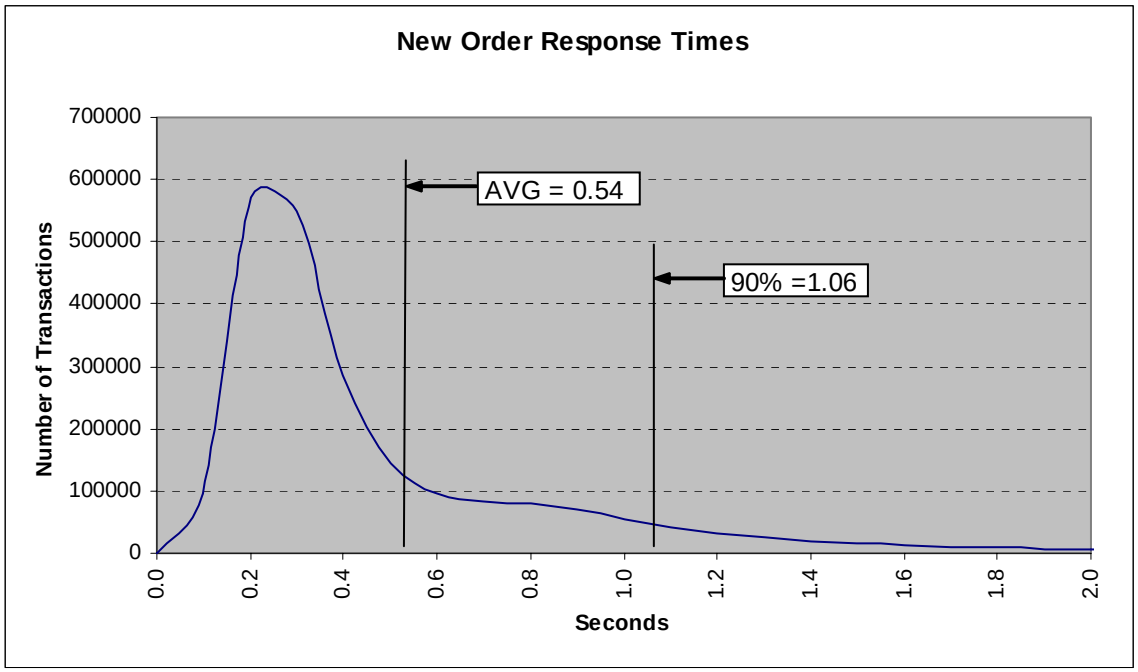


Figure 4. Payment Response Time Distribution

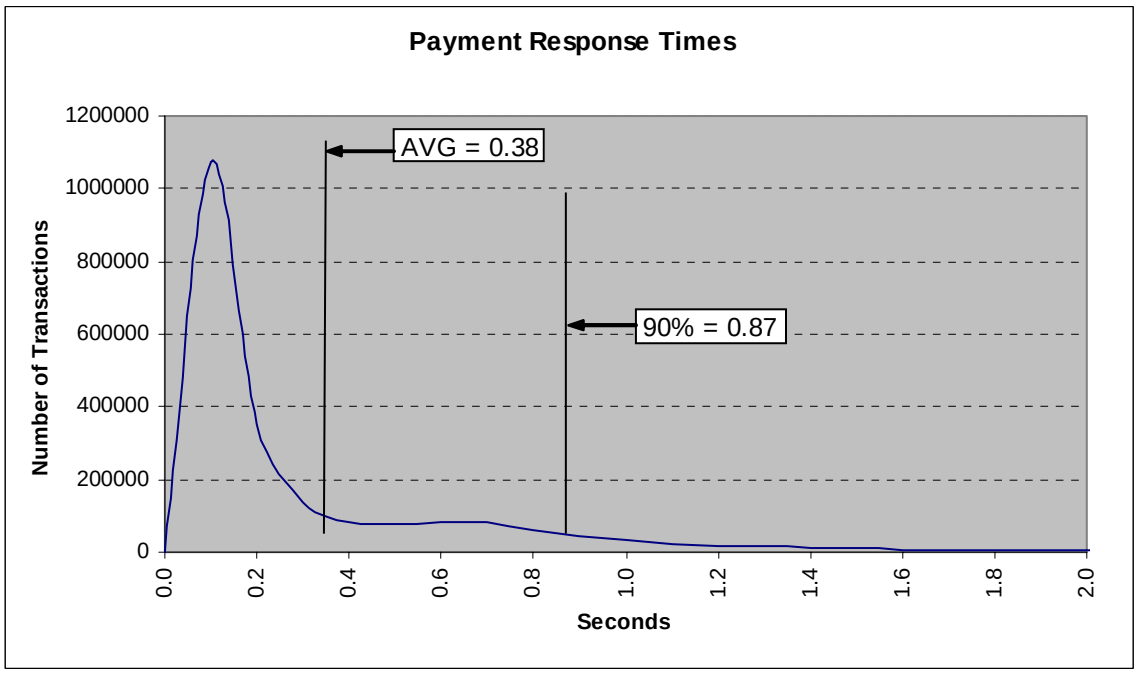


Figure 5. Order Status Response Time Distribution

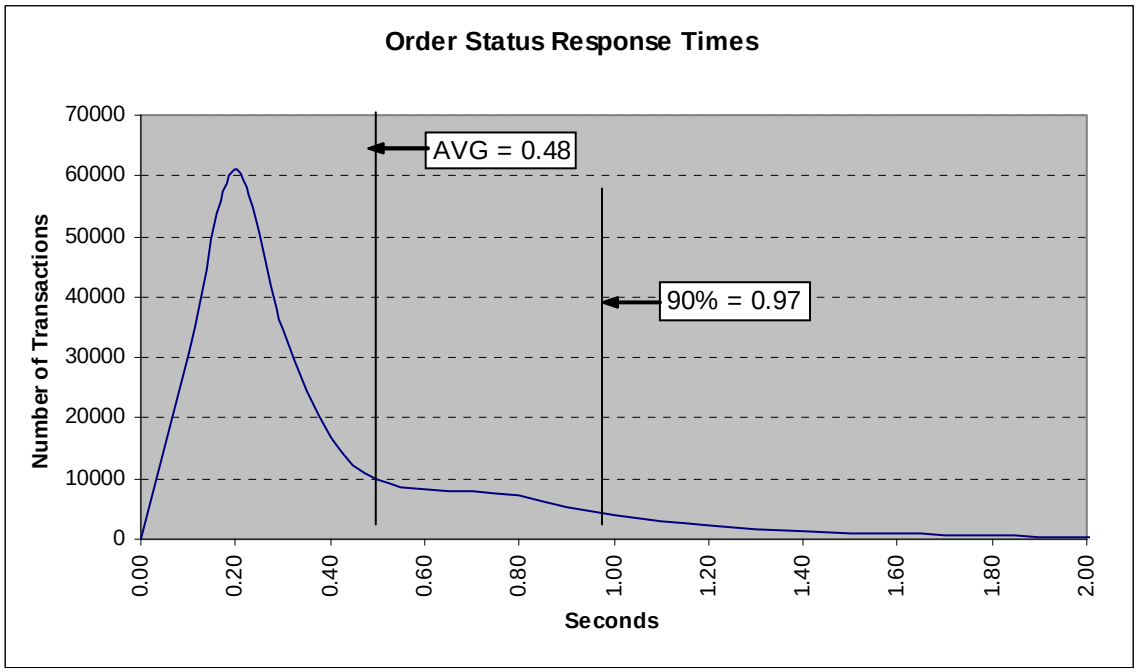


Figure 6. Delivery Response Time Distribution

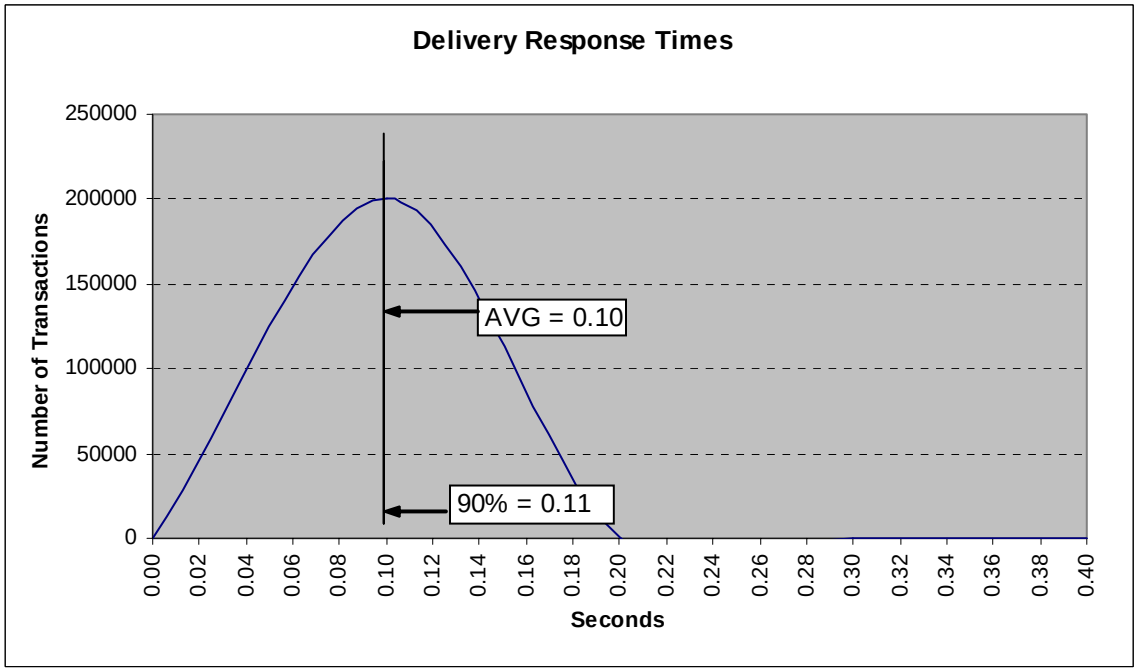


Figure 7. Stock Level Response Time Distribution

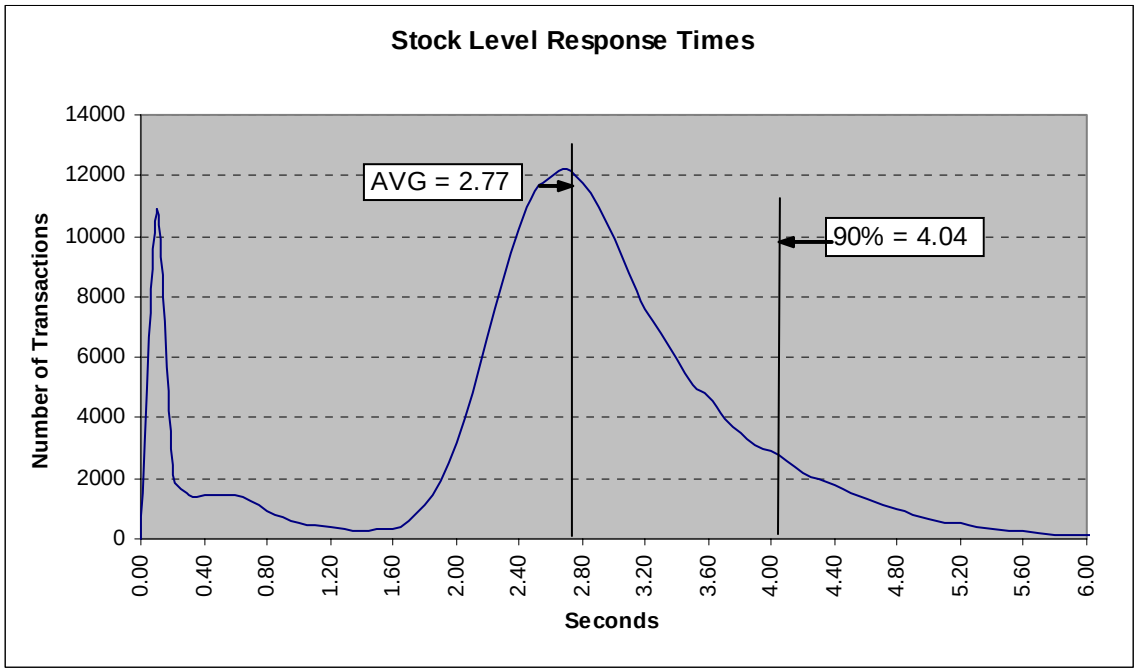


Figure 8. Response Time vs. Throughput

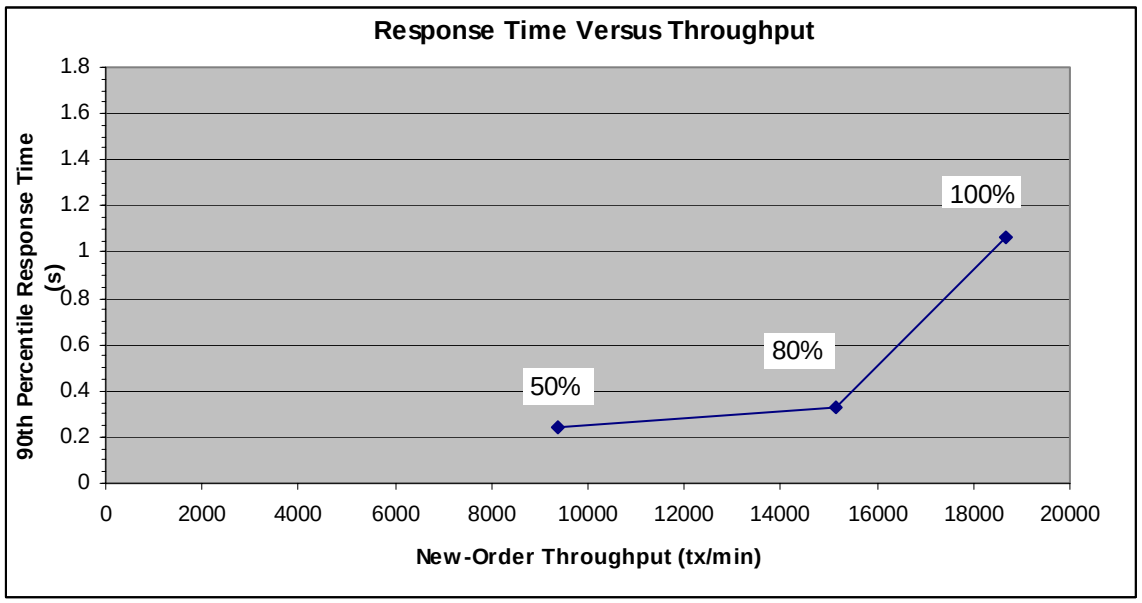


Figure 9. New Order Think Time Distribution

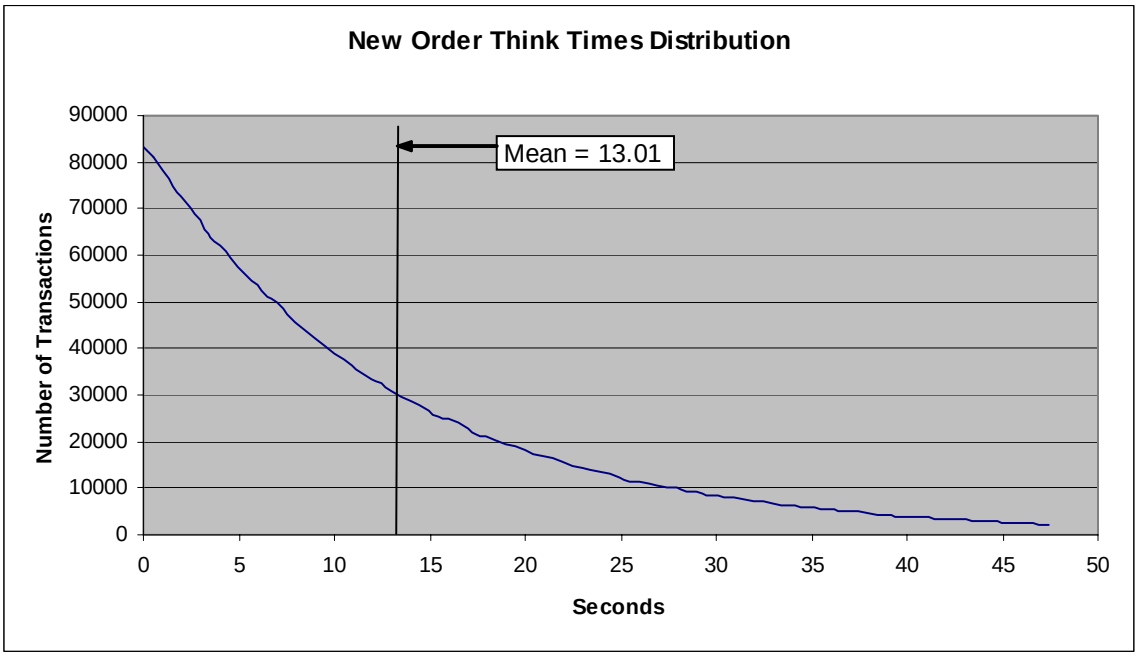
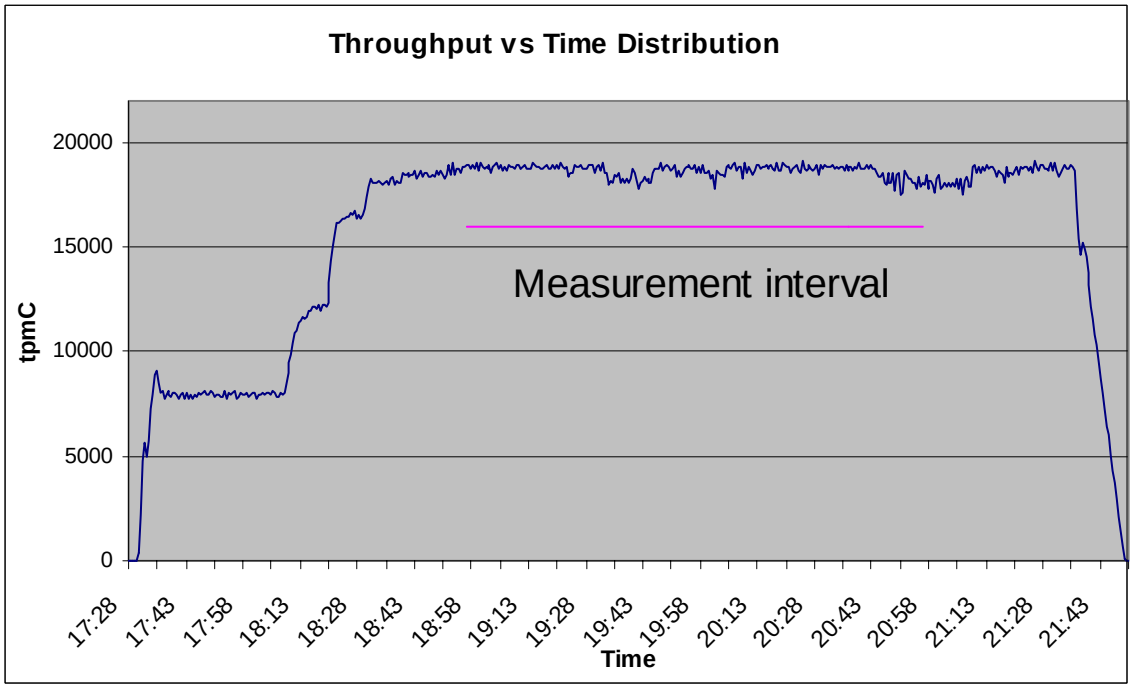


Figure 10. Throughput vs. Time Distribution



Steady State Determination

The method used to determine that the SUT had reached a steady state prior to commencing the measurement interval must be disclosed.

Steady state was determined using real time monitor utilities from the RTE. Steady state was further confirmed by the throughput data collected during the run and graphed in Figure 10.

Work Performed During Steady State

A description of how the work normally performed during a sustained test (for example checkpointing, writing redo/undo log records, etc.), actually occurred during the measurement interval must be reported.

The RTE generated the required input data to choose a transaction from the menu. This data was timestamped. The input screen for the requested transaction was returned and timestamped. The difference between these two timestamps was the menu response time. The RTE writes to the log file once per transaction on selective fields such as order id. There is one log file per driver engine.

The RTE generated the required input data for the chosen transaction. It waited to complete the minimum required key time before transmitting the input screen. The transmission was timestamped. The return of the screen with the required response data was timestamped. The difference between these two timestamps was the response time for that transaction.

The RTE then waited the required think time interval before repeating the process starting at selecting a transaction from the menu.

The RTE transmissions were sent to application processes running on the client machines through Ethernet LANs. These client application processes handled all screen I/O as well as all requests to the database on the server. The applications communicated with the database server over Ethernet LANs using DBLIB and RPC calls.

Measurement Period Duration

A statement of the duration of the measurement interval for the reported Maximum Qualified Throughput (tpmC) must be included.

The reported measured interval was exactly 120 minutes long.

Regulation of Transaction Mix

The method of regulation of the transaction mix (e.g., card decks or weighted random distribution) must be described. If weighted distribution is used and the RTE adjusts the weights associated with each transaction type, the maximum adjustments to the weight from the initial value must be disclosed.

The RTE was given a weighted random distribution, which was not adjusted during the run.

Transaction Statistics

The percentage of the total mix for each transaction type must be disclosed. The percentage of New-Order transactions rolled back as a result of invalid item number must be disclosed. The average number of order-lines entered per New-Order transaction must be disclosed. The percentage of remote order lines per New-Order transaction must be disclosed. The percentage of remote Payment transactions must be disclosed. The percentage of customer selections by customer last name in the Payment and Order-Status transactions must be disclosed. The percentage of Delivery transactions skipped due to there being fewer than necessary orders in the New-Order table must be disclosed.

Table 5.5: Transaction Statistics

Statistic		Value
New Order	Home warehouse order lines	99.00%
	Remote warehouse order lines	1.00%
	Rolled back transactions	1.00%
	Average items per order	10.00
Payment	Home warehouse payments	85.04%
	Remote warehouse payments	14.96%
	Accessed by last name	59.99%
Delivery	Skipped transactions (interactive)	0
	Skipped transactions (deferred)	0
Order Status	Accessed by last name	60.08%
Transaction Mix	New Order	44.92%
	Payment	43.02%
	Order status	4.02%
	Delivery	4.02%
	Stock level	4.02%

Checkpoint Count and Location

The number of checkpoints in the Measurement Interval, the time in seconds from the start of the Measurement Interval to the first checkpoint, and the Checkpoint Interval must be disclosed.

DB2 UDB uses a write-ahead-logging protocol to guarantee recovery. This protocol uses "Soft" checkpoint to write least-recently-used database pages to disk independent of transaction commit. However, enough log information to redo/undo the change to a database pages is committed to disk before the database page itself is written. This protocol therefore renders checkpoint unnecessary for DB2 UDB. For a more detailed description of the general principles of the write-ahead-logging protocol, see the IBM research paper, "ARIES: A Transaction Recovery Method Supporting Fine Granularity Locking and Partial Rollbacks Using Write-Ahead Logging," by C. Mohan, Database Technology Institute, IBM Almaden Research Center.
(http://portal.acm.org/citation.cfm?id=128770&coll=portal&dl=ACM&CFID=10343790&CFTOKEN=42047146)

Clause 6 Related Items

RTE Descriptions

If the RTE is commercially available, then its inputs must be specified. Otherwise, a description must be supplied of what inputs (e.g., scripts) to the RTE had been used.

PRTE Software was used to simulate terminal users, generate random data and record response times. This package ran on systems that are distinct from the system under test. PRTE command file used is included in Appendix A.

Emulated Components

It must be demonstrated that the functionality and performance of the components being emulated in the Driver System are equivalent to the priced system. The results of the test described in Clause 6.6.3.4 must be disclosed.

The driver system consisted of 1 HP ProLiant server. This driver machine emulated the users' web browsers.

Functional Diagrams

A complete functional diagram of both the benchmark configuration and the configuration of the proposed (target) system must be disclosed. A detailed list of all hardware and software functionality being performed on the Driver System and its interface to the SUT must be disclosed.

The driver system performed the data generation and input functions of the priced display device. It also captured the input and output data and timestamps for post-processing of the reported metrics. No other functionality was included on the driver system.

Section 1.4 of this report contains detailed diagrams of both the benchmark configuration and the priced configuration.

Networks

The network configuration of both the tested services and proposed (target) services which are being represented and a thorough explanation of exactly which parts of the proposed configuration are being replaced with the Driver System must be disclosed.

The bandwidth of the networks used in the tested/priced configuration must be disclosed.

In the tested configuration, 1 driver (RTE) machine was connected through a crossover cable to the client machine at 1000Mbs, thus providing the path from the RTE to the client. The server (SUT) was connected to the client through a single Cat 5e Ethernet cable that was connected to the integrated Gigabit network cards in both the server and the client.

The priced configuration was connected in the same manner as the tested configuration.

Operator Intervention

If the configuration requires operator intervention (see Clause 6.6.6), the mechanism and the frequency of this intervention must be disclosed.

This configuration does not require any operator intervention to sustain eight hours of the reported throughput.

Clause 7 Related Items

System Pricing

A detailed list of hardware and software used in the priced system must be reported. Each separately orderable item must have vendor part number, description, and release/revision level, and either general availability status or committed delivery data. If package-pricing is used, vendor part number of the package and a description uniquely identifying each of the components of the package must be disclosed. Pricing source and effective date(s) of price(s) must also be reported.

The total 3 year price of the entire configuration must be reported, including: hardware, software, and maintenance charges. Separate component pricing is recommended. The basis of all discounts used must be disclosed.

The details of the hardware and software are reported in the front of this report as part of the executive summary. All third party quotations are included at the end of this report as Appendix E.

Availability, Throughput, and Price Performance

The committed delivery date for general availability (availability date) of products used in the price calculation must be reported. When the priced system included products with different availability dates, the reported availability date for the priced system must be the date at which all components are committed to be available.

A statement of the measured tpmC as well as the respective calculations for the 3-year pricing, price/performance (price/tpmC), and the availability date must be included.

- **Maximum Qualified Throughput** **18,661 tpmC**
- **Price per tpmC** **$1.61 USD per tpmC**
- **Availability** **December 15, 2004**

All products are generally available today except the following:

- IBM DB2 UDB Express Edition v8.1 for Linux – December 15, 2004
- SUSE Linux Enterprise Server 9 – September 1, 2004

Country Specific Pricing

Additional Clause 7 related items may be included in the Full Disclosure Report for each country specific priced configuration. Country specific pricing is subject to Clause 7.1.7

This system is being priced for the United States of America.

Usage Pricing

For any usage pricing, the sponsor must disclose:

- *Usage level at which the component was priced.*
- *A statement of the company policy allowing such pricing.*

The component pricing based on usage is shown below:

- 1 SUSE Linux Enterprise Server 9
- 1 IBM DB2 UDB Express Edition v8.1 (per processor)
- 1 Microsoft Visual C++
- 1 Microsoft Windows 2000 Server
- HP Servers with 3 years of support.

Clause 9 Related Items

Auditor's Report

The auditor's name, address, phone number, and a copy of the auditor's attestation letter indicating compliance must be included in the Full Disclosure Report.

This implementation of the TPC Benchmark C was audited by Lorna Livingtree of Performance Metrics, Inc.

Performance Metrics, Inc.
137 Yankton St., Suite 101
Folsom, CA 95630
(phone) (916) 985-1131
(fax) (916) 985-1185
e-mail: lorna@perfmetrics.com

Availability of the Full Disclosure Report

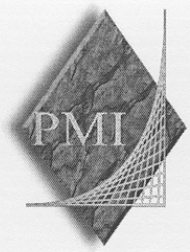
The Full Disclosure Report must be readily available to the public at a reasonable charge, similar to the charges for similar documents by the test sponsor. The report must be made available when results are made public. In order to use the phrase "TPC Benchmark™ C", the Full Disclosure Report must have been submitted to the TPC Administrator as well as written permission obtained to distribute same.

Requests for this TPC Benchmark C Full Disclosure Report should be sent to:

Transaction Processing Performance Council
Presidio of San Francisco
Building 572B Ruger St. (surface)
P.O. Box 29920 (mail)
San Francisco, CA 94129-0920
Voice: 415-561-6272
Fax: 415-561-6120
Email: info@tpc.org
or

Hewlett-Packard Company
Database Performance Engineering
P.O. Box 692000
Houston, TX 77269-2000

TPC Benchmark C Full Disclosure Reports are also available at www.tpc.org



PERFORMANCE METRICS INC.
TPC Certified Auditors

July 15, 2004

Mr. Daniel Pol
Database Performance Engineer
Hewlett-Packard Company
20555 SH 249
Houston, TX 77070

I have verified by remote the TPC Benchmark™ C for the following configuration:

Platform: HP ProLiant ML350T03
Database Manager: IBM DB2 UDB Express Edition v8.1
Operating System: SUSE Linux Enterprise Server 9
Transaction Monitor: Microsoft COM+

System Under Test:				
CPU's	Memory	Disks (total)	90% Response	TpmC
1 Xeon @ 3.06 Ghz	Main: 4 GB	32 @ 18.2GB 2 @ 36 GB 1 OS @ 36 GB	0.54	18,661.85

In my opinion, these performance results were produced in compliance with the TPC requirements for the benchmark. The following attributes of the benchmark were given special attention:

- The transactions were correctly implemented.
- The database files were properly sized.
- The database was properly scaled with 1530 warehouses, all of which were active during the measured interval.
- The ACID properties were successfully demonstrated.
- Input data was generated according to the specified percentages.
- Eight hours of mirrored log space was present on the tested system.
- Eight hours of growth space for the dynamic tables was present on the tested system.
- The data for the 60 days space calculation was verified.
- The steady state portion of the test was 120 minutes.

PO Box 984, Klamath, CA 95548
(707) 482-0523 fax: (707) 482-0575 email: Lorna@PerfMetrics.com

- Continuous checkpointing was active during the tests.
- The system pricing was checked for major components and maintenance.
- Third party quotes were verified for compliance.

Auditor Notes: None

Sincerely,

Lorna Livingtree

Lorna Livingtree
Auditor

PO Box 984, Klamath, CA 95548
(707) 482-0523 fax: (707) 482-0575 email: Lorna@PerfMetrics.com

Appendix A: Source Code

The client source code is listed below.

build.bat

```
cd src
touch *.c
touch *.cpp
touch *.h
cd ..\..\isapi_dll\src
touch *.c
touch *.cpp
touch *.h
cd ..\..\install
NMAKE /f "install.mak" CFG="install - Win32 Release"
```

clean.bat

```
del bin\* /q
del obj\* /q
del ..\db_dblib_dll\bin\* /q
del ..\db_dblib_dll\obj\* /q
del ..\isapi_dll\bin\* /q
del ..\isapi_dll\obj\* /q
del ..\tm_com_dll\bin\* /q
del ..\tm_com_dll\obj\* /q
del ..\tpcc_com_all\bin\* /q
del ..\tpcc_com_all\obj\* /q
del ..\tpcc_com_ps\bin\* /q
del ..\tpcc_com_ps\obj\* /q
```

db_dblib_dll.dep

```
.\src\tpcc_dblib.cpp : \
          "..\..\program files\microsoft sdk\include\basetsd.h"\
          "..\..\program files\microsoft sdk\include\guiddef.h"\
          "..\..\program files\microsoft sdk\include\propidl.h"\
          "..\..\program files\microsoft sdk\include\reason.h"\
          "..\..\program files\microsoft sdk\include\stralign.h"\
          "..\..\program files\microsoft sdk\include\tvout.h"\
          "..\..\program files\microsoft sdk\include\winefs.h"\
          "..\..\tpc-c.ibm\include\db2tpcc.h"\
          "..\..\tpc-c.ibm\include\lval.h"\
          "..\common\src\trans.h"\
          "..\common\src\txn_base.h"\
          ".\src\tpcc_dblib.h"\
```

db_dblib_dll.mak

```
!IF "$(CFG)" == ""
CFG=db_dblib_dll - Win32 IceCAP
!MESSAGE No configuration specified. Defaulting to db_dblib_dll - Win32 IceCAP.
!ENDIF

!IF "$(CFG)" != "db_dblib_dll - Win32 Release" && "$(CFG)" != "db_dblib_dll - Win32
Debug" && "$(CFG)" != "db_dblib_dll - Win32 IceCAP"
!MESSAGE Invalid configuration "$(CFG)" specified.
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "db_dblib_dll.mak" CFG="db_dblib_dll - Win32 IceCAP"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "db_dblib_dll - Win32 Release" (based on "Win32 (x86) Dynamic-Link
Library")
!MESSAGE "db_dblib_dll - Win32 Debug" (based on "Win32 (x86) Dynamic-Link Library")
!MESSAGE "db_dblib_dll - Win32 IceCAP" (based on "Win32 (x86) Dynamic-Link Library")
!MESSAGE
!ERROR An invalid configuration is specified.
!ENDIF

!IF "$(OS)" == "Windows_NT"
NULL=
!ELSE
NULL=nul
!ENDIF

!IF  "$(CFG)" == "db_dblib_dll - Win32 Release"

OUTDIR=.\bin
INTDIR=.\obj
# Begin Custom Macros
OutDir=.\bin
# End Custom Macros

ALL : "$(OUTDIR)\tpcc_dblib.dll"


CLEAN :
          -@erase "$(INTDIR)\tpcc_dblib.obj"
          -@erase "$(INTDIR)\vc60.idb"
          -@erase "$(OUTDIR)\tpcc_dblib.dll"
          -@erase "$(OUTDIR)\tpcc_dblib.exp"
          -@erase "$(OUTDIR)\tpcc_dblib.lib"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

CPP=cl.exe
CPP_PROJ=/nologo /MD /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_WINDOWS"
/Fp"$(INTDIR)\db_dblib_dll.pch" /YX /Fo"$(INTDIR)\\" /Fd"$(INTDIR)\\" /FD " " /c

.c{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
```

```
<<

.cpp{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.c{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

MTL=midl.exe
MTL_PROJ=/nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
RSC=rc.exe
BSC32=bscmake.exe
BSC32_FLAGS=/nologo /o"$(OUTDIR)\db_dblib_dll.bsc"
BSC32_SBRS= \

LINK32=link.exe
LINK32_FLAGS=ntwdblib.lib kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib db2api.lib
tpcccli.lib /nologo /subsystem:windows /dll /incremental:no
/pdb:"$(OUTDIR)\tpcc_dblib.pdb" /machine:I386 /out:"$(OUTDIR)\tpcc_dblib.dll"
/implib:"$(OUTDIR)\tpcc_dblib.lib" /libpath:"C:\tpc-c.ibm\Src.Cli\\"
/libpath:"C:\SQLLIB\lib\\"
LINK32_OBJS= \
          "$(INTDIR)\tpcc_dblib.obj"

"$(OUTDIR)\tpcc_dblib.dll" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ELSEIF  "$(CFG)" == "db_dblib_dll - Win32 Debug"

OUTDIR=.\bin
INTDIR=.\obj
# Begin Custom Macros
OutDir=.\bin
# End Custom Macros

ALL : "$(OUTDIR)\tpcc_dblib.dll" "$(OUTDIR)\db_dblib_dll.bsc"


CLEAN :
          -@erase "$(INTDIR)\tpcc_dblib.obj"
          -@erase "$(INTDIR)\tpcc_dblib.sbr"
          -@erase "$(INTDIR)\vc60.idb"
          -@erase "$(INTDIR)\vc60.pdb"
          -@erase "$(OUTDIR)\db_dblib_dll.bsc"
          -@erase "$(OUTDIR)\tpcc_dblib.dll"
          -@erase "$(OUTDIR)\tpcc_dblib.exp"
          -@erase "$(OUTDIR)\tpcc_dblib.ilk"
          -@erase "$(OUTDIR)\tpcc_dblib.lib"
          -@erase "$(OUTDIR)\tpcc_dblib.pdb"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

CPP=cl.exe
CPP_PROJ=/nologo /MDd /W3 /Gm /GX /ZI /Od /D "WIN32" /D "_DEBUG" /D "_WINDOWS"
/FR"$(INTDIR)\\" /Fp"$(INTDIR)\db_dblib_dll.pch" /YX /Fo"$(INTDIR)\\"
/Fd"$(INTDIR)\\" /FD /c

.c{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.c{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

MTL=midl.exe
MTL_PROJ=/nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
RSC=rc.exe
BSC32=bscmake.exe
BSC32_FLAGS=/nologo /o"$(OUTDIR)\db_dblib_dll.bsc"
BSC32_SBRS= \
          "$(INTDIR)\tpcc_dblib.sbr"

"$(OUTDIR)\db_dblib_dll.bsc" : "$(OUTDIR)" $(BSC32_SBRS)
    $(BSC32) @<<
  $(BSC32_FLAGS) $(BSC32_SBRS)
<<
```

```
LINK32=link.exe
LINK32_FLAGS=kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib db2api.lib tpcccli.lib
/nologo /subsystem:windows /dll /incremental:yes /pdb:"$(OUTDIR)\tpcc_dblib.pdb"
/debug /machine:I386 /out:"$(OUTDIR)\tpcc_dblib.dll"
/implib:"$(OUTDIR)\tpcc_dblib.lib" /pdbtype:sept /libpath:"C:\tpc-c.ibm\Src.Cli\\"
/libpath:"C:\SQLLIB\lib\\" /VERBOSE:LIB
LINK32_OBJS= \
          "$(INTDIR)\tpcc_dblib.obj"

"$(OUTDIR)\tpcc_dblib.dll" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ELSEIF  "$(CFG)" == "db_dblib_dll - Win32 IceCAP"

OUTDIR=.\bin
INTDIR=.\obj
# Begin Custom Macros
OutDir=.\bin
# End Custom Macros

ALL : "$(OUTDIR)\tpcc_dblib.dll"


CLEAN :
          -@erase "$(INTDIR)\tpcc_dblib.obj"
          -@erase "$(INTDIR)\vc60.idb"
          -@erase "$(INTDIR)\vc60.pdb"
          -@erase "$(OUTDIR)\tpcc_dblib.dll"
          -@erase "$(OUTDIR)\tpcc_dblib.exp"
          -@erase "$(OUTDIR)\tpcc_dblib.ilk"
          -@erase "$(OUTDIR)\tpcc_dblib.lib"
          -@erase "$(OUTDIR)\tpcc_dblib.pdb"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

CPP=cl.exe
CPP_PROJ=/nologo /MD /W3 /Gm /GX /Zi /O2 /D "WIN32" /D "NDEBUG" /D "_WINDOWS" /D
"ICECAP" /Fp"$(INTDIR)\db_dblib_dll.pch" /YX /Fo"$(INTDIR)\\" /Fd"$(INTDIR)\\" /FD
/Gh /c

.c{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.c{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

MTL=midl.exe
MTL_PROJ=/nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
RSC=rc.exe
BSC32=bscmake.exe
BSC32_FLAGS=/nologo /o"$(OUTDIR)\db_dblib_dll.bsc"
BSC32_SBRS= \

LINK32=link.exe
LINK32_FLAGS=icap.lib ntwdblib.lib kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib /nologo
/subsystem:windows /dll /incremental:yes /pdb:"$(OUTDIR)\tpcc_dblib.pdb" /debug
/machine:I386 /out:"$(OUTDIR)\tpcc_dblib.dll" /implib:"$(OUTDIR)\tpcc_dblib.lib"
/pdbtype:sept
LINK32_OBJS= \
          "$(INTDIR)\tpcc_dblib.obj"

"$(OUTDIR)\tpcc_dblib.dll" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ENDIF


!IF "$(NO_EXTERNAL_DEPS)" != "1"
!IF EXISTS("db_dblib_dll.dep")
!INCLUDE "db_dblib_dll.dep"
!ELSE
!MESSAGE Warning: cannot find "db_dblib_dll.dep"
!ENDIF
!ENDIF


!IF "$(CFG)" == "db_dblib_dll - Win32 Release" || "$(CFG)" == "db_dblib_dll - Win32
Debug" || "$(CFG)" == "db_dblib_dll - Win32 IceCAP"
SOURCE=.\src\tpcc_dblib.cpp

!IF  "$(CFG)" == "db_dblib_dll - Win32 Release"


"$(INTDIR)\tpcc_dblib.obj" : $(SOURCE) "$(INTDIR)"
          $(CPP) $(CPP_PROJ) $(SOURCE)


!ELSEIF  "$(CFG)" == "db_dblib_dll - Win32 Debug"


"$(INTDIR)\tpcc_dblib.obj"    "$(INTDIR)\tpcc_dblib.sbr" : $(SOURCE) "$(INTDIR)"
          $(CPP) $(CPP_PROJ) $(SOURCE)
```

```
!ELSEIF  "$(CFG)" == "db_dblib_dll - Win32 IceCAP"


"$(INTDIR)\tpcc_dblib.obj" : $(SOURCE) "$(INTDIR)"
         $(CPP) $(CPP_PROJ) $(SOURCE)


!ENDIF


!ENDIF
```

dlldata.c

```
/*********************************************************
   DllData file -- generated by MIDL compiler

        DO NOT ALTER THIS FILE

   This file is regenerated by MIDL on every IDL file compile.

   To completely reconstruct this file, delete it and rerun MIDL
   on all the IDL files in this DLL, specifying this file for the
   /dlldata command line option

*********************************************************/


#include <rpcproxy.h>

#ifdef __cplusplus
extern "C"   {
#endif

EXTERN_PROXY_FILE( tpcc_com_ps )


PROXYFILE_LIST_START
/* Start of list */
  REFERENCE_PROXY_FILE( tpcc_com_ps ),
/* End of list */
PROXYFILE_LIST_END


DLLDATA_ROUTINES( aProxyFileList, GET_DLL_CLSID )

#ifdef __cplusplus
}  /*extern "C" */
#endif

/* end of generated dlldata file */
```

error.h

```
/*        FILE:                 ERROR.H
 *                                      Microsoft TPC-C Kit Ver. 4.20.000
 *                                      Copyright Microsoft, 1999
 *             All Rights Reserved
 *
 *                                      Version 4.10.000 audited by Richard Gimarc,
Performance Metrics, 3/17/99
 *
 *        PURPOSE:  Header file for error exception classes.
 *
 *  Change history:
 *                  4.20.000 - updated rev number to match kit
 *                  4.21.000 - fixed bug: ~CBaseErr needed to be declared virtual
 */

#pragma once

#ifndef _INC_STRING
         #include <string.h>
#endif

const int m_szMsg_size = 512;
const int m_szApp_size = 64;
const int m_szLoc_size = 64;

//error message structure used in ErrorText routines
typedef struct _SERRORMSG
{
         int                 iError;                                 //error id of
message
         char      szMsg[256];                             //message to sent to
browser
} SERRORMSG;

#define ERR_FATAL_LEVEL                         1
#define ERR_WARNING_LEVEL               2
#define ERR_INFORMATION_LEVEL 3


#define ERR_TYPE_LOGIC
          -1                  //logic error in program; internal error
#define ERR_SUCCESS
          0                   //success (a non-error error)
#define ERR_BAD_ITEM_ID
          1                   //expected abort record in txnRecord
#define ERR_TYPE_DELIVERY_POST                                                  2
                    //expected delivery post failed
#define   ERR_TYPE_WEBDLL
          3                   //tpcc web generated error
#define   ERR_TYPE_SQL
          4                   //sql server generated error
#define   ERR_TYPE_DBLIB
          5                   //dblib generated error
#define   ERR_TYPE_ODBC
          6                   //odbc generated error
#define ERR_TYPE_SOCKET
          7                   //error on communication socket client rte only
#define ERR_TYPE_DEADLOCK                                                       8
                    //dblib and odbc only deadlock condition
#define ERR_TYPE_COM
          9                   //error from COM call
#define ERR_TYPE_TUXEDO
          10                  //tuxedo error
#define ERR_TYPE_OS
          11                  //operating system error
#define ERR_TYPE_MEMORY
          12                  //memory allocation error
```

```
#define ERR_TYPE_TPCC_ODBC                                                  13
                //error from tpcc odbc txn module
#define ERR_TYPE_TPCC_DBLIB                                                 14
                //error from tpcc dblib txn module
#define ERR_TYPE_DELISRV                                                    15
                //delivery server error
#define ERR_TYPE_TXNLOG
        16                  //txn log error
#define ERR_TYPE_BCCONN
        17                  //Benchcraft connection class
#define ERR_TYPE_TPCC_CONN                                                  18
                //Benchcraft connection class
#define ERR_TYPE_ENCINA
        19                  //Encina error
#define ERR_TYPE_COMPONENT                                                  20
                //error from COM component
#define ERR_TYPE_RTE
        21                  //Benchcraft rte
#define ERR_TYPE_AUTOMATION                                                 22
                //Benchcraft automation errors


class CBaseErr
{
public:
        char    *m_szApp;
        char    *m_szMsg;
        char    *m_szLoc; // code location where the error occurred
        int             m_idMsg;

        CBaseErr(void)
        {
                m_idMsg             = 0;
                m_szMsg             = new char[m_szMsg_size];
                m_szApp             = new char[m_szApp_size];
                m_szLoc             = NULL;

                m_szMsg[0]          = 0;
                m_szApp[0]          = 0;

                GetModuleFileName(GetModuleHandle(NULL), m_szApp, m_szApp_size);
        }

        virtual ~CBaseErr(void)
        {
                if (m_szMsg)
                        delete [] m_szMsg;
                if (m_szApp)
                        delete [] m_szApp;
                if (m_szLoc)
                        delete [] m_szLoc;
        };

        CBaseErr(int idMsg)
        {
                m_idMsg             = idMsg;
                m_szApp             = new char[m_szApp_size];
                m_szMsg             = new char[m_szMsg_size];
                m_szLoc             = NULL;

                GetModuleFileName(GetModuleHandle(NULL), m_szApp, m_szApp_size);
                LoadString(GetModuleHandle(NULL), idMsg, m_szMsg, m_szMsg_size);
        }

        CBaseErr(LPCTSTR szMsg)
        {
                m_idMsg             = 0;
                m_szApp             = new char[m_szApp_size];
                m_szMsg             = new char[m_szMsg_size];
                m_szLoc             = NULL;

                GetModuleFileName(GetModuleHandle(NULL), m_szApp, m_szApp_size);
                strcpy(m_szMsg, szMsg);
        }

        void SetError(char *szMsg, LPCTSTR szLocation)
        {
                if (szMsg != NULL)
                        strcpy(m_szMsg, szMsg);
                else
                        m_szMsg[0] = 0;

                if (szLocation != NULL)
                {
                        delete [] m_szLoc;
                        m_szLoc = new char[strlen(szLocation)+1];
                        strcpy(m_szLoc, szLocation);
                }
                else
                {
                        delete [] m_szLoc;
                        m_szLoc = NULL;
                }
        }

        virtual void Draw(HWND hwnd, LPCTSTR szStr = NULL)
        {
                int                 j;
                char    szTmp[512];

                if (szStr)
                        j = wsprintf(szTmp, "%s\n",szStr);
                if (m_szLoc)
                        j += wsprintf(szTmp+j, "Location=%s\n",m_szLoc);
                if (m_szMsg)
                        j += wsprintf(szTmp+j, "%s\n", m_szMsg);

                ::MessageBox(hwnd, szTmp, m_szApp, MB_OK);
        }

        char *GetApp(void) { return m_szApp; }
        char *GetMsg(void) { return m_szMsg; }
        char *GetLocation(void) { return m_szLoc; }

        virtual int ErrorType() = 0;  // a value which distinguishes the kind of
error that occurred
        virtual int ErrorNum() = 0;             // an error value specific to the
error type
        virtual char *ErrorText() = 0;          // a string (i.e., human readable)
representation of the error

};

class CSocketErr : public CBaseErr
{
public:
```

```
        enum Action
        {
                eNone,
                eSend,
                eSocket,
                eConnect
        };

        CSocketErr(Action eAction, LPCTSTR szLocation);
        CSocketErr(int iError) { m_errId = iError; };
        int                m_errId;
        Action    m_eAction;

        int ErrorType() { return ERR_TYPE_SOCKET;};
        int ErrorNum() { return m_errId;};
        char *ErrorText(void);
};

class CSystemErr : public CBaseErr
{
public:
        enum Action
        {
                eNone,
                eTransactNamedPipe,
                eWaitNamedPipe,
                eSetNamedPipeHandleState,
                eCreateFile,
                eCreateProcess,
                eCallNamedPipe,
                eCreateEvent,
                eCreateThread,
                eVirtualAlloc,
                eReadFile,
                eWriteFile,
                eMapViewOfFile,
                eCreateFileMapping,
                eInitializeSecurityDescriptor,
                eSetSecurityDescriptorDacl,
                eCreateNamedPipe,
                eConnectNamedPipe,
                eWaitForSingleObject,
                eRegOpenKeyEx,
                eRegQueryValueEx,
        };

        CSystemErr(Action eAction, LPCTSTR szLocation);

        void Draw(HWND hwnd, LPCTSTR szStr = NULL);

        int                m_errId;
        Action    m_eAction;

        int ErrorType() { return ERR_TYPE_OS;}
        int ErrorNum() { return m_errId;}
        char *ErrorText() { return m_szMsg; }
};

class CMemoryErr : public CBaseErr
{
public:
        CMemoryErr(void);
        int ErrorType() { return ERR_TYPE_MEMORY;}
        int ErrorNum() { return 0;}
        char *ErrorText() { return "Insufficient Memory to continue.";}
};
```

install.c

```
/*        FILE:               INSTALL.C
 *                                    Microsoft TPC-C Kit Ver. 4.20.000
 *                                    Copyright Microsoft, 1999
 *             All Rights Reserved
 *
 *                                    not audited
 *
 *        PURPOSE:  Automated installation application for TPC-C Web Kit
 *        Contact:  Charles Levine (clevine@microsoft.com)
 *
 *  Change history:
 *                  4.20.000 - added COM installation steps
 */

#include <windows.h>
#include <direct.h>
#include <io.h>
#include <stdlib.h>
#include <stdio.h>
#include <commctrl.h>
#include "..\..\common\src\ReadRegistry.h"

#include "resource.h"

#define   WM_INITTEXT                   WM_USER+100

HICON               hIcon;
HINSTANCE hInst;

DWORD                          versionExeMS;
DWORD                          versionExeLS;
DWORD                          versionExeMM;
DWORD                          versionDllMS;
DWORD                          versionDllLS;

// TPC-C registry settings
TPCCREGISTRYDATA    Reg;

static    int                 iPoolThreadLimit;
static    int                 iThreadTimeout;
static    int                 iListenBackLog;
static    int                 iAcceptExOutstanding;

static    int                 iMaxPhysicalMemory;           //max physical memory in
MB
static    char      szLastFileName[64];           // last file we worked on (for
error reporting)


BOOL      CALLBACK  LicenseDlgProc(HWND hwnd, UINT uMsg, WPARAM wParam, LPARAM
lParam);
BOOL      CALLBACK  UpdatedDlgProc(HWND hwnd, UINT uMsg, WPARAM wParam, LPARAM
lParam);
BOOL      CALLBACK  MainDlgProc(HWND hwnd, UINT uMsg, WPARAM wParam, LPARAM lParam);
BOOL      CALLBACK  CopyDlgProc(HWND hwnd, UINT uMsg, WPARAM wParam, LPARAM lParam);
```

```
static    void              ProcessOK(HWND hwnd, char *szDllPath);
static    void              ReadRegistrySettings(void);
static    void              WriteRegistrySettings(char *szDllPath);
static    BOOL              RegisterDLL(char *szFileName);
static    int                       CopyFiles(HWND hDlg, char *szDllPath);
static    BOOL              GetInstallPath(char *szDllPath);
static    void              GetVersionInfo(char *szDLLPath, char *szExePath);
static    BOOL              CheckWWWebService(void);
static    BOOL              StartWWWebService(void);
static    BOOL              StopWWWebService(void);
static    void              UpdateDialog(HWND hDlg);

BOOL install_com(char *szDllPath);

#include "..\..\common\src\ReadRegistry.cpp"

int WINAPI WinMain( HINSTANCE hInstance, HINSTANCE hPrevInstance, LPSTR lpCmdLine,
int nCmdShow )
{
          int iRc;

          hInst = hInstance;

          InitCommonControls();

          hIcon = LoadIcon(hInstance, MAKEINTRESOURCE(IDI_ICON1));

          iRc = DialogBox(hInstance, MAKEINTRESOURCE(IDD_DIALOG4),
GetDesktopWindow(), LicenseDlgProc);
          if ( iRc )
          {
                    iRc = DialogBox(hInstance, MAKEINTRESOURCE(IDD_DIALOG1),
GetDesktopWindow(), MainDlgProc);
                    if ( iRc )
                    {
                              DialogBoxParam(hInstance,
MAKEINTRESOURCE(IDD_DIALOG2), GetDesktopWindow(), UpdatedDlgProc, (LPARAM)iRc);
                    }
          }

          DestroyIcon(hIcon);
          return 0;
}

BOOL CALLBACK LicenseDlgProc(HWND hwnd, UINT uMsg, WPARAM wParam, LPARAM lParam)
{
          HGLOBAL                   hRes;
          HRSRC                     hResInfo;
          BYTE                      *pSrc, *pDst;
          DWORD                     dwSize;
          static HFONT        hFont;

          switch(uMsg)
          {
                    case WM_INITDIALOG:
                              hFont = CreateFont(-12, 0, 0, 0, 400, 0, 0, 0, 0, 0,
0, 0, 0, "Arial");
                              SendMessage( GetDlgItem(hwnd, IDR_LICENSE1),
WM_SETFONT, (WPARAM)hFont, MAKELPARAM(0, 0) );
                              PostMessage(hwnd, WM_INITTEXT, (WPARAM)0, (LPARAM)0);
                              return TRUE;
                    case WM_INITTEXT:
                              hResInfo = FindResource(hInst,
MAKEINTRESOURCE(IDR_LICENSE1), "LICENSE");
                              dwSize = SizeofResource(hInst, hResInfo);
                              hRes = LoadResource(hInst, hResInfo );
                              pSrc = (BYTE *)LockResource(hRes);
                              pDst = (unsigned char *)malloc(dwSize+1);
                              if ( pDst )
                              {
                                        memcpy(pDst, pSrc, dwSize);
                                        pDst[dwSize] = 0;
                                        SetDlgItemText(hwnd, IDC_LICENSE, (const
char *)pDst);
                                        free(pDst);
                              }
                              else
                                        SetDlgItemText(hwnd, IDC_LICENSE, (const
char *)pSrc);
                              return TRUE;
                    case WM_DESTROY:
                              DeleteObject(hFont);
                              return TRUE;
                    case WM_COMMAND:
                              if ( wParam == IDOK )
                                        EndDialog(hwnd, TRUE);
                              if ( wParam == IDCANCEL )
                                        EndDialog(hwnd, FALSE);
                    default:
                              break;
          }
          return FALSE;
}

BOOL CALLBACK UpdatedDlgProc(HWND hwnd, UINT uMsg, WPARAM wParam, LPARAM lParam)
{
          switch(uMsg)
          {
                    case WM_INITDIALOG:
                              switch(lParam)
                              {
                                        case 1:
                                        case 2:
                                                  SetDlgItemText(hwnd, IDC_RESULTS,
"TPC-C Web Client Installed");
                                                  break;
                              }
                              return TRUE;
                    case WM_COMMAND:
                              if ( wParam == IDOK )
                                        EndDialog(hwnd, TRUE);
                              break;
                    default:
                              break;
          }
          return FALSE;
}

BOOL CALLBACK MainDlgProc(HWND hwnd, UINT uMsg, WPARAM wParam, LPARAM lParam)
{
          PAINTSTRUCT               ps;
          MEMORYSTATUS        memoryStatus;
          OSVERSIONINFO       VI;
          char                      szTmp[256];
          static char               szDllPath[256];
```

```
	static char			szExePath[256];

	switch(uMsg)
	{
		case WM_INITDIALOG:
			GlobalMemoryStatus(&memoryStatus);
			iMaxPhysicalMemory  = (memoryStatus.dwTotalPhys/
1048576);

			if ( GetInstallPath(szDllPath) )
			{
				MessageBox(hwnd, "Error internet service
inetsrv is not installed.", NULL, MB_ICONSTOP | MB_OK);
				EndDialog(hwnd, FALSE);
				return TRUE;
			}

			// set default values
			ZeroMemory( &Reg, sizeof(Reg) );
			Reg.dwNumberOfDeliveryThreads = 4;
			Reg.dwMaxConnections = 100;
			Reg.dwMaxPendingDeliveries    = 100;
			Reg.eDB_Protocol = DBLIB;
			Reg.eTxnMon = None;
			strcpy(Reg.szDbServer,			"");
			strcpy(Reg.szDbName,			"tpcc");
			strcpy(Reg.szDbUser,			"sa");
			strcpy(Reg.szDbPassword,	"");

			iPoolThreadLimit =  iMaxPhysicalMemory * 2;
			iThreadTimeout = 86400;
			iListenBackLog = 15;
			iAcceptExOutstanding = 40;

			ReadTPCCRegistrySettings( &Reg );
			ReadRegistrySettings();

			GetModuleFileName(hInst, szExePath,
sizeof(szExePath));
			GetVersionInfo(szDllPath, szExePath);

			wsprintf(szTmp, "Version %d.%2.2d.%3.3d",
versionExeMS, versionExeMM, versionExeLS);
			SetDlgItemText(hwnd, IDC_VERSION, szTmp);

			SetDlgItemText(hwnd, IDC_PATH, szDllPath);

			SetDlgItemText(hwnd, ED_DB_SERVER, Reg.szDbServer);
			SetDlgItemText(hwnd, ED_DB_USER_ID, Reg.szDbUser);
			SetDlgItemText(hwnd, ED_DB_PASSWORD,
Reg.szDbPassword);
			SetDlgItemText(hwnd, ED_DB_NAME, Reg.szDbName);

			SetDlgItemInt(hwnd, ED_THREADS,
Reg.dwNumberOfDeliveryThreads, FALSE);
			SetDlgItemInt(hwnd, ED_MAXCONNECTION,
Reg.dwMaxConnections, FALSE);
			SetDlgItemInt(hwnd, ED_MAXDELIVERIES,
Reg.dwMaxPendingDeliveries, FALSE);
			SetDlgItemInt(hwnd, ED_IIS_MAX_THEAD_POOL_LIMIT,
iPoolThreadLimit, FALSE);
			SetDlgItemInt(hwnd, ED_IIS_THREAD_TIMEOUT,
iThreadTimeout, FALSE);
			SetDlgItemInt(hwnd, ED_IIS_LISTEN_BACKLOG,
iListenBackLog, FALSE);
			SetDlgItemInt(hwnd, ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE,
iAcceptExOutstanding, FALSE);

			CheckDlgButton(hwnd, IDC_DBLIB, 0);
			CheckDlgButton(hwnd, IDC_ODBC,  0);
			if ( Reg.eDB_Protocol == DBLIB )
				CheckDlgButton(hwnd, IDC_DBLIB, 1);
			else
				CheckDlgButton(hwnd, IDC_ODBC,  1);

			// check OS version level for COM.  Must be at least
Windows 2000
			VI.dwOSVersionInfoSize = sizeof(VI);
			GetVersionEx( &VI );
			if (VI.dwMajorVersion < 5)
			{
				HWND hDlg = GetDlgItem( hwnd, IDC_TM_MTS );
				EnableWindow( hDlg, 0 );	// disable COM
option
				if (Reg.eTxnMon == COM)
					Reg.eTxnMon = None;
			}

			CheckDlgButton(hwnd, IDC_TM_NONE,   0);
			CheckDlgButton(hwnd, IDC_TM_TUXEDO, 0);
			CheckDlgButton(hwnd, IDC_TM_MTS,    0);
			CheckDlgButton(hwnd, IDC_TM_ENCINA,     0);
			switch (Reg.eTxnMon)
			{
			case None:
				CheckDlgButton(hwnd, IDC_TM_NONE,   1);
				break;
			case TUXEDO:
				CheckDlgButton(hwnd, IDC_TM_TUXEDO, 1);
				break;
			case ENCINA:
				CheckDlgButton(hwnd, IDC_TM_ENCINA, 1);
				break;
			case COM:
				CheckDlgButton(hwnd, IDC_TM_MTS,        1);
				break;
			}

			return TRUE;
		case WM_PAINT:
			if ( IsIconic(hwnd) )
			{
				BeginPaint(hwnd, &ps);
				DrawIcon(ps.hdc, 0, 0, hIcon);
				EndPaint(hwnd, &ps);
				return TRUE;
			}
			break;
		case WM_COMMAND:
			if ( HIWORD(wParam) == BN_CLICKED )
			{
				switch( LOWORD(wParam) )
				{
					case IDC_DBLIB:
						return TRUE;
					case IDC_ODBC:
```

```
                                                  return TRUE;
                                        case IDOK:
                                                  ProcessOK(hwnd,
szDllPath);
                                                  return TRUE;
                                        case IDCANCEL:
                                                  EndDialog(hwnd, FALSE);
                                                  return TRUE;
                                        default:
                                                  return FALSE;
                                    }
                          }
                          break;
                default:
                          break;
        }
        return FALSE;
}

static void ProcessOK(HWND hwnd, char *szDllPath)
{
        int             d;
        HWND    hDlg;
        int             rc;

        char    szFullName[256];
        char    szErrTxt[128];

        // read settings from dialog
        Reg.dwNumberOfDeliveryThreads  = GetDlgItemInt(hwnd, ED_THREADS, &d,
FALSE);
        Reg.dwMaxConnections = GetDlgItemInt(hwnd, ED_MAXCONNECTION, &d, FALSE);
        Reg.dwMaxPendingDeliveries = GetDlgItemInt(hwnd, ED_MAXDELIVERIES, &d,
FALSE);

        GetDlgItemText(hwnd, ED_DB_SERVER, Reg.szDbServer,
sizeof(Reg.szDbServer));
        GetDlgItemText(hwnd, ED_DB_USER_ID, Reg.szDbUser, sizeof(Reg.szDbUser));
        GetDlgItemText(hwnd, ED_DB_PASSWORD, Reg.szDbPassword,
sizeof(Reg.szDbPassword));
        GetDlgItemText(hwnd, ED_DB_NAME, Reg.szDbName, sizeof(Reg.szDbName));

        if ( IsDlgButtonChecked(hwnd, IDC_DBLIB) )
        {
                Reg.eDB_Protocol = DBLIB;
                rc = 1;
        }
        else if ( IsDlgButtonChecked(hwnd, IDC_ODBC) )
        {
                Reg.eDB_Protocol = ODBC;
                rc = 2;
        }

        if ( IsDlgButtonChecked(hwnd, IDC_TM_NONE) )
                Reg.eTxnMon = None;
        else if ( IsDlgButtonChecked(hwnd, IDC_TM_TUXEDO) )
                Reg.eTxnMon = TUXEDO;
        else if ( IsDlgButtonChecked(hwnd, IDC_TM_MTS) )
                Reg.eTxnMon = COM;
        else if ( IsDlgButtonChecked(hwnd, IDC_TM_ENCINA) )
                Reg.eTxnMon = ENCINA;
```

```
        iPoolThreadLimit = GetDlgItemInt(hwnd, ED_IIS_MAX_THEAD_POOL_LIMIT, &d,
FALSE);
        iThreadTimeout = GetDlgItemInt(hwnd, ED_IIS_THREAD_TIMEOUT, &d, FALSE);
        iListenBackLog = GetDlgItemInt(hwnd, ED_IIS_LISTEN_BACKLOG, &d, FALSE);
        iAcceptExOutstanding = GetDlgItemInt(hwnd,
ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE, &d, FALSE);


        ShowWindow(hwnd, SW_HIDE);
        hDlg = CreateDialog(hInst, MAKEINTRESOURCE(IDD_DIALOG3), hwnd,
CopyDlgProc);
        ShowWindow(hDlg, SW_SHOWNA);
        UpdateDialog(hDlg);


        // write binaries to inetpub\wwwroot
        rc = CopyFiles(hDlg, szDllPath);
        if ( !rc )
        {
                ShowWindow(hwnd, SW_SHOWNA);
                DestroyWindow(hDlg);
                strcpy( szErrTxt, "Error(s) occured when creating " );
                strcat( szErrTxt, szLastFileName );
                MessageBox(hwnd, szErrTxt, NULL, MB_ICONSTOP | MB_OK);
                EndDialog(hwnd, 0);
                return;
        }

        // update registry
        SetDlgItemText(hDlg, IDC_STATUS, "Updating Registry.");
        SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
        UpdateDialog(hDlg);
        WriteRegistrySettings(szDllPath);

        // register com proxy stub
        strcpy(szFullName, szDllPath);
        strcat(szFullName, "tpcc_com_ps.dll");
        if (!RegisterDLL(szFullName))
        {
                ShowWindow(hwnd, SW_SHOWNA);
                DestroyWindow(hDlg);
                strcpy( szErrTxt, "Error occured when registering " );
                strcat( szErrTxt, szFullName );
                MessageBox(hwnd, szErrTxt, NULL, MB_ICONSTOP | MB_OK);
                EndDialog(hwnd, 0);
                return;
        }

        // if using COM
        if (Reg.eTxnMon == COM)
        {
                SetDlgItemText(hDlg, IDC_STATUS, "Configuring COM.");
                SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
                UpdateDialog(hDlg);

                if (install_com(szDllPath))
                {
                        ShowWindow(hwnd, SW_SHOWNA);
                        DestroyWindow(hDlg);
                        strcpy( szErrTxt, "Error occured when configuring COM
settings." );
                        MessageBox(hwnd, szErrTxt, NULL, MB_ICONSTOP | MB_OK);
                        EndDialog(hwnd, 0);
```

```
                                return;
                        }
                }

                Sleep(100);

                ShowWindow(hwnd, SW_SHOWNA);
                DestroyWindow(hDlg);

                EndDialog(hwnd, rc);
                return;
}

static void ReadRegistrySettings(void)
{
                HKEY      hKey;
                DWORD     size;
                DWORD     type;

                if ( RegOpenKeyEx(HKEY_LOCAL_MACHINE,
"SYSTEM\\CurrentControlSet\\Services\\Inetinfo\\Parameters", 0, KEY_READ, &hKey) ==
ERROR_SUCCESS )
                {
                        size = sizeof(iPoolThreadLimit);
                        if ( RegQueryValueEx(hKey, "PoolThreadLimit", 0, &type, (char
*)&iPoolThreadLimit, &size) == ERROR_SUCCESS )
                                if ( !iPoolThreadLimit )
                                        iPoolThreadLimit =  iMaxPhysicalMemory * 2;

                        size = sizeof(iThreadTimeout);
                        if ( RegQueryValueEx(hKey, "ThreadTimeout", 0, &type, (char
*)&iThreadTimeout, &size) == ERROR_SUCCESS )
                                if ( !iThreadTimeout )
                                        iThreadTimeout = 86400;

                        size = sizeof(iListenBackLog);
                        if ( RegQueryValueEx(hKey, "ListenBackLog", 0, &type, (char
*)&iListenBackLog, &size) == ERROR_SUCCESS )
                                if ( !iListenBackLog )
                                        iListenBackLog = 15;

                        RegCloseKey(hKey);
                }

                if ( RegOpenKeyEx(HKEY_LOCAL_MACHINE,
"SYSTEM\\CurrentControlSet\\Services\\W3SVC\\Parameters", 0, KEY_READ, &hKey) ==
ERROR_SUCCESS )
                {
                        size = sizeof(iAcceptExOutstanding);
                        if ( RegQueryValueEx(hKey, "AcceptExOutstanding", 0, &type,
(char *)&iAcceptExOutstanding, &size) == ERROR_SUCCESS )
                                if ( !iAcceptExOutstanding )
                                        iAcceptExOutstanding = 40;

                        RegCloseKey(hKey);
                }
}

static void WriteRegistrySettings(char *szDllPath)
{
                HKEY      hKey;
                DWORD     dwDisposition;
                char      szTmp[256];
                char      *ptr;
                int               iRc;

                if ( RegCreateKeyEx(HKEY_LOCAL_MACHINE, "SOFTWARE\\Microsoft\\TPCC", 0,
NULL, REG_OPTION_NON_VOLATILE, KEY_ALL_ACCESS, NULL, &hKey, &dwDisposition) ==
ERROR_SUCCESS )
                {
                        strcpy(szTmp, szDllPath);
                        ptr = strstr(szTmp, "tpcc");
                        if ( ptr )
                                *ptr = 0;

                        RegSetValueEx(hKey, "Path", 0, REG_SZ, szTmp, strlen(szTmp)+1);

                        RegSetValueEx(hKey, "NumberOfDeliveryThreads", 0, REG_DWORD,
(char *)&Reg.dwNumberOfDeliveryThreads, sizeof(Reg.dwNumberOfDeliveryThreads));
                        RegSetValueEx(hKey, "MaxConnections", 0, REG_DWORD, (char
*)&Reg.dwMaxConnections, sizeof(Reg.dwMaxConnections));
                        RegSetValueEx(hKey, "MaxPendingDeliveries", 0, REG_DWORD, (char
*)&Reg.dwMaxPendingDeliveries, sizeof(Reg.dwMaxPendingDeliveries));

                        RegSetValueEx(hKey, "DB_Protocol", 0, REG_SZ,
szDBNames[Reg.eDB_Protocol], strlen(szDBNames[Reg.eDB_Protocol])+1);
                        RegSetValueEx(hKey, "TxnMonitor", 0, REG_SZ,
szTxnMonNames[Reg.eTxnMon], strlen(szTxnMonNames[Reg.eTxnMon])+1);

                        RegSetValueEx(hKey, "DbServer", 0, REG_SZ, Reg.szDbServer,
strlen(Reg.szDbServer)+1);
                        RegSetValueEx(hKey, "DbName", 0, REG_SZ, Reg.szDbName,
strlen(Reg.szDbName)+1);
                        RegSetValueEx(hKey, "DbUser", 0, REG_SZ, Reg.szDbUser,
strlen(Reg.szDbUser)+1);
                        RegSetValueEx(hKey, "DbPassword", 0, REG_SZ, Reg.szDbPassword,
strlen(Reg.szDbPassword)+1);

                        strcpy(szTmp, "YES");
                        RegSetValueEx(hKey, "COM_SinglePool", 0, REG_SZ, szTmp,
strlen(szTmp)+1);

                        RegFlushKey(hKey);
                        RegCloseKey(hKey);
                }

                if ( (iRc=RegCreateKeyEx(HKEY_LOCAL_MACHINE,
"SYSTEM\\CurrentControlSet\\Services\\Inetinfo\\Parameters", 0, NULL,
REG_OPTION_NON_VOLATILE, KEY_ALL_ACCESS, NULL, &hKey, &dwDisposition)) ==
ERROR_SUCCESS )
                {
                        RegSetValueEx(hKey, "PoolThreadLimit", 0, REG_DWORD, (char
*)&iPoolThreadLimit, sizeof(iPoolThreadLimit));
                        RegSetValueEx(hKey, "ThreadTimeout", 0, REG_DWORD, (char
*)&iThreadTimeout, sizeof(iThreadTimeout));
                        RegSetValueEx(hKey, "ListenBackLog", 0, REG_DWORD, (char
*)&iListenBackLog, sizeof(iListenBackLog));

                        RegFlushKey(hKey);
                        RegCloseKey(hKey);
                }

                if ( (iRc=RegCreateKeyEx(HKEY_LOCAL_MACHINE,
"SYSTEM\\CurrentControlSet\\Services\\W3SVC\\Parameters", 0, NULL,
REG_OPTION_NON_VOLATILE, KEY_ALL_ACCESS, NULL, &hKey, &dwDisposition)) ==
ERROR_SUCCESS )
```

```
        {
                RegSetValueEx(hKey, "AcceptExOutstanding", 0, REG_DWORD, (char
*)&iAcceptExOutstanding, sizeof(iAcceptExOutstanding));

                RegFlushKey(hKey);
                RegCloseKey(hKey);
        }

        return;
}

BOOL CALLBACK CopyDlgProc(HWND hwnd, UINT uMsg, WPARAM wParam, LPARAM lParam)
{
        if ( uMsg == WM_INITDIALOG )
        {
                SendDlgItemMessage(hwnd, IDC_PROGRESS1, PBM_SETRANGE, 0,
MAKELPARAM(0, 16));
                SendDlgItemMessage(hwnd, IDC_PROGRESS1, PBM_SETSTEP, (WPARAM)1,
0);
                return TRUE;
        }
        return FALSE;
}

BOOL RegisterDLL(char *szFileName)
{
        HINSTANCE hLib;
        FARPROC             lpDllEntryPoint;

        hLib = LoadLibrary(szFileName);
        if ( hLib == NULL )
                return FALSE;
        // Find the entry point.
        lpDllEntryPoint = GetProcAddress(hLib, "DllRegisterServer");
        if (lpDllEntryPoint != NULL)
        {
                return ((*lpDllEntryPoint)() == S_OK);
        }
        else
                return FALSE;       //unable to locate entry point
}

BOOL FileFromResource( char *szResourceName, int iResourceId, char *szDllPath, char
*szFileName )
{
        HGLOBAL                     hDLL;
        HRSRC                       hResInfo;
        HANDLE                      hFile;
        DWORD                       dwSize;
        BYTE                        *pSrc;
        DWORD                       d;
        char                        szFullName[256];

        hResInfo = FindResource(hInst, MAKEINTRESOURCE(iResourceId),
szResourceName);

        strcpy(szFullName, szDllPath);
        strcat(szFullName, szFileName);

        dwSize = SizeofResource(hInst, hResInfo);
        hDLL = LoadResource(hInst, hResInfo );
        pSrc = (BYTE *)LockResource(hDLL);
        remove(szFullName);

        if ( !(hFile = CreateFile(szFullName, GENERIC_WRITE, 0, NULL,
CREATE_ALWAYS, FILE_ATTRIBUTE_NORMAL, NULL)) )
                return FALSE;

        if ( !WriteFile(hFile, pSrc, dwSize, &d, NULL) )
                return FALSE;

        CloseHandle(hFile);

        UnlockResource(hDLL);
        FreeResource(hDLL);
        return TRUE;
}

static int CopyFiles(HWND hDlg, char *szDllPath)
{
        BOOL                bSvcRunning;

        bSvcRunning = CheckWWWebService();
        if ( bSvcRunning )
        {
                SetDlgItemText(hDlg, IDC_STATUS, "Stopping Web Service.");
                SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
                UpdateDialog(hDlg);

                StopWWWebService();
                SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
                UpdateDialog(hDlg);
        }

        SetDlgItemText(hDlg, IDC_STATUS, "Copying Files...");
        SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
        UpdateDialog(hDlg);

        // install TPCC.DLL
        strcpy( szLastFileName, "tpcc.dll" );
        if (!FileFromResource( "TPCCDLL", IDR_TPCCDLL, szDllPath, szLastFileName
))
                return 0;
        SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
        UpdateDialog(hDlg);

        // install tpcc_dblib.dll
        strcpy( szLastFileName, "tpcc_dblib.dll" );
        if (!FileFromResource( "DBLIB_DLL", IDR_DBLIB_DLL, szDllPath,
szLastFileName ))
                return 0;
        SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
        UpdateDialog(hDlg);

        // install tpcc_odbc.dll
        strcpy( szLastFileName, "tpcc_odbc.dll" );
        if (!FileFromResource( "ODBC_DLL", IDR_ODBC_DLL, szDllPath, szLastFileName
))
                return 0;
        SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
        UpdateDialog(hDlg);

        // install tuxapp.exe
        strcpy( szLastFileName, "tuxapp.exe" );
        if (!FileFromResource( "TUXEDO_APP", IDR_TUXEDO_APP, szDllPath,
szLastFileName ))
```

```
                    return 0;
          SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
          UpdateDialog(hDlg);

          // install tpcc_tuxedo.dll
          strcpy( szLastFileName, "tpcc_tuxedo.dll" );
          if (!FileFromResource( "TUXEDO_DLL", IDR_TUXEDO_DLL, szDllPath,
szLastFileName ))
                    return 0;
          SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
          UpdateDialog(hDlg);

          // install tpcc_com.dll
          strcpy( szLastFileName, "tpcc_com.dll" );
          if (!FileFromResource( "COM_DLL", IDR_COM_DLL, szDllPath, szLastFileName
))
                    return 0;
          SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
          UpdateDialog(hDlg);

          // install tpcc_com_all.tlb
          strcpy( szLastFileName, "tpcc_com_all.tlb" );
          if (!FileFromResource( "COM_TYPLIB", IDR_COMTYPLIB_DLL, szDllPath,
szLastFileName ))
                    return 0;
          SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
          UpdateDialog(hDlg);

          // install tpcc_com_ps.dll
          strcpy( szLastFileName, "tpcc_com_ps.dll" );
          if (!FileFromResource( "COM_PS_DLL", IDR_COMPS_DLL, szDllPath,
szLastFileName ))
                    return 0;
          SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
          UpdateDialog(hDlg);

          // install tpcc_com_all.dll
          strcpy( szLastFileName, "tpcc_com_all.dll" );
          if (!FileFromResource( "COM_ALL_DLL", IDR_COMALL_DLL, szDllPath,
szLastFileName ))
                    return 0;
          SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
          UpdateDialog(hDlg);

          //if we stopped service restart it.
          if ( bSvcRunning )
          {
                    SetDlgItemText(hDlg, IDC_STATUS, "Starting Web Service.");
                    SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
                    UpdateDialog(hDlg);
                    StartWWWebService();
          }

          SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0, 0);
          UpdateDialog(hDlg);

          return 1;
}

static BOOL GetInstallPath(char *szDllPath)
{
    HKEY  hKey;
          BYTE      szData[256];
          DWORD     sv;
          BOOL      bRc;
          int                 len;
          char      *ptr;
          int                 iRc;

          szDllPath[0] =  0;
          bRc = TRUE;
          if ( RegOpenKeyEx(HKEY_LOCAL_MACHINE,
"SYSTEM\\CurrentControlSet\\Services\\W3SVC\\Parameters\\Virtual Roots", 0,
KEY_ALL_ACCESS, &hKey) == ERROR_SUCCESS )
          {
                    sv = sizeof(szData);
                    iRc = RegQueryValueEx( hKey, "/,", NULL, NULL, szData, &sv );
// used by IIS 3.0
                    if (iRc == ERROR_FILE_NOT_FOUND)
                              iRc = RegQueryValueEx( hKey, "/", NULL, NULL, szData,
&sv );   // used by IIS 4.0
                    if (iRc == ERROR_SUCCESS)
                    {
                              bRc = FALSE;
                              strcpy(szDllPath, szData);
                              if ( (ptr = strchr(szDllPath, ',')) )
                                        *ptr = 0;

                              len = strlen(szDllPath);
                              if ( szDllPath[len-1] != '\\' )
                              {
                                        szDllPath[len] = '\\';
                                        szDllPath[len+1] = 0;
                              }
                    }

                    RegCloseKey(hKey);
          }

          return bRc;
}

static void GetVersionInfo(char *szDLLPath, char *szExePath)
{
          DWORD                                   d;
          DWORD                                   dwSize;
          DWORD                                   dwBytes;
          char                                    *ptr;
          VS_FIXEDFILEINFO    *vs;

          versionDllMS = 0;
          versionDllLS = 0;
          if ( _access(szDLLPath, 00) == 0 )
          {
                    dwSize = GetFileVersionInfoSize(szDLLPath, &d);
                    if ( dwSize )
                    {
                              ptr = (char *)malloc(dwSize);
                              GetFileVersionInfo(szDLLPath, 0, dwSize, ptr);
                              VerQueryValue(ptr, "\\",&vs, &dwBytes);
                              versionDllMS = vs->dwProductVersionMS;
                              versionDllLS = vs->dwProductVersionLS;
                              free(ptr);
                    }
          }
```

```
          versionExeMS = 0x7FFF;
          versionExeLS = 0x7FFF;
          dwSize = GetFileVersionInfoSize(szExePath, &d);
          if ( dwSize )
          {
                    ptr = (char *)malloc(dwSize);
                    GetFileVersionInfo(szExePath, 0, dwSize, ptr);
                    VerQueryValue(ptr, "\\",&vs, &dwBytes);

                    versionExeMS = vs->dwProductVersionMS;
                    versionExeLS = LOWORD(vs->dwProductVersionLS);
                    versionExeMM = HIWORD(vs->dwProductVersionLS);
                    free(ptr);
          }
          return;
}

static BOOL CheckWWWebService(void)
{
          SC_HANDLE           schSCManager;
          SC_HANDLE           schService;
          SERVICE_STATUS      ssStatus;

          schSCManager = OpenSCManager(NULL, NULL, SC_MANAGER_ALL_ACCESS);
          schService = OpenService(schSCManager, TEXT("W3SVC"), SERVICE_ALL_ACCESS);
          if (schService == NULL)
                    return FALSE;

          if (! QueryServiceStatus(schService, &ssStatus) )
                    goto ServiceNotRunning;

          if ( !ControlService(schService, SERVICE_CONTROL_STOP, &ssStatus) )
                    goto ServiceNotRunning;
          //start Service pending, Check the status until the service is running.
          if (! QueryServiceStatus(schService, &ssStatus) )
                    goto ServiceNotRunning;

          CloseServiceHandle(schService);
          return TRUE;

ServiceNotRunning:

          CloseServiceHandle(schService);
          return FALSE;
}

static BOOL StartWWWebService(void)
{
          SC_HANDLE           schSCManager;
          SC_HANDLE           schService;
          SERVICE_STATUS      ssStatus;
          DWORD                         dwOldCheckPoint;

          schSCManager = OpenSCManager(NULL, NULL, SC_MANAGER_ALL_ACCESS);
          schService = OpenService(schSCManager, TEXT("W3SVC"), SERVICE_ALL_ACCESS);
          if (schService == NULL)
                    return FALSE;

          if (! StartService(schService, 0, NULL) )
                    goto StartWWWebErr;
          //start Service pending, Check the status until the service is running.
          if (! QueryServiceStatus(schService, &ssStatus) )
                    goto StartWWWebErr;
          while( ssStatus.dwCurrentState != SERVICE_RUNNING)
          {

                    dwOldCheckPoint = ssStatus.dwCheckPoint;
          //Save the current checkpoint.
                    Sleep(ssStatus.dwWaitHint);
                              //Wait for the specified interval.
                    if ( !QueryServiceStatus(schService, &ssStatus) ) //Check the
status again.
                              break;
                    if (dwOldCheckPoint >= ssStatus.dwCheckPoint)
          //Break if the checkpoint has not been incremented.
                              break;
          }

          if (ssStatus.dwCurrentState == SERVICE_RUNNING)
                    goto StartWWWebErr;

          CloseServiceHandle(schService);
          return TRUE;

StartWWWebErr:
          CloseServiceHandle(schService);
          return FALSE;
}

static BOOL StopWWWebService(void)
{
          SC_HANDLE           schSCManager;
          SC_HANDLE           schService;
          SERVICE_STATUS      ssStatus;
          DWORD                         dwOldCheckPoint;

          schSCManager = OpenSCManager(NULL, NULL, SC_MANAGER_ALL_ACCESS);
          schService = OpenService(schSCManager, TEXT("W3SVC"), SERVICE_ALL_ACCESS);
          if (schService == NULL)
                    return FALSE;

          if (! QueryServiceStatus(schService, &ssStatus) )
                    goto StopWWWebErr;

          if ( !ControlService(schService, SERVICE_CONTROL_STOP, &ssStatus) )
                    goto StopWWWebErr;
          //start Service pending, Check the status until the service is running.
          if (! QueryServiceStatus(schService, &ssStatus) )
                    goto StopWWWebErr;
          while( ssStatus.dwCurrentState == SERVICE_RUNNING)
          {

                    dwOldCheckPoint = ssStatus.dwCheckPoint;
          //Save the current checkpoint.
                    Sleep(ssStatus.dwWaitHint);
                              //Wait for the specified interval.
                    if ( !QueryServiceStatus(schService, &ssStatus) ) //Check the
status again.
                              break;
                    if (dwOldCheckPoint >= ssStatus.dwCheckPoint)
          //Break if the checkpoint has not been incremented.
                              break;
          }

          if (ssStatus.dwCurrentState == SERVICE_RUNNING)
                    goto StopWWWebErr;
```

```
        CloseServiceHandle(schService);
        return TRUE;

StopWWWebErr:
        CloseServiceHandle(schService);
        return FALSE;
}

static void UpdateDialog(HWND hDlg)
{
        MSG msg;

        UpdateWindow(hDlg);
        while( PeekMessage(&msg, hDlg, 0, 0, PM_REMOVE) )
        {
                TranslateMessage(&msg);
                DispatchMessage(&msg);
        }
        Sleep(250);
        return;
}
```

install.dep

```
.\src\install.c : \
        "..\..\program files\microsoft sdk\include\basetsd.h"\
        "..\..\program files\microsoft sdk\include\guiddef.h"\
        "..\..\program files\microsoft sdk\include\propidl.h"\
        "..\..\program files\microsoft sdk\include\reason.h"\
        "..\..\program files\microsoft sdk\include\stralign.h"\
        "..\..\program files\microsoft sdk\include\tvout.h"\
        "..\..\program files\microsoft sdk\include\winefs.h"\
        "..\common\src\readregistry.cpp"\
        "..\common\src\ReadRegistry.h"\


.\src\install.rc : \
        "..\db_dblib_dll\bin\tpcc_dblib.dll"\
        "..\isapi_dll\bin\tpcc.dll"\
        "..\tm_com_dll\bin\tpcc_com.dll"\
        "..\tpcc_com_all\bin\tpcc_com_all.dll"\
        "..\tpcc_com_all\src\tpcc_com_all.tlb"\
        "..\tpcc_com_ps\bin\tpcc_com_ps.dll"\
        ".\SRC\ICON1.ICO"\
        ".\SRC\ICON2.ICO"\
        ".\SRC\LICENSE.TXT"\


.\src\install_com.cpp : \
        "..\..\program files\microsoft sdk\include\basetsd.h"\
        "..\..\program files\microsoft sdk\include\comadmin.h"\
        "..\..\program files\microsoft sdk\include\guiddef.h"\
        "..\..\program files\microsoft sdk\include\propidl.h"\
        "..\..\program files\microsoft sdk\include\reason.h"\
        "..\..\program files\microsoft sdk\include\stralign.h"\
        "..\..\program files\microsoft sdk\include\tvout.h"\
        "..\..\program files\microsoft sdk\include\winefs.h"\
```

install.h

```
//{{NO_DEPENDENCIES}}
// Microsoft Developer Studio generated include file.
// Used by install.rc
//

#define IDD_DIALOG1                             101
#define IDI_ICON1                               102
#define IDR_TPCCDLL                             103
#define IDD_DIALOG2                             105
#define IDI_ICON2                               106
#define IDR_DELIVERY                            107
#define IDD_DIALOG3                             108

#define BN_LOG                                  1001
#define ED_KEEP                                 1002
#define ED_THREADS                              1003
#define ED_THREADS2                             1004
#define IDC_PATH                                1007
#define IDC_VERSION                             1009
#define IDC_RESULTS                             1010
#define IDC_PROGRESS1                           1011
#define IDC_STATUS                              1012
#define IDC_BUTTON1                             1013
#define ED_MAXCONNECTION                        1014
#define ED_IIS_MAX_THEAD_POOL_LIMIT             1015
#define ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE       1017
#define ED_IIS_THREAD_TIMEOUT                   1018
#define ED_IIS_LISTEN_BACKLOG                   1019
#define IDC_DBLIB                               1021
#define IDC_ODBC                                1022
#define IDC_CONNECT_POOL                                                1023
#define ED_USER_CONNECT_DELAY_TIME                      1024

// Next default values for new objects
//
```

install.mak

```
!IF "$(CFG)" == ""
CFG=install - Win32 Release
!MESSAGE No configuration specified. Defaulting to install - Win32 Release.
!ENDIF

!IF "$(CFG)" != "install - Win32 Release" && "$(CFG)" != "install - Win32 Debug"
!MESSAGE Invalid configuration "$(CFG)" specified.
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "install.mak" CFG="install - Win32 Release"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "install - Win32 Release" (based on "Win32 (x86) Application")
!MESSAGE "install - Win32 Debug" (based on "Win32 (x86) Application")
!MESSAGE
!ERROR An invalid configuration is specified.
!ENDIF
```

```
!IF "$(OS)" == "Windows_NT"
NULL=
!ELSE
NULL=nul
!ENDIF

!IF  "$(CFG)" == "install - Win32 Release"

OUTDIR=.\bin
INTDIR=.\obj

!IF "$(RECURSE)" == "0"

ALL : "bin\install.exe"

!ELSE

ALL : "tpcc_com_all - Win32 Release" "db_dblib_dll - Win32 Release" "tpcc_com_ps -
Win32 Release" "tm_com_dll - Win32 Release" "isapi_dll - Win32 Release"
"bin\install.exe"

!ENDIF

!IF "$(RECURSE)" == "1"
CLEAN :"isapi_dll - Win32 ReleaseCLEAN" "tm_com_dll - Win32 ReleaseCLEAN"
"tpcc_com_ps - Win32 ReleaseCLEAN" "db_dblib_dll - Win32 ReleaseCLEAN" "tpcc_com_all
- Win32 ReleaseCLEAN"
!ELSE
CLEAN :
!ENDIF
          -@erase "$(INTDIR)\install.obj"
          -@erase "$(INTDIR)\install.res"
          -@erase "$(INTDIR)\install_com.obj"
          -@erase "$(INTDIR)\vc60.idb"
          -@erase "bin\install.exe"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

CPP=cl.exe
CPP_PROJ=/nologo /ML /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_WINDOWS"
/Fp"$(INTDIR)\install.pch" /YX /Fo"$(INTDIR)\\" /Fd"$(INTDIR)\\" /FD /c

.c{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.c{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

MTL=midl.exe
MTL_PROJ=/nologo /D "NDEBUG" /mktyplib203 /win32
RSC=rc.exe
RSC_PROJ=/l 0x409 /fo"$(INTDIR)\install.res" /d "NDEBUG"
BSC32=bscmake.exe
BSC32_FLAGS=/nologo /o"$(OUTDIR)\install.bsc"
BSC32_SBRS= \

LINK32=link.exe
LINK32_FLAGS=version.lib comctl32.lib kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /incremental:no /pdb:"$(OUTDIR)\install.pdb"
/machine:I386 /out:"bin\install.exe"
LINK32_OBJS= \
          "$(INTDIR)\install.obj" \
          "$(INTDIR)\install_com.obj" \
          "$(INTDIR)\install.res" \
          "..\isapi_dll\bin\tpcc.lib" \
          "..\tm_com_dll\bin\tpcc_com.lib" \
          "..\tpcc_com_ps\bin\tpcc_com_ps.lib" \
          "..\db_dblib_dll\bin\tpcc_dblib.lib" \
          "..\tpcc_com_all\bin\tpcc_com_all.lib"

"bin\install.exe" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ELSEIF  "$(CFG)" == "install - Win32 Debug"

OUTDIR=.\bin
INTDIR=.\obj
# Begin Custom Macros
OutDir=.\bin
# End Custom Macros

!IF "$(RECURSE)" == "0"

ALL : "bin\install.exe" "$(OUTDIR)\install.bsc"

!ELSE

ALL : "tpcc_com_all - Win32 Debug" "db_dblib_dll - Win32 Debug" "tpcc_com_ps - Win32
Debug" "tm_com_dll - Win32 Debug" "isapi_dll - Win32 Debug" "bin\install.exe"
"$(OUTDIR)\install.bsc"

!ENDIF

!IF "$(RECURSE)" == "1"
```

```
CLEAN :"isapi_dll - Win32 DebugCLEAN" "tm_com_dll - Win32 DebugCLEAN" "tpcc_com_ps -
Win32 DebugCLEAN" "db_dblib_dll - Win32 DebugCLEAN" "tpcc_com_all - Win32
DebugCLEAN"
!ELSE
CLEAN :
!ENDIF
          -@erase "$(INTDIR)\install.obj"
          -@erase "$(INTDIR)\install.res"
          -@erase "$(INTDIR)\install.sbr"
          -@erase "$(INTDIR)\install_com.obj"
          -@erase "$(INTDIR)\install_com.sbr"
          -@erase "$(INTDIR)\vc60.idb"
          -@erase "$(INTDIR)\vc60.pdb"
          -@erase "$(OUTDIR)\install.bsc"
          -@erase "$(OUTDIR)\install.pdb"
          -@erase "bin\install.exe"
          -@erase "..\bin\install.ilk"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

CPP=cl.exe
CPP_PROJ=/nologo /MLd /W3 /Gm /GX /ZI /Od /D "WIN32" /D "_DEBUG" /D "_WINDOWS" /D
"_ATL_STATIC_REGISTRY" /FR"$(INTDIR)\\" /Fp"$(INTDIR)\install.pch" /YX
/Fo"$(INTDIR)\\" /Fd"$(INTDIR)\\" /FD /c

.c{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.c{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

MTL=midl.exe
MTL_PROJ=/nologo /D "_DEBUG" /mktyplib203 /win32
RSC=rc.exe
RSC_PROJ=/l 0x409 /fo"$(INTDIR)\install.res" /d "_DEBUG"

BSC32=bscmake.exe
BSC32_FLAGS=/nologo /o"$(OUTDIR)\install.bsc"
BSC32_SBRS= \
          "$(INTDIR)\install.sbr" \
          "$(INTDIR)\install_com.sbr"

"$(OUTDIR)\install.bsc" : "$(OUTDIR)" $(BSC32_SBRS)
    $(BSC32) @<<
  $(BSC32_FLAGS) $(BSC32_SBRS)
<<

LINK32=link.exe
LINK32_FLAGS=version.lib comctl32.lib kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /incremental:yes
/pdb:"$(OUTDIR)\install.pdb" /debug /machine:I386 /out:"bin\install.exe"
LINK32_OBJS= \
          "$(INTDIR)\install.obj" \
          "$(INTDIR)\install_com.obj" \
          "$(INTDIR)\install.res" \
          "..\isapi_dll\bin\tpcc.lib" \
          "..\tm_com_dll\bin\tpcc_com.lib" \
          "..\tpcc_com_ps\bin\tpcc_com_ps.lib" \
          "..\db_dblib_dll\bin\tpcc_dblib.lib" \
          "..\tpcc_com_all\bin\tpcc_com_all.lib"

"bin\install.exe" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ENDIF


!IF "$(NO_EXTERNAL_DEPS)" != "1"
!IF EXISTS("install.dep")
!INCLUDE "install.dep"
!ELSE
!MESSAGE Warning: cannot find "install.dep"
!ENDIF
!ENDIF


!IF "$(CFG)" == "install - Win32 Release" || "$(CFG)" == "install - Win32 Debug"
SOURCE=.\src\install.c

!IF  "$(CFG)" == "install - Win32 Release"


"$(INTDIR)\install.obj" : $(SOURCE) "$(INTDIR)"
          $(CPP) $(CPP_PROJ) $(SOURCE)


!ELSEIF  "$(CFG)" == "install - Win32 Debug"


"$(INTDIR)\install.obj"       "$(INTDIR)\install.sbr" : $(SOURCE) "$(INTDIR)"
          $(CPP) $(CPP_PROJ) $(SOURCE)


!ENDIF

SOURCE=.\src\install.rc
```

```
!IF  "$(CFG)" == "install - Win32 Release"


"$(INTDIR)\install.res" : $(SOURCE) "$(INTDIR)"
         $(RSC) /l 0x409 /fo"$(INTDIR)\install.res" /i "src" /i "..\src" /d
"NDEBUG" $(SOURCE)


!ELSEIF  "$(CFG)" == "install - Win32 Debug"


"$(INTDIR)\install.res" : $(SOURCE) "$(INTDIR)"
         $(RSC) /l 0x409 /fo"$(INTDIR)\install.res" /i "src" /i "..\src" /d
"_DEBUG" $(SOURCE)


!ENDIF

SOURCE=.\src\install_com.cpp

!IF  "$(CFG)" == "install - Win32 Release"


"$(INTDIR)\install_com.obj" : $(SOURCE) "$(INTDIR)"
         $(CPP) $(CPP_PROJ) $(SOURCE)


!ELSEIF  "$(CFG)" == "install - Win32 Debug"


"$(INTDIR)\install_com.obj"   "$(INTDIR)\install_com.sbr" : $(SOURCE) "$(INTDIR)"
         $(CPP) $(CPP_PROJ) $(SOURCE)


!ENDIF

!IF  "$(CFG)" == "install - Win32 Release"

"isapi_dll - Win32 Release" :
   cd "\webclnt\isapi_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\isapi_dll.mak CFG="isapi_dll - Win32 Release"
   cd "..\install"

"isapi_dll - Win32 ReleaseCLEAN" :
   cd "\webclnt\isapi_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\isapi_dll.mak CFG="isapi_dll - Win32 Release"
RECURSE=1 CLEAN
   cd "..\install"

!ELSEIF  "$(CFG)" == "install - Win32 Debug"

"isapi_dll - Win32 Debug" :
   cd "\webclnt\isapi_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\isapi_dll.mak CFG="isapi_dll - Win32 Debug"
   cd "..\install"

"isapi_dll - Win32 DebugCLEAN" :
   cd "\webclnt\isapi_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\isapi_dll.mak CFG="isapi_dll - Win32 Debug" RECURSE=1
CLEAN
   cd "..\install"

!ENDIF

!IF  "$(CFG)" == "install - Win32 Release"

"tm_com_dll - Win32 Release" :
   cd "\webclnt\tm_com_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\tm_com_dll.mak CFG="tm_com_dll - Win32 Release"
   cd "..\install"

"tm_com_dll - Win32 ReleaseCLEAN" :
   cd "\webclnt\tm_com_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\tm_com_dll.mak CFG="tm_com_dll - Win32 Release"
RECURSE=1 CLEAN
   cd "..\install"

!ELSEIF  "$(CFG)" == "install - Win32 Debug"

"tm_com_dll - Win32 Debug" :
   cd "\webclnt\tm_com_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\tm_com_dll.mak CFG="tm_com_dll - Win32 Debug"
   cd "..\install"

"tm_com_dll - Win32 DebugCLEAN" :
   cd "\webclnt\tm_com_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\tm_com_dll.mak CFG="tm_com_dll - Win32 Debug"
RECURSE=1 CLEAN
   cd "..\install"

!ENDIF

!IF  "$(CFG)" == "install - Win32 Release"

"tpcc_com_ps - Win32 Release" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Release"
   cd "..\install"

"tpcc_com_ps - Win32 ReleaseCLEAN" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Release"
RECURSE=1 CLEAN
   cd "..\install"

!ELSEIF  "$(CFG)" == "install - Win32 Debug"

"tpcc_com_ps - Win32 Debug" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Debug"
   cd "..\install"

"tpcc_com_ps - Win32 DebugCLEAN" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Debug"
RECURSE=1 CLEAN
   cd "..\install"

!ENDIF

!IF  "$(CFG)" == "install - Win32 Release"

"db_dblib_dll - Win32 Release" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Release"
```

```
   cd "..\install"

"db_dblib_dll - Win32 ReleaseCLEAN" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Release"
RECURSE=1 CLEAN
   cd "..\install"

!ELSEIF  "$(CFG)" == "install - Win32 Debug"

"db_dblib_dll - Win32 Debug" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Debug"
   cd "..\install"

"db_dblib_dll - Win32 DebugCLEAN" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Debug"
RECURSE=1 CLEAN
   cd "..\install"

!ENDIF

!IF  "$(CFG)" == "install - Win32 Release"

"tpcc_com_all - Win32 Release" :
   cd "\webclnt\tpcc_com_all"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_all.mak CFG="tpcc_com_all - Win32 Release"
   cd "..\install"

"tpcc_com_all - Win32 ReleaseCLEAN" :
   cd "\webclnt\tpcc_com_all"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_all.mak CFG="tpcc_com_all - Win32 Release"
RECURSE=1 CLEAN
   cd "..\install"

!ELSEIF  "$(CFG)" == "install - Win32 Debug"

"tpcc_com_all - Win32 Debug" :
   cd "\webclnt\tpcc_com_all"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_all.mak CFG="tpcc_com_all - Win32 Debug"
   cd "..\install"

"tpcc_com_all - Win32 DebugCLEAN" :
   cd "\webclnt\tpcc_com_all"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_all.mak CFG="tpcc_com_all - Win32 Debug"
RECURSE=1 CLEAN
   cd "..\install"

!ENDIF


!ENDIF
```

install.rc

```
#include "resource.h"

#define APSTUDIO_READONLY_SYMBOLS
//////////////////////////////////////////////////////////////////////////////
//
// Generated from the TEXTINCLUDE 2 resource.
//
#include "afxres.h"

//////////////////////////////////////////////////////////////////////////////
#undef APSTUDIO_READONLY_SYMBOLS

//////////////////////////////////////////////////////////////////////////////
// English (U.S.) resources

#if !defined(AFX_RESOURCE_DLL) || defined(AFX_TARG_ENU)
#ifdef _WIN32
LANGUAGE LANG_ENGLISH, SUBLANG_ENGLISH_US
#pragma code_page(1252)
#endif //_WIN32

//////////////////////////////////////////////////////////////////////////////
//
// Dialog
//

IDD_DIALOG1 DIALOGEX 0, 0, 219, 351
STYLE DS_MODALFRAME | DS_CENTER | WS_MINIMIZEBOX | WS_POPUP | WS_CAPTION |
    WS_SYSMENU
CAPTION "TPC-C Web Client Installation Utility"
FONT 8, "MS Sans Serif"
BEGIN
    EDITTEXT        ED_THREADS,164,45,34,12,ES_RIGHT | ES_NUMBER,
                    WS_EX_RTLREADING
    EDITTEXT        ED_MAXDELIVERIES,164,59,34,12,ES_RIGHT | ES_NUMBER,
                    WS_EX_RTLREADING
    EDITTEXT        ED_MAXCONNECTION,164,73,34,12,ES_RIGHT | ES_NUMBER,
                    WS_EX_RTLREADING
    CONTROL         "None",IDC_TM_NONE,"Button",BS_AUTORADIOBUTTON |
                    WS_GROUP | WS_TABSTOP,43,100,33,10
    CONTROL         "COM",IDC_TM_MTS,"Button",BS_AUTORADIOBUTTON |
                    WS_TABSTOP,43,113,32,10
    CONTROL         "TUXEDO",IDC_TM_TUXEDO,"Button",BS_AUTORADIOBUTTON |
                    WS_DISABLED | WS_TABSTOP,106,100,46,10
    CONTROL         "ENCINA",IDC_TM_ENCINA,"Button",BS_AUTORADIOBUTTON |
                    WS_DISABLED | WS_TABSTOP,106,113,43,10
    EDITTEXT        ED_DB_SERVER,131,152,67,12,ES_AUTOHSCROLL
    EDITTEXT        ED_DB_USER_ID,131,165,67,12,ES_AUTOHSCROLL
    EDITTEXT        ED_DB_PASSWORD,131,178,67,12,ES_AUTOHSCROLL
    EDITTEXT        ED_DB_NAME,131,191,67,12,ES_AUTOHSCROLL
    CONTROL         "DBLIB",IDC_DBLIB,"Button",BS_AUTORADIOBUTTON | WS_GROUP |
                    WS_TABSTOP,45,219,39,12
    CONTROL         "ODBC",IDC_ODBC,"Button",BS_AUTORADIOBUTTON |
                    WS_DISABLED | WS_TABSTOP,91,219,39,12
    EDITTEXT        ED_IIS_MAX_THEAD_POOL_LIMIT,164,263,34,12,ES_RIGHT |
                    ES_NUMBER,WS_EX_RTLREADING
    EDITTEXT        ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE,164,277,34,12,ES_RIGHT |
                    ES_NUMBER,WS_EX_RTLREADING
    EDITTEXT        ED_IIS_THREAD_TIMEOUT,164,291,34,12,ES_RIGHT | ES_NUMBER,
                    WS_EX_RTLREADING
    EDITTEXT        ED_IIS_LISTEN_BACKLOG,164,305,34,12,ES_RIGHT | ES_NUMBER,
                    WS_EX_RTLREADING
    DEFPUSHBUTTON   "OK",IDOK,53,331,50,14
    PUSHBUTTON      "Cancel",IDCANCEL,119,331,50,14
    EDITTEXT        IDC_PATH,106,26,91,13,ES_AUTOHSCROLL | ES_READONLY
    LTEXT           "Number of Delivery Threads:",IDC_STATIC,35,45,115,12
    LTEXT           "Max Number of Connections:",IDC_STATIC,35,73,115,12
    RTEXT           "Version 4.11",IDC_VERSION,120,4,89,9
```

```
    LTEXT           "IIS Max Thread Pool Limit:",IDC_STATIC,36,263,115,12
    LTEXT           "Web Service Backlog Queue Size:",IDC_STATIC,36,277,115,
                    12
    LTEXT           "IIS Thread Timeout (seconds):",IDC_STATIC,36,291,115,12
    LTEXT           "IIS Listen Backlog:",IDC_STATIC,36,307,115,10
    GROUPBOX        "Database Interface",IDC_STATIC,35,208,163,27,WS_GROUP
    LTEXT           "Installation directory:",IDC_STATIC,35,29,71,10
    GROUPBOX        "Transaction Monitor",IDC_STATIC,33,90,165,37
    LTEXT           "Server Name:",IDC_STATIC,35,155,56,8
    LTEXT           "User ID:",IDC_STATIC,35,168,60,8
    LTEXT           "User Password:",IDC_STATIC,35,181,83,8
    LTEXT           "Database Name:",IDC_STATIC,35,194,54,8
    GROUPBOX        "SQL Server Connection Properties",IDC_STATIC,22,139,187,
                    102
    GROUPBOX        "Web Client Properties",IDC_STATIC,22,15,187,118
    GROUPBOX        "IIS Settings",IDC_STATIC,22,247,187,79
    LTEXT           "Max Pending Deliveries:",IDC_STATIC,35,59,115,12
END

IDD_DIALOG2 DIALOGEX 0, 0, 117, 62
STYLE DS_SETFOREGROUND | DS_3DLOOK | DS_CENTER | WS_POPUP | WS_BORDER
EXSTYLE WS_EX_STATICEDGE
FONT 12, "MS Sans Serif", 0, 0, 0x1
BEGIN
    DEFPUSHBUTTON   "OK",IDOK,33,45,50,9
    CTEXT           "HTML TPC-C Installation Successfull",IDC_RESULTS,7,22,
                    102,18,0,WS_EX_CLIENTEDGE
    ICON            IDI_ICON2,IDC_STATIC,50,7,18,20,SS_REALSIZEIMAGE,
                    WS_EX_TRANSPARENT
END

IDD_DIALOG3 DIALOG DISCARDABLE  0, 0, 91, 40
STYLE DS_SYSMODAL | DS_MODALFRAME | DS_3DLOOK | DS_CENTER | WS_CAPTION
CAPTION "Installing TPC-C Web Client"
FONT 12, "Arial Black"
BEGIN
    CONTROL         "Progress1",IDC_PROGRESS1,"msctls_progress32",WS_BORDER,
                    7,20,77,13
    CTEXT           "Static",IDC_STATUS,7,7,77,12,SS_SUNKEN
END

IDD_DIALOG4 DIALOG DISCARDABLE  0, 0, 291, 202
STYLE DS_MODALFRAME | DS_CENTER | WS_POPUP | WS_CAPTION | WS_SYSMENU
CAPTION "Client End User License"
FONT 8, "MS Sans Serif"
BEGIN
    EDITTEXT        IDC_LICENSE,7,7,271,167,ES_MULTILINE | ES_AUTOVSCROLL |
                    ES_AUTOHSCROLL | ES_READONLY | WS_VSCROLL | WS_HSCROLL
    DEFPUSHBUTTON   "I &Agree",IDOK,87,181,50,14
    PUSHBUTTON      "&Cancel",IDCANCEL,153,181,50,14
END


/////////////////////////////////////////////////////////////////////////////
//
// DESIGNINFO
//

#ifdef APSTUDIO_INVOKED
GUIDELINES DESIGNINFO DISCARDABLE
BEGIN
    IDD_DIALOG1, DIALOG
    BEGIN
        LEFTMARGIN, 22
        RIGHTMARGIN, 209
        VERTGUIDE, 35
        VERTGUIDE, 198
        TOPMARGIN, 4
        BOTTOMMARGIN, 345
    END

    IDD_DIALOG2, DIALOG
    BEGIN
        LEFTMARGIN, 7
        RIGHTMARGIN, 109
        TOPMARGIN, 7
        BOTTOMMARGIN, 54
    END

    IDD_DIALOG3, DIALOG
    BEGIN
        LEFTMARGIN, 7
        RIGHTMARGIN, 84
        TOPMARGIN, 7
        BOTTOMMARGIN, 33
    END

    IDD_DIALOG4, DIALOG
    BEGIN
        LEFTMARGIN, 7
        RIGHTMARGIN, 278
        TOPMARGIN, 7
        BOTTOMMARGIN, 195
    END
END
#endif    // APSTUDIO_INVOKED


#ifdef APSTUDIO_INVOKED
/////////////////////////////////////////////////////////////////////////////
//
// TEXTINCLUDE
//

1 TEXTINCLUDE DISCARDABLE
BEGIN
    "resource.h\0"
END

2 TEXTINCLUDE DISCARDABLE
BEGIN
    "#include ""afxres.h""\r\n"
    "\0"
END

3 TEXTINCLUDE DISCARDABLE
BEGIN
    "\r\n"
    "\0"
END

#endif    // APSTUDIO_INVOKED


/////////////////////////////////////////////////////////////////////////////
//
```

```
// Icon
//

// Icon with lowest ID value placed first to ensure application icon
// remains consistent on all systems.
IDI_ICON1               ICON    DISCARDABLE     "icon1.ico"
IDI_ICON2               ICON    DISCARDABLE     "icon2.ico"

/////////////////////////////////////////////////////////////////////////////
//
// TPCCDLL
//

IDR_TPCCDLL             TPCCDLL DISCARDABLE     "..\\..\\isapi_dll\\bin\\tpcc.dll"

#ifndef _MAC
/////////////////////////////////////////////////////////////////////////////
//
// Version
//

VS_VERSION_INFO VERSIONINFO
 FILEVERSION 0,4,20,0
 PRODUCTVERSION 0,4,20,0
 FILEFLAGSMASK 0x3fL
#ifdef _DEBUG
 FILEFLAGS 0x1L
#else
 FILEFLAGS 0x0L
#endif
 FILEOS 0x40004L
 FILETYPE 0x1L
 FILESUBTYPE 0x0L
BEGIN
    BLOCK "StringFileInfo"
    BEGIN
        BLOCK "040904b0"
        BEGIN
            VALUE "Comments", "TPC-C Web Client Installer\0"
            VALUE "CompanyName", "Microsoft\0"
            VALUE "FileDescription", "install\0"
            VALUE "FileVersion", "0, 4, 20, 0\0"
            VALUE "InternalName", "install\0"
            VALUE "LegalCopyright", "Copyright © 1999\0"
            VALUE "OriginalFilename", "install.exe\0"
            VALUE "ProductName", "Microsoft install\0"
            VALUE "ProductVersion", "0, 4, 20, 0\0"
        END
    END
    BLOCK "VarFileInfo"
    BEGIN
        VALUE "Translation", 0x409, 1200
    END
END

#endif    // !_MAC


/////////////////////////////////////////////////////////////////////////////
//
// LICENSE
//

IDR_LICENSE1            LICENSE DISCARDABLE     "license.txt"

/////////////////////////////////////////////////////////////////////////////
//
// DBLIB_DLL
//

IDR_DBLIB_DLL           DBLIB_DLL DISCARDABLE
"..\\..\\db_dblib_dll\\bin\\tpcc_dblib.dll"

/////////////////////////////////////////////////////////////////////////////
//
// COM_DLL
//

IDR_COM_DLL             COM_DLL DISCARDABLE
"..\\..\\tm_com_dll\\bin\\tpcc_com.dll"

/////////////////////////////////////////////////////////////////////////////
//
// COM_PS_DLL
//

IDR_COMPS_DLL           COM_PS_DLL DISCARDABLE
"..\\..\\tpcc_com_ps\\bin\\tpcc_com_ps.dll"

/////////////////////////////////////////////////////////////////////////////
//
// COM_ALL_DLL
//

IDR_COMALL_DLL          COM_ALL_DLL DISCARDABLE
"..\\..\\tpcc_com_all\\bin\\tpcc_com_all.dll"

/////////////////////////////////////////////////////////////////////////////
//
// COM_TYPLIB
//

IDR_COMTYPLIB_DLL       COM_TYPLIB DISCARDABLE
"..\\..\\tpcc_com_all\\src\\tpcc_com_all.tlb"
#endif    // English (U.S.) resources
/////////////////////////////////////////////////////////////////////////////



#ifndef APSTUDIO_INVOKED
/////////////////////////////////////////////////////////////////////////////
//
// Generated from the TEXTINCLUDE 3 resource.
//


/////////////////////////////////////////////////////////////////////////////
#endif    // not APSTUDIO_INVOKED
```

install_com.cpp

```
/*        FILE:               INSTALL_COM.CPP
 *                                    Microsoft TPC-C Kit Ver. 4.20.000
 *                                    Copyright Microsoft, 1999
```

```
 *              All Rights Reserved
 *
 *                                      not audited
 *
 *        PURPOSE:  installation code for COM application for TPC-C Web Kit
 *        Contact:  Charles Levine (clevine@microsoft.com)
 *
 *  Change history:
 *                  4.20.000 - first version
 */

#define _WIN32_WINNT 0x0500

#include <comdef.h>
#include <comadmin.h>
#include <stdio.h>
#include <tchar.h>

extern "C"
{
          BOOL install_com(char *szDllPath);
}

BOOL install_com(char *szDllPath)
{
          ICOMAdminCatalog*   pCOMAdminCat = NULL;
          ICatalogCollection* pCatalogCollectionApp    = NULL;
          ICatalogCollection* pCatalogCollectionCo     = NULL;
          ICatalogCollection* pCatalogCollectionItf    = NULL;
          ICatalogCollection* pCatalogCollectionMethod = NULL;

          ICatalogObject*               pCatalogObjectApp    = NULL;
          ICatalogObject*               pCatalogObjectCo     = NULL;
          ICatalogObject*               pCatalogObjectItf    = NULL;
          ICatalogObject*               pCatalogObjectMethod = NULL;

          _bstr_t                                 bstrTemp, bstrTemp2, bstrTemp3,
bstrTemp4;
          _bstr_t                                 bstrDllPath = szDllPath;
          _variant_t                              vTmp, vKey;
          long                                    lActProp, lCount, lCountCo,
lCountItf, lCountMethod;
          bool                                    bTmp;


          CoInitializeEx(NULL, COINIT_MULTITHREADED);

          HRESULT hr = CoCreateInstance(CLSID_COMAdminCatalog,

          NULL,

          CLSCTX_INPROC_SERVER,

          IID_ICOMAdminCatalog,

          (void**) &pCOMAdminCat);

          if (!SUCCEEDED(hr)) goto Error;

          bstrTemp = "Applications";

          // Attempt to connect to "Applications" in the Catalog
          hr = pCOMAdminCat->GetCollection(bstrTemp,
          (IDispatch**) &pCatalogCollectionApp);
          if (!SUCCEEDED(hr)) goto Error;

          // Attempt to load the "Applications" collection
          hr = pCatalogCollectionApp->Populate();
          if (!SUCCEEDED(hr)) goto Error;

          hr = pCatalogCollectionApp->get_Count(&lCount);
          if (!SUCCEEDED(hr)) goto Error;

          // iterate through applications to delete existing "TPC-C" application (if
any)
          while (lCount > 0)
          {
                    hr = pCatalogCollectionApp->get_Item(lCount - 1, (IDispatch**)
&pCatalogObjectApp);
                    if (!SUCCEEDED(hr)) goto Error;

                    hr = pCatalogObjectApp->get_Name(&vTmp);
                    if (!SUCCEEDED(hr)) goto Error;

                    if (wcscmp(vTmp.bstrVal, L"TPC-C"))
                    {
                              lCount--;
                              continue;
                    }
                    else
                    {
                              hr = pCatalogCollectionApp->Remove(lCount - 1);
                              if (!SUCCEEDED(hr)) goto Error;
                              break;
                    }
          }

          hr = pCatalogCollectionApp->SaveChanges(&lActProp);
          if (!SUCCEEDED(hr)) goto Error;

          // add the new application
          hr = pCatalogCollectionApp->Add((IDispatch**) &pCatalogObjectApp);
          if (!SUCCEEDED(hr)) goto Error;

          // set properties
          bstrTemp = "Name";
          vTmp = "TPC-C";
          hr = pCatalogObjectApp->put_Value(bstrTemp, vTmp);
          if (!SUCCEEDED(hr)) goto Error;

          // set as a library (in process) application
          bstrTemp = "Activation";
          lActProp = COMAdminActivationInproc;
          vTmp = lActProp;
          hr = pCatalogObjectApp->put_Value(bstrTemp, vTmp);
          if (!SUCCEEDED(hr)) goto Error;

          // set security level to process
          bstrTemp = "AccessChecksLevel";
          lActProp = COMAdminAccessChecksApplicationLevel;
          vTmp = lActProp;
          hr = pCatalogObjectApp->put_Value(bstrTemp, vTmp);
          if (!SUCCEEDED(hr)) goto Error;

          // save key to get the Components collection later
```

```
        hr = pCatalogObjectApp->get_Key(&vKey);
        if (!SUCCEEDED(hr)) goto Error;

        // save changes (app creation) so component installation will work
        hr = pCatalogCollectionApp->SaveChanges(&lActProp);
        if (!SUCCEEDED(hr)) goto Error;

        pCatalogObjectApp->Release();
        pCatalogObjectApp = NULL;

        bstrTemp  = "TPC-C";                                        // app name
        bstrTemp2 =         bstrDllPath + "tpcc_com_all.dll";               //
DLL
        bstrTemp3 =         bstrDllPath + "tpcc_com_all.tlb";               //
type library (TLB)
        bstrTemp4 =         bstrDllPath + "tpcc_com_ps.dll";                //
proxy/stub dll

        hr = pCOMAdminCat->InstallComponent(bstrTemp,

                        bstrTemp2,

                        bstrTemp3,

                        bstrTemp4);


        switch (hr){
        case E_INVALIDARG : break;
        case E_OUTOFMEMORY :break;
        case E_UNEXPECTED: break;
        case E_FAIL:break;
        }

        if (!SUCCEEDED(hr)) goto Error;


        bstrTemp = "Components";
        hr = pCatalogCollectionApp->GetCollection(bstrTemp, vKey, (IDispatch**)
&pCatalogCollectionCo);
        if (!SUCCEEDED(hr)) goto Error;

        hr = pCatalogCollectionCo->Populate();
        if (!SUCCEEDED(hr)) goto Error;

        hr = pCatalogCollectionCo->get_Count(&lCountCo);
        if (!SUCCEEDED(hr)) goto Error;

        // iterate through components in application and set the properties
        while (lCountCo > 0)
        {
                hr = pCatalogCollectionCo->get_Item(lCountCo - 1, (IDispatch**)
&pCatalogObjectCo);
                if (!SUCCEEDED(hr)) goto Error;

                // used for debugging (view the name)
                hr = pCatalogObjectCo->get_Name(&vTmp);
                if (!SUCCEEDED(hr)) goto Error;

                bstrTemp = "ConstructionEnabled";
                bTmp = TRUE;
                vTmp = bTmp;
                hr = pCatalogObjectCo->put_Value(bstrTemp, vTmp);
                if (!SUCCEEDED(hr)) goto Error;

                bstrTemp = "ConstructorString";
                bstrTemp2 = "dummy string (do not remove)";
                vTmp = bstrTemp2;
                hr = pCatalogObjectCo->put_Value(bstrTemp, vTmp);
                if (!SUCCEEDED(hr)) goto Error;

                bstrTemp = "JustInTimeActivation";
                bTmp = TRUE;
                vTmp = bTmp;
                hr = pCatalogObjectCo->put_Value(bstrTemp, vTmp);
                if (!SUCCEEDED(hr)) goto Error;

                bstrTemp = "MaxPoolSize";
                vTmp.Clear();       // clear variant so it isn't stored as a
bool (_variant_t feature)
                vTmp = (long)30;
                hr = pCatalogObjectCo->put_Value(bstrTemp, vTmp);
                if (!SUCCEEDED(hr)) goto Error;

                bstrTemp = "ObjectPoolingEnabled";
                bTmp = TRUE;
                vTmp = bTmp;
                hr = pCatalogObjectCo->put_Value(bstrTemp, vTmp);
                if (!SUCCEEDED(hr)) goto Error;



                // save key to get the InterfacesForComponent collection
                hr = pCatalogObjectCo->get_Key(&vKey);
                if (!SUCCEEDED(hr)) goto Error;

                bstrTemp = "InterfacesForComponent";
                hr = pCatalogCollectionCo->GetCollection(bstrTemp, vKey,
(IDispatch**) &pCatalogCollectionItf);
                if (!SUCCEEDED(hr)) goto Error;

                hr = pCatalogCollectionItf->Populate();
                if (!SUCCEEDED(hr)) goto Error;

                hr = pCatalogCollectionItf->get_Count(&lCountItf);
                if (!SUCCEEDED(hr)) goto Error;

                // iterate through interfaces in component
                while (lCountItf > 0)
                {
                        hr = pCatalogCollectionItf->get_Item(lCountItf - 1,
(IDispatch**) &pCatalogObjectItf);
                        if (!SUCCEEDED(hr)) goto Error;

                        // save key to get the MethodsForInterface collection
                        hr = pCatalogObjectItf->get_Key(&vKey);
                        if (!SUCCEEDED(hr)) goto Error;

                        bstrTemp = "MethodsForInterface";
                        hr = pCatalogCollectionItf->GetCollection(bstrTemp,
vKey, (IDispatch**) &pCatalogCollectionMethod);
                        if (!SUCCEEDED(hr)) goto Error;

                        hr = pCatalogCollectionMethod->Populate();
                        if (!SUCCEEDED(hr)) goto Error;
```

```
                        hr = pCatalogCollectionMethod-
>get_Count(&lCountMethod);
                        if (!SUCCEEDED(hr)) goto Error;

                        // iterate through methods of interface
                        while (lCountMethod > 0)
                        {
                                hr = pCatalogCollectionMethod-
>get_Item(lCountMethod - 1, (IDispatch**) &pCatalogObjectMethod);
                                if (!SUCCEEDED(hr)) goto Error;

                                bstrTemp = "AutoComplete";
                                bTmp = TRUE;
                                vTmp = bTmp;
                                hr = pCatalogObjectMethod-
>put_Value(bstrTemp, vTmp);
                                if (!SUCCEEDED(hr)) goto Error;

                                pCatalogObjectMethod->Release();
                                pCatalogObjectMethod = NULL;

                                lCountMethod--;
                        }

                        // save changes
                        hr = pCatalogCollectionMethod->SaveChanges(&lActProp);
                        if (!SUCCEEDED(hr)) goto Error;

                        pCatalogObjectItf->Release();
                        pCatalogObjectItf = NULL;

                        lCountItf--;

                }


                pCatalogObjectCo->Release();
                pCatalogObjectCo = NULL;

                lCountCo--;
        }


        // save changes
        hr = pCatalogCollectionCo->SaveChanges(&lActProp);
        if (!SUCCEEDED(hr)) goto Error;

        pCatalogCollectionApp->Release();
        pCatalogCollectionApp = NULL;

        pCatalogCollectionCo->Release();
        pCatalogCollectionCo = NULL;

        pCatalogCollectionItf->Release();
        pCatalogCollectionItf = NULL;

        pCatalogCollectionMethod->Release();
        pCatalogCollectionMethod = NULL;


Error:
        CoUninitialize();
        if (!SUCCEEDED(hr))
        {
                LPTSTR lpBuf;
                DWORD dwRes = FormatMessage(FORMAT_MESSAGE_ALLOCATE_BUFFER |
FORMAT_MESSAGE_FROM_SYSTEM,

        NULL,

        hr,

        MAKELANGID(LANG_NEUTRAL, SUBLANG_DEFAULT),

        (LPTSTR) &lpBuf,

        0,

        NULL);
//              _tprintf(__T("Error adding components.  HRESULT: 0x%x\n%s"), hr,
lpBuf);
                return TRUE;
        }
        else
                return FALSE;
}
```

isapi_dll.dep

```
.\src\tpcc.cpp : \
        "..\..\program files\microsoft sdk\include\basetsd.h"\
        "..\..\program files\microsoft sdk\include\guiddef.h"\
        "..\..\program files\microsoft sdk\include\propidl.h"\
        "..\..\program files\microsoft sdk\include\reason.h"\
        "..\..\program files\microsoft sdk\include\stralign.h"\
        "..\..\program files\microsoft sdk\include\tvout.h"\
        "..\..\program files\microsoft sdk\include\winefs.h"\
        "..\..\tpc-c.ibm\include\db2tpcc.h"\
        "..\..\tpc-c.ibm\include\lval.h"\
        "..\common\src\readregistry.cpp"\
        "..\common\src\ReadRegistry.h"\
        "..\common\src\trans.h"\
        "..\common\src\txn_base.h"\
        "..\db_dblib_dll\src\tpcc_dblib.h"\
        "..\tm_com_dll\src\tpcc_com.h"\
        "..\tpcc_com_ps\src\tpcc_com_ps.h"\
        ".\src\tpcc.h"\
        ".\src\txnlog.h"\
```

isapi_dll.mak

```
!IF "$(CFG)" == ""
CFG=isapi_dll - Win32 IceCAP
!MESSAGE No configuration specified. Defaulting to isapi_dll - Win32 IceCAP.
!ENDIF

!IF "$(CFG)" != "isapi_dll - Win32 Release" && "$(CFG)" != "isapi_dll - Win32 Debug"
&& "$(CFG)" != "isapi_dll - Win32 IceCAP"
!MESSAGE Invalid configuration "$(CFG)" specified.
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
```

```
!MESSAGE NMAKE /f "isapi_dll.mak" CFG="isapi_dll - Win32 Release"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "isapi_dll - Win32 Release" (based on "Win32 (x86) Dynamic-Link Library")
!MESSAGE "isapi_dll - Win32 Debug" (based on "Win32 (x86) Dynamic-Link Library")
!MESSAGE "isapi_dll - Win32 IceCAP" (based on "Win32 (x86) Dynamic-Link Library")
!MESSAGE
!ERROR An invalid configuration is specified.
!ENDIF

!IF "$(OS)" == "Windows_NT"
NULL=
!ELSE
NULL=nul
!ENDIF

!IF  "$(CFG)" == "isapi_dll - Win32 Release"

OUTDIR=.\bin
INTDIR=.\obj
# Begin Custom Macros
OutDir=.\bin
# End Custom Macros

!IF "$(RECURSE)" == "0"

ALL : "$(OUTDIR)\tpcc.dll"

!ELSE

ALL : "tpcc_com_ps - Win32 Release" "tpcc_com_all - Win32 Release" "tm_com_dll -
Win32 Release" "db_dblib_dll - Win32 Release" "$(OUTDIR)\tpcc.dll"

!ENDIF

!IF "$(RECURSE)" == "1"
CLEAN :"db_dblib_dll - Win32 ReleaseCLEAN" "tm_com_dll - Win32 ReleaseCLEAN"
"tpcc_com_all - Win32 ReleaseCLEAN" "tpcc_com_ps - Win32 ReleaseCLEAN"
!ELSE
CLEAN :
!ENDIF
          -@erase "$(INTDIR)\tpcc.obj"
          -@erase "$(INTDIR)\tpcc.res"
          -@erase "$(INTDIR)\vc60.idb"
          -@erase "$(OUTDIR)\tpcc.dll"
          -@erase "$(OUTDIR)\tpcc.exp"
          -@erase "$(OUTDIR)\tpcc.lib"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

CPP=cl.exe
CPP_PROJ=/nologo /MD /W3 /GX /O2 /D "NDEBUG" /D "WIN32" /D "_WINDOWS"
/Fp"$(INTDIR)\isapi_dll.pch" /YX /Fo"$(INTDIR)\\" /Fd"$(INTDIR)\\" /FD /c

.c{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.c{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

MTL=midl.exe
MTL_PROJ=/nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
RSC=rc.exe
RSC_PROJ=/l 0x409 /fo"$(INTDIR)\tpcc.res" /d "NDEBUG"
BSC32=bscmake.exe
BSC32_FLAGS=/nologo /o"$(OUTDIR)\isapi_dll.bsc"
BSC32_SBRS= \

LINK32=link.exe
LINK32_FLAGS=wsock32.lib kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib
/nologo /subsystem:windows /dll /incremental:no /pdb:"$(OUTDIR)\tpcc.pdb"
/machine:I386 /nodefaultlib:"LIBCMT" /def:".\src\tpcc.def" /out:"$(OUTDIR)\tpcc.dll"
/implib:"$(OUTDIR)\tpcc.lib"
DEF_FILE= \
          ".\src\tpcc.def"
LINK32_OBJS= \
          "$(INTDIR)\tpcc.obj" \
          "$(INTDIR)\tpcc.res" \
          "..\db_dblib_dll\bin\tpcc_dblib.lib" \
          "..\tm_com_dll\bin\tpcc_com.lib" \
          "..\tpcc_com_all\bin\tpcc_com_all.lib" \
          "..\tpcc_com_ps\bin\tpcc_com_ps.lib"

"$(OUTDIR)\tpcc.dll" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ELSEIF  "$(CFG)" == "isapi_dll - Win32 Debug"

OUTDIR=.\bin
INTDIR=.\obj
# Begin Custom Macros
OutDir=.\bin
# End Custom Macros
```

```
!IF "$(RECURSE)" == "0"

ALL : "$(OUTDIR)\tpcc.dll" "$(OUTDIR)\isapi_dll.bsc"

!ELSE

ALL : "tpcc_com_ps - Win32 Debug" "tpcc_com_all - Win32 Debug" "tm_com_dll - Win32
Debug" "db_dblib_dll - Win32 Debug" "$(OUTDIR)\tpcc.dll" "$(OUTDIR)\isapi_dll.bsc"

!ENDIF

!IF "$(RECURSE)" == "1"
CLEAN :"db_dblib_dll - Win32 DebugCLEAN" "tm_com_dll - Win32 DebugCLEAN"
"tpcc_com_all - Win32 DebugCLEAN" "tpcc_com_ps - Win32 DebugCLEAN"
!ELSE
CLEAN :
!ENDIF
          -@erase "$(INTDIR)\tpcc.obj"
          -@erase "$(INTDIR)\tpcc.res"
          -@erase "$(INTDIR)\tpcc.sbr"
          -@erase "$(INTDIR)\vc60.idb"
          -@erase "$(INTDIR)\vc60.pdb"
          -@erase "$(OUTDIR)\isapi_dll.bsc"
          -@erase "$(OUTDIR)\tpcc.dll"
          -@erase "$(OUTDIR)\tpcc.exp"
          -@erase "$(OUTDIR)\tpcc.ilk"
          -@erase "$(OUTDIR)\tpcc.lib"
          -@erase "$(OUTDIR)\tpcc.pdb"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

CPP=cl.exe
CPP_PROJ=/nologo /MDd /W3 /GX /ZI /Od /D "_DEBUG" /D "WIN32" /D "_WINDOWS"
/FR"$(INTDIR)\\" /Fp"$(INTDIR)\isapi_dll.pch" /YX /Fo"$(INTDIR)\\" /Fd"$(INTDIR)\\"
/FD /c

.c{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.c{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

MTL=midl.exe
MTL_PROJ=/nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
RSC=rc.exe
RSC_PROJ=/l 0x409 /fo"$(INTDIR)\tpcc.res" /d "_DEBUG"
BSC32=bscmake.exe
BSC32_FLAGS=/nologo /o"$(OUTDIR)\isapi_dll.bsc"
BSC32_SBRS= \
          "$(INTDIR)\tpcc.sbr"

"$(OUTDIR)\isapi_dll.bsc" : "$(OUTDIR)" $(BSC32_SBRS)
    $(BSC32) @<<
  $(BSC32_FLAGS) $(BSC32_SBRS)
<<

LINK32=link.exe
LINK32_FLAGS=wsock32.lib kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib
/nologo /subsystem:windows /dll /incremental:yes /pdb:"$(OUTDIR)\tpcc.pdb" /debug
/machine:I386 /nodefaultlib:"LIBCMTD" /def:".\src\tpcc.def"
/out:"$(OUTDIR)\tpcc.dll" /implib:"$(OUTDIR)\tpcc.lib" /pdbtype:sept
DEF_FILE= \
          ".\src\tpcc.def"
LINK32_OBJS= \
          "$(INTDIR)\tpcc.obj" \
          "$(INTDIR)\tpcc.res" \
          "..\db_dblib_dll\bin\tpcc_dblib.lib" \
          "..\tm_com_dll\bin\tpcc_com.lib" \
          "..\tpcc_com_all\bin\tpcc_com_all.lib" \
          "..\tpcc_com_ps\bin\tpcc_com_ps.lib"

"$(OUTDIR)\tpcc.dll" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ELSEIF  "$(CFG)" == "isapi_dll - Win32 IceCAP"

OUTDIR=.\bin
INTDIR=.\obj
# Begin Custom Macros
OutDir=.\bin
# End Custom Macros

!IF "$(RECURSE)" == "0"

ALL : "$(OUTDIR)\tpcc.dll" "$(OUTDIR)\isapi_dll.bsc"

!ELSE

ALL : "db_dblib_dll - Win32 IceCAP" "$(OUTDIR)\tpcc.dll" "$(OUTDIR)\isapi_dll.bsc"

!ENDIF

!IF "$(RECURSE)" == "1"
CLEAN :"db_dblib_dll - Win32 IceCAPCLEAN"
!ELSE
```

```
CLEAN :
!ENDIF
          -@erase "$(INTDIR)\tpcc.obj"
          -@erase "$(INTDIR)\tpcc.res"
          -@erase "$(INTDIR)\tpcc.sbr"
          -@erase "$(INTDIR)\vc60.idb"
          -@erase "$(INTDIR)\vc60.pdb"
          -@erase "$(OUTDIR)\isapi_dll.bsc"
          -@erase "$(OUTDIR)\tpcc.dll"
          -@erase "$(OUTDIR)\tpcc.exp"
          -@erase "$(OUTDIR)\tpcc.ilk"
          -@erase "$(OUTDIR)\tpcc.lib"
          -@erase "$(OUTDIR)\tpcc.pdb"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

CPP=cl.exe
CPP_PROJ=/nologo /MD /W3 /GX /Zi /O2 /D "NDEBUG" /D "ICECAP" /D "WIN32" /D
"_WINDOWS" /FR"$(INTDIR)\\" /Fp"$(INTDIR)\isapi_dll.pch" /YX /Fo"$(INTDIR)\\"
/Fd"$(INTDIR)\\" /FD /Gh /c

.c{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.c{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

MTL=midl.exe
MTL_PROJ=/nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
RSC=rc.exe
RSC_PROJ=/l 0x409 /fo"$(INTDIR)\tpcc.res" /d "_DEBUG"
BSC32=bscmake.exe
BSC32_FLAGS=/nologo /o"$(OUTDIR)\isapi_dll.bsc"
BSC32_SBRS= \
          "$(INTDIR)\tpcc.sbr"

"$(OUTDIR)\isapi_dll.bsc" : "$(OUTDIR)" $(BSC32_SBRS)
    $(BSC32) @<<
  $(BSC32_FLAGS) $(BSC32_SBRS)
<<

LINK32=link.exe
LINK32_FLAGS=icap.lib ..\common\txnlog\lib\release\rtetime.lib
..\common\txnlog\lib\release\spinlock.lib ..\common\txnlog\lib\release\error.lib
..\common\txnlog\lib\release\txnlog.lib wsock32.lib kernel32.lib user32.lib
gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib
uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:windows /dll /incremental:yes
/pdb:"$(OUTDIR)\tpcc.pdb" /debug /machine:I386 /def:".\src\tpcc.def"
/out:"$(OUTDIR)\tpcc.dll" /implib:"$(OUTDIR)\tpcc.lib" /pdbtype:sept
DEF_FILE= \
          ".\src\tpcc.def"
LINK32_OBJS= \
          "$(INTDIR)\tpcc.obj" \
          "$(INTDIR)\tpcc.res" \
          "..\db_dblib_dll\bin\tpcc_dblib.lib"

"$(OUTDIR)\tpcc.dll" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ENDIF


!IF "$(NO_EXTERNAL_DEPS)" != "1"
!IF EXISTS("isapi_dll.dep")
!INCLUDE "isapi_dll.dep"
!ELSE
!MESSAGE Warning: cannot find "isapi_dll.dep"
!ENDIF
!ENDIF


!IF "$(CFG)" == "isapi_dll - Win32 Release" || "$(CFG)" == "isapi_dll - Win32 Debug"
|| "$(CFG)" == "isapi_dll - Win32 IceCAP"
SOURCE=.\src\tpcc.cpp

!IF  "$(CFG)" == "isapi_dll - Win32 Release"


"$(INTDIR)\tpcc.obj" : $(SOURCE) "$(INTDIR)"
          $(CPP) $(CPP_PROJ) $(SOURCE)


!ELSEIF  "$(CFG)" == "isapi_dll - Win32 Debug"


"$(INTDIR)\tpcc.obj"          "$(INTDIR)\tpcc.sbr" : $(SOURCE) "$(INTDIR)"
          $(CPP) $(CPP_PROJ) $(SOURCE)


!ELSEIF  "$(CFG)" == "isapi_dll - Win32 IceCAP"


"$(INTDIR)\tpcc.obj"          "$(INTDIR)\tpcc.sbr" : $(SOURCE) "$(INTDIR)"
          $(CPP) $(CPP_PROJ) $(SOURCE)
```

```
!ENDIF

SOURCE=.\src\tpcc.rc

!IF  "$(CFG)" == "isapi_dll - Win32 Release"


"$(INTDIR)\tpcc.res" : $(SOURCE) "$(INTDIR)"
         $(RSC) /l 0x409 /fo"$(INTDIR)\tpcc.res" /i "src" /d "NDEBUG" $(SOURCE)


!ELSEIF  "$(CFG)" == "isapi_dll - Win32 Debug"


"$(INTDIR)\tpcc.res" : $(SOURCE) "$(INTDIR)"
         $(RSC) /l 0x409 /fo"$(INTDIR)\tpcc.res" /i "src" /d "_DEBUG" $(SOURCE)


!ELSEIF  "$(CFG)" == "isapi_dll - Win32 IceCAP"


"$(INTDIR)\tpcc.res" : $(SOURCE) "$(INTDIR)"
         $(RSC) /l 0x409 /fo"$(INTDIR)\tpcc.res" /i "src" /d "_DEBUG" $(SOURCE)


!ENDIF

!IF  "$(CFG)" == "isapi_dll - Win32 Release"

"db_dblib_dll - Win32 Release" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Release"
   cd "..\isapi_dll"

"db_dblib_dll - Win32 ReleaseCLEAN" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Release"
RECURSE=1 CLEAN
   cd "..\isapi_dll"

!ELSEIF  "$(CFG)" == "isapi_dll - Win32 Debug"

"db_dblib_dll - Win32 Debug" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Debug"
   cd "..\isapi_dll"

"db_dblib_dll - Win32 DebugCLEAN" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Debug"
RECURSE=1 CLEAN
   cd "..\isapi_dll"

!ELSEIF  "$(CFG)" == "isapi_dll - Win32 IceCAP"

"db_dblib_dll - Win32 IceCAP" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 IceCAP"
   cd "..\isapi_dll"

"db_dblib_dll - Win32 IceCAPCLEAN" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 IceCAP"
RECURSE=1 CLEAN
   cd "..\isapi_dll"

!ENDIF

!IF  "$(CFG)" == "isapi_dll - Win32 Release"

"tm_com_dll - Win32 Release" :
   cd "\webclnt\tm_com_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\tm_com_dll.mak CFG="tm_com_dll - Win32 Release"
   cd "..\isapi_dll"

"tm_com_dll - Win32 ReleaseCLEAN" :
   cd "\webclnt\tm_com_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\tm_com_dll.mak CFG="tm_com_dll - Win32 Release"
RECURSE=1 CLEAN
   cd "..\isapi_dll"

!ELSEIF  "$(CFG)" == "isapi_dll - Win32 Debug"

"tm_com_dll - Win32 Debug" :
   cd "\webclnt\tm_com_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\tm_com_dll.mak CFG="tm_com_dll - Win32 Debug"
   cd "..\isapi_dll"

"tm_com_dll - Win32 DebugCLEAN" :
   cd "\webclnt\tm_com_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\tm_com_dll.mak CFG="tm_com_dll - Win32 Debug"
RECURSE=1 CLEAN
   cd "..\isapi_dll"

!ELSEIF  "$(CFG)" == "isapi_dll - Win32 IceCAP"

!ENDIF

!IF  "$(CFG)" == "isapi_dll - Win32 Release"

"tpcc_com_all - Win32 Release" :
   cd "\webclnt\tpcc_com_all"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_all.mak CFG="tpcc_com_all - Win32 Release"
   cd "..\isapi_dll"

"tpcc_com_all - Win32 ReleaseCLEAN" :
   cd "\webclnt\tpcc_com_all"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_all.mak CFG="tpcc_com_all - Win32 Release"
RECURSE=1 CLEAN
   cd "..\isapi_dll"

!ELSEIF  "$(CFG)" == "isapi_dll - Win32 Debug"

"tpcc_com_all - Win32 Debug" :
   cd "\webclnt\tpcc_com_all"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_all.mak CFG="tpcc_com_all - Win32 Debug"
   cd "..\isapi_dll"

"tpcc_com_all - Win32 DebugCLEAN" :
   cd "\webclnt\tpcc_com_all"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_all.mak CFG="tpcc_com_all - Win32 Debug"
RECURSE=1 CLEAN
   cd "..\isapi_dll"

!ELSEIF  "$(CFG)" == "isapi_dll - Win32 IceCAP"
```

```
!ENDIF

!IF  "$(CFG)" == "isapi_dll - Win32 Release"

"tpcc_com_ps - Win32 Release" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Release"
   cd "..\isapi_dll"

"tpcc_com_ps - Win32 ReleaseCLEAN" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Release"
RECURSE=1 CLEAN
   cd "..\isapi_dll"

!ELSEIF  "$(CFG)" == "isapi_dll - Win32 Debug"

"tpcc_com_ps - Win32 Debug" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Debug"
   cd "..\isapi_dll"

"tpcc_com_ps - Win32 DebugCLEAN" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Debug"
RECURSE=1 CLEAN
   cd "..\isapi_dll"

!ELSEIF  "$(CFG)" == "isapi_dll - Win32 IceCAP"

!ENDIF


!ENDIF
```

isapi_resource.h

```
//{{NO_DEPENDENCIES}}
// Microsoft Developer Studio generated include file.
// Used by tpcc.rc
//
#define IDD_DIALOG1                     101

// Next default values for new objects
//
#ifdef APSTUDIO_INVOKED
#ifndef APSTUDIO_READONLY_SYMBOLS
#define _APS_NEXT_RESOURCE_VALUE        102
#define _APS_NEXT_COMMAND_VALUE         40001
#define _APS_NEXT_CONTROL_VALUE         1000
#define _APS_NEXT_SYMED_VALUE           101
#endif
#endif
```

Methods.h

```
/* FILE: METHODS.H
* Microsoft TPC-C Kit Ver. 4.20.000
* Copyright Microsoft, 1999
* All Rights Reserved
*
* not yet audited
*
* PURPOSE: Header file for COM components.
*
* Change history:
* 4.20.000 - first version
*/
enum COMPONENT_ERROR
{
          ERR_MISSING_REGISTRY_ENTRIES = 1,
                    ERR_LOADDLL_FAILED,
                    ERR_GETPROCADDR_FAILED,
                    ERR_UNKNOWN_DB_PROTOCOL
};
class CCOMPONENT_ERR : public CBaseErr
{
public:
          CCOMPONENT_ERR(COMPONENT_ERROR Err)
          {
                    m_Error = Err;
                    m_szTextDetail = NULL;
                    m_SystemErr = 0;
                    m_szErrorText = NULL;
          };
          CCOMPONENT_ERR(COMPONENT_ERROR Err, char
                    *szTextDetail, DWORD dwSystemErr)
          {
                    m_Error = Err;
                    m_szTextDetail = new
                              char[strlen(szTextDetail)+1];
                    strcpy( m_szTextDetail, szTextDetail );
                    m_SystemErr = dwSystemErr;
                    m_szErrorText = NULL;
          };
          ~CCOMPONENT_ERR()
          {
                    if (m_szTextDetail != NULL)
                              delete [] m_szTextDetail;
                    if (m_szErrorText != NULL)
                              delete [] m_szErrorText;
          };
          COMPONENT_ERROR m_Error;
          char *m_szTextDetail;
          char *m_szErrorText;
          DWORD m_SystemErr;
          int ErrorType() {return ERR_TYPE_COMPONENT;};
          int ErrorNum() {return m_Error;};
          char *ErrorText();
};
static void WriteMessageToEventLog(LPTSTR lpszMsg);
////////////////////////////////////////////////////////////////
//////////
// CTPCC_Common
class CTPCC_Common :
public ITPCC,
public IObjectControl,
public IObjectConstruct,
public CComObjectRootEx<CComSingleThreadModel>
{
public:
```

```
        BEGIN_COM_MAP(CTPCC_Common)
                COM_INTERFACE_ENTRY(ITPCC)
                COM_INTERFACE_ENTRY(IObjectControl)
                COM_INTERFACE_ENTRY(IObjectConstruct)
                END_COM_MAP()
                CTPCC_Common();
        ~CTPCC_Common();
        // ITPCC
public:
        HRESULT __stdcall NewOrder( VARIANT txn_in,
                VARIANT* txn_out);
        HRESULT __stdcall Payment( VARIANT txn_in,
                VARIANT* txn_out);
        HRESULT __stdcall Delivery( VARIANT txn_in,
                VARIANT* txn_out) {return E_NOTIMPL;}
        HRESULT __stdcall StockLevel( VARIANT txn_in, VARIANT*
                txn_out);
        HRESULT __stdcall OrderStatus( VARIANT txn_in,
                VARIANT* txn_out);
        HRESULT __stdcall CallSetComplete();
        // IObjectControl
        STDMETHODIMP_(BOOL) CanBePooled() { return m_bCanBePooled;
        }
        STDMETHODIMP Activate() { return S_OK; } // we don't support COM Services
transactions (no enlistment)
        STDMETHODIMP_(void) Deactivate() { /* nothing to do */ }
        // IObjectConstruct
        STDMETHODIMP Construct(IDispatch * pUnk);
        // helper methods
private:
        BOOL m_bCanBePooled;
        CTPCC_BASE *m_pTxn;
        struct COM_DATA
        {
                int retval;
                int error;
                union
                {
                        NEW_ORDER_DATA NewOrder;
                        PAYMENT_DATA Payment;
                        DELIVERY_DATA Delivery;
                        STOCK_LEVEL_DATA StockLevel;
                        ORDER_STATUS_DATA OrderStatus;
                } u;
        };
};
////////////////////////////////////////////////////////////////
//////////
// CTPCC
class CTPCC :
public CTPCC_Common,
public CComCoClass<CTPCC, &CLSID_TPCC>
{
public:
        DECLARE_REGISTRY_RESOURCEID(IDR_TPCC)
                BEGIN_COM_MAP(CTPCC)
                COM_INTERFACE_ENTRY2(IUnknown, CComObjectRootEx)
                COM_INTERFACE_ENTRY_CHAIN(CTPCC_Common)
                END_COM_MAP()
};
////////////////////////////////////////////////////////////////
//////////
// CNewOrder
class CNewOrder :
public CTPCC_Common,
public CComCoClass<CNewOrder, &CLSID_NewOrder>
{
public:
        DECLARE_REGISTRY_RESOURCEID(IDR_NEWORDER)
                BEGIN_COM_MAP(CNewOrder)
                COM_INTERFACE_ENTRY2(IUnknown, CComObjectRootEx)
                COM_INTERFACE_ENTRY_CHAIN(CTPCC_Common)
                END_COM_MAP()
                // ITPCC
public:
        // HRESULT __stdcall NewOrder( VARIANT txn_in,VARIANT* txn_out) {return
E_NOTIMPL;}
        HRESULT __stdcall Payment( VARIANT txn_in,
                VARIANT* txn_out) {return E_NOTIMPL;}
        HRESULT __stdcall StockLevel( VARIANT txn_in, VARIANT*
                txn_out) {return E_NOTIMPL;}
        HRESULT __stdcall OrderStatus( VARIANT txn_in,
                VARIANT* txn_out) {return E_NOTIMPL;}
};
////////////////////////////////////////////////////////
//////////////////
// COrderStatus
class COrderStatus :
public CTPCC_Common,
public CComCoClass<COrderStatus, &CLSID_OrderStatus>
{
public:
        DECLARE_REGISTRY_RESOURCEID(IDR_ORDERSTATUS)
                BEGIN_COM_MAP(COrderStatus)
                COM_INTERFACE_ENTRY2(IUnknown, CComObjectRootEx)
                COM_INTERFACE_ENTRY_CHAIN(CTPCC_Common)
                END_COM_MAP()
                // ITPCC
public:
        HRESULT __stdcall NewOrder( VARIANT txn_in,
                VARIANT* txn_out) {return E_NOTIMPL;}
        HRESULT __stdcall Payment( VARIANT txn_in,
                VARIANT* txn_out) {return E_NOTIMPL;}
        HRESULT __stdcall StockLevel( VARIANT txn_in, VARIANT*
                txn_out) {return E_NOTIMPL;}
        // HRESULT __stdcall OrderStatus( VARIANT txn_in,VARIANT* txn_out) {return
E_NOTIMPL;}
};
////////////////////////////////////////////////////////////////
//////////
// CPayment
class CPayment :
public CTPCC_Common,
public CComCoClass<CPayment, &CLSID_Payment>
{
public:
        DECLARE_REGISTRY_RESOURCEID(IDR_PAYMENT)
                BEGIN_COM_MAP(CPayment)
                COM_INTERFACE_ENTRY2(IUnknown, CComObjectRootEx)
                COM_INTERFACE_ENTRY_CHAIN(CTPCC_Common)
                END_COM_MAP()
                // ITPCC
public:
        HRESULT __stdcall NewOrder( VARIANT txn_in,
                VARIANT* txn_out) {return E_NOTIMPL;}
```

```
        // HRESULT __stdcall Payment( VARIANT txn_in,VARIANT* txn_out) {return
E_NOTIMPL;}
        HRESULT __stdcall StockLevel( VARIANT txn_in, VARIANT*
                txn_out) {return E_NOTIMPL;}
        HRESULT __stdcall OrderStatus( VARIANT txn_in,
                VARIANT* txn_out) {return E_NOTIMPL;}
};
////////////////////////////////////////////////////////////
//////////
// CStockLevel
class CStockLevel :
public CTPCC_Common,
public CComCoClass<CStockLevel, &CLSID_StockLevel>
{
public:
        DECLARE_REGISTRY_RESOURCEID(IDR_STOCKLEVEL)
                BEGIN_COM_MAP(CStockLevel)
                COM_INTERFACE_ENTRY2(IUnknown, CComObjectRootEx)
                COM_INTERFACE_ENTRY_CHAIN(CTPCC_Common)
                END_COM_MAP()
                // ITPCC
public:
        HRESULT __stdcall NewOrder( VARIANT txn_in,
                VARIANT* txn_out) {return E_NOTIMPL;}
        HRESULT __stdcall Payment( VARIANT txn_in,
                VARIANT* txn_out) {return E_NOTIMPL;}
        // HRESULT __stdcall StockLevel( VARIANT txn_in, VARIANT*txn_out) {return
E_NOTIMPL;}
        HRESULT __stdcall OrderStatus( VARIANT txn_in,
                VARIANT* txn_out) {return E_NOTIMPL;}
};
```

ReadRegistry.cpp

```
/*      FILE:               READREGISTRY.CPP
 *                                  Microsoft TPC-C Kit Ver. 4.20.000
 *                                  Copyright Microsoft, 1999
 *           All Rights Reserved
 *
 *                                  not yet audited
 *
 *      PURPOSE:  Implementation for TPC-C Tuxedo class.
 *      Contact:  Charles Levine (clevine@microsoft.com)
 *
 *  Change history:
 *                4.20.000 - first version
 */


/* FUNCTION: ReadTPCCRegistrySettings
 *
 * PURPOSE:         This function reads the NT registry for startup parameters.
There parameters are
 *                          under the TPCC key.
 *
 * RETURNS          FALSE = no errors
 *                          TRUE  = error reading registry
 */
BOOL ReadTPCCRegistrySettings( TPCCREGISTRYDATA *pReg )
{
        HKEY    hKey;
        DWORD   size;
        DWORD   type;
        DWORD   dwTmp;
        char    szTmp[256];

        if ( RegOpenKeyEx(HKEY_LOCAL_MACHINE, "SOFTWARE\\Microsoft\\TPCC", 0,
KEY_READ, &hKey) != ERROR_SUCCESS )
                return TRUE;

        // determine database protocol to use; may be either ODBC or DBLIB
        pReg->eDB_Protocol = Unspecified;
        size = sizeof(szTmp);
        if ( RegQueryValueEx(hKey, "DB_Protocol", 0, &type, (BYTE *)&szTmp, &size)
== ERROR_SUCCESS )
        {
                if ( !stricmp(szTmp, szDBNames[ODBC]) )
                        pReg->eDB_Protocol = ODBC;
                else if ( !stricmp(szTmp, szDBNames[DBLIB]) )
                        pReg->eDB_Protocol = DBLIB;
        }

        pReg->eTxnMon = None;
        // determine txn monitor to use; may be either TUXEDO, or blank
        size = sizeof(szTmp);
        if ( RegQueryValueEx(hKey, "TxnMonitor", 0, &type, (BYTE *)&szTmp, &size)
== ERROR_SUCCESS )
        {
                if ( !stricmp(szTmp, szTxnMonNames[TUXEDO]) )
                        pReg->eTxnMon = TUXEDO;
                else if ( !stricmp(szTmp, szTxnMonNames[ENCINA]) )
                        pReg->eTxnMon = ENCINA;
                else if ( !stricmp(szTmp, szTxnMonNames[COM]) )
                        pReg->eTxnMon = COM;
        }

        pReg->bCOM_SinglePool = FALSE;
        size = sizeof(szTmp);
        if ( RegQueryValueEx(hKey, "COM_SinglePool", 0, &type, (BYTE *)&szTmp,
&size) == ERROR_SUCCESS )
        {
                if ( !stricmp(szTmp, "YES") )
                        pReg->bCOM_SinglePool = TRUE;
        }

        pReg->dwMaxConnections = 0;
        size = sizeof(dwTmp);
        if ( ( RegQueryValueEx(hKey, "MaxConnections", 0, &type, (LPBYTE)&dwTmp,
&size) == ERROR_SUCCESS )
                && (type == REG_DWORD) )
                pReg->dwMaxConnections = dwTmp;

        pReg->dwMaxPendingDeliveries = 0;
        size = sizeof(dwTmp);
        if ( ( RegQueryValueEx(hKey, "MaxPendingDeliveries", 0, &type,
(LPBYTE)&dwTmp, &size) == ERROR_SUCCESS )
                && (type == REG_DWORD) )
                pReg->dwMaxPendingDeliveries = dwTmp;

        pReg->dwNumberOfDeliveryThreads = 0;
        size = sizeof(dwTmp);
        if ( ( RegQueryValueEx(hKey, "NumberOfDeliveryThreads", 0, &type,
(LPBYTE)&dwTmp, &size) == ERROR_SUCCESS )
                && (type == REG_DWORD) )
```

```
                    pReg->dwNumberOfDeliveryThreads = dwTmp;

          size = sizeof( pReg->szPath );
          if ( RegQueryValueEx(hKey, "Path", 0, &type, (BYTE *)&pReg->szPath, &size)
!= ERROR_SUCCESS )
                    pReg->szPath[0] = 0;

          size = sizeof( pReg->szDbServer );
          if ( RegQueryValueEx(hKey, "DbServer", 0, &type, (BYTE *)&pReg-
>szDbServer, &size) != ERROR_SUCCESS )
                    pReg->szDbServer[0] = 0;

          size = sizeof( pReg->szDbName );
          if ( RegQueryValueEx(hKey, "DbName", 0, &type, (BYTE *)&pReg->szDbName,
&size) != ERROR_SUCCESS )
                    pReg->szDbName[0] = 0;

          size = sizeof( pReg->szDbUser );
          if ( RegQueryValueEx(hKey, "DbUser", 0, &type, (BYTE *)&pReg->szDbUser,
&size) != ERROR_SUCCESS )
                    pReg->szDbUser[0] = 0;

          size = sizeof( pReg->szDbPassword );
          if ( RegQueryValueEx(hKey, "DbPassword", 0, &type, (BYTE *)&pReg-
>szDbPassword, &size) != ERROR_SUCCESS )
                    pReg->szDbPassword[0] = 0;

          RegCloseKey(hKey);

          return FALSE;
}
```

ReadRegistry.h

```
/*        FILE:               ReadRegistry.h
 *                                  Microsoft TPC-C Kit Ver. 4.20.000
 *                                  Copyright Microsoft, 1999
 *             All Rights Reserved
 *
 *                                  not audited
 *
 *        PURPOSE:  Header for registry related code.
 *
 *  Change history:
 *                  4.20.000 - first version
 */

enum DBPROTOCOL { Unspecified, ODBC, DBLIB };
const char *szDBNames[] = { "Unspecified", "ODBC", "DBLIB" };

enum TXNMON { None, TUXEDO, ENCINA, COM };
const char *szTxnMonNames[] = { "NONE", "TUXEDO", "ENCINA", "COM" };

//This structure defines the data necessary to keep distinct for each terminal or
client connection.
typedef struct _TPCCREGISTRYDATA
{
          enum DBPROTOCOL eDB_Protocol;
          enum TXNMON eTxnMon;
          BOOL bCOM_SinglePool;
          DWORD dwMaxConnections;
          DWORD dwMaxPendingDeliveries;
          DWORD dwNumberOfDeliveryThreads;
          char szPath[128];
          char szDbServer[32];
          char szDbName[32];
          char szDbUser[32];
          char szDbPassword[32];
} TPCCREGISTRYDATA, *PTPCCREGISTRYDATA;

BOOL ReadTPCCRegistrySettings( TPCCREGISTRYDATA *pReg );
```

resource.h

```
//{{NO_DEPENDENCIES}}
// Microsoft Developer Studio generated include file.
// Used by install.rc
//
#define IDD_DIALOG1                     101
#define IDI_ICON1                       102
#define IDR_TPCCDLL                     103
#define IDD_DIALOG2                     105
#define IDI_ICON2                       106
#define IDR_DELIVERY                    107
#define IDD_DIALOG3                     108
#define IDR_LICENSE1                    112
#define IDD_DIALOG4                     113
#define IDR_TPCCOBJ1                    117
#define IDR_TPCCSTUB1                   118
#define IDR_DBLIB_DLL                   122
#define IDR_ODBC_DLL                    123
#define IDR_TUXEDO_APP                  124
#define IDR_TUXEDO_DLL                  125
#define IDR_COM_DLL                     126
#define IDR_COMPS_DLL                   127
#define IDR_COMALL_DLL                  128
#define IDR_COMTYPLIB_DLL               129
#define BN_LOG                          1001
#define ED_KEEP                         1002
#define ED_THREADS                      1003
#define ED_THREADS2                     1004
#define IDC_PATH                        1007
#define IDC_VERSION                     1009
#define IDC_RESULTS                     1010
#define IDC_PROGRESS1                   1011
#define IDC_STATUS                      1012
#define IDC_BUTTON1                     1013
#define ED_MAXCONNECTION                1014
#define ED_IIS_MAX_THEAD_POOL_LIMIT     1015
#define ED_MAXDELIVERIES                1016
#define ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE 1017
#define ED_IIS_THREAD_TIMEOUT           1018
#define ED_IIS_LISTEN_BACKLOG           1019
#define IDC_DBLIB                       1021
#define IDC_LICENSE                     1022
#define IDC_ODBC                        1022
#define IDC_CONNECT_POOL                1023
#define ED_DB_SERVER                    1023
#define ED_USER_CONNECT_DELAY_TIME      1024
#define ED_DB_USER_ID                   1024
#define IDC_MTS                         1025
#define IDC_TM_MTS                      1025
#define IDC_TM_TUXEDO                   1026
#define IDC_TM_NONE                     1027
```

```
#define ED_DB_PASSWORD                  1028
#define ED_DB_NAME                      1029
#define IDC_TM_ENCINA                   1030

// Next default values for new objects
//
#ifdef APSTUDIO_INVOKED
#ifndef APSTUDIO_READONLY_SYMBOLS
#define _APS_NEXT_RESOURCE_VALUE        133
#define _APS_NEXT_COMMAND_VALUE         40001
#define _APS_NEXT_CONTROL_VALUE         1031
#define _APS_NEXT_SYMED_VALUE           101
#endif
#endif
```

tm_com_dll.dep

```
.\src\tpcc_com.cpp : \
          "..\..\program files\microsoft sdk\include\basetsd.h"\
          "..\..\program files\microsoft sdk\include\guiddef.h"\
          "..\..\program files\microsoft sdk\include\propidl.h"\
          "..\..\program files\microsoft sdk\include\reason.h"\
          "..\..\program files\microsoft sdk\include\stralign.h"\
          "..\..\program files\microsoft sdk\include\tvout.h"\
          "..\..\program files\microsoft sdk\include\winefs.h"\
          "..\..\tpc-c.ibm\include\db2tpcc.h"\
          "..\..\tpc-c.ibm\include\lval.h"\
          "..\common\src\trans.h"\
          "..\common\src\txn_base.h"\
          "..\tpcc_com_all\src\tpcc_com_all_i.c"\
          "..\tpcc_com_ps\src\tpcc_com_ps.h"\
          "..\tpcc_com_ps\src\tpcc_com_ps_i.c"\
          ".\src\tpcc_com.h"\
```

tm_com_dll.mak

```
!IF "$(CFG)" == ""
CFG=tm_com_dll - Win32 Debug
!MESSAGE No configuration specified. Defaulting to tm_com_dll - Win32 Debug.
!ENDIF

!IF "$(CFG)" != "tm_com_dll - Win32 Release" && "$(CFG)" != "tm_com_dll - Win32
Debug"
!MESSAGE Invalid configuration "$(CFG)" specified.
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "tm_com_dll.mak" CFG="tm_com_dll - Win32 Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "tm_com_dll - Win32 Release" (based on "Win32 (x86) Dynamic-Link Library")
!MESSAGE "tm_com_dll - Win32 Debug" (based on "Win32 (x86) Dynamic-Link Library")
!MESSAGE
!ERROR An invalid configuration is specified.
!ENDIF

!IF "$(OS)" == "Windows_NT"
NULL=
!ELSE
NULL=nul
!ENDIF

!IF  "$(CFG)" == "tm_com_dll - Win32 Release"

OUTDIR=.\bin
INTDIR=.\obj
# Begin Custom Macros
OutDir=.\bin
# End Custom Macros

!IF "$(RECURSE)" == "0"

ALL : "$(OUTDIR)\tpcc_com.dll"

!ELSE

ALL : "tpcc_com_all - Win32 Release" "db_dblib_dll - Win32 Release" "tpcc_com_ps -
Win32 Release" "$(OUTDIR)\tpcc_com.dll"

!ENDIF

!IF "$(RECURSE)" == "1"
CLEAN :"tpcc_com_ps - Win32 ReleaseCLEAN" "db_dblib_dll - Win32 ReleaseCLEAN"
"tpcc_com_all - Win32 ReleaseCLEAN"
!ELSE
CLEAN :
!ENDIF
          -@erase "$(INTDIR)\tpcc_com.obj"
          -@erase "$(INTDIR)\vc60.idb"
          -@erase "$(OUTDIR)\tpcc_com.dll"
          -@erase "$(OUTDIR)\tpcc_com.exp"
          -@erase "$(OUTDIR)\tpcc_com.lib"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

CPP=cl.exe
CPP_PROJ=/nologo /MD /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_WINDOWS"
/Fp"$(INTDIR)\tm_com_dll.pch" /YX /Fo"$(INTDIR)\\" /Fd"$(INTDIR)\\" /FD /c

.c{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.c{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<
```

```
.cpp{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

MTL=midl.exe
MTL_PROJ=/nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
RSC=rc.exe
BSC32=bscmake.exe
BSC32_FLAGS=/nologo /o"$(OUTDIR)\tm_com_dll.bsc"
BSC32_SBRS= \

LINK32=link.exe
LINK32_FLAGS=kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib
/nologo /subsystem:windows /dll /incremental:no /pdb:"$(OUTDIR)\tpcc_com.pdb"
/machine:I386 /out:"$(OUTDIR)\tpcc_com.dll" /implib:"$(OUTDIR)\tpcc_com.lib"
LINK32_OBJS= \
          "$(INTDIR)\tpcc_com.obj" \
          "..\tpcc_com_ps\bin\tpcc_com_ps.lib" \
          "..\db_dblib_dll\bin\tpcc_dblib.lib" \
          "..\tpcc_com_all\bin\tpcc_com_all.lib"

"$(OUTDIR)\tpcc_com.dll" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ELSEIF  "$(CFG)" == "tm_com_dll - Win32 Debug"

OUTDIR=.\bin
INTDIR=.\obj
# Begin Custom Macros
OutDir=.\bin
# End Custom Macros

!IF "$(RECURSE)" == "0"

ALL : "$(OUTDIR)\tpcc_com.dll" "$(OUTDIR)\tm_com_dll.bsc"

!ELSE

ALL : "tpcc_com_all - Win32 Debug" "db_dblib_dll - Win32 Debug" "tpcc_com_ps - Win32
Debug" "$(OUTDIR)\tpcc_com.dll" "$(OUTDIR)\tm_com_dll.bsc"

!ENDIF

!IF "$(RECURSE)" == "1"
CLEAN :"tpcc_com_ps - Win32 DebugCLEAN" "db_dblib_dll - Win32 DebugCLEAN"
"tpcc_com_all - Win32 DebugCLEAN"
!ELSE
CLEAN :
!ENDIF
          -@erase "$(INTDIR)\tpcc_com.obj"
          -@erase "$(INTDIR)\tpcc_com.sbr"
          -@erase "$(INTDIR)\vc60.idb"
          -@erase "$(INTDIR)\vc60.pdb"
          -@erase "$(OUTDIR)\tm_com_dll.bsc"
          -@erase "$(OUTDIR)\tpcc_com.dll"
          -@erase "$(OUTDIR)\tpcc_com.exp"
          -@erase "$(OUTDIR)\tpcc_com.ilk"
          -@erase "$(OUTDIR)\tpcc_com.lib"
          -@erase "$(OUTDIR)\tpcc_com.pdb"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

CPP=cl.exe
CPP_PROJ=/nologo /MDd /W3 /Gm /GX /ZI /Od /D "_ATL_STATIC_REGISTRY" /D "WIN32" /D
"_DEBUG" /D "_WINDOWS" /FR"$(INTDIR)\\" /Fp"$(INTDIR)\tm_com_dll.pch" /YX
/Fo"$(INTDIR)\\" /Fd"$(INTDIR)\\" /FD /c

.c{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.c{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

MTL=midl.exe
MTL_PROJ=/nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
RSC=rc.exe
BSC32=bscmake.exe
BSC32_FLAGS=/nologo /o"$(OUTDIR)\tm_com_dll.bsc"
BSC32_SBRS= \
          "$(INTDIR)\tpcc_com.sbr"

"$(OUTDIR)\tm_com_dll.bsc" : "$(OUTDIR)" $(BSC32_SBRS)
    $(BSC32) @<<
  $(BSC32_FLAGS) $(BSC32_SBRS)
<<

LINK32=link.exe
```

```
LINK32_FLAGS=kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib
/nologo /subsystem:windows /dll /incremental:yes /pdb:"$(OUTDIR)\tpcc_com.pdb"
/debug /machine:I386 /out:"$(OUTDIR)\tpcc_com.dll" /implib:"$(OUTDIR)\tpcc_com.lib"
/pdbtype:sept
LINK32_OBJS= \
          "$(INTDIR)\tpcc_com.obj" \
          "..\tpcc_com_ps\bin\tpcc_com_ps.lib" \
          "..\db_dblib_dll\bin\tpcc_dblib.lib" \
          "..\tpcc_com_all\bin\tpcc_com_all.lib"

"$(OUTDIR)\tpcc_com.dll" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ENDIF


!IF "$(NO_EXTERNAL_DEPS)" != "1"
!IF EXISTS("tm_com_dll.dep")
!INCLUDE "tm_com_dll.dep"
!ELSE
!MESSAGE Warning: cannot find "tm_com_dll.dep"
!ENDIF
!ENDIF


!IF "$(CFG)" == "tm_com_dll - Win32 Release" || "$(CFG)" == "tm_com_dll - Win32
Debug"

!IF  "$(CFG)" == "tm_com_dll - Win32 Release"

"tpcc_com_ps - Win32 Release" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Release"
   cd "..\tm_com_dll"

"tpcc_com_ps - Win32 ReleaseCLEAN" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Release"
RECURSE=1 CLEAN
   cd "..\tm_com_dll"

!ELSEIF  "$(CFG)" == "tm_com_dll - Win32 Debug"

"tpcc_com_ps - Win32 Debug" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Debug"
   cd "..\tm_com_dll"

"tpcc_com_ps - Win32 DebugCLEAN" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Debug"
RECURSE=1 CLEAN
   cd "..\tm_com_dll"

!ENDIF

!IF  "$(CFG)" == "tm_com_dll - Win32 Release"

"db_dblib_dll - Win32 Release" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Release"
   cd "..\tm_com_dll"

"db_dblib_dll - Win32 ReleaseCLEAN" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Release"
RECURSE=1 CLEAN
   cd "..\tm_com_dll"

!ELSEIF  "$(CFG)" == "tm_com_dll - Win32 Debug"

"db_dblib_dll - Win32 Debug" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Debug"
   cd "..\tm_com_dll"

"db_dblib_dll - Win32 DebugCLEAN" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Debug"
RECURSE=1 CLEAN
   cd "..\tm_com_dll"

!ENDIF

!IF  "$(CFG)" == "tm_com_dll - Win32 Release"

"tpcc_com_all - Win32 Release" :
   cd "\webclnt\tpcc_com_all"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_all.mak CFG="tpcc_com_all - Win32 Release"
   cd "..\tm_com_dll"

"tpcc_com_all - Win32 ReleaseCLEAN" :
   cd "\webclnt\tpcc_com_all"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_all.mak CFG="tpcc_com_all - Win32 Release"
RECURSE=1 CLEAN
   cd "..\tm_com_dll"

!ELSEIF  "$(CFG)" == "tm_com_dll - Win32 Debug"

"tpcc_com_all - Win32 Debug" :
   cd "\webclnt\tpcc_com_all"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_all.mak CFG="tpcc_com_all - Win32 Debug"
   cd "..\tm_com_dll"

"tpcc_com_all - Win32 DebugCLEAN" :
   cd "\webclnt\tpcc_com_all"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_all.mak CFG="tpcc_com_all - Win32 Debug"
RECURSE=1 CLEAN
   cd "..\tm_com_dll"

!ENDIF

SOURCE=.\src\tpcc_com.cpp

!IF  "$(CFG)" == "tm_com_dll - Win32 Release"


"$(INTDIR)\tpcc_com.obj" : $(SOURCE) "$(INTDIR)"
          $(CPP) $(CPP_PROJ) $(SOURCE)


!ELSEIF  "$(CFG)" == "tm_com_dll - Win32 Debug"
```

```
"$(INTDIR)\tpcc_com.obj"      "$(INTDIR)\tpcc_com.sbr" : $(SOURCE) "$(INTDIR)"
         $(CPP) $(CPP_PROJ) $(SOURCE)


!ENDIF


!ENDIF
```

tpcc.cpp

```
/*        FILE:               TPCC.C
 *                                    Microsoft TPC-C Kit Ver. 4.20.000
 *                                    Copyright Microsoft, 1999
 *              All Rights Reserved
 *
 *                                    Version 4.10.000 audited by Richard Gimarc,
Performance Metrics, 3/17/99
 *
 *        PURPOSE:  Main module for TPCC.DLL which is an ISAPI service dll.
 *        Contact:  Charles Levine (clevine@microsoft.com)
 *
 *  Change history:
 *                  4.20.000 - reworked error handling; added options for COM and
Encina txn monitors
 */

#include <windows.h>
#include <process.h>
#include <tchar.h>
#include <stdio.h>
#include <stdarg.h>
#include <malloc.h>
#include <stdlib.h>
#include <string.h>
#include <time.h>
#include <sys\timeb.h>
#include <io.h>
#include <assert.h>

#include <sqltypes.h>

#ifdef ICECAP
#include <icapexp.h>
#endif

#include "..\..\common\src\trans.h"              //tpckit transaction header
contains definations of structures specific to TPC-C
#include "..\..\common\src\error.h"
#include "..\..\common\src\txn_base.h"
#include "..\..\common\src\ReadRegistry.h"

#include "txnlog.h"

// Database layer includes
#include "..\..\db_dblib_dll\src\tpcc_dblib.h"             // DBLIB implementation
of TPC-C txns

// Txn monitor layer includes
#include "..\..\tm_com_dll\src\tpcc_com.h"                          // COM
Services implementation on TPC-C txns

#include "httpext.h"                                        //ISAPI DLL information
header
#include "tpcc.h"                                           //this dlls specific
structure, value e.t. header.


#define   LEN_ERR_STRING      256

// defines for Make<Txn>Form calls to distinguish input and output flavors
#define   OUTPUT_FORM         0
#define INPUT_FORM  1

char               szMyComputerName[MAX_COMPUTERNAME_LENGTH+1];

//Terminal client id structure
TERM      Term = { 0, 0, 0, NULL };

// The WEBCLIENT_VERSION string specifies the version level of this web client
interface.
// The RTE must be synchronized with the interface level on login, otherwise the
login
// will fail.  This is a sanity check to catch problems resulting from mismatched
versions
// of the RTE and web client.
#define WEBCLIENT_VERSION "410"

static    CRITICAL_SECTION             TermCriticalSection;

static  HINSTANCE hLibInstanceTm = NULL;
static  HINSTANCE hLibInstanceDb = NULL;

TYPE_CTPCC_DBLIB    *pCTPCC_DBLIB_new;;
TYPE_CTPCC_COM               *pCTPCC_COM_new;

// For deferred Delivery txns:

CTxnLog                                             *txnDelilog = NULL;
         //used to log delivery transaction information

HANDLE                                              hWorkerSemaphore    =
INVALID_HANDLE_VALUE;
HANDLE                                              hDoneEvent
         = INVALID_HANDLE_VALUE;
HANDLE                                              *pDeliHandles                =
NULL;

// configuration settings from registry
TPCCREGISTRYDATA             Reg;


DWORD                                               dwNumDeliveryThreads = 4;
CRITICAL_SECTION             DelBuffCriticalSection;                //critical
section for delivery transactions cache
DELIVERY_TRANSACTION         *pDelBuff                        = NULL;
DWORD                                               dwDelBuffSize                =
100;               // size of circular buffer for delivery txns
DWORD                                               dwDelBuffFreeCount;
                   // number of buffers free
DWORD                                               dwDelBuffBusyIndex  = 0;
         // index position of entry waiting to be delivered
```

```
DWORD                                           dwDelBuffFreeIndex  = 0;
          // index position of unused entry

#include "..\..\common\src\ReadRegistry.cpp"

/* FUNCTION: DllMain
 *
 * PURPOSE:         This function is the entry point for the DLL.  This
implementation is based on the
 *                          fact that DLL_PROCESS_ATTACH is only called from the
inet service once.
 *
 * ARGUMENTS:       HANDLE    hModule                                   module handle
 *                                    DWORD     ul_reason_for_call  reason for
call
 *                                    LPVOID    lpReserved
          reserved for future use
 *
 * RETURNS:                 BOOL      FALSE
          errors occured in initialization
 *                                                       TRUE
                   DLL successfully initialized
 */

BOOL APIENTRY DllMain(HANDLE hModule, DWORD ul_reason_for_call, LPVOID lpReserved)
{
          DWORD  i;
          char szEvent[LEN_ERR_STRING] = "\0";
          char szLogFile[128];
          char szDllName[128];

// debugging....
// DebugBreak();

          try
          {
                   switch( ul_reason_for_call )
                   {
                             case DLL_PROCESS_ATTACH:
                                      {
                                               DWORD dwSize =
MAX_COMPUTERNAME_LENGTH+1;
                                               GetComputerName(szMyComputerName,
&dwSize);
                                               szMyComputerName[dwSize] = 0;
                                      }

                                      DisableThreadLibraryCalls((HMODULE)hModule);

          InitializeCriticalSection(&TermCriticalSection);

                                      if ( ReadTPCCRegistrySettings( &Reg ) )
                                               throw new CWEBCLNT_ERR(
ERR_MISSING_REGISTRY_ENTRIES );

                                      dwDelBuffSize = min(
Reg.dwMaxPendingDeliveries, 10000 );  // min with 10000 as a sanity constraint
                                      dwNumDeliveryThreads = min(
Reg.dwNumberOfDeliveryThreads, 100 );  // min with 100 as a sanity constraint

                                      TermInit();

                                      // load DLL for txn monitor
                                      if (Reg.eTxnMon == COM)
                                      {
                                               strcpy( szDllName, Reg.szPath );
                                               strcat( szDllName,
"tpcc_com.dll");
                                               hLibInstanceTm = LoadLibrary(
szDllName );
                                               if (hLibInstanceTm == NULL)
                                                        throw new CWEBCLNT_ERR(
ERR_LOADDLL_FAILED, szDllName, GetLastError() );

                                               // get function pointer to wrapper
for class constructor
                                               pCTPCC_COM_new = (TYPE_CTPCC_COM*)
GetProcAddress(hLibInstanceTm,"CTPCC_COM_new");
                                               if (pCTPCC_COM_new == NULL)
                                                        throw new CWEBCLNT_ERR(
ERR_GETPROCADDR_FAILED, szDllName, GetLastError() );
                                      }

                                      // load DLL for database connection
                                      if ((Reg.eTxnMon == None) ||
(dwNumDeliveryThreads > 0))
                                      {
                                               if (Reg.eDB_Protocol == DBLIB)
                                               {
                                                        strcpy( szDllName,
Reg.szPath );
                                                        strcat( szDllName,
"tpcc_dblib.dll");
                                                        hLibInstanceDb =
LoadLibrary( szDllName );
                                                        if (hLibInstanceDb ==
NULL)
                                                                 throw new
CWEBCLNT_ERR( ERR_LOADDLL_FAILED, szDllName, GetLastError() );

                                                        // get function pointer
to wrapper for class constructor
                                                        pCTPCC_DBLIB_new =
(TYPE_CTPCC_DBLIB*) GetProcAddress(hLibInstanceDb,"CTPCC_DBLIB_new");
                                                        if (pCTPCC_DBLIB_new ==
NULL)
                                                                 throw new
CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED, szDllName, GetLastError() );
                                               }
                                      }

                                      if (dwNumDeliveryThreads)
                                      {
                                               // for deferred delivery txns:
                                               hDoneEvent = CreateEvent( NULL,
TRUE /* manual reset */, FALSE /* initially not signalled */, NULL );

                   InitializeCriticalSection(&DelBuffCriticalSection);
                                               hWorkerSemaphore =
CreateSemaphore( NULL, 0, dwDelBuffSize, NULL );
                                               dwDelBuffFreeCount =
dwDelBuffSize;

                                               // create unique log file name
based on delilog-yymmdd-hhmm.log
                                               SYSTEMTIME Time;
```

```
                                        GetLocalTime( &Time );
                                        wsprintf( szLogFile, "%sdelivery-
%2.2d%2.2d%2.2d-%2.2d%2.2d.log",
                                                                Reg.szPath,
Time.wYear % 100, Time.wMonth, Time.wDay, Time.wHour, Time.wMinute );
                                        txnDelilog = new
CTxnLog(szLogFile);

                                        //write event into txn log for
START

                                        if(txnDelilog-
>WriteCtrlRecToLog(TXN_EVENT_START, szMyComputerName, sizeof(szMyComputerName)))
                                                throw CBaseErr("Cannot
open delivery log"); //we could not write to the delivery so stop now

                                        // allocate structures for
delivery buffers and thread mgmt
                                        pDeliHandles = new
HANDLE[dwNumDeliveryThreads];
                                        pDelBuff = new
DELIVERY_TRANSACTION[dwDelBuffSize];
                                        // launch DeliveryWorkerThread to
perform actual delivery txns
                                        for(i=0; i<dwNumDeliveryThreads;
i++)
                                        {
                                                pDeliHandles[i] =
(HANDLE) _beginthread( DeliveryWorkerThread, 0, NULL );
                                                if (pDeliHandles[i] ==
INVALID_HANDLE_VALUE)
                                                        throw new
CWEBCLNT_ERR( ERR_DELIVERY_THREAD_FAILED );
                                        }
                                }

                                break;

                        case DLL_PROCESS_DETACH:
                                if (dwNumDeliveryThreads)
                                {
                                        if (txnDelilog != NULL)
                                        {
                                                //write event into txn
log for STOP
                                                txnDelilog-
>WriteCtrlRecToLog(TXN_EVENT_STOP, szMyComputerName, sizeof(szMyComputerName));

                                                // This will do a clean
shutdown of the delivery log file
                                                CTxnLog
        *txnDelilogLocal = txnDelilog;
                                                txnDelilog= NULL;
                                                delete txnDelilogLocal;
                                        }

                                        delete [] pDeliHandles;
                                        delete [] pDelBuff;

                                        CloseHandle( hWorkerSemaphore );
                                        CloseHandle( hDoneEvent );

        DeleteCriticalSection(&DelBuffCriticalSection);
                                }

                                DeleteCriticalSection(&TermCriticalSection);

                                if (hLibInstanceTm != NULL)
                                        FreeLibrary( hLibInstanceTm );
                                hLibInstanceTm = NULL;

                                if (hLibInstanceDb != NULL)
                                        FreeLibrary( hLibInstanceDb );
                                hLibInstanceDb = NULL;

                                Sleep(500);
                                break;

                        default:
                                /* nothing */;
                }
        }
        catch (CBaseErr *e)
        {
                WriteMessageToEventLog( e->ErrorText() );
                delete e;
                TerminateExtension(0);
                return FALSE;
        }
        catch (...)
        {
                WriteMessageToEventLog(TEXT("Unhandled exception.  DLL could not
load."));
                TerminateExtension(0);
                return FALSE;
        }

        return TRUE;
}


/* FUNCTION: GetExtensionVersion
 *
 * PURPOSE:         This function is called by the inet service when the DLL is
first loaded.
 *
 * ARGUMENTS:       HSE_VERSION_INFO    *pVer     passed in structure in which to
place expected version number.
 *
 * RETURNS:                 TRUE      inet service expected return value.
 */

BOOL WINAPI GetExtensionVersion(HSE_VERSION_INFO *pVer)
{
        pVer->dwExtensionVersion = MAKELONG(HSE_VERSION_MINOR, HSE_VERSION_MAJOR);
        lstrcpyn(pVer->lpszExtensionDesc, "TPC-C Server.",
HSE_MAX_EXT_DLL_NAME_LEN);

        return TRUE;
}

/* FUNCTION: TerminateExtension
 *
 * PURPOSE:         This function is called by the inet service when the DLL is
about to be unloaded.
```

```
 *                          Release all resources in anticipation of being
unloaded.
 *
 * RETURNS:                 TRUE      inet service expected return value.
 */

BOOL WINAPI TerminateExtension( DWORD dwFlags )
{
          if (pDeliHandles)
          {
                    SetEvent( hDoneEvent );
                    for(DWORD i=0; i<dwNumDeliveryThreads; i++)
                              WaitForSingleObject( pDeliHandles[i], INFINITE );
          }

          TermDeleteAll();
          return TRUE;
}


/* FUNCTION: HttpExtensionProc
 *
 * PURPOSE:         This function is the main entry point for the TPCC DLL. The
internet service
 *                          calls this function passing in the http string.
 *
 * ARGUMENTS:       EXTENSION_CONTROL_BLOCK       *pECB     structure pointer to
passed in internet
 *
                                    service information.
 *
 * RETURNS:                 DWORD     HSE_STATUS_SUCCESS
                    connection can be dropped if error
 *
          HSE_STATUS_SUCCESS_AND_KEEP_CONN        keep connect valid comment sent
 *
 * COMMENTS:        None
 *
 */

DWORD WINAPI HttpExtensionProc(EXTENSION_CONTROL_BLOCK *pECB)
{
          int                       iCmd, FormId, TermId, iSyncId;
          char                szBuffer[4096];

          int                       lpbSize;
          static char         szHeader[] = "200 Ok";
          DWORD               dwSize = 6;                   // initial value is
strlen(szHeader)
          char                szHeader1[4096];

//DebugBreak();

#ifdef ICECAP
          StartCAP();
#endif

          try
          {
                    //process http query
                    ProcessQueryString(pECB, &iCmd, &FormId, &TermId, &iSyncId);

                    if (TermId != 0)
                    {
                              if ( TermId < 0 || TermId >= Term.iNumEntries ||
Term.pClientData[TermId].iNextFree != -1 )
                              {
                                        // debugging...
                                        char szTmp[128];
                                        wsprintf( szTmp, "Invalid term ID; TermId =
%d", TermId );
                                        WriteMessageToEventLog( szTmp );

                                        throw new CWEBCLNT_ERR( ERR_INVALID_TERMID
);
                              }

                              //must have a valid syncid here since termid is valid
                              if (iSyncId != Term.pClientData[TermId].iSyncId)
                                        throw new CWEBCLNT_ERR(
ERR_INVALID_SYNC_CONNECTION );

                              //set use time
                              Term.pClientData[TermId].iTickCount = GetTickCount();
                    }


                    switch(iCmd)
                    {
                    case 0:
                              WelcomeForm(pECB, szBuffer);
                              break;
                    case 1:
                              switch( FormId )
                              {
                                        case WELCOME_FORM:
                                        case MAIN_MENU_FORM:
                                                  break;
                                        case NEW_ORDER_FORM:
                                                  ProcessNewOrderForm(pECB, TermId,
szBuffer);
                                                  break;
                                        case PAYMENT_FORM:
                                                  ProcessPaymentForm(pECB, TermId,
szBuffer);
                                                  break;
                                        case DELIVERY_FORM:
                                                  ProcessDeliveryForm(pECB, TermId,
szBuffer);
                                                  break;
                                        case ORDER_STATUS_FORM:
                                                  ProcessOrderStatusForm(pECB,
TermId, szBuffer);
                                                  break;
                                        case STOCK_LEVEL_FORM:
                                                  ProcessStockLevelForm(pECB,
TermId, szBuffer);
                                                  break;
                              }
                              break;
                    case 2:
                              // new-order selected from menu; display new-order
input form
                              MakeNewOrderForm(TermId, NULL, INPUT_FORM, szBuffer);
                              break;
                    case 3:
```

```
                                // payment selected from menu; display payment input
form
                                MakePaymentForm(TermId, NULL, INPUT_FORM, szBuffer);
                                break;
                        case 4:
                                // delivery selected from menu; display delivery input
form
                                MakeDeliveryForm(TermId, NULL, INPUT_FORM, szBuffer);
                                break;
                        case 5:
                                // order-status selected from menu; display order-
status input form
                                MakeOrderStatusForm(TermId, NULL, INPUT_FORM,
szBuffer);
                                break;
                        case 6:
                                // stock-level selected from menu; display stock-level
input form
                                MakeStockLevelForm(TermId, NULL, INPUT_FORM,
szBuffer);
                                break;
                        case 7:
                                // ExitCmd
                                TermDelete(TermId);
                                WelcomeForm(pECB, szBuffer);
                                break;
                        case 8:
                                SubmitCmd(pECB, szBuffer);
                                break;
                        case 9:
                                // menu
                                MakeMainMenuForm(TermId,
Term.pClientData[TermId].iSyncId, szBuffer);
                                break;
                        case 10:
                                // CMD=Clear
                                // resets all connections; should only be used when no
other connections are active
                                TermDeleteAll();
                                TermInit();
                                WelcomeForm(pECB, szBuffer);
                                break;
                        case 11:  // CMD=Stats
                                StatsCmd(pECB, szBuffer);
                                break;
                        }
                }
                catch (CBaseErr *e)
                {
                        ErrorForm( pECB, e->ErrorType(), e->ErrorNum(), TermId, iSyncId,
e->ErrorText(), szBuffer );
                        delete e;
                }
                catch (...)
                {
                        ErrorForm( pECB, ERR_TYPE_WEBDLL, 0, TermId, iSyncId, "Error:
Unhandled exception in Web Client.", szBuffer );
                }

#ifdef ICECAP
                StopCAP();
#endif
```

```
                lpbSize = strlen(szBuffer);
                wsprintf(szHeader1,
                                        "Content-Type: text/html\r\n"
                                        "Content-Length: %d\r\n"
                                        "Connection: Keep-Alive\r\n\r\n" , lpbSize);
                strcat( szHeader1, szBuffer );

                (*pECB->ServerSupportFunction)(pECB->ConnID, HSE_REQ_SEND_RESPONSE_HEADER,
szHeader, (LPDWORD) &dwSize, (LPDWORD)szHeader1);

                //finish up and keep connection
                pECB->dwHttpStatusCode = 200;
                return HSE_STATUS_SUCCESS_AND_KEEP_CONN;
}


void WriteMessageToEventLog(LPTSTR lpszMsg)
{
    TCHAR   szMsg[256];
    HANDLE  hEventSource;
    LPTSTR  lpszStrings[2];

    // Use event logging to log the error.
    //
    hEventSource = RegisterEventSource(NULL, TEXT("TPCC.DLL"));

    _stprintf(szMsg, TEXT("Error in TPCC.DLL: "));
    lpszStrings[0] = szMsg;
    lpszStrings[1] = lpszMsg;

    if (hEventSource != NULL)
          {
        ReportEvent(hEventSource, // handle of event source
            EVENTLOG_ERROR_TYPE,  // event type
            0,                    // event category
            0,                    // event ID
            NULL,                 // current user's SID
            2,                    // strings in lpszStrings
            0,                    // no bytes of raw data
            (LPCTSTR *)lpszStrings,    // array of error strings
            NULL);                // no raw data

        (VOID) DeregisterEventSource(hEventSource);
    }
}


/* FUNCTION: DeliveryWorkerThread
 *
 * PURPOSE:         This function processes deferred delivery txns.  There are
typically several
 *                              threads running this routine.  The number of threads
is determined by an entry
 *                              read from the registry.  The thread waits for work by
waiting on semaphore.
 *                              When a delivery txn is posted, the semaphore is
released.  After processing
 *                              the delivery txn, information is logged to record the
txn status and execution
 *                              time.
 */
```

```
/*static*/ void DeliveryWorkerThread(void *ptr)
{
          CTPCC_BASE                    *pTxn = NULL;

          DELIVERY_TRANSACTION                    delivery;
          PDELIVERY_DATA                                  pDeliveryData;
    TXN_RECORD_TPCC_DELIV_DEF txnDeliRec;

          DWORD                                           index;
          HANDLE                                          handles[2];
          __int64             trans_end;                  //delivery transaction
finished time
          __int64             trans_start;        //delivery transaction start time

          assert(txnDelilog != NULL);

          try
          {
                    if (Reg.eDB_Protocol == DBLIB)
                              pTxn = pCTPCC_DBLIB_new( Reg.szDbUser,
Reg.szDbPassword, Reg.szDbName );
                    pDeliveryData = pTxn->BuffAddr_Delivery();
          }
          catch (CBaseErr *e)
          {
                    char szTmp[1024];
                    wsprintf( szTmp, "Error in Delivery Txn thread.  Could not
connect to database.  "
                                        "%s.  Server=%s, User=%s, Password=%s,
Database=%s",
                                        e->ErrorText(), Reg.szDbServer,
Reg.szDbUser, Reg.szDbPassword, Reg.szDbName );
                    WriteMessageToEventLog( szTmp );
                    delete e;
                    goto ErrorExit;
          }
          catch (...)
          {
                    WriteMessageToEventLog(TEXT("Unhandled exception caught in
DeliveryWorkerThread."));
                    goto ErrorExit;
          }

          while (TRUE)
          {
                    try
                    {
                              //while delivery thread running, i.e. user has not
requested termination
                              while (TRUE)
                              {
                                        // need to wait for multiple objects:
program exit or worker semaphore;
                                        handles[0] = hDoneEvent;
                                        handles[1] = hWorkerSemaphore;
                                        index = WaitForMultipleObjects( 2,
&handles[0], FALSE, INFINITE );
                                        if (index == WAIT_OBJECT_0)
                                                  goto ErrorExit;

                                        ZeroMemory(&txnDeliRec, sizeof(txnDeliRec));
                                        // make a local copy of current entry from
delivery buffer and increment buffer index

                    EnterCriticalSection(&DelBuffCriticalSection);
                                        delivery = *(pDelBuff+dwDelBuffBusyIndex);
                                        dwDelBuffFreeCount++;
                                        dwDelBuffBusyIndex++;
                                        if (dwDelBuffBusyIndex == dwDelBuffSize)
                    // wrap-around if at end of buffer
                                                  dwDelBuffBusyIndex = 0;


                    LeaveCriticalSection(&DelBuffCriticalSection);

                                        txnDeliRec.w_id = pDeliveryData->w_id =
delivery.w_id;
                                        txnDeliRec.o_carrier_id = pDeliveryData-
>o_carrier_id = delivery.o_carrier_id;

                                        txnDeliRec.TxnStartT0=delivery.queue;
                                        trans_start=GetCurrentTime();
                                        pTxn->Delivery();
                                        trans_end=GetCurrentTime();

                                        //log txn
                                        txnDeliRec.TxnStatus = ERR_SUCCESS;
                                        for (int i=0; i<10; i++)
                                                  txnDeliRec.o_id[i] =
pDeliveryData->o_id[i];
                                        txnDeliRec.DeltaT4 = trans_end -
txnDeliRec.TxnStartT0;
                                        txnDeliRec.DeltaTxnExec = trans_end -
trans_start;

                                        if (txnDelilog != NULL)
                                                  txnDelilog-
>WriteToLog(&txnDeliRec);
                              }
                    }
                    catch (CDBLIBERR *e)
                    {
                              char szTmp[1024];
                              wsprintf( szTmp, "Error in Delivery Txn thread.  %s",
e->ErrorText() );
                              WriteMessageToEventLog( szTmp );

                              // log the error txn
                              txnDeliRec.TxnStatus = e->ErrorType();
                              if (txnDelilog != NULL)
                                        txnDelilog->WriteToLog(&txnDeliRec);

                              delete e;
                    }
                    catch (...)
                    {
                              // unhandled exception; shouldn't happen; not much we
can do...
                              WriteMessageToEventLog(TEXT("Unhandled exception
caught in DeliveryWorkerThread."));
                    }
          }

ErrorExit:
```

```
        delete pTxn;
        _endthread();
}

/* FUNCTION: PostDeliveryInfo
 *
 * PURPOSE:         This function enters the delivery txn into the deferred delivery
buffer.
 *
 * RETURNS:                 BOOL      FALSE     delivery information posted
successfully
 *                                                      TRUE      error cannot
post delivery info
 */

BOOL PostDeliveryInfo(short w_id, short o_carrier_id)
{
        BOOL bError;

        EnterCriticalSection(&DelBuffCriticalSection);
        if (dwDelBuffFreeCount > 0)
        {
                bError = FALSE;
                (pDelBuff+dwDelBuffFreeIndex)->w_id                         =
w_id;
                (pDelBuff+dwDelBuffFreeIndex)->o_carrier_id       =
o_carrier_id;
                (pDelBuff+dwDelBuffFreeIndex)->queue=GetCurrentTime();

                dwDelBuffFreeCount--;
                dwDelBuffFreeIndex++;
                if (dwDelBuffFreeIndex == dwDelBuffSize)
                        dwDelBuffFreeIndex = 0;                 // wrap-around
if at end of buffer
        }
        else
                // No free buffers.  Return an error, which indicates that the
delivery buffer is full.
                // Most likely, the number of delivery worker threads needs to
be increased to keep up
                // with the txn rate.
                bError = TRUE;
        LeaveCriticalSection(&DelBuffCriticalSection);

        if (!bError)
                // increment worker semaphore to wake up a worker thread
                ReleaseSemaphore( hWorkerSemaphore, 1, NULL );

        return bError;
}

/* FUNCTION: ProcessQueryString
 *
 * PURPOSE:         This function extracts the relevent information out of the http
command passed in from
 *                          the browser.
 *
 * COMMENTS:        If this is the initial connection i.e. client is at welcome
screen then
 *                          there will not be a terminal id or current
form id.  If this is the case
 *                          then the pTermid and pFormid return values
are undefined.
 */

void ProcessQueryString(EXTENSION_CONTROL_BLOCK *pECB, int *pCmd, int *pFormId, int
*pTermId, int *pSyncId)
{
        char *ptr = pECB->lpszQueryString;
        char szBuffer[25];
        int i;

        //allowable client command strings i.e. CMD=command
        static char *szCmds[] =
        {
                "Process", "..NewOrder..", "..Payment..", "..Delivery..",
"..Order-Status..", "..Stock-Level..",
                "..Exit..", "Submit", "Menu", "Clear", "Stats", ""
        };

        *pCmd      = 0;              // default is the login screen
        *pTermId = 0;

        // if no params (i.e., empty query string), then return login screen
        if (strlen(pECB->lpszQueryString) == 0)
                return;

        // parse FORMID, TERMID, and SYNCID
        *pFormId = GetIntKeyValue(&ptr, "FORMID", NO_ERR, NO_ERR);
        *pTermId = GetIntKeyValue(&ptr, "TERMID", NO_ERR, NO_ERR);
        *pSyncId = GetIntKeyValue(&ptr, "SYNCID", NO_ERR, NO_ERR);

        // parse CMD
        GetKeyValue(&ptr, "CMD", szBuffer, sizeof(szBuffer),
ERR_COMMAND_UNDEFINED);

        // see which command it matches
        for(i=0; ; i++)
        {
                if (szCmds[i][0] == 0)
                        // no more; no match; return error
                        throw new CWEBCLNT_ERR( ERR_COMMAND_UNDEFINED );
                if ( !strcmp(szCmds[i], szBuffer) )
                {
                        *pCmd = i+1;
                        break;
                }
        }
}

/* FUNCTION: void WelcomeForm
 *
 */

void WelcomeForm(EXTENSION_CONTROL_BLOCK *pECB, char *szBuffer)
{
        char szTmp[1024];

        //welcome to tpc-c html form buffer, this is first form client sees.
        strcpy( szBuffer,   "<HTML><HEAD><TITLE>TPC-C Web
Client</TITLE></HEAD><BODY>"
                                                                "<B><BIG>Microsoft TPC-C
Web Client (ver 4.20)</BIG></B> <BR> <BR>"
                                                                "<font face=\"Courier
New\"><PRE>"
```

```
                                                  "Compiled: "__DATE__",
"__TIME__" <BR>"
                                                  "Source:   "__FILE__"
("__TIMESTAMP__") <BR>"
                                                  "</PRE></font>"
                                                  "<FORM
ACTION=\"tpcc.dll\" METHOD=\"GET\">"
                                                  "<INPUT TYPE=\"hidden\"
NAME=\"STATUSID\" VALUE=\"0\">"
                                                  "<INPUT TYPE=\"hidden\"
NAME=\"ERROR\" VALUE=\"0\">"
                                                  "<INPUT TYPE=\"hidden\"
NAME=\"FORMID\" VALUE=\"1\">"
                                                  "<INPUT TYPE=\"hidden\"
NAME=\"TERMID\" VALUE=\"0\">"
                                                  "<INPUT TYPE=\"hidden\"
NAME=\"SYNCID\" VALUE=\"0\">"
                                                  "<INPUT TYPE=\"hidden\"
NAME=\"VERSION\" VALUE=\"" WEBCLIENT_VERSION "\">"
                          );

          sprintf( szTmp,     "Configuration Settings: <BR><font face=\"Courier
New\" color=\"blue\"><PRE>"
                                                  "Txn Monitor            =
<B>%s</B><BR>"
                                                  "Database protocol      =
<B>%s</B><BR>"
                                                  "Max Connections        =
<B>%d</B><BR>"
                                                  "# of Delivery Threads  =
<B>%d</B><BR>"
                                                  "Max Pending Deliveries =
<B>%d</B><BR>"
                          , szTxnMonNames[Reg.eTxnMon],
szDBNames[Reg.eDB_Protocol],
                          Reg.dwMaxConnections, dwNumDeliveryThreads,
dwDelBuffSize );
          strcat( szBuffer, szTmp);

          if (Reg.eTxnMon == COM)
          {
                    sprintf( szTmp,     "COM Single Pool        = <B>%s</B><BR>",
                              Reg.bCOM_SinglePool ? "YES" : "NO" );
                    strcat( szBuffer, szTmp);
          }
          strcat( szBuffer, "</PRE></font>");

          if (Reg.eTxnMon == None)
                    // connection options may be specified when not using a txn
monitor
                    sprintf( szTmp,     "Please enter your database options for this
connection:<BR>"
                                                  "<font face=\"Courier
New\" color=\"blue\"><PRE>"
                                                  "DB Server    = <INPUT
NAME=\"db_server\" SIZE=20 VALUE=\"%s\"><BR>"
                                                  "DB User ID   = <INPUT
NAME=\"db_user\" SIZE=20 VALUE=\"%s\"><BR>"
                                                  "DB Password  = <INPUT
NAME=\"db_passwd\" SIZE=20 VALUE=\"%s\"><BR>"
                                                  "DB Name      = <INPUT
NAME=\"db_name\" SIZE=20 VALUE=\"%s\"><BR>"
                                                  "</PRE></font>"
                                        , Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword, Reg.szDbName );
          else
                    // if using a txn monitor, connection options are determined
from registry; can't
                    // set per user.  show options fyi
                    sprintf( szTmp,     "Database options which will be used by the
transaction monitor:<BR>"
                                                  "<font face=\"Courier
New\" color=\"blue\"><PRE>"
                                                  "DB Server
= <B>%s</B><BR>"
                                                  "DB User ID
= <B>%s</B><BR>"
                                                  "DB Password
= <B>%s</B><BR>"
                                                  "DB Name
= <B>%s</B><BR>"
                                                  "</PRE></font>"
                                        , Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword, Reg.szDbName );
          strcat( szBuffer, szTmp);

          sprintf( szTmp,     "Please enter your Warehouse and District for this
session:<BR>"
                                                  "<font face=\"Courier New\"
color=\"blue\"><PRE>" );
          strcat( szBuffer, szTmp);
          strcat( szBuffer,   "Warehouse ID = <INPUT NAME=\"w_id\" SIZE=4><BR>"
                                                  "District ID  = <INPUT
NAME=\"d_id\" SIZE=2><BR>"
                                                  "</PRE></font><HR>"
                                                  "<INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"Submit\">"

          "</FORM></BODY></HTML>");
}

/* FUNCTION: SubmitCmd
 *
 * PURPOSE:         This function allocated a new terminal id in the Term structure
array.
 *
 */

void SubmitCmd(EXTENSION_CONTROL_BLOCK *pECB, char *szBuffer)
{
          int                 iNewTerm;
          char      *ptr = pECB->lpszQueryString;

          char      szVersion[32]       = { 0 };
          char      szServer[32]        = { 0 };
          char      szUser[32]                  = "sa";
          char      szPassword[32]      = { 0 };
          char      szDatabase[32]      = "tpcc";

          // validate version field; the version field ensures that the RTE is
synchronized with the web client
          GetKeyValue(&ptr, "VERSION", szVersion, sizeof(szVersion),
ERR_VERSION_MISMATCH);
          if ( strcmp( szVersion, WEBCLIENT_VERSION ) )
                    throw new CWEBCLNT_ERR( ERR_VERSION_MISMATCH );
```

```
          if (Reg.eTxnMon == None)
          {
                    // parse Server name
                    GetKeyValue(&ptr, "db_server", szServer, sizeof(szServer),
ERR_NO_SERVER_SPECIFIED);
                    // parse User name
                    GetKeyValue(&ptr, "db_user", szUser, sizeof(szUser), NO_ERR);
                    // parse Password
                    GetKeyValue(&ptr, "db_passwd", szPassword, sizeof(szPassword),
NO_ERR);
                    // parse Database name
                    GetKeyValue(&ptr, "db_name", szDatabase, sizeof(szDatabase),
NO_ERR);
          }

          // parse warehouse ID
          int w_id = GetIntKeyValue(&ptr, "w_id", ERR_HTML_ILL_FORMED,
ERR_W_ID_INVALID);
          if ( w_id < 1 )
                    throw new CWEBCLNT_ERR( ERR_W_ID_INVALID );

          // parse district ID
          int d_id = GetIntKeyValue(&ptr, "d_id", ERR_HTML_ILL_FORMED,
ERR_D_ID_INVALID);
          if ( d_id < 1 || d_id > 10 )
                    throw new CWEBCLNT_ERR( ERR_D_ID_INVALID );


          iNewTerm = TermAdd();

          Term.pClientData[iNewTerm].w_id = w_id;
          Term.pClientData[iNewTerm].d_id = d_id;

          try
          {
                    if (Reg.eTxnMon == COM)
                              Term.pClientData[iNewTerm].pTxn = pCTPCC_COM_new(
Reg.bCOM_SinglePool );
                    else if (Reg.eDB_Protocol == DBLIB)
                              Term.pClientData[iNewTerm].pTxn = pCTPCC_DBLIB_new(
szUser, szPassword, szDatabase );
          }
          catch (...)
          {
                    TermDelete(iNewTerm);
                    throw;              // pass exception upward
          }

          MakeMainMenuForm(iNewTerm, Term.pClientData[iNewTerm].iSyncId, szBuffer);
}

/* FUNCTION: StatsCmd
 *
 * PURPOSE:         This function returns to the browser the total number of active
terminal ids.
 *                            This routine is for development/debugging purposes.
 *
 */

void StatsCmd(EXTENSION_CONTROL_BLOCK *pECB, char *szBuffer)
{
          int i;
          int       iTotal;

          EnterCriticalSection(&TermCriticalSection);

          iTotal = 0;
          for(i=0; i<Term.iNumEntries; i++)
          {
                    if (Term.pClientData[i].iNextFree == -1)
                              iTotal++;
          }

          LeaveCriticalSection(&TermCriticalSection);

          wsprintf( szBuffer,
                              "<HTML><HEAD><TITLE>TPC-C Web Client
Stats</TITLE></HEAD>"
                              "<BODY><B><BIG> Total Active Connections: %d
</BIG></B><BR></BODY></HTML>"
                              , iTotal );
}

char *CWEBCLNT_ERR::ErrorText()
{
          static SERRORMSG errorMsgs[] =
          {
                    {         ERR_COMMAND_UNDEFINED,
                    "Command undefined."
                                                                                        },
                    {         ERR_D_ID_INVALID,
                    "Invalid District ID Must be 1 to 10."
                                                  },
                    {         ERR_DELIVERY_CARRIER_ID_RANGE,
          "Delivery Carrier ID out of range must be 1 - 10."
                              },
                    {         ERR_DELIVERY_CARRIER_INVALID,
          "Delivery Carrier ID invalid must be numeric 1 - 10."
                    },
                    {         ERR_DELIVERY_MISSING_OCD_KEY,
          "Delivery missing Carrier ID key \"OCD*\"."
                                        },
                    {         ERR_DELIVERY_THREAD_FAILED,
          "Could not start delivery worker thread."
                                        },
                    {         ERR_GETPROCADDR_FAILED,
                    "Could not map proc in DLL.  GetProcAddr error.  DLL="
                              },
                    {         ERR_HTML_ILL_FORMED,
                    "Required key field is missing from HTML string."
                              },
                    {         ERR_INVALID_SYNC_CONNECTION,
          "Invalid Terminal Sync ID."
                                                                },
                    {         ERR_INVALID_TERMID,
                    "Invalid Terminal ID."
                                                                                        },
                    {         ERR_LOADDLL_FAILED,
                    "Load of DLL failed.  DLL="
                                                                        },
                    {         ERR_MAX_CONNECTIONS_EXCEEDED,                 "No
connections available.  Max Connections is probably too low."   },
                    {         ERR_MISSING_REGISTRY_ENTRIES,
          "Required registry entries are missing.  Rerun INSTALL to correct."   },
```

```
                {         ERR_NEWORDER_CUSTOMER_INVALID,
          "New Order customer id invalid data type, range = 1 to 3000."
          },
                {         ERR_NEWORDER_CUSTOMER_KEY,
          "New Order missing Customer key \"CID*\"."
                                    },
                {         ERR_NEWORDER_DISTRICT_INVALID,
          "New Order District ID Invalid range 1 - 10."
                          },
                {         ERR_NEWORDER_FORM_MISSING_DID,
          "New Order missing District key \"DID*\"."
                                    },
                {         ERR_NEWORDER_ITEMID_INVALID,                      "New
Order Item Id is wrong data type, must be numeric."                         },
                {         ERR_NEWORDER_ITEMID_RANGE,
          "New Order Item Id is out of range. Range = 1 to 999999."
          },
                {         ERR_NEWORDER_ITEMID_WITHOUT_SUPPW,                "New
Order Item_Id field entered without a corresponding Supp_W."          },
                {         ERR_NEWORDER_MISSING_IID_KEY,             "New
Order missing Item Id key \"IID*\"."
                },
                {         ERR_NEWORDER_MISSING_QTY_KEY,                     "New
Order Missing Qty key \"Qty##*\"."
                          },
                {         ERR_NEWORDER_MISSING_SUPPW_KEY,
          "New Order missing Supp_W key \"SP##*\"."
                                    },
                {         ERR_NEWORDER_NOITEMS_ENTERED,                     "New
Order No order lines entered."
                                    },
                {         ERR_NEWORDER_QTY_INVALID,
          "New Order Qty invalid must be numeric range 1 - 99."
                },
                {         ERR_NEWORDER_QTY_RANGE,
                "New Order Qty is out of range. Range = 1 to 99."
                          },
                {         ERR_NEWORDER_QTY_WITHOUT_SUPPW,
          "New Order Qty field entered without a corresponding Supp_W."
          },
                {         ERR_NEWORDER_SUPPW_INVALID,
          "New Order Supp_W invalid data type must be numeric."
                },
                {         ERR_NO_SERVER_SPECIFIED,
          "No Server name specified."
                                                  },
                {         ERR_ORDERSTATUS_CID_AND_CLT,
          "Order Status Only Customer ID or Last Name may be entered, not both."
          },
                {         ERR_ORDERSTATUS_CID_INVALID,
          "Order Status Customer ID invalid, range must be numeric 1 - 3000."   },
                {         ERR_ORDERSTATUS_CLT_RANGE,
          "Order Status Customer last name longer than 16 characters."
          },
                {         ERR_ORDERSTATUS_DID_INVALID,
          "Order Status District invalid, value must be numeric 1 - 10."
          },
                {         ERR_ORDERSTATUS_MISSING_CID_CLT,
          "Order Status Either Customer ID or Last Name must be entered."
          },
                {         ERR_ORDERSTATUS_MISSING_CID_KEY,
          "Order Status missing Customer key \"CID*\"."
                          },
                {         ERR_ORDERSTATUS_MISSING_CLT_KEY,
          "Order Status missing Customer Last Name key \"CLT*\"."
                },
                {         ERR_ORDERSTATUS_MISSING_DID_KEY,
          "Order Status missing District key \"DID*\"."
                          },
                {         ERR_PAYMENT_CDI_INVALID,
          "Payment Customer district invalid must be numeric."
                },
                {         ERR_PAYMENT_CID_AND_CLT,
          "Payment Only Customer ID or Last Name may be entered, not both."     },
                {         ERR_PAYMENT_CUSTOMER_INVALID,
          "Payment Customer data type invalid, must be numeric."
                },
                {         ERR_PAYMENT_CWI_INVALID,
          "Payment Customer Warehouse invalid, must be numeric."
                },
                {         ERR_PAYMENT_DISTRICT_INVALID,
          "Payment District ID is invalid, must be 1 - 10."
                },
                {         ERR_PAYMENT_HAM_INVALID,
          "Payment Amount invalid data type must be numeric."
                          },
                {         ERR_PAYMENT_HAM_RANGE,
                "Payment Amount out of range, 0 - 9999.99."
                                    },
                {         ERR_PAYMENT_LAST_NAME_TO_LONG,
          "Payment Customer last name longer than 16 characters."
                },
                {         ERR_PAYMENT_MISSING_CDI_KEY,
          "Payment missing Customer district key \"CDI*\"."
                },
                {         ERR_PAYMENT_MISSING_CID_CLT,
          "Payment Either Customer ID or Last Name must be entered."
          },
                {         ERR_PAYMENT_MISSING_CID_KEY,
          "Payment missing Customer Key \"CID*\"."
                                    },
                {         ERR_PAYMENT_MISSING_CLT_KEY,
          "Payment missing Customer Last Name key \"CLT*\"."
                          },
                {         ERR_PAYMENT_MISSING_CWI_KEY,
          "Payment missing Customer Warehouse key \"CWI*\"."
                          },
                {         ERR_PAYMENT_MISSING_DID_KEY,
          "Payment missing District Key \"DID*\"."
                                    },
                {         ERR_PAYMENT_MISSING_HAM_KEY,
          "Payment missing Amount key \"HAM*\"."
                                    },
                {         ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY,   "Stock Level;
missing Threshold key \"TT*\"."
          },
                {         ERR_STOCKLEVEL_THRESHOLD_INVALID,
          "Stock Level; Threshold value must be in the range = 1 - 99."
          },
                {         ERR_STOCKLEVEL_THRESHOLD_RANGE,
          "Stock Level Threshold out of range, range must be 1 - 99."
          },
                {         ERR_VERSION_MISMATCH,
                "Invalid version field.  RTE and Web Client are probably out of
sync." },
```

```
                {         ERR_W_ID_INVALID,
                "Invalid Warehouse ID."
                                                                        },
                {         ERR_INVALID_ENTRY,
                "Invalid Entry."
                                                                    },
                {         0,
                                        ""

                                                                }
        };

        char szTmp[256];
        int i = 0;
        while (TRUE)
        {
                if (errorMsgs[i].szMsg[0] == 0)
                {
                        strcpy( szTmp, "Unknown error number." );
                        break;
                }
                if (m_Error == errorMsgs[i].iError)
                {
                        strcpy( szTmp, errorMsgs[i].szMsg );
                        break;
                }
                i++;
        }

        if (m_szTextDetail)
                strcat( szTmp, m_szTextDetail );
        if (m_SystemErr)
                wsprintf( szTmp+strlen(szTmp), "  Error=%d", m_SystemErr );

        m_szErrorText = new char[strlen(szTmp)+1];
        strcpy( m_szErrorText, szTmp );
        return m_szErrorText;

}

/* FUNCTION: GetKeyValue
 *
 * PURPOSE:         This function parses a http formatted string for specific key
values.
 *
 * ARGUMENTS:       char                        *pQueryString       http string
from client browser
 *                                  char                        *pKey
                key value to look for
 *                                  char                        *pValue
                character array into which to place key's value
 *                                  int                                 iMax
                        maximum length of key value array.
 *                                  WEBERROR            err
                error value to throw
 *
 * RETURNS:                 nothing.
 *
 * ERROR:           if (the pKey value is not found) then
 *                                          if (err == 0)
 *                                                  return (empty string)
 *                                          else
 *                                                  throw CWEBCLNT_ERR(err)
 *
 * COMMENTS:        http keys are formatted either KEY=value& or KEY=value\0. This
DLL formats
 *                                          TPC-C input fields in such a manner that the
keys can be extracted in the
 *                                          above manner.
 */

void GetKeyValue(char **pQueryString, char *pKey, char *pValue, int iMax, WEBERROR
err)
{
        char *ptr;

        if ( !(ptr=strstr(*pQueryString, pKey)) )
                goto ErrorExit;
        ptr += strlen(pKey);
        if ( *ptr != '=' )
                goto ErrorExit;
        ptr++;

        iMax--;  // one position is for terminating null
        while( *ptr && *ptr != '&' && iMax)
        {
                *pValue++ = *ptr++;
                iMax--;
        }
        *pValue = 0;  // terminating null

        *pQueryString = ptr;
        return;

ErrorExit:
        if (err != NO_ERR)
                throw new CWEBCLNT_ERR( err );
        *pValue = 0;  // return empty result string
}

/* FUNCTION: GetIntKeyValue
 *
 * PURPOSE:         This function parses a http formatted string for a specific key
value.
 *
 * ARGUMENTS:       char                        *pQueryString       http string
from client browser
 *                                  char                        *pKey
                key value to look for
 *                                  WEBERROR            NoKeyErr
        error value to throw if key not found
 *                                  WEBERROR            NotIntErr
        error value to throw if value not numeric
 *
 * RETURNS:                 integer
 *
 * ERROR:           if (the pKey value is not found) then
 *                                          if (NoKeyErr != NO_ERR)
 *                                                  throw CWEBCLNT_ERR(err)
 *                                          else
 *                                                  return 0
 *                                  else if (non-numeric char found) then
 *                                          if (NotIntErr != NO_ERR) then
 *                                                  throw CWEBCLNT_ERR(err)
 *                                          else
 *                                                  return 0
```

```
 *
 * COMMENTS:        http keys are formatted either KEY=value& or KEY=value\0. This
DLL formats
 *                                  TPC-C input fields in such a manner that the
keys can be extracted in the
 *                                  above manner.
 */

int GetIntKeyValue(char **pQueryString, char *pKey, WEBERROR NoKeyErr, WEBERROR
NotIntErr)
{
          char *ptr0;
          char *ptr;

          if ( !(ptr=strstr(*pQueryString, pKey)) )
                    goto ErrorNoKey;
          ptr += strlen(pKey);
          if ( *ptr != '=' )
                    goto ErrorNoKey;
          ptr++;

          ptr0 = ptr;                   // remember starting point
          // scan string until a terminator (null or &) or a non-digit
          while( *ptr && *ptr != '&' && isdigit(*ptr) )
                    ptr++;

          // make sure we stopped scanning for the right reason
          if ((ptr0 == ptr) || (*ptr && *ptr != '&'))
          {
                    if (NotIntErr != NO_ERR)
                              throw new CWEBCLNT_ERR( NoKeyErr );
                    return 0;
          }

          *pQueryString = ptr;
          return atoi(ptr0);

ErrorNoKey:
          if (NoKeyErr != NO_ERR)
                    throw new CWEBCLNT_ERR( NoKeyErr );
          return 0;
}

/* FUNCTION: TermInit
 *
 * PURPOSE:         This function initializes the client terminal structure; it is
called when the TPCC.DLL
 *                           is first loaded by the inet service.
 *
 */

void TermInit(void)
{
          EnterCriticalSection(&TermCriticalSection);

          Term.iMasterSyncId  = 1;
          Term.iNumEntries    = Reg.dwMaxConnections+1;

          Term.pClientData    = NULL;
          Term.pClientData    = (PCLIENTDATA)malloc(Term.iNumEntries *
sizeof(CLIENTDATA));
          if (Term.pClientData == NULL)
          {
                    LeaveCriticalSection(&TermCriticalSection);
                    throw new CWEBCLNT_ERR( ERR_MEM_ALLOC_FAILED );
          }

          ZeroMemory( Term.pClientData, Term.iNumEntries * sizeof(CLIENTDATA) );

          Term.iFreeList                = Term.iNumEntries-1;
          // build free list
          // note: Term.pClientData[0].iNextFree gets set to -1, which marks it as
"in use".
          //       This is intentional, as the zero entry is used as an anchor and
never
          //                   allocated as an actual terminal.
          for(int i=0; i<Term.iNumEntries; i++)
                    Term.pClientData[i].iNextFree = i-1;

          LeaveCriticalSection(&TermCriticalSection);
}

/* FUNCTION: TermDeleteAll
 *
 * PURPOSE:         This function frees allocated resources associated with the
terminal structure.
 *
 * ARGUMENTS:       none
 *
 * RETURNS:                  None
 *
 * COMMENTS:        This function is called only when the inet service unloads the
TPCC.DLL
 *
 */

void TermDeleteAll(void)
{
          EnterCriticalSection(&TermCriticalSection);

          for(int i=1; i<Term.iNumEntries; i++)
          {
                    if (Term.pClientData[i].iNextFree == -1)
                              delete Term.pClientData[i].pTxn;
          }

          Term.iFreeList                = 0;
          Term.iNumEntries    = 0;
          if ( Term.pClientData )
                    free(Term.pClientData);
          Term.pClientData    = NULL;

          LeaveCriticalSection(&TermCriticalSection);
}

/* FUNCTION: TermAdd
 *
 * PURPOSE:         This function assigns a terminal id which is used to identify a
client browser.
 *
 * RETURNS:                  int                assigned terminal id
 *
 */

int TermAdd(void)
{
```

```
        DWORD     i;
        int                 iNewTerm, iTickCount;

        if (Term.iNumEntries == 0)
                return -1;

        EnterCriticalSection(&TermCriticalSection);
        if (Term.iFreeList != 0)
        {       // position is available
                iNewTerm = Term.iFreeList;
                Term.iFreeList = Term.pClientData[iNewTerm].iNextFree;
                Term.pClientData[iNewTerm].iNextFree = -1;  // indicates this
position is in use
        }
        else
        {       // no open slots, so find the slot that hasn't been used in the
longest time and reuse it
                for(iNewTerm=1, i=1, iTickCount=0x7FFFFFFF;
i<Reg.dwMaxConnections; i++)
                {
                        if (iTickCount > Term.pClientData[i].iTickCount)
                        {
                                iTickCount = Term.pClientData[i].iTickCount;
                                iNewTerm = i;
                        }
                }
                // if oldest term is less than one minute old, it probably means
that more connections
                // are being attempted than were specified as "Max Connections"
at install.  In this case,
                // do not bump existing connection; instead, return error to
requestor.
                if ((GetTickCount() - iTickCount) < 60000)
                {
                        LeaveCriticalSection(&TermCriticalSection);
                        throw new CWEBCLNT_ERR( ERR_MAX_CONNECTIONS_EXCEEDED
);
                }
        }

        Term.pClientData[iNewTerm].iTickCount = GetTickCount();
        Term.pClientData[iNewTerm].iSyncId = Term.iMasterSyncId++;
        Term.pClientData[iNewTerm].pTxn = NULL;

        LeaveCriticalSection(&TermCriticalSection);
        return iNewTerm;
}

/* FUNCTION: TermDelete
 *
 * PURPOSE:         This function makes a terminal entry in the Term array available
for reuse.
 *
 * ARGUMENTS:       int                                                     id
                    Terminal id of client exiting
 *
 */

void TermDelete(int id)
{
        if ( id > 0 && id < Term.iNumEntries )
        {
                delete Term.pClientData[id].pTxn;
                // put onto free list
                EnterCriticalSection(&TermCriticalSection);

                Term.pClientData[id].iNextFree = Term.iFreeList;
                Term.iFreeList = id;

                LeaveCriticalSection(&TermCriticalSection);
        }
}


/* FUNCTION: MakeErrorForm
 */

void ErrorForm(EXTENSION_CONTROL_BLOCK *pECB, int iType, int iErrorNum, int iTermId,
int iSyncId, char *szErrorText, char *szBuffer )
{
        wsprintf(szBuffer,
                "<HTML><HEAD><TITLE>TPC-C Error</TITLE></HEAD><BODY>"
                "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
                "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"%d\">"
                "<INPUT TYPE=\"hidden\" NAME=\"ERROR\" VALUE=\"%d\">"
                "<INPUT TYPE=\"hidden\" NAME=\"FORMID\" VALUE=\"%d\">"
                "<INPUT TYPE=\"hidden\" NAME=\"TERMID\" VALUE=\"%d\">"
                "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\" VALUE=\"%d\">"
                "<BOLD>An Error Occurred</BOLD><BR><BR>"
                "%s"
                "<BR><BR><HR>"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..NewOrder..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Payment..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Delivery..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Order-
Status..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Stock-Level..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Exit..\">"
                "</FORM></BODY></HTML>"
                , iType, iErrorNum, MAIN_MENU_FORM, iTermId, iSyncId,
szErrorText );
}

/* FUNCTION: MakeMainMenuForm
 */

void MakeMainMenuForm(int iTermId, int iSyncId, char *szForm)
{
        wsprintf(szForm,
                "<HTML><HEAD><TITLE>TPC-C Main Menu</TITLE></HEAD><BODY>"
                "Select Desired Transaction.<BR><HR>"
                "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
                "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"0\">"
                "<INPUT TYPE=\"hidden\" NAME=\"ERROR\" VALUE=\"0\">"
                "<INPUT TYPE=\"hidden\" NAME=\"FORMID\" VALUE=\"%d\">"
                "<INPUT TYPE=\"hidden\" NAME=\"TERMID\" VALUE=\"%d\">"
                "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\" VALUE=\"%d\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..NewOrder..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Payment..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Delivery..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Order-
Status..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Stock-Level..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Exit..\">"
                "</FORM></BODY></HTML>"
```

```
                    , MAIN_MENU_FORM, iTermId, iSyncId);
}

/* FUNCTION: MakeStockLevelForm
 *
 * PURPOSE:          This function constructs the Stock Level HTML page.
 *
 * COMMENTS:         The internal client buffer is created when the terminal id is
assigned and should not
 *                                    be freed except when the client terminal id
is no longer needed.
 */

void MakeStockLevelForm(int iTermId, STOCK_LEVEL_DATA *pStockLevelData, BOOL bInput,
char *szForm)
{
          int       c;

          c = wsprintf(szForm,
                    "<HTML><HEAD><TITLE>TPC-C Stock Level</TITLE></HEAD><FORM
ACTION=\"tpcc.dll\" METHOD=\"GET\">"
                    "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"0\">"
                    "<INPUT TYPE=\"hidden\" NAME=\"ERROR\" VALUE=\"0\">"
                    "<INPUT TYPE=\"hidden\" NAME=\"FORMID\" VALUE=\"%d\">"
                    "<INPUT TYPE=\"hidden\" NAME=\"TERMID\" VALUE=\"%d\">"
                    "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\" VALUE=\"%d\">"
                    "<PRE><font face=\"Courier\">
Stock-Level<BR>"
                    "Warehouse: %4.4d   District: %2.2d<BR> <BR>",
                    STOCK_LEVEL_FORM, iTermId, Term.pClientData[iTermId].iSyncId,
                    Term.pClientData[iTermId].w_id, Term.pClientData[iTermId].d_id);

          if ( bInput )
          {
                    strcpy(szForm+c,
                              "Stock Level Threshold: <INPUT NAME=\"TT*\"
SIZE=2><BR> <BR>"
                              "low stock:    </font><BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR>"
                              " <BR> <BR> <BR> <BR> <BR> <BR> <BR></PRE><HR>"
                              "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\">"
                              "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Menu\">"
                              "</FORM></HTML>" );
          }
          else
          {
                    wsprintf(szForm+c,
                              "Stock Level Threshold: %2.2d<BR> <BR>"
                              "low stock: %3.3d</font> <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> <BR>"
                              " <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR></PRE><HR>"
                              "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
                              "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
                              "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
                              "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Order-
Status..\">"
                              "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Stock-
Level..\">"
                              "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
                              "</FORM></HTML>"
                              , pStockLevelData->threshold, pStockLevelData-
>low_stock);
          }
}

/* FUNCTION: MakeNewOrderForm
 *
 * COMMENTS:         The internal client buffer is created when the terminal id is
assigned and should not
 *                                    be freed except when the client terminal id
is no longer needed.
 */

void MakeNewOrderForm(int iTermId, NEW_ORDER_DATA *pNewOrderData, BOOL bInput, char
*szForm)
{
          int                 i, c;
          BOOL      bValid;
          static    char szBR[] = " <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR>";

/*        if (!bInput)
                    assert( pNewOrderData->exec_status_code == eOK || pNewOrderData-
>exec_status_code == eInvalidItem );
*/
          bValid = (bInput || (pNewOrderData->exec_status_code == eOK));

          c = wsprintf(szForm,
                    "<HTML><HEAD><TITLE>TPC-C New Order</TITLE></HEAD><BODY>"
                    "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
                    "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"%d\">"
                    "<INPUT TYPE=\"hidden\" NAME=\"ERROR\" VALUE=\"0\">"
                    "<INPUT TYPE=\"hidden\" NAME=\"FORMID\" VALUE=\"%d\">"
                    "<INPUT TYPE=\"hidden\" NAME=\"TERMID\" VALUE=\"%d\">"
                    "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\" VALUE=\"%d\">"
                    "<PRE><font face=\"Courier\">
New Order<BR>"
                    , bValid ? 0 : ERR_BAD_ITEM_ID, NEW_ORDER_FORM, iTermId,
Term.pClientData[iTermId].iSyncId);

          if ( bInput )
          {
                    c += wsprintf(szForm+c, "Warehouse: %4.4d   ",
Term.pClientData[iTermId].w_id );

                    strcpy( szForm+c,
                              "District: <INPUT NAME=\"DID*\" SIZE=1>
Date:<BR>"
                              "Customer:  <INPUT NAME=\"CID*\" SIZE=4>   Name:
Credit:      %Disc:<BR>"
                              "Order Number:           Number of Lines:
W_tax:         D_tax:<BR> <BR>"
                              " Supp_W  Item_Id  Item Name                Qty
Stock  B/G  Price    Amount<BR>"
                              "  <INPUT NAME=\"SP00*\" SIZE=4>  <INPUT
NAME=\"IID00*\" SIZE=6>                          <INPUT NAME=\"Qty00*\"
SIZE=1><BR>"
                              "  <INPUT NAME=\"SP01*\" SIZE=4>  <INPUT
NAME=\"IID01*\" SIZE=6>                          <INPUT NAME=\"Qty01*\"
SIZE=1><BR>"
```

```
                        "  <INPUT NAME=\"SP02*\" SIZE=4>  <INPUT
NAME=\"IID02*\" SIZE=6>                         <INPUT NAME=\"Qty02*\"
SIZE=1><BR>"
                        "  <INPUT NAME=\"SP03*\" SIZE=4>  <INPUT
NAME=\"IID03*\" SIZE=6>                         <INPUT NAME=\"Qty03*\"
SIZE=1><BR>"
                        "  <INPUT NAME=\"SP04*\" SIZE=4>  <INPUT
NAME=\"IID04*\" SIZE=6>                         <INPUT NAME=\"Qty04*\"
SIZE=1><BR>"
                        "  <INPUT NAME=\"SP05*\" SIZE=4>  <INPUT
NAME=\"IID05*\" SIZE=6>                         <INPUT NAME=\"Qty05*\"
SIZE=1><BR>"
                        "  <INPUT NAME=\"SP06*\" SIZE=4>  <INPUT
NAME=\"IID06*\" SIZE=6>                         <INPUT NAME=\"Qty06*\"
SIZE=1><BR>"
                        "  <INPUT NAME=\"SP07*\" SIZE=4>  <INPUT
NAME=\"IID07*\" SIZE=6>                         <INPUT NAME=\"Qty07*\"
SIZE=1><BR>"
                        "  <INPUT NAME=\"SP08*\" SIZE=4>  <INPUT
NAME=\"IID08*\" SIZE=6>                         <INPUT NAME=\"Qty08*\"
SIZE=1><BR>"
                        "  <INPUT NAME=\"SP09*\" SIZE=4>  <INPUT
NAME=\"IID09*\" SIZE=6>                         <INPUT NAME=\"Qty09*\"
SIZE=1><BR>"
                        "  <INPUT NAME=\"SP10*\" SIZE=4>  <INPUT
NAME=\"IID10*\" SIZE=6>                         <INPUT NAME=\"Qty10*\"
SIZE=1><BR>"
                        "  <INPUT NAME=\"SP11*\" SIZE=4>  <INPUT
NAME=\"IID11*\" SIZE=6>                         <INPUT NAME=\"Qty11*\"
SIZE=1><BR>"
                        "  <INPUT NAME=\"SP12*\" SIZE=4>  <INPUT
NAME=\"IID12*\" SIZE=6>                         <INPUT NAME=\"Qty12*\"
SIZE=1><BR>"
                        "  <INPUT NAME=\"SP13*\" SIZE=4>  <INPUT
NAME=\"IID13*\" SIZE=6>                         <INPUT NAME=\"Qty13*\"
SIZE=1><BR>"
                        "  <INPUT NAME=\"SP14*\" SIZE=4>  <INPUT
NAME=\"IID14*\" SIZE=6>                         <INPUT NAME=\"Qty14*\"
SIZE=1><BR>"
                        "Execution Status:
Total:<BR>"
                        "</font></PRE><HR>"
                        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\">"
                        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Menu\">"
                        "</FORM></HTML>"
                        );
        }
        else
        {
                c += wsprintf(szForm+c, "Warehouse: %4.4d   District: %2.2d
Date: ",
                        pNewOrderData->w_id,
                        pNewOrderData->d_id);

                if ( bValid )
                {
                        c += wsprintf(szForm+c, "%2.2d-%2.2d-%4.4d
%2.2d:%2.2d:%2.2d",
                                pNewOrderData->o_entry_d.day,
                                pNewOrderData->o_entry_d.month,
                                pNewOrderData->o_entry_d.year,
                                pNewOrderData->o_entry_d.hour,
                                pNewOrderData->o_entry_d.minute,
                                pNewOrderData->o_entry_d.second);
                }

                c += wsprintf(szForm+c, "<BR>Customer:  %4.4d   Name: %-16s
Credit: %-2s   ",
                        pNewOrderData->c_id, pNewOrderData->c_last,
pNewOrderData->c_credit);

                if ( bValid )
                {
                        c += sprintf(szForm+c,
                                                "%%Disc: %5.2f
<BR>"
                                                "Order Number: %8.8d
Number of Lines: %2.2d        W_tax: %5.2f   D_tax: %5.2f  <BR> <BR>"
                                                " Supp_W  Item_Id  Item
Name                 Qty  Stock  B/G  Price    Amount<BR>",
                                                //MIC tax already
converted
                                pNewOrderData->c_discount,
                                pNewOrderData->o_id,
                                pNewOrderData->o_ol_cnt,
                                pNewOrderData->w_tax,
                                pNewOrderData->d_tax);

                        for(i=0; i<pNewOrderData->o_ol_cnt; i++)
                        {
                                c += sprintf(szForm+c, "  %4.4d   %6.6d   %-
24s  %2.2d    %3.3d    %1.1s   $%6.2f  $%7.2f  <BR>",
                                        pNewOrderData-
>OL[i].ol_supply_w_id,
                                        pNewOrderData->OL[i].ol_i_id,
                                        pNewOrderData->OL[i].ol_i_name,
                                        pNewOrderData->OL[i].ol_quantity,
                                        pNewOrderData->OL[i].ol_stock,
                                        pNewOrderData-
>OL[i].ol_brand_generic,
                                        pNewOrderData->OL[i].ol_i_price,
                                        pNewOrderData->OL[i].ol_amount );
                        }
                }
                else
                {
                        c += wsprintf(szForm+c,
                                        "%Disc:<BR>"
                                        "Order Number: %8.8d  Number of Lines:
W_tax:         D_tax:<BR> <BR>"
                                        " Supp_W  Item_Id  Item Name
Qty  Stock  B/G  Price    Amount<BR>"
                                        , pNewOrderData->o_id);

                        i = 0;
                }

                strncpy( szForm+c, szBR, (15-i)*5 );
                c += (15-i)*5;

                if ( bValid )
                        c += sprintf(szForm+c, "Execution Status: Transaction
commited.                Total:  $%8.2f  ",
                                pNewOrderData->total_amount);
                else
```

```
                                c += wsprintf(szForm+c, "Execution Status: Item number
is not valid.                    Total:");

                        strcpy(szForm+c,
                                " <BR></font></PRE><HR>"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Order-
Status..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Stock-
Level..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
                                "</FORM></HTML>"
                                );
                }
}

/* FUNCTION: MakePaymentForm
 *
 * COMMENTS:        The internal client buffer is created when the terminal id is
assigned and should not
 *                                      be freed except when the client terminal id
is no longer needed.
 */

void MakePaymentForm(int iTermId, PAYMENT_DATA *pPaymentData, BOOL bInput, char
*szForm)
{
          int c;

          c = wsprintf(szForm,
                    "<HTML><HEAD><TITLE>TPC-C Payment</TITLE></HEAD><BODY>"
                    "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
                    "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"0\">"
                    "<INPUT TYPE=\"hidden\" NAME=\"ERROR\" VALUE=\"0\">"
                    "<INPUT TYPE=\"hidden\" NAME=\"FORMID\" VALUE=\"%d\">"
                    "<INPUT TYPE=\"hidden\" NAME=\"TERMID\" VALUE=\"%d\">"
                    "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\" VALUE=\"%d\">"
                    "<PRE><font face=\"Courier\">
Payment<BR>"
                    "Date: "
                    , PAYMENT_FORM, iTermId, Term.pClientData[iTermId].iSyncId);

          if ( !bInput )
          {
                    c += wsprintf(szForm+c, "%2.2d-%2.2d-%4.4d %2.2d:%2.2d:%2.2d",
                              pPaymentData->h_date.day,
                              pPaymentData->h_date.month,
                              pPaymentData->h_date.year,
                              pPaymentData->h_date.hour,
                              pPaymentData->h_date.minute,
                              pPaymentData->h_date.second);
          }

          if ( bInput )
          {
                    c += wsprintf(szForm+c,
                              "<BR> <BR>Warehouse: %4.4d"
                              "                              District: <INPUT
NAME=\"DID*\" SIZE=1><BR> <BR> <BR> <BR> <BR>"
                              "Customer: <INPUT NAME=\"CID*\" SIZE=4>"
                              "Cust-Warehouse: <INPUT NAME=\"CWI*\" SIZE=4>  "
                              "Cust-District: <INPUT NAME=\"CDI*\" SIZE=1><BR>"
                              "Name:                         <INPUT NAME=\"CLT*\"
SIZE=16>                      Since:<BR>"
                              "
Credit:<BR>"
                              "
Disc:<BR>"
                              "
Phone:<BR> <BR>"
                              "Amount Paid:          $<INPUT NAME=\"HAM*\" SIZE=7>
New Cust-Balance:<BR>"
                              "Credit Limit:<BR> <BR>Cust-Data: <BR> <BR> <BR> <BR>
<BR></font></PRE><HR>"
                              "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\"><INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Menu\">"
                              "</BODY></FORM></HTML>"
                              , Term.pClientData[iTermId].w_id);
          }
          else
          {

                    if(pPaymentData->c_id==0)
                              /* INVALID CUSTOMER */
                              throw new CWEBCLNT_ERR( ERR_INVALID_ENTRY );
                    else if(pPaymentData->exec_status_code==eSqlError)
                              /* INVALID C_ID OR D_ID OR W_ID */
                              throw new CWEBCLNT_ERR( ERR_INVALID_ENTRY );
                    else
                    {
                    c += wsprintf(szForm+c,
                              "<BR> <BR>Warehouse: %4.4d
District: %2.2d<BR>"
                              "%-20s                    %-20s<BR>"
                              "%-20s                    %-20s<BR>"
                              "%-20s %-2s %5.5s-%4.4s       %-20s %-2s %5.5s-
%4.4s<BR> <BR>"
                              "Customer: %4.4d  Cust-Warehouse: %4.4d  Cust-
District: %2.2d<BR>"
                              "Name:   %-16s %-2s %-16s     Since:  %2.2d-%2.2d-
%4.4d<BR>"
                              "        %-20s                    Credit: %-2s<BR>"

                              , Term.pClientData[iTermId].w_id, pPaymentData->d_id
                              , pPaymentData->w_street_1, pPaymentData->d_street_1
                              , pPaymentData->w_street_2, pPaymentData->d_street_2
                              , pPaymentData->w_city, pPaymentData->w_state,
pPaymentData->w_zip, pPaymentData->w_zip+5
                              , pPaymentData->d_city, pPaymentData->d_state,
pPaymentData->d_zip, pPaymentData->d_zip+5
                              , pPaymentData->c_id, pPaymentData->c_w_id,
          pPaymentData->c_d_id
                              , pPaymentData->c_first, pPaymentData->c_middle,
pPaymentData->c_last
                              , pPaymentData->c_since.day, pPaymentData-
>c_since.month,     pPaymentData->c_since.year
                              , pPaymentData->c_street_1, pPaymentData->c_credit
                              );

        c += sprintf(szForm+c,
```

```
                        "       %-20s                   %%Disc:
%5.2f<BR>",
                        pPaymentData->c_street_2, pPaymentData->c_discount);

                c += wsprintf(szForm+c,
                        "       %-20s %-2s %5.5s-%4.4s       Phone:  %6.6s-
%3.3s-%3.3s-%4.4s<BR> <BR>",
                        pPaymentData->c_city, pPaymentData->c_state,
pPaymentData->c_zip, pPaymentData->c_zip+5,
                        pPaymentData->c_phone, pPaymentData->c_phone+6,
pPaymentData->c_phone+9, pPaymentData->c_phone+12 );

                c += sprintf(szForm+c,
                        "Amount Paid:          $%7.2f      New Cust-Balance:
$%14.2f<BR>"
                        "Credit Limit:   $%13.2f<BR> <BR>"
                        , pPaymentData->h_amount, pPaymentData->c_balance
                        , pPaymentData->c_credit_lim
                        );

                if ( pPaymentData->c_credit[0] == 'B' && pPaymentData-
>c_credit[1] == 'C' )
                        c += wsprintf(szForm+c,
                                        "Cust-Data: %-50.50s<BR>
%-50.50s<BR>           %-50.50s<BR>           %-50.50s<BR>",
                                        pPaymentData->c_data,
pPaymentData->c_data+50, pPaymentData->c_data+100, pPaymentData->c_data+150 );
                else
                        strcpy(szForm+c, "Cust-Data: <BR> <BR> <BR> <BR>");
                }
                strcat(szForm,      " <BR></font></PRE><HR>"
                                                        "<INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..NewOrder..\">"
                                                        "<INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..Payment..\">"
                                                        "<INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..Delivery..\">"
                                                        "<INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..Order-Status..\">"
                                                        "<INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..Stock-Level..\">"
                                                        "<INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..Exit..\">"

          "</BODY></FORM></HTML>");
          }

}

/* FUNCTION: MakeOrderStatusForm
 *
 * COMMENTS:        The internal client buffer is created when the terminal id is
assigned and should not
 *                                  be freed except when the client terminal id
is no longer needed.
 */

void MakeOrderStatusForm(int iTermId, ORDER_STATUS_DATA *pOrderStatusData, BOOL
bInput, char *szForm)
{
          int               i, c;
          static char szBR[] = " <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR>";

          c = wsprintf(szForm,
                        "<HTML><HEAD><TITLE>TPC-C Order-Status</TITLE></HEAD><BODY>"
                        "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
                        "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"0\">"
                        "<INPUT TYPE=\"hidden\" NAME=\"ERROR\" VALUE=\"0\">"
                        "<INPUT TYPE=\"hidden\" NAME=\"FORMID\" VALUE=\"%d\">"
                        "<INPUT TYPE=\"hidden\" NAME=\"TERMID\" VALUE=\"%d\">"
                        "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\" VALUE=\"%d\">"
                        "<PRE><font face=\"Courier\">
Order-Status<BR>"
                        "Warehouse: %4.4d   ",
                        ORDER_STATUS_FORM, iTermId, Term.pClientData[iTermId].iSyncId,
Term.pClientData[iTermId].w_id);

          if ( bInput )
          {
                    strcpy(szForm+c,
                              "District: <INPUT NAME=\"DID*\" SIZE=1><BR>"
                              "Customer: <INPUT NAME=\"CID*\" SIZE=4>   Name:
<INPUT NAME=\"CLT*\" SIZE=23><BR>"
                              "Cust-Balance:<BR> <BR>"
                              "Order-Number:            Entry-Date:
Carrier-Number:<BR>"
                              "Supply-W     Item-Id    Qty     Amount      Delivery-
Date<BR> <BR> <BR> <BR> <BR>"
                              " <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR>
<BR></font></PRE>"
                              "<HR><INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\"><INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Menu\">"
                              "</BODY></FORM></HTML>" );
          }
          else
          {
                    if (pOrderStatusData->o_ol_cnt == 0)
                              /* NO SUCH ORDER */
                              throw new CWEBCLNT_ERR( ERR_INVALID_ENTRY );
                    else if (pOrderStatusData->c_id == 0 && pOrderStatusData-
>c_last[0] == 0)
                              /* INVALID CUSTOMER */
                              throw new CWEBCLNT_ERR( ERR_INVALID_ENTRY );
          else
          {
                    c += wsprintf(szForm+c,
                              "District: %2.2d<BR>"
                              "Customer: %4.4d   Name: %-16s %-2s %-16s<BR>",
                              pOrderStatusData->d_id, pOrderStatusData->c_id,
                              pOrderStatusData->c_first, pOrderStatusData->c_middle,
pOrderStatusData->c_last);

                    c += sprintf(szForm+c, "Cust-Balance: $%9.2f<BR> <BR>",
                              pOrderStatusData->c_balance);

                    c += wsprintf(szForm+c,
                              "Order-Number: %8.8d   Entry-Date: %2.2d-%2.2d-%4.4d
%2.2d:%2.2d:%2.2d   Carrier-Number: %2.2d<BR>"
                              "Supply-W     Item-Id    Qty     Amount      Delivery-
Date<BR>",
                              pOrderStatusData->o_id,
                              pOrderStatusData->o_entry_d.day,
                              pOrderStatusData->o_entry_d.month,
                              pOrderStatusData->o_entry_d.year,
                              pOrderStatusData->o_entry_d.hour,
```

```
                                pOrderStatusData->o_entry_d.minute,
                                pOrderStatusData->o_entry_d.second,
                                pOrderStatusData->o_carrier_id);

                        for(i=0; i< pOrderStatusData->o_ol_cnt; i++)
                        {
                                if( pOrderStatusData->OL[i].ol_delivery_d.year != 0)
                                {
                                        c += sprintf(szForm+c, "  %4.4d       %6.6d
%2.2d     $%8.2f      %2.2d-%2.2d-%4.4d<BR>",
                                        pOrderStatusData->OL[i].ol_supply_w_id,
                                        pOrderStatusData->OL[i].ol_i_id,
                                        pOrderStatusData->OL[i].ol_quantity,
                                        pOrderStatusData->OL[i].ol_amount,
                                        pOrderStatusData->OL[i].ol_delivery_d.day,
                                        pOrderStatusData->OL[i].ol_delivery_d.month,
                                        pOrderStatusData->OL[i].ol_delivery_d.year);
                                }
                                else
                                {
                                        c += sprintf(szForm+c, "  %4.4d       %6.6d
%2.2d     $%8.2f <BR>",
                                        pOrderStatusData->OL[i].ol_supply_w_id,
                                        pOrderStatusData->OL[i].ol_i_id,
                                        pOrderStatusData->OL[i].ol_quantity,
                                        pOrderStatusData->OL[i].ol_amount);
                                }


                        }

                        strncpy( szForm+c, szBR, (15-i)*5 );
                        c += (15-i)*5;
                        }
                        strcpy(szForm+c,
                                "</font></PRE><HR><INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Order-
Status..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Stock-
Level..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
                                "</BODY></FORM></HTML>" );
                }
}

/* FUNCTION: MakeDeliveryForm
 *
 * COMMENTS:        The internal client buffer is created when the terminal id is
assigned and should not
 *                              be freed except when the client terminal id
is no longer needed.
 */

void MakeDeliveryForm(int iTermId, DELIVERY_DATA *pDeliveryData, BOOL bInput, char
*szForm)
{
        int       c;

        c = wsprintf(szForm,
                        "<HTML><HEAD><TITLE>TPC-C Delivery</TITLE></HEAD><BODY>"
                        "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
                        "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"%d\">"
                        "<INPUT TYPE=\"hidden\" NAME=\"ERROR\" VALUE=\"0\">"
                        "<INPUT TYPE=\"hidden\" NAME=\"FORMID\" VALUE=\"%d\">"
                        "<INPUT TYPE=\"hidden\" NAME=\"TERMID\" VALUE=\"%d\">"
                        "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\" VALUE=\"%d\">"
                        "<PRE><font face=\"Courier\">
Delivery<BR>"
                        "Warehouse: %4.4d<BR> <BR>",
                        (!bInput && (pDeliveryData->exec_status_code != eOK)) ?
ERR_TYPE_DELIVERY_POST : 0,
                        DELIVERY_FORM, iTermId, Term.pClientData[iTermId].iSyncId,
Term.pClientData[iTermId].w_id);

        if ( bInput )
        {
                strcpy( szForm+c,
                                "Carrier Number: <INPUT NAME=\"OCD*\" SIZE=1><BR>
<BR>"
                                "Execution Status: <BR> <BR> <BR> <BR> <BR> <BR> <BR>
<BR>"
                                " <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR>
</font></PRE><HR>"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Menu\">"
                                "</BODY></FORM></HTML>" );
        }
        else
        {
                wsprintf( szForm+c,
                                "Carrier Number: %2.2d<BR> <BR>"
                                "Execution Status: %s <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR>"
                                " <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR>
</font></PRE>"
                                "<HR><INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Order-
Status..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Stock-
Level..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
                                "</BODY></FORM></HTML>"

                                , pDeliveryData->o_carrier_id,
                                (pDeliveryData->exec_status_code == eOK) ? "Delivery
has been queued." : "Delivery Post Failed     "
                                );
        }
}

/* FUNCTION: ProcessNewOrderForm
 *
```

```
 * PURPOSE:         This function gets and validates the input data from the new
order form
 *                          filling in the required input variables. it then calls
the SQLNewOrder
 *                          transaction, constructs the output form and writes it
back to client
 *                          browser.
 */

void ProcessNewOrderForm(EXTENSION_CONTROL_BLOCK  *pECB, int iTermId, char
*szBuffer)
{
          PNEW_ORDER_DATA               pNewOrder;

          pNewOrder = Term.pClientData[iTermId].pTxn->BuffAddr_NewOrder();

          ZeroMemory(pNewOrder, sizeof(NEW_ORDER_DATA));
          pNewOrder->w_id = Term.pClientData[iTermId].w_id;
          GetNewOrderData(pECB->lpszQueryString, pNewOrder);

          Term.pClientData[iTermId].pTxn->NewOrder();

          pNewOrder = Term.pClientData[iTermId].pTxn->BuffAddr_NewOrder();
          MakeNewOrderForm(iTermId, pNewOrder, OUTPUT_FORM, szBuffer );
}

/* FUNCTION: void ProcessPaymentForm
 *
 * PURPOSE:         This function gets and validates the input data from the payment
form
 *                          filling in the required input variables. It then calls
the SQLPayment
 *                          transaction, constructs the output form and writes it
back to client
 *                          browser.
 *
 * ARGUMENTS:       EXTENSION_CONTROL_BLOCK       *pECB     passed in structure
pointer from inetsrv.
 *                                  int
 *                  iTermId   client browser terminal id
 *
 */

void ProcessPaymentForm(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, char *szBuffer)
{
          PPAYMENT_DATA       pPayment;

          pPayment = Term.pClientData[iTermId].pTxn->BuffAddr_Payment();
          ZeroMemory(pPayment, sizeof(PAYMENT_DATA));
          pPayment->w_id = Term.pClientData[iTermId].w_id;
          GetPaymentData(pECB->lpszQueryString, pPayment);

          Term.pClientData[iTermId].pTxn->Payment();

          pPayment = Term.pClientData[iTermId].pTxn->BuffAddr_Payment();
          MakePaymentForm(iTermId, pPayment, OUTPUT_FORM, szBuffer);
}

/* FUNCTION: ProcessOrderStatusForm
 *
 * PURPOSE:         This function gets and validates the input data from the Order
Status
 *                          form filling in the required input variables. It then
calls the
 *                          SQLOrderStatus transaction, constructs the output form
and writes it
 *                          back to client browser.
 *
 * ARGUMENTS:       EXTENSION_CONTROL_BLOCK       *pECB     passed in structure
pointer from inetsrv.
 *                                  int
 *                  iTermId   client browser terminal id
 *
 */

void ProcessOrderStatusForm(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, char
*szBuffer)
{
          PORDER_STATUS_DATA  pOrderStatus;

          pOrderStatus = Term.pClientData[iTermId].pTxn->BuffAddr_OrderStatus();
          ZeroMemory(pOrderStatus, sizeof(ORDER_STATUS_DATA));
          pOrderStatus->w_id = Term.pClientData[iTermId].w_id;
          GetOrderStatusData(pECB->lpszQueryString, pOrderStatus);

          Term.pClientData[iTermId].pTxn->OrderStatus();

          pOrderStatus = Term.pClientData[iTermId].pTxn->BuffAddr_OrderStatus();
          MakeOrderStatusForm(iTermId, pOrderStatus, OUTPUT_FORM, szBuffer);
}

/* FUNCTION: ProcessDeliveryForm
 *
 * PURPOSE:         This function gets and validates the input data from the
delivery form
 *                          filling in the required input variables. It then calls
the PostDeliveryInfo
 *                          Api, The client is then informed that the transaction
has been posted.
 *
 * ARGUMENTS:       EXTENSION_CONTROL_BLOCK       *pECB     passed in structure
pointer from inetsrv.
 *                                  int
 *                  iTermId   client browser terminal id
 *
 */

void ProcessDeliveryForm(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, char *szBuffer)
{
          char      *ptr = pECB->lpszQueryString;

          PDELIVERY_DATA      pDelivery;

          pDelivery = Term.pClientData[iTermId].pTxn->BuffAddr_Delivery();
          ZeroMemory(pDelivery, sizeof(DELIVERY_DATA));
          pDelivery->w_id = Term.pClientData[iTermId].w_id;

          pDelivery->o_carrier_id       = GetIntKeyValue(&ptr, "OCD*",
ERR_DELIVERY_MISSING_OCD_KEY, ERR_DELIVERY_CARRIER_INVALID);
          if ( pDelivery->o_carrier_id > 10 || pDelivery->o_carrier_id < 1 )
                    throw new CWEBCLNT_ERR( ERR_DELIVERY_CARRIER_ID_RANGE );

          if (dwNumDeliveryThreads)
          {
                    //post delivery info
```

```
                    if ( PostDeliveryInfo(pDelivery->w_id, pDelivery->o_carrier_id)
)
                              pDelivery->exec_status_code = eDeliveryFailed;
                    else
                              pDelivery->exec_status_code = eOK;
          }
          else // delivery is done synchronously if no delivery threads configured
                    Term.pClientData[iTermId].pTxn->Delivery();

          pDelivery = Term.pClientData[iTermId].pTxn->BuffAddr_Delivery();
          MakeDeliveryForm(iTermId, pDelivery, OUTPUT_FORM, szBuffer);
}

/* FUNCTION: ProcessStockLevelForm
 *
 * PURPOSE:          This function gets and validates the input data from the Stock
Level
 *                   form filling in the required input variables. It then
calls the
 *                   SQLStockLevel transaction, constructs the output form
and writes it
 *                   back to client browser.
 *
 * ARGUMENTS:        EXTENSION_CONTROL_BLOCK       *pECB     passed in structure
pointer from inetsrv.
 *                                  int
 *                   iTermId   client browser terminal id
 *
 */

void ProcessStockLevelForm(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, char
*szBuffer)
{
          char                *ptr = pECB->lpszQueryString;

          PSTOCK_LEVEL_DATA   pStockLevel;

          pStockLevel = Term.pClientData[iTermId].pTxn->BuffAddr_StockLevel();
          ZeroMemory( pStockLevel, sizeof(STOCK_LEVEL_DATA) );

          pStockLevel->w_id = Term.pClientData[iTermId].w_id;
          pStockLevel->d_id = Term.pClientData[iTermId].d_id;

          pStockLevel->threshold = GetIntKeyValue(&ptr, "TT*",
ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY, ERR_STOCKLEVEL_THRESHOLD_INVALID);
          if ( pStockLevel->threshold >= 100 || pStockLevel->threshold < 0 )
                    throw new CWEBCLNT_ERR( ERR_STOCKLEVEL_THRESHOLD_RANGE );

          Term.pClientData[iTermId].pTxn->StockLevel();

          pStockLevel = Term.pClientData[iTermId].pTxn->BuffAddr_StockLevel();
          MakeStockLevelForm(iTermId, pStockLevel, OUTPUT_FORM, szBuffer);
}

/* FUNCTION: GetNewOrderData
 *
 * PURPOSE:          This function extracts and validates the new order form data
from an http command string.
 *
 * ARGUMENTS:        LPSTR                         lpszQueryString
          client browser http command string
 *                                  NEW_ORDER_DATA      *pNewOrderData
          pointer to new order data structure
 *
 */

void GetNewOrderData(LPSTR lpszQueryString, NEW_ORDER_DATA *pNewOrderData)
{
          char      szTmp[26];
          int                 i;
          short     items;
          int                 ol_i_id, ol_quantity;
          char      *ptr = lpszQueryString;

          static char szSP[MAX_OL_NEW_ORDER_ITEMS][6] =
                    { "SP00*", "SP01*", "SP02*", "SP03*", "SP04*",
                      "SP05*", "SP06*", "SP07*", "SP08*", "SP09*",
                      "SP10*", "SP11*", "SP12*", "SP13*", "SP14*" };
          static char szIID[MAX_OL_NEW_ORDER_ITEMS][7] =
                    { "IID00*", "IID01*", "IID02*", "IID03*", "IID04*",
                      "IID05*", "IID06*", "IID07*", "IID08*", "IID09*",
                      "IID10*", "IID11*", "IID12*", "IID13*", "IID14*" };
          static char szQty[MAX_OL_NEW_ORDER_ITEMS][7] =
                    { "Qty00*", "Qty01*", "Qty02*", "Qty03*", "Qty04*",
                      "Qty05*", "Qty06*", "Qty07*", "Qty08*", "Qty09*",
                      "Qty10*", "Qty11*", "Qty12*", "Qty13*", "Qty14*" };

          pNewOrderData->d_id = GetIntKeyValue(&ptr, "DID*",
ERR_NEWORDER_FORM_MISSING_DID, ERR_NEWORDER_DISTRICT_INVALID);
          pNewOrderData->c_id = GetIntKeyValue(&ptr, "CID*",
ERR_NEWORDER_CUSTOMER_KEY, ERR_NEWORDER_CUSTOMER_INVALID);

          for(i=0, items=0; i<MAX_OL_NEW_ORDER_ITEMS; i++)
          {
                    GetKeyValue(&ptr, szSP[i], szTmp, sizeof(szTmp),
ERR_NEWORDER_MISSING_SUPPW_KEY);
                    if ( szTmp[0] )
                    {
                              if ( !IsNumeric(szTmp) )
                                        throw new CWEBCLNT_ERR(
ERR_NEWORDER_SUPPW_INVALID );
                              pNewOrderData->OL[items].ol_supply_w_id =
(short)atoi(szTmp);

                              ol_i_id = pNewOrderData->OL[items].ol_i_id =
                                        GetIntKeyValue(&ptr, szIID[i],
ERR_NEWORDER_MISSING_IID_KEY, ERR_NEWORDER_ITEMID_INVALID);
                              if ( ol_i_id > 999999 || ol_i_id < 1 )
                                        throw new CWEBCLNT_ERR(
ERR_NEWORDER_ITEMID_RANGE );

                              ol_quantity = pNewOrderData->OL[items].ol_quantity =
                                        GetIntKeyValue(&ptr, szQty[i],
ERR_NEWORDER_MISSING_QTY_KEY, ERR_NEWORDER_QTY_INVALID);
                              if ( ol_quantity > 99 || ol_quantity < 1 )
                                        throw new CWEBCLNT_ERR(
ERR_NEWORDER_QTY_RANGE );

                              items++;
                    }
                    else
                    {         // nothing entered for supply warehouse, so item id
and qty must also be blank
                              GetKeyValue(&ptr, szIID[i], szTmp, sizeof(szTmp),
ERR_NEWORDER_MISSING_IID_KEY);
                              if ( szTmp[0] )
```

```
                                        throw new CWEBCLNT_ERR(
ERR_NEWORDER_ITEMID_WITHOUT_SUPPW );

                                GetKeyValue(&ptr, szQty[i], szTmp, sizeof(szTmp),
ERR_NEWORDER_MISSING_QTY_KEY);
                                if ( szTmp[0] )
                                        throw new CWEBCLNT_ERR(
ERR_NEWORDER_QTY_WITHOUT_SUPPW );
                        }
                }
                if ( items == 0 )
                        throw new CWEBCLNT_ERR( ERR_NEWORDER_NOITEMS_ENTERED );

                pNewOrderData->o_ol_cnt = items;
}

/* FUNCTION: GetPaymentData
 *
 * PURPOSE:         This function extracts and validates the payment form data from
an http command string.
 *
 * ARGUMENTS:       LPSTR                           lpszQueryString
        client browser http command string
 *                                      PAYMENT_DATA        *pPaymentData
        pointer to payment data structure
 */

void GetPaymentData(LPSTR lpszQueryString, PAYMENT_DATA *pPaymentData)
{
        char    szTmp[26];
        char    *ptr = lpszQueryString;
        BOOL    bCustIdBlank;

        pPaymentData->d_id = GetIntKeyValue(&ptr, "DID*",
ERR_PAYMENT_MISSING_DID_KEY, ERR_PAYMENT_DISTRICT_INVALID);

        GetKeyValue(&ptr, "CID*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_CID_KEY);
        if ( szTmp[0] == 0 )
        {
                bCustIdBlank = TRUE;
                pPaymentData->c_id = 0;
        }
        else
        {       // parse customer id and verify that last name was NOT entered
                bCustIdBlank = FALSE;
                if ( !IsNumeric(szTmp) )
                        throw new CWEBCLNT_ERR( ERR_PAYMENT_CUSTOMER_INVALID
);
                pPaymentData->c_id = atoi(szTmp);
        }

        pPaymentData->c_w_id = GetIntKeyValue(&ptr, "CWI*",
ERR_PAYMENT_MISSING_CWI_KEY, ERR_PAYMENT_CWI_INVALID);
        pPaymentData->c_d_id = GetIntKeyValue(&ptr, "CDI*",
ERR_PAYMENT_MISSING_CDI_KEY, ERR_PAYMENT_CDI_INVALID);

        if( ( pPaymentData->c_w_id == 0 ) || ( pPaymentData->c_d_id ==0 ) )
                throw new CWEBCLNT_ERR( ERR_PAYMENT_CUSTOMER_INVALID );

        if ( bCustIdBlank )
        {       // customer id is blank, so last name must be entered
                GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_CLT_KEY);
                if ( szTmp[0] == 0 )
                        throw new CWEBCLNT_ERR( ERR_PAYMENT_MISSING_CID_CLT );

                _strupr( szTmp );
                if ( strlen(pPaymentData->c_last) > LAST_NAME_LEN )
                        throw new CWEBCLNT_ERR( ERR_PAYMENT_LAST_NAME_TO_LONG
);
                strcpy(pPaymentData->c_last, szTmp);
        }
        else
        {       // parse customer id and verify that last name was NOT entered
                GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_CLT_KEY);
                if ( szTmp[0] != 0 )
                        throw new CWEBCLNT_ERR( ERR_PAYMENT_CID_AND_CLT );
        }

        GetKeyValue(&ptr, "HAM*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_HAM_KEY);
        if (!IsDecimal(szTmp))
                throw new CWEBCLNT_ERR( ERR_PAYMENT_HAM_INVALID );
        pPaymentData->h_amount = atof(szTmp);
        if ( pPaymentData->h_amount >= 10000.00 || pPaymentData->h_amount < 0 )
                throw new CWEBCLNT_ERR( ERR_PAYMENT_HAM_RANGE );
}

/* FUNCTION: GetOrderStatusData
 *
 * PURPOSE:         This function extracts and validates the payment form data from
an http command string.
 *
 */
void GetOrderStatusData(LPSTR lpszQueryString, ORDER_STATUS_DATA *pOrderStatusData)
{
        char    szTmp[26];
        char    *ptr = lpszQueryString;

        pOrderStatusData->d_id = GetIntKeyValue(&ptr, "DID*",
ERR_ORDERSTATUS_MISSING_DID_KEY, ERR_ORDERSTATUS_DID_INVALID);

        GetKeyValue(&ptr, "CID*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CID_KEY);
        if ( szTmp[0] == 0 )
        {       // customer id is blank, so last name must be entered
                pOrderStatusData->c_id = 0;
                GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CLT_KEY);
                if ( szTmp[0] == 0 )
                        throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_MISSING_CID_CLT );

                _strupr( szTmp );
                if ( strlen(pOrderStatusData->c_last) > LAST_NAME_LEN )
                        throw new CWEBCLNT_ERR( ERR_ORDERSTATUS_CLT_RANGE );
                strcpy(pOrderStatusData->c_last, szTmp);
        }
        else
        {       // parse customer id and verify that last name was NOT entered
                if ( !IsNumeric(szTmp) )
                        throw new CWEBCLNT_ERR( ERR_ORDERSTATUS_CID_INVALID );
                pOrderStatusData->c_id = atoi(szTmp);
```

```
                    GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CLT_KEY);
                    if ( szTmp[0] != 0 )
                              throw new CWEBCLNT_ERR( ERR_ORDERSTATUS_CID_AND_CLT );
          }

}

/* FUNCTION: BOOL IsNumeric(char *ptr)
 *
 * PURPOSE:          This function determines if a string is numeric. It fails if any
characters other
 *                              than numeric and null terminator are present.
 *
 * ARGUMENTS:        char                          *ptr      pointer to string to
check.
 *
 * RETURNS:                    BOOL      FALSE     if string is not all numeric
 *                                                       TRUE      if string
contains only numeric characters i.e. '0' - '9'
 */

BOOL IsNumeric(char *ptr)
{
          if ( *ptr == 0 )
                    return FALSE;

          while( *ptr && isdigit(*ptr) )
                    ptr++;
          return ( !*ptr );
}

/* FUNCTION: BOOL IsDecimal(char *ptr)
 *
 * PURPOSE:          This function determines if a string is a non-negative decimal
value.
 *           It fails if any characters other than a series of numbers followed by
 *                              a decimal point, another series of numbers, and a null
terminator are present.
 *
 * ARGUMENTS:        char                          *ptr      pointer to string to
check.
 *
 * RETURNS:                    BOOL      FALSE     if string is not a valid non-
negative decimal value
 *                                                       TRUE      if string is
OK
 */

BOOL IsDecimal(char *ptr)
{
          char *dotptr;
          BOOL  bValid;

          if ( *ptr == 0 )
                    return FALSE;

          // find decimal point
          dotptr = strchr( ptr, '.' );
          if (dotptr == NULL)
                    // no decimal point, so just check for numeric
                    return IsNumeric(ptr);
          *dotptr = 0;  // temporarily replace decimal with a terminator

          if ( *ptr != 0 )
                    bValid = IsNumeric(ptr);
          // string starts with decimal point
          else if (*(dotptr+1) == 0)
                    return FALSE;  // nothing but a decimal point is bad
          else
                    bValid = TRUE;

          if (*(dotptr+1) != 0)
                    // check text after decimal point
                    bValid &= IsNumeric(dotptr+1);

          *dotptr = '.';  // replace decimal point
          return bValid;
}
```

tpcc.def

```
LIBRARY TPCC.DLL

EXPORTS

          GetExtensionVersion @1
          HttpExtensionProc   @2
          TerminateExtension  @3
```

tpcc.h

```
/*        FILE:               TPCC.H
 *                                        Microsoft TPC-C Kit Ver. 4.20.000
 *                                        Copyright Microsoft, 1999
 *              All Rights Reserved
 *
 *                                        Version 4.10.000 audited by Richard Gimarc,
Performance Metrics, 3/17/99
 *
 *        PURPOSE:  Header file for ISAPI TPCC.DLL, defines structures and functions
used in the isapi tpcc.dll.
 *
 */

//VERSION RESOURCE DEFINES

#define _APS_NEXT_RESOURCE_VALUE                                        101
#define _APS_NEXT_COMMAND_VALUE
          40001
#define _APS_NEXT_CONTROL_VALUE                                                 1000
#define _APS_NEXT_SYMED_VALUE                                           101

#define TP_MAX_RETRIES
          50


//note that the welcome form must be processed first as terminal ids assigned here,
once the
//terminal id is assigned then the forms can be processed in any order.
#define WELCOME_FORM                                                            1
                    //beginning form no term id assigned, form id
```

```
#define MAIN_MENU_FORM                                                  2
                //term id assigned main menu form id
#define NEW_ORDER_FORM                                                  3
                //new order form id
#define PAYMENT_FORM                                                    4
                //payment form id
#define DELIVERY_FORM                                                   5
                //delivery form id
#define ORDER_STATUS_FORM                                       6
          //order status id
#define STOCK_LEVEL_FORM                                        7
          //stock level form id

//This macro is used to prevent the compiler error unused formal parameter
#define UNUSEDPARAM(x) (x = x)


//This structure defines the data necessary to keep distinct for each terminal or
client connection.
typedef struct _CLIENTDATA
{
          int                           iNextFree;
          //index of next free element or -1 if this entry in use.
          int                           w_id;
          //warehouse id assigned at welcome form
          int                           d_id;
          //district id assigned at welcome form

          int                           iSyncId;
          //syncronization id
          int                           iTickCount;
          //time of last access;

          CTPCC_BASE          *pTxn;

} CLIENTDATA, *PCLIENTDATA;


//This structure is used to define the operational interface for terminal id support
typedef struct _TERM
{
          int                           iNumEntries;
                  //total allocated terminal array entries
          int                           iFreeList;
                          //next available terminal array element or -1 if none
          int                           iMasterSyncId;
                  //syncronization id
          CLIENTDATA          *pClientData;
          //pointer to allocated client data
} TERM;

typedef TERM *PTERM;
          //pointer to terminal structure type


          enum WEBERROR
          {
                    NO_ERR,
                    ERR_COMMAND_UNDEFINED,
                    ERR_D_ID_INVALID,
                    ERR_DELIVERY_CARRIER_ID_RANGE,
                    ERR_DELIVERY_CARRIER_INVALID,
                    ERR_DELIVERY_MISSING_OCD_KEY,
                    ERR_DELIVERY_THREAD_FAILED,
                    ERR_GETPROCADDR_FAILED,
                    ERR_HTML_ILL_FORMED,
                    ERR_INVALID_SYNC_CONNECTION,
                    ERR_INVALID_TERMID,
                    ERR_LOADDLL_FAILED,
                    ERR_MAX_CONNECTIONS_EXCEEDED,
                    ERR_MEM_ALLOC_FAILED,
                    ERR_MISSING_REGISTRY_ENTRIES,
                    ERR_NEWORDER_CUSTOMER_INVALID,
                    ERR_NEWORDER_CUSTOMER_KEY,
                    ERR_NEWORDER_DISTRICT_INVALID,
                    ERR_NEWORDER_FORM_MISSING_DID,
                    ERR_NEWORDER_ITEMID_INVALID,
                    ERR_NEWORDER_ITEMID_RANGE,
                    ERR_NEWORDER_ITEMID_WITHOUT_SUPPW,
                    ERR_NEWORDER_MISSING_IID_KEY,
                    ERR_NEWORDER_MISSING_QTY_KEY,
                    ERR_NEWORDER_MISSING_SUPPW_KEY,
                    ERR_NEWORDER_NOITEMS_ENTERED,
                    ERR_NEWORDER_QTY_INVALID,
                    ERR_NEWORDER_QTY_RANGE,
                    ERR_NEWORDER_QTY_WITHOUT_SUPPW,
                    ERR_NEWORDER_SUPPW_INVALID,
                    ERR_NO_SERVER_SPECIFIED,
                    ERR_ORDERSTATUS_CID_AND_CLT,
                    ERR_ORDERSTATUS_CID_INVALID,
                    ERR_ORDERSTATUS_CLT_RANGE,
                    ERR_ORDERSTATUS_DID_INVALID,
                    ERR_ORDERSTATUS_MISSING_CID_CLT,
                    ERR_ORDERSTATUS_MISSING_CID_KEY,
                    ERR_ORDERSTATUS_MISSING_CLT_KEY,
                    ERR_ORDERSTATUS_MISSING_DID_KEY,
                    ERR_PAYMENT_CDI_INVALID,
                    ERR_PAYMENT_CID_AND_CLT,
                    ERR_PAYMENT_CUSTOMER_INVALID,
                    ERR_PAYMENT_CWI_INVALID,
                    ERR_PAYMENT_DISTRICT_INVALID,
                    ERR_PAYMENT_HAM_INVALID,
                    ERR_PAYMENT_HAM_RANGE,
                    ERR_PAYMENT_LAST_NAME_TO_LONG,
                    ERR_PAYMENT_MISSING_CDI_KEY,
                    ERR_PAYMENT_MISSING_CID_CLT,
                    ERR_PAYMENT_MISSING_CID_KEY,
                    ERR_PAYMENT_MISSING_CLT,
                    ERR_PAYMENT_MISSING_CLT_KEY,
                    ERR_PAYMENT_MISSING_CWI_KEY,
                    ERR_PAYMENT_MISSING_DID_KEY,
                    ERR_PAYMENT_MISSING_HAM_KEY,
                    ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY,
                    ERR_STOCKLEVEL_THRESHOLD_INVALID,
                    ERR_STOCKLEVEL_THRESHOLD_RANGE,
                    ERR_VERSION_MISMATCH,
                    ERR_W_ID_INVALID,
                    ERR_INVALID_ENTRY
          };

class CWEBCLNT_ERR : public CBaseErr
{
          public:

                    CWEBCLNT_ERR(WEBERROR Err)
                    {
```

```
                        m_Error = Err;
                        m_szTextDetail = NULL;
                        m_SystemErr = 0;
                        m_szErrorText = NULL;
                };

                CWEBCLNT_ERR(WEBERROR Err, char *szTextDetail, DWORD
dwSystemErr)
                {
                        m_Error = Err;
                        m_szTextDetail = new char[strlen(szTextDetail)+1];
                        strcpy( m_szTextDetail, szTextDetail );
                        m_SystemErr = dwSystemErr;
                        m_szErrorText = NULL;
                };

                ~CWEBCLNT_ERR()
                {
                        if (m_szTextDetail != NULL)
                                delete [] m_szTextDetail;
                        if (m_szErrorText != NULL)
                                delete [] m_szErrorText;
                };

                WEBERROR  m_Error;
                char            *m_szTextDetail;    //
                char            *m_szErrorText;
                DWORD           m_SystemErr;

                int ErrorType() {return ERR_TYPE_WEBDLL;};
                int ErrorNum() {return m_Error;};
                char *ErrorText();

};

//These constants have already been defined in engstut.h, but since we do
//not want to include it in the delisrv executable
#define   TXN_EVENT_START           2
#define   TXN_EVENT_STOP            4
#define TXN_EVENT_WARNING     6                 //used to record a warning into
the log

//function prototypes

BOOL APIENTRY DllMain(HANDLE hModule, DWORD ul_reason_for_call, LPVOID lpReserved);
void WriteMessageToEventLog(LPTSTR lpszMsg);
void ProcessQueryString(EXTENSION_CONTROL_BLOCK *pECB, int *pCmd, int *pFormId, int
*pTermId, int *pSyncId);
void WelcomeForm(EXTENSION_CONTROL_BLOCK *pECB, char *szBuffer);
void SubmitCmd(EXTENSION_CONTROL_BLOCK *pECB, char *szBuffer);
void BeginCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int iTermId);
void ProcessCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int iTermId);
void StatsCmd(EXTENSION_CONTROL_BLOCK *pECB, char *szBuffer);
void ErrorMessage(EXTENSION_CONTROL_BLOCK *pECB, int iError, int iErrorType, char
*szMsg, int iTermId);
void GetKeyValue(char **pQueryString, char *pKey, char *pValue, int iMax, WEBERROR
err);
int  GetIntKeyValue(char **pQueryString, char *pKey, WEBERROR NoKeyErr, WEBERROR
NotIntErr);
void TermInit(void);
void TermDeleteAll(void);
int  TermAdd(void);
void TermDelete(int id);
void ErrorForm(EXTENSION_CONTROL_BLOCK *pECB, int iType, int iErrorNum, int iTermId,
int iSyncId, char *szErrorText, char *szBuffer );
void MakeMainMenuForm(int iTermId, int iSyncId, char *szForm);
void MakeStockLevelForm(int iTermId, STOCK_LEVEL_DATA *pStockLevelData, BOOL bInput,
char *szForm);
void MakeNewOrderForm(int iTermId, NEW_ORDER_DATA *pNewOrderData, BOOL bInput, char
*szForm);
void MakePaymentForm(int iTermId, PAYMENT_DATA *pPaymentData, BOOL bInput, char
*szForm);
void MakeOrderStatusForm(int iTermId, ORDER_STATUS_DATA *pOrderStatusData, BOOL
bInput, char *szForm);
void MakeDeliveryForm(int iTermId, DELIVERY_DATA *pDeliveryData, BOOL bInput, char
*szForm);
void ProcessNewOrderForm(EXTENSION_CONTROL_BLOCK  *pECB, int iTermId, char
*szBuffer);
void ProcessPaymentForm(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, char *szBuffer);
void ProcessOrderStatusForm(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, char
*szBuffer);
void ProcessDeliveryForm(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, char
*szBuffer);
void ProcessStockLevelForm(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, char
*szBuffer);
void GetNewOrderData(LPSTR lpszQueryString, NEW_ORDER_DATA *pNewOrderData);
void GetPaymentData(LPSTR lpszQueryString, PAYMENT_DATA *pPaymentData);
void GetOrderStatusData(LPSTR lpszQueryString, ORDER_STATUS_DATA *pOrderStatusData);
BOOL PostDeliveryInfo(short w_id, short o_carrier_id);
BOOL IsNumeric(char *ptr);
BOOL IsDecimal(char *ptr);
void DeliveryWorkerThread(void *ptr);
```

tpcc.rc

```
//Microsoft Developer Studio generated resource script.
//
#include "resource.h"

#define APSTUDIO_READONLY_SYMBOLS
////////////////////////////////////////////////////////////////////////////
//
// Generated from the TEXTINCLUDE 2 resource.
//
#include "afxres.h"

////////////////////////////////////////////////////////////////////////////
#undef APSTUDIO_READONLY_SYMBOLS

////////////////////////////////////////////////////////////////////////////
// English (U.S.) resources

#if !defined(AFX_RESOURCE_DLL) || defined(AFX_TARG_ENU)
#ifdef _WIN32
LANGUAGE LANG_ENGLISH, SUBLANG_ENGLISH_US
#pragma code_page(1252)
#endif //_WIN32

#ifndef _MAC
////////////////////////////////////////////////////////////////////////////
//
// Version
//

VS_VERSION_INFO VERSIONINFO
```

```
 FILEVERSION 0,4,0,0
 PRODUCTVERSION 0,4,0,0
 FILEFLAGSMASK 0x3fL
#ifdef _DEBUG
 FILEFLAGS 0x1L
#else
 FILEFLAGS 0x0L
#endif
 FILEOS 0x40004L
 FILETYPE 0x2L
 FILESUBTYPE 0x0L
BEGIN
    BLOCK "StringFileInfo"
    BEGIN
        BLOCK "040904b0"
        BEGIN
            VALUE "Comments", "TPC-C HTML DLL Server (DBLIB)\0"
            VALUE "CompanyName", "Microsoft\0"
            VALUE "FileDescription", "TPC-C HTML DLL Server (DBLIB)\0"
            VALUE "FileVersion", "0, 4, 0, 0\0"
            VALUE "InternalName", "tpcc\0"
            VALUE "LegalCopyright", "Copyright © 1997\0"
            VALUE "OriginalFilename", "tpcc.dll\0"
            VALUE "ProductName", "Microsoft tpcc\0"
            VALUE "ProductVersion", "0, 4, 0, 0\0"
        END
    END
    BLOCK "VarFileInfo"
    BEGIN
        VALUE "Translation", 0x409, 1200
    END
END

#endif    // !_MAC


#ifdef APSTUDIO_INVOKED
//////////////////////////////////////////////////////////////////////////////
//
// TEXTINCLUDE
//

1 TEXTINCLUDE DISCARDABLE
BEGIN
    "resource.h\0"
END

2 TEXTINCLUDE DISCARDABLE
BEGIN
    "#include ""afxres.h""\r\n"
    "\0"
END

3 TEXTINCLUDE DISCARDABLE
BEGIN
    "\r\n"
    "\0"
END

#endif    // APSTUDIO_INVOKED


//////////////////////////////////////////////////////////////////////////////
//
// Dialog
//

IDD_DIALOG1 DIALOG DISCARDABLE  0, 0, 186, 95
STYLE DS_MODALFRAME | WS_POPUP | WS_CAPTION | WS_SYSMENU
CAPTION "Dialog"
FONT 8, "MS Sans Serif"
BEGIN
    DEFPUSHBUTTON   "OK",IDOK,129,7,50,14
    PUSHBUTTON      "Cancel",IDCANCEL,129,24,50,14
END


//////////////////////////////////////////////////////////////////////////////
//
// DESIGNINFO
//

#ifdef APSTUDIO_INVOKED
GUIDELINES DESIGNINFO DISCARDABLE
BEGIN
    IDD_DIALOG1, DIALOG
    BEGIN
        LEFTMARGIN, 7
        RIGHTMARGIN, 179
        TOPMARGIN, 7
        BOTTOMMARGIN, 88
    END
END
#endif    // APSTUDIO_INVOKED

#endif    // English (U.S.) resources
//////////////////////////////////////////////////////////////////////////////



#ifndef APSTUDIO_INVOKED
//////////////////////////////////////////////////////////////////////////////
//
// Generated from the TEXTINCLUDE 3 resource.
//


//////////////////////////////////////////////////////////////////////////////
#endif    // not APSTUDIO_INVOKED
```

tpcc_com.cpp

```
/*        FILE:               TPCC_COM.CPP
 *                                      Microsoft TPC-C Kit Ver. 4.20.000
 *                                      Copyright Microsoft, 1999
 *             All Rights Reserved
 *
 *                                      not yet audited
 *
 *        PURPOSE:  Source file for TPC-C COM+ class implementation.
 *        Contact:  Charles Levine (clevine@microsoft.com)
 *
 *  Change history:
 *                  4.20.000 - first version
```

```
 */

// needed for CoinitializeEx
#define _WIN32_WINNT 0x0400

#include <windows.h>

// need to declare functions for export
#define DllDecl  __declspec( dllexport )

#include "..\..\common\src\trans.h"              //tpckit transaction header
contains definations of structures specific to TPC-C
#include "..\..\common\src\error.h"
#include "..\..\common\src\txn_base.h"
#include "tpcc_com.h"

#include "..\..\tpcc_com_ps\src\tpcc_com_ps_i.c"
#include "..\..\tpcc_com_all\src\tpcc_com_all_i.c"

// wrapper routine for class constructor
__declspec(dllexport) CTPCC_COM* CTPCC_COM_new(BOOL bSinglePool)
{
          return new CTPCC_COM(bSinglePool);
}

CTPCC_COM::CTPCC_COM(BOOL bSinglePool)
{
          HRESULT hr = NULL;
          long lRet = 0;
          ULONG ulTmpSize = 0;

          m_pTxn                        = NULL;
          m_pNewOrder                   = NULL;
          m_pPayment                    = NULL;
          m_pStockLevel       = NULL;
          m_pOrderStatus      = NULL;

          m_bSinglePool       = bSinglePool;

          ulTmpSize = (ULONG) sizeof(COM_DATA);
          VariantInit(&m_vTxn);
          m_vTxn.vt = VT_SAFEARRAY;

          m_vTxn.parray = SafeArrayCreateVector(VT_UI1, ulTmpSize, ulTmpSize);
          if (!m_vTxn.parray)
                    throw new CCOMERR( E_FAIL );

          memset((void*)m_vTxn.parray->pvData,0,ulTmpSize);
          m_pTxn = (COM_DATA*)m_vTxn.parray->pvData;

          hr = CoInitializeEx(NULL, COINIT_MULTITHREADED);
          if (FAILED(hr))
          {
                    throw new CCOMERR( hr );
          }

          // create components
          if (m_bSinglePool)
          {
                    hr = CoCreateInstance(CLSID_TPCC, NULL, CLSCTX_SERVER,
IID_ITPCC, (void **)&m_pNewOrder);
                    if (FAILED(hr))
                              throw new CCOMERR(hr);

                    // all txns will use same component
                    m_pPayment = m_pNewOrder;
                    m_pStockLevel = m_pNewOrder;
                    m_pOrderStatus = m_pNewOrder;
          }
          else
          {
                    // use different components for each txn

                    hr = CoCreateInstance(CLSID_NewOrder, NULL, CLSCTX_SERVER,
IID_ITPCC, (void **)&m_pNewOrder);
                    if (FAILED(hr))
                              throw new CCOMERR(hr);

                    hr = CoCreateInstance(CLSID_Payment, NULL, CLSCTX_SERVER,
IID_ITPCC, (void **)&m_pPayment);
                    if (FAILED(hr))
                              throw new CCOMERR(hr);

                    hr = CoCreateInstance(CLSID_StockLevel, NULL, CLSCTX_SERVER,
IID_ITPCC, (void **)&m_pStockLevel);
                    if (FAILED(hr))
                              throw new CCOMERR(hr);

                    hr = CoCreateInstance(CLSID_OrderStatus, NULL, CLSCTX_SERVER,
IID_ITPCC, (void **)&m_pOrderStatus);
                    if (FAILED(hr))
                              throw new CCOMERR(hr);
          }

          // call setcomplete to release each component back into pool
          hr = m_pNewOrder->CallSetComplete();
          if (FAILED(hr))
                    throw new CCOMERR(hr);

          if (!m_bSinglePool)
          {
                    hr = m_pPayment->CallSetComplete();
                    if (FAILED(hr))
                              throw new CCOMERR(hr);

                    hr = m_pStockLevel->CallSetComplete();
                    if (FAILED(hr))
                              throw new CCOMERR(hr);

                    hr = m_pOrderStatus->CallSetComplete();
                    if (FAILED(hr))
                              throw new CCOMERR(hr);
          }
}

CTPCC_COM::~CTPCC_COM()
{
          if (m_pTxn)
                    SafeArrayDestroy(m_vTxn.parray);

          ReleaseInterface(m_pNewOrder);
          if (!m_bSinglePool)
          {
                    ReleaseInterface(m_pPayment);
                    ReleaseInterface(m_pStockLevel);
                    ReleaseInterface(m_pOrderStatus);
```

```
        }
        CoUninitialize();
}

void CTPCC_COM::NewOrder()
{
        VARIANT   vTxn_out;

        HRESULT hr = m_pNewOrder->NewOrder(m_vTxn, &vTxn_out);
        if (FAILED(hr))
                throw new CCOMERR( hr );
        memcpy(m_pTxn, (void *)vTxn_out.parray->pvData,vTxn_out.parray-
>rgsabound[0].cElements);
        SafeArrayDestroy(vTxn_out.parray);

        if ( m_pTxn->ErrorType != ERR_SUCCESS )
                throw new CCOMERR( m_pTxn->ErrorType, m_pTxn->error );
}

void CTPCC_COM::Payment()
{
        VARIANT   vTxn_out;

        HRESULT hr = m_pPayment->Payment(m_vTxn, &vTxn_out);
        if (FAILED(hr))
                throw new CCOMERR( hr );
        memcpy(m_pTxn, (void *)vTxn_out.parray->pvData,vTxn_out.parray-
>rgsabound[0].cElements);
        SafeArrayDestroy(vTxn_out.parray);

        if ( m_pTxn->ErrorType != ERR_SUCCESS )
                throw new CCOMERR( m_pTxn->ErrorType, m_pTxn->error );
}

void CTPCC_COM::StockLevel()
{
        VARIANT   vTxn_out;

        HRESULT hr = m_pStockLevel->StockLevel(m_vTxn, &vTxn_out);
        if (FAILED(hr))
                throw new CCOMERR( hr );
        memcpy(m_pTxn, (void *)vTxn_out.parray->pvData,vTxn_out.parray-
>rgsabound[0].cElements);
        SafeArrayDestroy(vTxn_out.parray);

        if ( m_pTxn->ErrorType != ERR_SUCCESS )
                throw new CCOMERR( m_pTxn->ErrorType, m_pTxn->error );
}

void CTPCC_COM::OrderStatus()
{
        VARIANT   vTxn_out;

        HRESULT hr = m_pOrderStatus->OrderStatus(m_vTxn, &vTxn_out);
        if (FAILED(hr))
                throw new CCOMERR( hr );
        memcpy(m_pTxn, (void *)vTxn_out.parray->pvData,vTxn_out.parray-
>rgsabound[0].cElements);
        SafeArrayDestroy(vTxn_out.parray);

        if ( m_pTxn->ErrorType != ERR_SUCCESS )
                throw new CCOMERR( m_pTxn->ErrorType, m_pTxn->error );
}
```

tpcc_com.h

```
/*        FILE:                TPCC_COM.H
 *                                      Microsoft TPC-C Kit Ver. 4.20.000
 *                                      Copyright Microsoft, 1999
 *              All Rights Reserved
 *
 *                                      not yet audited
 *
 *        PURPOSE:  Header file for TPC-C COM+ class implementation.
 *
 *  Change history:
 *                  4.20.000 - first version
 */

#pragma once

#include <stdio.h>
#include "..\..\tpcc_com_ps\src\tpcc_com_ps.h"

// need to declare functions for import, unless define has already been created
// by the DLL's .cpp module for export.
#ifndef DllDecl
#define DllDecl  __declspec( dllimport )
#endif

class CCOMERR : public CBaseErr
{
          private:
                    char m_szErrorText[64];

          public:
                    // use this interface for genuine COM errors
                    CCOMERR( HRESULT hr )
                    {
                              m_hr = hr;
                              m_iErrorType = 0;
                              m_iError = 0;
                    }

                    // use this interface to impersonate a non-COM error type
                    CCOMERR( int iErrorType, int iError )
                    {
                              m_iErrorType = iErrorType;
                              m_iError = iError;
                              m_hr = S_OK;
                    }

                    int                m_hr;
                    int                m_iErrorType;
                    int                m_iError;

                    // A CCOMERR class can impersonate another class, which happens
if the error
                    // was not actually a COM Services error, but was simply
transmitted back via COM.
                    int ErrorType()
                    {
                              if (m_iErrorType == 0)
                                        return ERR_TYPE_COM;
                              else
                                        return m_iErrorType;
```

```
                }

                int ErrorNum() {return m_hr;}

                char *ErrorText()
                {
                        if (m_hr == S_OK)
                                sprintf( m_szErrorText, "Error: Class %d,
error # %d", m_iErrorType, m_iError );
                        else
                                sprintf( m_szErrorText, "Error: COM HRESULT
%x", m_hr );
                        return m_szErrorText;
                }
};

class DllDecl CTPCC_COM : public CTPCC_BASE
{
        private:
                BOOL m_bSinglePool;

                // COM Interface pointers
                ITPCC*                          m_pNewOrder;
                ITPCC*                          m_pPayment;
                ITPCC*                          m_pStockLevel;
                ITPCC*                          m_pOrderStatus;

                struct COM_DATA
                {
                        int ErrorType;
                        int error;
                        union
                        {
                                NEW_ORDER_DATA              NewOrder;
                                PAYMENT_DATA                Payment;
                                DELIVERY_DATA               Delivery;
                                STOCK_LEVEL_DATA    StockLevel;
                                ORDER_STATUS_DATA   OrderStatus;
                        } u;
                } *m_pTxn;

                VARIANT m_vTxn;
        public:
                CTPCC_COM(BOOL bSinglePool);
                ~CTPCC_COM(void);

                inline PNEW_ORDER_DATA                  BuffAddr_NewOrder()
        { return &m_pTxn->u.NewOrder;    };
                inline PPAYMENT_DATA                    BuffAddr_Payment()
        { return &m_pTxn->u.Payment;     };
                inline PDELIVERY_DATA                   BuffAddr_Delivery()
        { return &m_pTxn->u.Delivery;    };
                inline PSTOCK_LEVEL_DATA      BuffAddr_StockLevel()         {
return &m_pTxn->u.StockLevel;  };
                inline PORDER_STATUS_DATA     BuffAddr_OrderStatus()        {
return &m_pTxn->u.OrderStatus; };

                void NewOrder                   ();
                void Payment                    ();
                void StockLevel                 ();
                void OrderStatus    ();
                void Delivery                   () { throw new CCOMERR(E_NOTIMPL);
}  // not supported
};


inline void ReleaseInterface(IUnknown *pUnk)
{
          if (pUnk)
          {
                    pUnk->Release();
                    pUnk = NULL;
          }
}


// wrapper routine for class constructor
extern "C" __declspec(dllexport) CTPCC_COM* CTPCC_COM_new(BOOL);

typedef CTPCC_COM* (TYPE_CTPCC_COM)(BOOL);
```

tpcc_com_all.cpp

```
/* FILE: TPCC_COM_ALL.CPP
* Microsoft TPC-C Kit Ver. 4.20.000
* Copyright Microsoft, 1999
* All Rights Reserved
*
* Version 4.10.000 audited by Richard Gimarc,
Performance Metrics, 3/17/99
*
* PURPOSE: Implementation for TPC-C Tuxedo class.
* Contact: Charles Levine (clevine@microsoft.com)
*
* Change history:
* 4.20.000 - updated rev number to match kit
*/
#define STRICT
#define _WIN32_WINNT 0x0400
#define _ATL_APARTMENT_THREADED
#include <stdio.h>
#include <atlbase.h>
//You may derive a class from CComModule and use it if you want to override
//something, but do not change the name of _Module
extern CComModule _Module;
#include <atlcom.h>
#include <initguid.h>
#include <transact.h>
#include <atlimpl.cpp>
#include <comsvcs.h>
#include <sqltypes.h>
#include <sql.h>
#include <sqlext.h>
#include "tpcc_com_ps.h"
#include "..\..\common\src\trans.h" //tpckit //transaction header contains
definations of structures specific to TPC-C
#include "..\..\common\src\txn_base.h"
#include "..\..\common\src\error.h"
#include "..\..\common\src\ReadRegistry.h"
#include "..\..\db_dblib_dll\src\tpcc_dblib.h" // DBLIB implementation ofTPC-C txns
#include "resource.h"
#include "tpcc_com_all.h"
#include "tpcc_com_all_i.c"
#include "Methods.h"
#include "..\..\tpcc_com_ps\src\tpcc_com_ps_i.c"
```

```
#include "..\..\common\src\ReadRegistry.cpp"
CComModule _Module;
//CAtlComModule _Module;
BEGIN_OBJECT_MAP(ObjectMap)
OBJECT_ENTRY(CLSID_TPCC, CTPCC)
OBJECT_ENTRY(CLSID_NewOrder, CNewOrder)
OBJECT_ENTRY(CLSID_OrderStatus, COrderStatus)
OBJECT_ENTRY(CLSID_Payment, CPayment)
OBJECT_ENTRY(CLSID_StockLevel, CStockLevel)
END_OBJECT_MAP()
// configuration settings from registry
TPCCREGISTRYDATA Reg;
char szMyComputerName[MAX_COMPUTERNAME_LENGTH+1];
static HINSTANCE hLibInstanceDb = NULL;
TYPE_CTPCC_DBLIB *pCTPCC_DBLIB_new;
////////////////////////////////////////////////////////////////////////////
// DLL Entry Point
extern "C"
BOOL WINAPI DllMain(HINSTANCE hInstance, DWORD dwReason, LPVOID /*lpReserved*/)
{
        char szDllName[128];
        //DebugBreak();
        try
        {
                if (dwReason == DLL_PROCESS_ATTACH)
                {
                        _Module.Init(ObjectMap, hInstance);
                        DisableThreadLibraryCalls(hInstance);
                        DWORD dwSize = MAX_COMPUTERNAME_LENGTH+1;
                        GetComputerName(szMyComputerName, &dwSize);
                        szMyComputerName[dwSize] = 0;
                        if ( ReadTPCCRegistrySettings( &Reg ) )
                                throw new CCOMPONENT_ERR(
                                ERR_MISSING_REGISTRY_ENTRIES );
                        if (Reg.eDB_Protocol == DBLIB)
                        {
                                strcpy( szDllName, Reg.szPath );
                                strcat( szDllName, "tpcc_dblib.dll");
                                hLibInstanceDb = LoadLibrary( szDllName );
                                if (hLibInstanceDb == NULL)
                                        throw new CCOMPONENT_ERR(
                                        ERR_LOADDLL_FAILED, szDllName,
GetLastError() );
                                // get function pointer to wrapper for class
constructor
                                pCTPCC_DBLIB_new = (TYPE_CTPCC_DBLIB*)

        GetProcAddress(hLibInstanceDb,"CTPCC_DBLIB_new");
                                if (pCTPCC_DBLIB_new == NULL)
                                        throw new CCOMPONENT_ERR(
                                        ERR_GETPROCADDR_FAILED, szDllName,
GetLastError() );
                        }
                        else
                                throw new CCOMPONENT_ERR(
ERR_UNKNOWN_DB_PROTOCOL
                                );
                }
                else if (dwReason == DLL_PROCESS_DETACH)
                        _Module.Term();
        }
        catch (CBaseErr *e)
        {
                        WriteMessageToEventLog(e->ErrorText());
                        delete e;
                        return FALSE;
                }
                catch (...)
                {
                        WriteMessageToEventLog(TEXT("Unhandled exception in object
DllMain"));
                        return FALSE;
                }
                return TRUE; // OK
}
////////////////////////////////////////////////////////////////////////////
// Used to determine whether the DLL can be unloaded by OLE
STDAPI DllCanUnloadNow(void)
{
        return (_Module.GetLockCount()==0) ? S_OK : S_FALSE;
}
////////////////////////////////////////////////////////////////////////////
// Returns a class factory to create an object of the requested type
STDAPI DllGetClassObject(REFCLSID rclsid, REFIID riid, LPVOID* ppv)
{
        return _Module.GetClassObject(rclsid, riid, ppv);
}
////////////////////////////////////////////////////////////////////////////
// DllRegisterServer - Adds entries to the system registry
STDAPI DllRegisterServer(void)
{
        // registers object, typelib and all interfaces in typelib
        return _Module.RegisterServer(TRUE);
}
////////////////////////////////////////////////////////////////////////////
// DllUnregisterServer - Removes entries from the system registry

STDAPI DllUnregisterServer(void)
{
        _Module.UnregisterServer();
        return S_OK;
}

static void WriteMessageToEventLog(LPTSTR lpszMsg)
{
        TCHAR szMsg[256];
        HANDLE hEventSource;
        LPTSTR lpszStrings[2];
        // Use event logging to log the error.
        //
        hEventSource = RegisterEventSource(NULL, TEXT("tpcc_com_all.dll"));
        _stprintf(szMsg, TEXT("Error in COM+ TPC-C Component: "));
        lpszStrings[0] = szMsg;
        lpszStrings[1] = lpszMsg;
        if (hEventSource != NULL)
        {
                ReportEvent(hEventSource, // handle of event source
                        EVENTLOG_ERROR_TYPE, // event type
                        0, // event category
                        0, // event ID
                        NULL, // current user's SID
                        2, // strings in lpszStrings
                        0, // no bytes of raw data
                        (LPCTSTR *)lpszStrings, // array of error strings
                        NULL); // no raw data
                (VOID) DeregisterEventSource(hEventSource);
```

```
        }
}
inline void ReleaseInterface(IUnknown *pUnk)
{
        if (pUnk)
        {
                pUnk->Release();
                pUnk = NULL;
        }
}
/* FUNCTION: CCOMPONENT_ERR::ErrorText
*
*/
char* CCOMPONENT_ERR::ErrorText(void)
{
        static SERRORMSG errorMsgs[] =
        {
                { ERR_MISSING_REGISTRY_ENTRIES, "Required entries missing from
registry." },
                { ERR_LOADDLL_FAILED, "Load of DLL failed. DLL=" },
                { ERR_GETPROCADDR_FAILED, "Could not map proc in DLL.
GetProcAddr error. DLL=" },
                { ERR_UNKNOWN_DB_PROTOCOL, "Unknown database protocol specified
in registry." },
                { 0, "" }
        };
        char szTmp[256];
        int i = 0;
        while (TRUE)
        {
                if (errorMsgs[i].szMsg[0] == 0)
                {
                        strcpy( szTmp, "Unknown error number." );
                        break;
                }
                if (m_Error == errorMsgs[i].iError)
                {
                        strcpy( szTmp, errorMsgs[i].szMsg );
                        break;
                }
                i++;
        }
        if (m_szTextDetail)
                strcat( szTmp, m_szTextDetail );
        if (m_SystemErr)
                wsprintf( szTmp+strlen(szTmp), " Error=%d", m_SystemErr );
        m_szErrorText = new char[strlen(szTmp)+1];
        strcpy( m_szErrorText, szTmp );
        return m_szErrorText;
}
CTPCC_Common::CTPCC_Common()
{
        m_pTxn = NULL;
        m_bCanBePooled = TRUE;
}
CTPCC_Common::~CTPCC_Common()
{
        if (m_pTxn)
                delete m_pTxn;
}
HRESULT CTPCC_Common::CallSetComplete()
{
        IObjectContext* pObjectContext = NULL;
        // get our object context
        HRESULT hr = CoGetObjectContext( IID_IObjectContext, (void
**)&pObjectContext);
        pObjectContext->SetComplete();
        ReleaseInterface(pObjectContext);
        return hr;
}
//
// called by the ctor activator
//
STDMETHODIMP CTPCC_Common::Construct(IDispatch * pUnk)
{
        // Code to access construction string, if needed later...
        // if (!pUnk)
        // return E_UNEXPECTED;
        // IObjectConstructString * pString = NULL;
        // HRESULT hr = pUnk->QueryInterface(IID_IObjectConstructString, (void
**)&pString);
        // pString->Release();
//      DebugBreak();
        try
        {
                if (Reg.eDB_Protocol == DBLIB)
                        m_pTxn = pCTPCC_DBLIB_new(  Reg.szDbUser,
Reg.szDbPassword,  Reg.szDbName );
        }
        catch (CBaseErr *e)
        {
                WriteMessageToEventLog(e->ErrorText());
                delete e;
                return E_FAIL;
        }
        catch (...)
        {
                WriteMessageToEventLog(TEXT("Unhandled exception in object
::Construct"));
                return E_FAIL;
        }
        return S_OK;
}
HRESULT CTPCC_Common::NewOrder(VARIANT txn_in, VARIANT* txn_out)
{
        PNEW_ORDER_DATA pNewOrder;
        COM_DATA *pData;
        try
        {
                pData = (COM_DATA*)txn_in.parray->pvData;
                pNewOrder = m_pTxn->BuffAddr_NewOrder();
                memcpy(pNewOrder, &pData->u.NewOrder, sizeof(NEW_ORDER_DATA));
                m_pTxn->NewOrder(); // do the actual txn
                VariantInit(txn_out);
                txn_out->vt = VT_SAFEARRAY;
                txn_out->parray = SafeArrayCreateVector(VT_UI1,
                        txn_in.parray->rgsabound->cElements,
                        txn_in.parray->rgsabound->cElements);
                pData = (COM_DATA*) txn_out->parray->pvData;
                memcpy( &pData->u.NewOrder, pNewOrder, sizeof(NEW_ORDER_DATA));
                pData->retval = ERR_SUCCESS;
                pData->error = 0;
                return S_OK;
        }
        catch (CDBLIBERR *e)
        {
```

```
                    // check for lost database connection; if yes, component is
toast
                    if ( ((e->ErrorType() == ERR_TYPE_DBLIB) &&
                              ((e->ErrorNum() == ERR_ATTACH)) || (e->ErrorNum() ==
ERR_DETACH)) )
                              m_bCanBePooled = FALSE;
                    pData->retval = e->ErrorType();
                    pData->error = e->ErrorNum();
                    delete e;
                    return E_FAIL;
          }
          catch (...)
          {
                    WriteMessageToEventLog(TEXT("Unhandled exception."));
                    pData->retval = ERR_TYPE_LOGIC;
                    pData->error = 0;
                    m_bCanBePooled = FALSE;
                    return E_FAIL;
          }
}
HRESULT CTPCC_Common::Payment(VARIANT txn_in, VARIANT* txn_out)
{
          PPAYMENT_DATA pPayment;
          COM_DATA *pData;
          try
          {
                    pData = (COM_DATA*)txn_in.parray->pvData;
                    pPayment = m_pTxn->BuffAddr_Payment();
                    memcpy(pPayment, &pData->u.Payment, sizeof(PAYMENT_DATA));
                    m_pTxn->Payment(); // do the actual txn
                    VariantInit(txn_out);
                    txn_out->vt = VT_SAFEARRAY;
                    txn_out->parray = SafeArrayCreateVector( VT_UI1,
                              txn_in.parray->rgsabound->cElements,
                              txn_in.parray->rgsabound->cElements);
                    pData = (COM_DATA*) txn_out->parray->pvData;
                    memcpy( &pData->u.Payment, pPayment, sizeof(PAYMENT_DATA));
                    pData->retval = ERR_SUCCESS;
                    pData->error = 0;
                    return S_OK;
          }
          catch (CDBLIBERR *e)
          {
                    // check for lost database connection; if yes, component is
toast
                    if ( ((e->ErrorType() == ERR_TYPE_DBLIB) &&
                              ((e->ErrorNum() == ERR_ATTACH)) || (e->ErrorNum() ==
ERR_DETACH)) )
                              m_bCanBePooled = FALSE;
                    pData->retval = e->ErrorType();
                    pData->error = e->ErrorNum();
                    delete e;
                    return E_FAIL;
          }
          catch (...)
          {
                    WriteMessageToEventLog(TEXT("Unhandled exception."));
                    pData->retval = ERR_TYPE_LOGIC;
                    pData->error = 0;
                    m_bCanBePooled = FALSE;
                    return E_FAIL;
          }
}
HRESULT CTPCC_Common::StockLevel(VARIANT txn_in, VARIANT* txn_out)
{
          PSTOCK_LEVEL_DATA pStockLevel;
          COM_DATA *pData;
          try
          {
                    pData = (COM_DATA*)txn_in.parray->pvData;
                    pStockLevel = m_pTxn->BuffAddr_StockLevel();
                    memcpy(pStockLevel, &pData->u.StockLevel,
sizeof(STOCK_LEVEL_DATA));
                    m_pTxn->StockLevel();
                    VariantInit(txn_out);
                    txn_out->vt = VT_SAFEARRAY;
                    txn_out->parray = SafeArrayCreateVector( VT_UI1,
                              txn_in.parray->rgsabound->cElements,
                              txn_in.parray->rgsabound->cElements);
                    pData = (COM_DATA*)txn_out->parray->pvData;
                    memcpy( &pData->u.StockLevel, pStockLevel,
sizeof(STOCK_LEVEL_DATA));
                    pData->retval = ERR_SUCCESS;
                    pData->error = 0;
                    return S_OK;
          }
          //catch (CBaseErr *e)
          catch (CDBLIBERR *e)
          {
                    // check for lost database connection; if yes, component is
toast
                    if ( ((e->ErrorType() == ERR_TYPE_DBLIB) &&
                              ((e->ErrorNum() == ERR_ATTACH)) || (e->ErrorNum() ==
ERR_DETACH)) )
                              m_bCanBePooled = FALSE;
                    pData->retval = e->ErrorType();
                    pData->error = e->ErrorNum();
                    delete e;
                    return E_FAIL;
          }
          catch (...)
          {
                    WriteMessageToEventLog(TEXT("Unhandled exception."));
                    pData->retval = ERR_TYPE_LOGIC;
                    pData->error = 0;
                    m_bCanBePooled = FALSE;
                    return E_FAIL;
          }
}
HRESULT CTPCC_Common::OrderStatus(VARIANT txn_in, VARIANT* txn_out)
{
          PORDER_STATUS_DATA pOrderStatus;
          COM_DATA *pData;
          try
          {
                    pData = (COM_DATA*)txn_in.parray->pvData;
                    pOrderStatus = m_pTxn->BuffAddr_OrderStatus();
                    memcpy(pOrderStatus, &pData->u.OrderStatus,
                              sizeof(ORDER_STATUS_DATA));
                    m_pTxn->OrderStatus();
                    VariantInit(txn_out);
                    txn_out->vt = VT_SAFEARRAY;
                    txn_out->parray = SafeArrayCreateVector( VT_UI1,
                              txn_in.parray->rgsabound->cElements,
                              txn_in.parray->rgsabound->cElements);
                    pData = (COM_DATA*)txn_out->parray->pvData;
```

```
                memcpy( &pData->u.OrderStatus, pOrderStatus,
                        sizeof(ORDER_STATUS_DATA));
                pData->retval = ERR_SUCCESS;
                pData->error = 0;
                return S_OK;
        }
        catch (CDBLIBERR *e)
        {
                // check for lost database connection; if yes, component is
toast
                if ( ((e->ErrorType() == ERR_TYPE_DBLIB) &&
                        ((e->ErrorNum() == ERR_ATTACH)) || (e->ErrorNum() ==
ERR_DETACH)) )
                        m_bCanBePooled = FALSE;
                pData->retval = e->ErrorType();
                pData->error = e->ErrorNum();
                delete e;
                return E_FAIL;
        }
        catch (...)
        {
                WriteMessageToEventLog(TEXT("Unhandled exception."));
                pData->retval = ERR_TYPE_LOGIC;
                pData->error = 0;
                m_bCanBePooled = FALSE;
                return E_FAIL;
        }
}
```

tpcc_com_all.def

```
; tpcc_com_all.def : Declares the module parameters.
LIBRARY "tpcc_com_all.dll"
EXPORTS
DllCanUnloadNow @1 PRIVATE
DllGetClassObject @2 PRIVATE
DllRegisterServer @3 PRIVATE
DllUnregisterServer @4 PRIVATE
```

tpcc_com_all.dep

```
.\src\tpcc_com_all.cpp : \
        "..\..\program files\microsoft sdk\include\basetsd.h"\
        "..\..\program files\microsoft sdk\include\comadmin.h"\
        "..\..\program files\microsoft sdk\include\comsvcs.h"\
        "..\..\program files\microsoft sdk\include\guiddef.h"\
        "..\..\program files\microsoft sdk\include\propidl.h"\
        "..\..\program files\microsoft sdk\include\reason.h"\
        "..\..\program files\microsoft sdk\include\shtypes.h"\
        "..\..\program files\microsoft sdk\include\stralign.h"\
        "..\..\program files\microsoft sdk\include\tvout.h"\
        "..\..\program files\microsoft sdk\include\winefs.h"\
        "..\..\tpc-c.ibm\include\db2tpcc.h"\
        "..\..\tpc-c.ibm\include\lval.h"\
        "..\common\src\readregistry.cpp"\
        "..\common\src\ReadRegistry.h"\
        "..\common\src\trans.h"\
        "..\common\src\txn_base.h"\
        "..\db_dblib_dll\src\tpcc_dblib.h"\
        "..\tpcc_com_ps\src\tpcc_com_ps_i.c"\
        ".\src\Methods.h"\
        ".\src\tpcc_com_all.h"\
        ".\src\tpcc_com_all_i.c"\
        ".\src\tpcc_com_ps.h"\


!IF  "$(CFG)" == "tpcc_com_all - Win32 Release"

!ELSEIF  "$(CFG)" == "tpcc_com_all - Win32 Debug"

!ENDIF

.\src\tpcc_com_all.rc : \
        ".\src\tpcc_com_all.rgs"\
        ".\src\tpcc_com_no.rgs"\
        ".\src\tpcc_com_os.rgs"\
        ".\src\tpcc_com_pay.rgs"\
        ".\src\tpcc_com_sl.rgs"\
```

tpcc_com_all.h

```
/* this ALWAYS GENERATED file contains the definitions for the interfaces */


/* File created by MIDL compiler version 5.01.0164 */
/* at Wed Jul 07 10:57:33 2004
 */
/* Compiler settings for .\src\tpcc_com_all.idl:
    Oicf (OptLev=i2), W1, Zp8, env=Win32, ms_ext, c_ext
    error checks: allocation ref bounds_check enum stub_data
*/
//@@MIDL_FILE_HEADING(  )


/* verify that the <rpcndr.h> version is high enough to compile this file*/
#ifndef __REQUIRED_RPCNDR_H_VERSION__
#define __REQUIRED_RPCNDR_H_VERSION__ 440
#endif

#include "rpc.h"
#include "rpcndr.h"

#ifndef __tpcc_com_all_h__
#define __tpcc_com_all_h__

#ifdef __cplusplus
extern "C"{
#endif

/* Forward Declarations */

#ifndef __TPCC_FWD_DEFINED__
#define __TPCC_FWD_DEFINED__

#ifdef __cplusplus
typedef class TPCC TPCC;
#else
typedef struct TPCC TPCC;
#endif /* __cplusplus */
```

```
#endif    /* __TPCC_FWD_DEFINED__ */


#ifndef __NewOrder_FWD_DEFINED__
#define __NewOrder_FWD_DEFINED__

#ifdef __cplusplus
typedef class NewOrder NewOrder;
#else
typedef struct NewOrder NewOrder;
#endif /* __cplusplus */

#endif    /* __NewOrder_FWD_DEFINED__ */


#ifndef __OrderStatus_FWD_DEFINED__
#define __OrderStatus_FWD_DEFINED__

#ifdef __cplusplus
typedef class OrderStatus OrderStatus;
#else
typedef struct OrderStatus OrderStatus;
#endif /* __cplusplus */

#endif    /* __OrderStatus_FWD_DEFINED__ */


#ifndef __Payment_FWD_DEFINED__
#define __Payment_FWD_DEFINED__

#ifdef __cplusplus
typedef class Payment Payment;
#else
typedef struct Payment Payment;
#endif /* __cplusplus */

#endif    /* __Payment_FWD_DEFINED__ */


#ifndef __StockLevel_FWD_DEFINED__
#define __StockLevel_FWD_DEFINED__

#ifdef __cplusplus
typedef class StockLevel StockLevel;
#else
typedef struct StockLevel StockLevel;
#endif /* __cplusplus */

#endif    /* __StockLevel_FWD_DEFINED__ */


/* header files for imported files */
#include "oaidl.h"
#include "ocidl.h"
#include "tpcc_com_ps.h"

void __RPC_FAR * __RPC_USER MIDL_user_allocate(size_t);
void __RPC_USER MIDL_user_free( void __RPC_FAR * );

/* interface __MIDL_itf_tpcc_com_all_0000 */
/* [local] */
```

```
extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_all_0000_v0_0_c_ifspec;
extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_all_0000_v0_0_s_ifspec;


#ifndef __TPCCLib_LIBRARY_DEFINED__
#define __TPCCLib_LIBRARY_DEFINED__

/* library TPCCLib */
/* [helpstring][version][uuid] */


EXTERN_C const IID LIBID_TPCCLib;

EXTERN_C const CLSID CLSID_TPCC;

#ifdef __cplusplus

class DECLSPEC_UUID("122A3128-2520-11D3-BA71-00C04FBFE08B")
TPCC;
#endif

EXTERN_C const CLSID CLSID_NewOrder;

#ifdef __cplusplus

class DECLSPEC_UUID("975BAABF-84A7-11D2-BA47-00C04FBFE08B")
NewOrder;
#endif

EXTERN_C const CLSID CLSID_OrderStatus;

#ifdef __cplusplus

class DECLSPEC_UUID("266836AD-A50D-11D2-BA4E-00C04FBFE08B")
OrderStatus;
#endif

EXTERN_C const CLSID CLSID_Payment;

#ifdef __cplusplus

class DECLSPEC_UUID("CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B")
Payment;
#endif

EXTERN_C const CLSID CLSID_StockLevel;

#ifdef __cplusplus

class DECLSPEC_UUID("2668369E-A50D-11D2-BA4E-00C04FBFE08B")
StockLevel;
#endif
#endif /* __TPCCLib_LIBRARY_DEFINED__ */

/* Additional Prototypes for ALL interfaces */

/* end of Additional Prototypes */
```

```
#ifdef __cplusplus
}
#endif

#endif
```

tpcc_com_all.idl

```
/* FILE: TPCC.IDL
* Microsoft TPC-C Kit Ver. 4.20.000
* Copyright Microsoft, 1999
* All Rights Reserved
*
* not yet audited
*
* PURPOSE: IDL source for TPCC.dll. This file is processed by the MIDL tool to
* produce the type library (TPCC.tlb) and
marshalling code.
*
* Change history:
* 4.20.000 - first version
*/
interface TPCC;
interface NewOrder;
interface OrderStatus;
interface Payment;
interface StockLevel;
import "oaidl.idl";
import "ocidl.idl";
import "..\tpcc_com_ps\src\tpcc_com_ps.idl";
[
uuid(122A3117-2520-11D3-BA71-00C04FBFE08B),
version(1.0),
helpstring("TPC-C 1.0 Type Library")
]
library TPCCLib
{
importlib("stdole32.tlb");
importlib("stdole2.tlb");
[
uuid(122A3128-2520-11D3-BA71-00C04FBFE08B),

helpstring("All Txns Class")
]
coclass TPCC
{
[default] interface ITPCC;
};
[
uuid(975BAABF-84A7-11D2-BA47-00C04FBFE08B),
helpstring("NewOrder Class")
]
coclass NewOrder
{
[default] interface ITPCC;
};
[
uuid(266836AD-A50D-11D2-BA4E-00C04FBFE08B),
helpstring("OrderStatus Class")
]
coclass OrderStatus
{
[default] interface ITPCC;
};
[
uuid(CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B),
helpstring("Payment Class")
]
coclass Payment
{
[default] interface ITPCC;
};
[
uuid(2668369E-A50D-11D2-BA4E-00C04FBFE08B),
helpstring("StockLevel Class")
]
coclass StockLevel
{
[default] interface ITPCC;
};
};
```

tpcc_com_all.mak

```
!IF "$(CFG)" == ""
CFG=tpcc_com_all - Win32 Debug
!MESSAGE No configuration specified. Defaulting to tpcc_com_all - Win32 Debug.
!ENDIF

!IF "$(CFG)" != "tpcc_com_all - Win32 Release" && "$(CFG)" != "tpcc_com_all - Win32
Debug"
!MESSAGE Invalid configuration "$(CFG)" specified.
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "tpcc_com_all.mak" CFG="tpcc_com_all - Win32 Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "tpcc_com_all - Win32 Release" (based on "Win32 (x86) Dynamic-Link
Library")
!MESSAGE "tpcc_com_all - Win32 Debug" (based on "Win32 (x86) Dynamic-Link Library")
!MESSAGE
!ERROR An invalid configuration is specified.
!ENDIF

!IF "$(OS)" == "Windows_NT"
NULL=
!ELSE
NULL=nul
!ENDIF

!IF  "$(CFG)" == "tpcc_com_all - Win32 Release"

OUTDIR=.\bin
INTDIR=.\obj
# Begin Custom Macros
OutDir=.\bin
# End Custom Macros

!IF "$(RECURSE)" == "0"
```

```
ALL : ".\src\tpcc_com_all_i.c" ".\src\tpcc_com_all.tlb" ".\src\tpcc_com_all.h"
"$(OUTDIR)\tpcc_com_all.dll"

!ELSE

ALL : "db_dblib_dll - Win32 Release" "tpcc_com_ps - Win32 Release"
".\src\tpcc_com_all_i.c" ".\src\tpcc_com_all.tlb" ".\src\tpcc_com_all.h"
"$(OUTDIR)\tpcc_com_all.dll"

!ENDIF

!IF "$(RECURSE)" == "1"
CLEAN :"tpcc_com_ps - Win32 ReleaseCLEAN" "db_dblib_dll - Win32 ReleaseCLEAN"
!ELSE
CLEAN :
!ENDIF
          -@erase "$(INTDIR)\tpcc_com_all.obj"
          -@erase "$(INTDIR)\tpcc_com_all.res"
          -@erase "$(INTDIR)\vc60.idb"
          -@erase "$(OUTDIR)\tpcc_com_all.dll"
          -@erase "$(OUTDIR)\tpcc_com_all.exp"
          -@erase "$(OUTDIR)\tpcc_com_all.lib"
          -@erase ".\src\tpcc_com_all.h"
          -@erase ".\src\tpcc_com_all.tlb"
          -@erase ".\src\tpcc_com_all_i.c"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

CPP=cl.exe
CPP_PROJ=/nologo /MT /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_WINDOWS"
/Fp"$(INTDIR)\tpcc_com_all.pch" /YX /Fo"$(INTDIR)\\" /Fd"$(INTDIR)\\" /FD /c

.c{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.c{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

MTL=midl.exe
MTL_PROJ=/nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
RSC=rc.exe
RSC_PROJ=/l 0x409 /fo"$(INTDIR)\tpcc_com_all.res" /d "NDEBUG"
BSC32=bscmake.exe
BSC32_FLAGS=/nologo /o"$(OUTDIR)\tpcc_com_all.bsc"
BSC32_SBRS= \

LINK32=link.exe
LINK32_FLAGS=..\db_dblib_dll\bin\tpcc_dblib.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:windows /dll /incremental:no
/pdb:"$(OUTDIR)\tpcc_com_all.pdb" /machine:I386 /def:".\src\tpcc_com_all.def"
/out:"$(OUTDIR)\tpcc_com_all.dll" /implib:"$(OUTDIR)\tpcc_com_all.lib"
DEF_FILE= \
          ".\src\tpcc_com_all.def"
LINK32_OBJS= \
          "$(INTDIR)\tpcc_com_all.obj" \
          "$(INTDIR)\tpcc_com_all.res" \
          "..\tpcc_com_ps\bin\tpcc_com_ps.lib" \
          "..\db_dblib_dll\bin\tpcc_dblib.lib"

"$(OUTDIR)\tpcc_com_all.dll" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ELSEIF  "$(CFG)" == "tpcc_com_all - Win32 Debug"

OUTDIR=.\bin
INTDIR=.\obj
# Begin Custom Macros
OutDir=.\bin
# End Custom Macros

!IF "$(RECURSE)" == "0"

ALL : ".\src\tpcc_com_all_i.c" ".\src\tpcc_com_all.tlb" ".\src\tpcc_com_all.h"
"$(OUTDIR)\tpcc_com_all.dll" "$(OUTDIR)\tpcc_com_all.bsc"

!ELSE

ALL : "db_dblib_dll - Win32 Debug" "tpcc_com_ps - Win32 Debug"
".\src\tpcc_com_all_i.c" ".\src\tpcc_com_all.tlb" ".\src\tpcc_com_all.h"
"$(OUTDIR)\tpcc_com_all.dll" "$(OUTDIR)\tpcc_com_all.bsc"

!ENDIF

!IF "$(RECURSE)" == "1"
CLEAN :"tpcc_com_ps - Win32 DebugCLEAN" "db_dblib_dll - Win32 DebugCLEAN"
!ELSE
CLEAN :
!ENDIF
          -@erase "$(INTDIR)\tpcc_com_all.obj"
          -@erase "$(INTDIR)\tpcc_com_all.res"
          -@erase "$(INTDIR)\tpcc_com_all.sbr"
          -@erase "$(INTDIR)\vc60.idb"
          -@erase "$(INTDIR)\vc60.pdb"
          -@erase "$(OUTDIR)\tpcc_com_all.bsc"
          -@erase "$(OUTDIR)\tpcc_com_all.dll"
```

```
          -@erase "$(OUTDIR)\tpcc_com_all.exp"
          -@erase "$(OUTDIR)\tpcc_com_all.ilk"
          -@erase "$(OUTDIR)\tpcc_com_all.lib"
          -@erase "$(OUTDIR)\tpcc_com_all.pdb"
          -@erase ".\src\tpcc_com_all.h"
          -@erase ".\src\tpcc_com_all.tlb"
          -@erase ".\src\tpcc_com_all_i.c"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

CPP=cl.exe
CPP_PROJ=/nologo /MTd /W3 /Gm /GX /ZI /Od /D "_ATL_STATIC_REGISTRY" /D "WIN32" /D
"_DEBUG" /D "_WINDOWS" /FR"$(INTDIR)\\" /Fp"$(INTDIR)\tpcc_com_all.pch" /YX
/Fo"$(INTDIR)\\" /Fd"$(INTDIR)\\" /FD /c

.c{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.c{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

MTL=midl.exe
MTL_PROJ=/nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
RSC=rc.exe
RSC_PROJ=/l 0x409 /fo"$(INTDIR)\tpcc_com_all.res" /d "_DEBUG"
BSC32=bscmake.exe
BSC32_FLAGS=/nologo /o"$(OUTDIR)\tpcc_com_all.bsc"
BSC32_SBRS= \
          "$(INTDIR)\tpcc_com_all.sbr"

"$(OUTDIR)\tpcc_com_all.bsc" : "$(OUTDIR)" $(BSC32_SBRS)
    $(BSC32) @<<
  $(BSC32_FLAGS) $(BSC32_SBRS)
<<

LINK32=link.exe
LINK32_FLAGS=..\db_dblib_dll\bin\tpcc_dblib.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib /nologo /subsystem:windows /dll /incremental:yes
/pdb:"$(OUTDIR)\tpcc_com_all.pdb" /debug /machine:I386 /def:".\src\tpcc_com_all.def"
/out:"$(OUTDIR)\tpcc_com_all.dll" /implib:"$(OUTDIR)\tpcc_com_all.lib" /pdbtype:sept
DEF_FILE= \
          ".\src\tpcc_com_all.def"
LINK32_OBJS= \
          "$(INTDIR)\tpcc_com_all.obj" \
          "$(INTDIR)\tpcc_com_all.res" \
          "..\tpcc_com_ps\bin\tpcc_com_ps.lib" \
          "..\db_dblib_dll\bin\tpcc_dblib.lib"

"$(OUTDIR)\tpcc_com_all.dll" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ENDIF


!IF "$(NO_EXTERNAL_DEPS)" != "1"
!IF EXISTS("tpcc_com_all.dep")
!INCLUDE "tpcc_com_all.dep"
!ELSE
!MESSAGE Warning: cannot find "tpcc_com_all.dep"
!ENDIF
!ENDIF


!IF "$(CFG)" == "tpcc_com_all - Win32 Release" || "$(CFG)" == "tpcc_com_all - Win32
Debug"
SOURCE=.\src\tpcc_com_all.cpp

!IF  "$(CFG)" == "tpcc_com_all - Win32 Release"

CPP_SWITCHES=/nologo /MT /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_WINDOWS"
/Fo"$(INTDIR)\\" /Fd"$(INTDIR)\\" /FD /c

"$(INTDIR)\tpcc_com_all.obj" : $(SOURCE) "$(INTDIR)"
          $(CPP) @<<
  $(CPP_SWITCHES) $(SOURCE)
<<


!ELSEIF  "$(CFG)" == "tpcc_com_all - Win32 Debug"

CPP_SWITCHES=/nologo /MTd /W3 /Gm /GX /ZI /Od /D "_ATL_STATIC_REGISTRY" /D "WIN32"
/D "_DEBUG" /D "_WINDOWS" /FR"$(INTDIR)\\" /Fo"$(INTDIR)\\" /Fd"$(INTDIR)\\" /FD /c

"$(INTDIR)\tpcc_com_all.obj"  "$(INTDIR)\tpcc_com_all.sbr" : $(SOURCE) "$(INTDIR)"
          $(CPP) @<<
  $(CPP_SWITCHES) $(SOURCE)
<<


!ENDIF

SOURCE=.\src\tpcc_com_all.idl

!IF  "$(CFG)" == "tpcc_com_all - Win32 Release"
```

```
InputPath=.\src\tpcc_com_all.idl

".\src\tpcc_com_all.tlb"      ".\src\tpcc_com_all.h"        ".\src\tpcc_com_all_i.c"
: $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
          <<tempfile.bat
          @echo off
          midl /Oicf /h "tpcc_com_all.h" /iid "tpcc_com_all_i.c"
".\src\tpcc_com_all.idl"   /out ".\src"
<<


!ELSEIF  "$(CFG)" == "tpcc_com_all - Win32 Debug"

InputPath=.\src\tpcc_com_all.idl

".\src\tpcc_com_all.tlb"      ".\src\tpcc_com_all.h"        ".\src\tpcc_com_all_i.c"
: $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
          <<tempfile.bat
          @echo off
          midl /Oicf /h "tpcc_com_all.h" /iid "tpcc_com_all_i.c"
".\src\tpcc_com_all.idl"   /out ".\src"
<<


!ENDIF

!IF  "$(CFG)" == "tpcc_com_all - Win32 Release"

"tpcc_com_ps - Win32 Release" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Release"
   cd "..\tpcc_com_all"

"tpcc_com_ps - Win32 ReleaseCLEAN" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Release"
RECURSE=1 CLEAN
   cd "..\tpcc_com_all"

!ELSEIF  "$(CFG)" == "tpcc_com_all - Win32 Debug"

"tpcc_com_ps - Win32 Debug" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Debug"
   cd "..\tpcc_com_all"

"tpcc_com_ps - Win32 DebugCLEAN" :
   cd "\webclnt\tpcc_com_ps"
   $(MAKE) /$(MAKEFLAGS) /F .\tpcc_com_ps.mak CFG="tpcc_com_ps - Win32 Debug"
RECURSE=1 CLEAN
   cd "..\tpcc_com_all"

!ENDIF

!IF  "$(CFG)" == "tpcc_com_all - Win32 Release"

"db_dblib_dll - Win32 Release" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Release"
   cd "..\tpcc_com_all"

"db_dblib_dll - Win32 ReleaseCLEAN" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Release"
RECURSE=1 CLEAN
   cd "..\tpcc_com_all"

!ELSEIF  "$(CFG)" == "tpcc_com_all - Win32 Debug"

"db_dblib_dll - Win32 Debug" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Debug"
   cd "..\tpcc_com_all"

"db_dblib_dll - Win32 DebugCLEAN" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Debug"
RECURSE=1 CLEAN
   cd "..\tpcc_com_all"

!ENDIF

SOURCE=.\src\tpcc_com_all.rc

!IF  "$(CFG)" == "tpcc_com_all - Win32 Release"


"$(INTDIR)\tpcc_com_all.res" : $(SOURCE) "$(INTDIR)"
          $(RSC) /l 0x409 /fo"$(INTDIR)\tpcc_com_all.res" /i "src" /d "NDEBUG"
$(SOURCE)


!ELSEIF  "$(CFG)" == "tpcc_com_all - Win32 Debug"


"$(INTDIR)\tpcc_com_all.res" : $(SOURCE) "$(INTDIR)"
          $(RSC) /l 0x409 /fo"$(INTDIR)\tpcc_com_all.res" /i "src" /d "_DEBUG"
$(SOURCE)


!ENDIF


!ENDIF
```

tpcc_com_all.rc

```
//Microsoft Developer Studio generated resource script.
//
#include "resource.h"

#define APSTUDIO_READONLY_SYMBOLS
////////////////////////////////////////////////////////////////////////////
//
// Generated from the TEXTINCLUDE 2 resource.
//
#include "winres.h"


////////////////////////////////////////////////////////////////////////////
#undef APSTUDIO_READONLY_SYMBOLS

////////////////////////////////////////////////////////////////////////////
// English (U.S.) resources
```

```
#if !defined(AFX_RESOURCE_DLL) || defined(AFX_TARG_ENU)
#ifdef _WIN32
LANGUAGE LANG_ENGLISH, SUBLANG_ENGLISH_US
#pragma code_page(1252)
#endif //_WIN32

#ifndef _MAC
/////////////////////////////////////////////////////////////////////////////
//
// Version
//

VS_VERSION_INFO VERSIONINFO
 FILEVERSION 1,0,0,1
 PRODUCTVERSION 1,0,0,1
 FILEFLAGSMASK 0x3fL
#ifdef _DEBUG
 FILEFLAGS 0x1L
#else
 FILEFLAGS 0x0L
#endif
 FILEOS 0x40004L
 FILETYPE 0x2L
 FILESUBTYPE 0x0L
BEGIN
    BLOCK "StringFileInfo"
    BEGIN
        BLOCK "040904b0"
        BEGIN
            VALUE "Comments", "\0"
            VALUE "CompanyName", " \0"
            VALUE "FileDescription", "tpcc_dblib\0"
            VALUE "FileVersion", "1, 0, 0, 1\0"
            VALUE "InternalName", "tpcc_dblib\0"
            VALUE "LegalCopyright", "Copyright © 2004\0"
            VALUE "LegalTrademarks", "\0"
            VALUE "OriginalFilename", "tpcc_dblib.dll\0"
            VALUE "PrivateBuild", "\0"
            VALUE "ProductName", "  tpcc_dblib\0"
            VALUE "ProductVersion", "1, 0, 0, 1\0"
            VALUE "SpecialBuild", "\0"
        END
    END
    BLOCK "VarFileInfo"
    BEGIN
        VALUE "Translation", 0x409, 1200
    END
END

#endif    // !_MAC


#ifdef APSTUDIO_INVOKED
/////////////////////////////////////////////////////////////////////////////
//
// TEXTINCLUDE
//

1 TEXTINCLUDE DISCARDABLE
BEGIN
    "resource.h\0"
END

2 TEXTINCLUDE DISCARDABLE
BEGIN
    "#include ""winres.h""\r\n"
    "\r\n"
    "\0"
END

3 TEXTINCLUDE DISCARDABLE
BEGIN
    "\r\n"
    "\0"
END

#endif    // APSTUDIO_INVOKED


/////////////////////////////////////////////////////////////////////////////
//
// REGISTRY
//

IDR_TPCC                REGISTRY DISCARDABLE    "tpcc_com_all.rgs"
IDR_PAYMENT             REGISTRY DISCARDABLE    "tpcc_com_pay.rgs"
IDR_STOCKLEVEL          REGISTRY DISCARDABLE    "tpcc_com_sl.rgs"
IDR_ORDERSTATUS         REGISTRY DISCARDABLE    "tpcc_com_os.rgs"
IDR_NEWORDER            REGISTRY DISCARDABLE    "tpcc_com_no.rgs"

/////////////////////////////////////////////////////////////////////////////
//
// String Table
//

STRINGTABLE DISCARDABLE
BEGIN
    IDS_PROJNAME            "tpcc_com_all"
END

#endif    // English (U.S.) resources
/////////////////////////////////////////////////////////////////////////////



#ifndef APSTUDIO_INVOKED
/////////////////////////////////////////////////////////////////////////////
//
// Generated from the TEXTINCLUDE 3 resource.
//


/////////////////////////////////////////////////////////////////////////////
#endif    // not APSTUDIO_INVOKED
```

tpcc_com_all.rgs

```
HKCR
{
          TPCC.AllTxns.1 = s 'All Txns Class'
          {
                    CLSID = s '{122A3128-2520-11D3-BA71-00C04FBFE08B}'
          }
```

```
        TPCC.AllTxns = s 'TPCC Class'
        {
        CurVer = s 'TPCC.AllTxns.1'
        }
        NoRemove CLSID
        {
                ForceRemove {122A3128-2520-11D3-BA71-00C04FBFE08B} = s 'TPCC
Class'
                {
                        ProgID = s 'TPCC.AllTxns.1'
                        VersionIndependentProgID = s 'TPCC.AllTxns'
                        InprocServer32 = s '%MODULE%'
                        {
                                val ThreadingModel = s 'Both'
                        }
                }
        }
}
```

tpcc_com_all_i.c

```
/* this file contains the actual definitions of */
/* the IIDs and CLSIDs */

/* link this file in with the server and any clients */


/* File created by MIDL compiler version 5.01.0164 */
/* at Wed Jul 07 10:57:33 2004
 */
/* Compiler settings for .\src\tpcc_com_all.idl:
    Oicf (OptLev=i2), W1, Zp8, env=Win32, ms_ext, c_ext
    error checks: allocation ref bounds_check enum stub_data
*/
//@@MIDL_FILE_HEADING(  )
#ifdef __cplusplus
extern "C"{
#endif


#ifndef __IID_DEFINED__
#define __IID_DEFINED__

typedef struct _IID
{
    unsigned long x;
    unsigned short s1;
    unsigned short s2;
    unsigned char  c[8];
} IID;

#endif // __IID_DEFINED__

#ifndef CLSID_DEFINED
#define CLSID_DEFINED
typedef IID CLSID;
#endif // CLSID_DEFINED

const IID LIBID_TPCCLib =
{0x122A3117,0x2520,0x11D3,{0xBA,0x71,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}};

const CLSID CLSID_TPCC =
{0x122A3128,0x2520,0x11D3,{0xBA,0x71,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}};


const CLSID CLSID_NewOrder =
{0x975BAABF,0x84A7,0x11D2,{0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}};


const CLSID CLSID_OrderStatus =
{0x266836AD,0xA50D,0x11D2,{0xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}};


const CLSID CLSID_Payment =
{0xCD02F7EF,0xA4FA,0x11D2,{0xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}};


const CLSID CLSID_StockLevel =
{0x2668369E,0xA50D,0x11D2,{0xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}};


#ifdef __cplusplus
}
#endif
```

tpcc_com_all_resource.h

```
//{{NO_DEPENDENCIES}}
// Microsoft Developer Studio generated include file.
// Used by tpcc_com_all.rc
//
#define PROJNAME                        1
#define IDS_PROJNAME                    1
#define IDR_NEWORDER                    102
#define IDR_ORDERSTATUS                 103
#define IDR_PAYMENT                     104
#define IDR_STOCKLEVEL                  105
#define IDR_TPCC                        109

// Next default values for new objects
//
#ifdef APSTUDIO_INVOKED
#ifndef APSTUDIO_READONLY_SYMBOLS
#define _APS_NEXT_RESOURCE_VALUE        115
#define _APS_NEXT_COMMAND_VALUE         40001
#define _APS_NEXT_CONTROL_VALUE         1000
#define _APS_NEXT_SYMED_VALUE           101
#endif
#endif
```

tpcc_com_no.rgs

```
HKCR
{
          TPCC.NewOrder.1 = s 'NewOrder Class'
          {
CLSID = s '{975BAABF-84A7-11D2-BA47-00C04FBFE08B}'
}
TPCC.NewOrder = s 'NewOrder Class'
{
CurVer = s 'TPCC.NewOrder.1'
```

```
}
NoRemove CLSID
{
ForceRemove {975BAABF-84A7-11D2-BA47-00C04FBFE08B} = s 'NewOrder
Class'
{
ProgID = s 'TPCC.NewOrder.1'
VersionIndependentProgID = s 'TPCC.NewOrder'
InprocServer32 = s '%MODULE%'
{
val ThreadingModel = s 'Both'
}
}
}
}
```

tpcc_com_os.rgs

```
HKCR
{
TPCC.OrderStatus.1 = s 'OrderStatus Class'
{
CLSID = s '{266836AD-A50D-11D2-BA4E-00C04FBFE08B}'
}
TPCC.OrderStatus = s 'OrderStatus Class'
{
CurVer = s 'TPCC.OrderStatus.1'
}
NoRemove CLSID
{
ForceRemove {266836AD-A50D-11D2-BA4E-00C04FBFE08B} = s 'OrderStatus
Class'
{
ProgID = s 'TPCC.OrderStatus.1'
VersionIndependentProgID = s 'TPCC.OrderStatus'
InprocServer32 = s '%MODULE%'
{
val ThreadingModel = s 'Both'
}
}
}
}
```

tpcc_com_pay.rgs

```
HKCR
{
TPCC.Payment.1 = s 'Payment Class'
{
CLSID = s '{CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B}'
}
TPCC.Payment = s 'Payment Class'
{
CurVer = s 'TPCC.Payment.1'
}
NoRemove CLSID
{
ForceRemove {CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B} = s 'Payment
Class'
{
ProgID = s 'TPCC.Payment.1'
VersionIndependentProgID = s 'TPCC.Payment'
InprocServer32 = s '%MODULE%'
{
val ThreadingModel = s 'Both'
}
}
}
}
```

tpcc_com_ps.def

```
LIBRARY      "tpcc_com_ps"

DESCRIPTION  'Proxy/Stub DLL'

EXPORTS
        DllGetClassObject       @1    PRIVATE
        DllCanUnloadNow         @2    PRIVATE
        GetProxyDllInfo         @3    PRIVATE
        DllRegisterServer             @4        PRIVATE
        DllUnregisterServer           @5        PRIVATE
```

tpcc_com_ps.dep

```
.\src\dlldata.c : \
          "..\..\program files\microsoft sdk\include\basetsd.h"\
          "..\..\program files\microsoft sdk\include\guiddef.h"\
          "..\..\program files\microsoft sdk\include\propidl.h"\
          "..\..\program files\microsoft sdk\include\reason.h"\
          "..\..\program files\microsoft sdk\include\stralign.h"\
          "..\..\program files\microsoft sdk\include\tvout.h"\
          "..\..\program files\microsoft sdk\include\winefs.h"\


!IF  "$(CFG)" == "tpcc_com_ps - Win32 Release"

!ELSEIF  "$(CFG)" == "tpcc_com_ps - Win32 Debug"

!ENDIF

.\src\tpcc_com_ps_p.c : \
          "..\..\program files\microsoft sdk\include\basetsd.h"\
          "..\..\program files\microsoft sdk\include\guiddef.h"\
          "..\..\program files\microsoft sdk\include\propidl.h"\
          "..\..\program files\microsoft sdk\include\reason.h"\
          "..\..\program files\microsoft sdk\include\stralign.h"\
          "..\..\program files\microsoft sdk\include\tvout.h"\
          "..\..\program files\microsoft sdk\include\winefs.h"\
          ".\src\tpcc_com_ps.h"\
```

tpcc_com_ps.h

```
/* this ALWAYS GENERATED file contains the definitions for the interfaces */


/* File created by MIDL compiler version 5.01.0164 */
/* at Wed Jul 07 10:57:32 2004
```

```
 */
/* Compiler settings for .\src\tpcc_com_ps.idl:
    Oicf (OptLev=i2), W1, Zp8, env=Win32, ms_ext, c_ext
    error checks: allocation ref bounds_check enum stub_data
*/
//@@MIDL_FILE_HEADING(  )


/* verify that the <rpcndr.h> version is high enough to compile this file*/
#ifndef __REQUIRED_RPCNDR_H_VERSION__
#define __REQUIRED_RPCNDR_H_VERSION__ 440
#endif

#include "rpc.h"
#include "rpcndr.h"

#ifndef __RPCNDR_H_VERSION__
#error this stub requires an updated version of <rpcndr.h>
#endif // __RPCNDR_H_VERSION__

#ifndef COM_NO_WINDOWS_H
#include "windows.h"
#include "ole2.h"
#endif /*COM_NO_WINDOWS_H*/

#ifndef __tpcc_com_ps_h__
#define __tpcc_com_ps_h__

#ifdef __cplusplus
extern "C"{
#endif

/* Forward Declarations */

#ifndef __ITPCC_FWD_DEFINED__
#define __ITPCC_FWD_DEFINED__
typedef interface ITPCC ITPCC;
#endif    /* __ITPCC_FWD_DEFINED__ */


/* header files for imported files */
#include "oaidl.h"
#include "ocidl.h"

void __RPC_FAR * __RPC_USER MIDL_user_allocate(size_t);
void __RPC_USER MIDL_user_free( void __RPC_FAR * );

/* interface __MIDL_itf_tpcc_com_ps_0000 */
/* [local] */




extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_ps_0000_v0_0_c_ifspec;
extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_ps_0000_v0_0_s_ifspec;

#ifndef __ITPCC_INTERFACE_DEFINED__
#define __ITPCC_INTERFACE_DEFINED__

/* interface ITPCC */
/* [unique][helpstring][uuid][oleautomation][object] */

EXTERN_C const IID IID_ITPCC;

#if defined(__cplusplus) && !defined(CINTERFACE)

    MIDL_INTERFACE("FEEE6AA2-84B1-11d2-BA47-00C04FBFE08B")
    ITPCC : public IUnknown
    {
    public:
        virtual HRESULT __stdcall NewOrder(
            /* [in] */ VARIANT txn_in,
            /* [out] */ VARIANT __RPC_FAR *txn_out) = 0;

        virtual HRESULT __stdcall Payment(
            /* [in] */ VARIANT txn_in,
            /* [out] */ VARIANT __RPC_FAR *txn_out) = 0;

        virtual HRESULT __stdcall Delivery(
            /* [in] */ VARIANT txn_in,
            /* [out] */ VARIANT __RPC_FAR *txn_out) = 0;

        virtual HRESULT __stdcall StockLevel(
            /* [in] */ VARIANT txn_in,
            /* [out] */ VARIANT __RPC_FAR *txn_out) = 0;

        virtual HRESULT __stdcall OrderStatus(
            /* [in] */ VARIANT txn_in,
            /* [out] */ VARIANT __RPC_FAR *txn_out) = 0;

        virtual HRESULT __stdcall CallSetComplete( void) = 0;

    };

#else     /* C style interface */

    typedef struct ITPCCVtbl
    {
        BEGIN_INTERFACE

        HRESULT ( STDMETHODCALLTYPE __RPC_FAR *QueryInterface )(
            ITPCC __RPC_FAR * This,
            /* [in] */ REFIID riid,
            /* [iid_is][out] */ void __RPC_FAR *__RPC_FAR *ppvObject);

        ULONG ( STDMETHODCALLTYPE __RPC_FAR *AddRef )(
            ITPCC __RPC_FAR * This);

        ULONG ( STDMETHODCALLTYPE __RPC_FAR *Release )(
            ITPCC __RPC_FAR * This);

        HRESULT ( __stdcall __RPC_FAR *NewOrder )(
            ITPCC __RPC_FAR * This,
            /* [in] */ VARIANT txn_in,
            /* [out] */ VARIANT __RPC_FAR *txn_out);

        HRESULT ( __stdcall __RPC_FAR *Payment )(
            ITPCC __RPC_FAR * This,
            /* [in] */ VARIANT txn_in,
            /* [out] */ VARIANT __RPC_FAR *txn_out);

        HRESULT ( __stdcall __RPC_FAR *Delivery )(
            ITPCC __RPC_FAR * This,
            /* [in] */ VARIANT txn_in,
            /* [out] */ VARIANT __RPC_FAR *txn_out);
```

```
        HRESULT ( __stdcall __RPC_FAR *StockLevel )(
            ITPCC __RPC_FAR * This,
            /* [in] */ VARIANT txn_in,
            /* [out] */ VARIANT __RPC_FAR *txn_out);

        HRESULT ( __stdcall __RPC_FAR *OrderStatus )(
            ITPCC __RPC_FAR * This,
            /* [in] */ VARIANT txn_in,
            /* [out] */ VARIANT __RPC_FAR *txn_out);

        HRESULT ( __stdcall __RPC_FAR *CallSetComplete )(
            ITPCC __RPC_FAR * This);

        END_INTERFACE
    } ITPCCVtbl;

    interface ITPCC
    {
        CONST_VTBL struct ITPCCVtbl __RPC_FAR *lpVtbl;
    };


#ifdef COBJMACROS


#define ITPCC_QueryInterface(This,riid,ppvObject) \
    (This)->lpVtbl -> QueryInterface(This,riid,ppvObject)

#define ITPCC_AddRef(This)    \
    (This)->lpVtbl -> AddRef(This)

#define ITPCC_Release(This)   \
    (This)->lpVtbl -> Release(This)


#define ITPCC_NewOrder(This,txn_in,txn_out)       \
    (This)->lpVtbl -> NewOrder(This,txn_in,txn_out)

#define ITPCC_Payment(This,txn_in,txn_out)        \
    (This)->lpVtbl -> Payment(This,txn_in,txn_out)

#define ITPCC_Delivery(This,txn_in,txn_out)       \
    (This)->lpVtbl -> Delivery(This,txn_in,txn_out)

#define ITPCC_StockLevel(This,txn_in,txn_out)     \
    (This)->lpVtbl -> StockLevel(This,txn_in,txn_out)

#define ITPCC_OrderStatus(This,txn_in,txn_out)    \
    (This)->lpVtbl -> OrderStatus(This,txn_in,txn_out)

#define ITPCC_CallSetComplete(This)     \
    (This)->lpVtbl -> CallSetComplete(This)

#endif /* COBJMACROS */


#endif    /* C style interface */



HRESULT __stdcall ITPCC_NewOrder_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);


void __RPC_STUB ITPCC_NewOrder_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);


HRESULT __stdcall ITPCC_Payment_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);


void __RPC_STUB ITPCC_Payment_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);


HRESULT __stdcall ITPCC_Delivery_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);


void __RPC_STUB ITPCC_Delivery_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);


HRESULT __stdcall ITPCC_StockLevel_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);


void __RPC_STUB ITPCC_StockLevel_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);


HRESULT __stdcall ITPCC_OrderStatus_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);


void __RPC_STUB ITPCC_OrderStatus_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);
```

```
HRESULT __stdcall ITPCC_CallSetComplete_Proxy(
    ITPCC __RPC_FAR * This);


void __RPC_STUB ITPCC_CallSetComplete_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);



#endif    /* __ITPCC_INTERFACE_DEFINED__ */


/* Additional Prototypes for ALL interfaces */

unsigned long             __RPC_USER  VARIANT_UserSize(     unsigned long __RPC_FAR
*, unsigned long            , VARIANT __RPC_FAR * );
unsigned char __RPC_FAR * __RPC_USER  VARIANT_UserMarshal(  unsigned long __RPC_FAR
*, unsigned char __RPC_FAR *, VARIANT __RPC_FAR * );
unsigned char __RPC_FAR * __RPC_USER  VARIANT_UserUnmarshal(unsigned long __RPC_FAR
*, unsigned char __RPC_FAR *, VARIANT __RPC_FAR * );
void                      __RPC_USER  VARIANT_UserFree(     unsigned long __RPC_FAR
*, VARIANT __RPC_FAR * );

/* end of Additional Prototypes */

#ifdef __cplusplus
}
#endif

#endif
```

tpcc_com_ps.idl

```
/*        FILE:               ITPCC.IDL
 *                                    Microsoft TPC-C Kit Ver. 4.20.000
 *                                    Copyright Microsoft, 1999
 *             All Rights Reserved
 *
 *                                    not yet audited
 *
 *        PURPOSE:  Defines the interface used by TPCC. This interface can be
implemented by C++ components.
 *
 *  Change history:
 *                 4.20.000 - first version
 */

// Forward declare all types defined
interface ITPCC;
import "oaidl.idl";
import "ocidl.idl";

         [
                  object,
                  oleautomation,
                  uuid(FEEE6AA2-84B1-11d2-BA47-00C04FBFE08B),
                  helpstring("ITPCC Interface"),
                  pointer_default(unique)
         ]
         interface ITPCC : IUnknown
         {

        HRESULT _stdcall NewOrder
                                                          (
                                                          [in] VARIANT  txn_in,
                                                          [out] VARIANT *txn_out
                                                          );

        HRESULT _stdcall Payment
                                                          (
                                                          [in] VARIANT txn_in,
                                                          [out] VARIANT *txn_out
                                                          );

        HRESULT _stdcall Delivery
                                                          (
                                                          [in] VARIANT txn_in,
                                                          [out] VARIANT *txn_out
                                                          );

        HRESULT _stdcall StockLevel
                                                          (
                                                          [in] VARIANT txn_in,
                                                          [out] VARIANT *txn_out
                                                          );

        HRESULT _stdcall OrderStatus
                                                          (
                                                          [in] VARIANT txn_in,
                                                          [out] VARIANT *txn_out
                                                          );

        HRESULT _stdcall CallSetComplete
                                                          (
                                                          );

    };    // interface ITPCC
```

tpcc_com_ps.mak

```
!IF "$(CFG)" == ""
CFG=tpcc_com_ps - Win32 Debug
!MESSAGE No configuration specified. Defaulting to tpcc_com_ps - Win32 Debug.
!ENDIF

!IF "$(CFG)" != "tpcc_com_ps - Win32 Release" && "$(CFG)" != "tpcc_com_ps - Win32
Debug"
!MESSAGE Invalid configuration "$(CFG)" specified.
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "tpcc_com_ps.mak" CFG="tpcc_com_ps - Win32 Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "tpcc_com_ps - Win32 Release" (based on "Win32 (x86) Application")
!MESSAGE "tpcc_com_ps - Win32 Debug" (based on "Win32 (x86) Application")
!MESSAGE
```

```
!ERROR An invalid configuration is specified.
!ENDIF

!IF "$(OS)" == "Windows_NT"
NULL=
!ELSE
NULL=nul
!ENDIF

!IF  "$(CFG)" == "tpcc_com_ps - Win32 Release"

OUTDIR=.\bin
INTDIR=.\obj
# Begin Custom Macros
OutDir=.\bin
# End Custom Macros

!IF "$(RECURSE)" == "0"

ALL : ".\src\tpcc_com_ps_p.c" ".\src\tpcc_com_ps_i.c" ".\src\tpcc_com_ps.h"
".\src\dlldata.c" "$(OUTDIR)\tpcc_com_ps.dll" "..\tpcc_com_all\src\tpcc_com_ps.h"

!ELSE

ALL : "db_dblib_dll - Win32 Release" ".\src\tpcc_com_ps_p.c" ".\src\tpcc_com_ps_i.c"
".\src\tpcc_com_ps.h" ".\src\dlldata.c" "$(OUTDIR)\tpcc_com_ps.dll"
"..\tpcc_com_all\src\tpcc_com_ps.h"

!ENDIF

!IF "$(RECURSE)" == "1"
CLEAN :"db_dblib_dll - Win32 ReleaseCLEAN"
!ELSE
CLEAN :
!ENDIF
          -@erase "$(INTDIR)\dlldata.obj"
          -@erase "$(INTDIR)\tpcc_com_ps_i.obj"
          -@erase "$(INTDIR)\tpcc_com_ps_p.obj"
          -@erase "$(INTDIR)\vc60.idb"
          -@erase "$(OUTDIR)\tpcc_com_ps.dll"
          -@erase "$(OUTDIR)\tpcc_com_ps.exp"
          -@erase "$(OUTDIR)\tpcc_com_ps.lib"
          -@erase "..\tpcc_com_all\src\tpcc_com_ps.h"
          -@erase ".\src\dlldata.c"
          -@erase ".\src\tpcc_com_ps.h"
          -@erase ".\src\tpcc_com_ps_i.c"
          -@erase ".\src\tpcc_com_ps_p.c"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

CPP=cl.exe
CPP_PROJ=/nologo /ML /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D _WIN32_WINNT=0x0400 /D
"REGISTER_PROXY_DLL" /Fo"$(INTDIR)\\" /Fd"$(INTDIR)\\" /FD /c

.c{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.c{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

MTL=midl.exe
MTL_PROJ=/nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
RSC=rc.exe
BSC32=bscmake.exe
BSC32_FLAGS=/nologo /o"$(OUTDIR)\tpcc_com_ps.bsc"
BSC32_SBRS= \

LINK32=link.exe
LINK32_FLAGS=kernel32.lib rpcndr.lib rpcns4.lib rpcrt4.lib oleaut32.lib uuid.lib
/nologo /entry:"DllMain" /subsystem:windows /dll /pdb:none /machine:I386
/def:".\src\tpcc_com_ps.def" /out:"$(OUTDIR)\tpcc_com_ps.dll"
/implib:"$(OUTDIR)\tpcc_com_ps.lib"
LINK32_OBJS= \
          "$(INTDIR)\dlldata.obj" \
          "$(INTDIR)\tpcc_com_ps_i.obj" \
          "$(INTDIR)\tpcc_com_ps_p.obj" \
          "..\db_dblib_dll\bin\tpcc_dblib.lib"

"$(OUTDIR)\tpcc_com_ps.dll" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

InputPath=.\bin\tpcc_com_ps.dll
SOURCE="$(InputPath)"

"..\tpcc_com_all\src\tpcc_com_ps.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
          <<tempfile.bat
          @echo off
          copy     .\src\tpcc_com_ps.h     ..\tpcc_com_all\src\
<<


!ELSEIF  "$(CFG)" == "tpcc_com_ps - Win32 Debug"

OUTDIR=.\bin
INTDIR=.\obj
# Begin Custom Macros
```

```
OutDir=.\bin
# End Custom Macros

!IF "$(RECURSE)" == "0"

ALL : ".\src\tpcc_com_ps_p.c" ".\src\tpcc_com_ps_i.c" ".\src\tpcc_com_ps.h"
".\src\dlldata.c" "$(OUTDIR)\tpcc_com_ps.dll" "..\tpcc_com_all\src\tpcc_com_ps.h"

!ELSE

ALL : "db_dblib_dll - Win32 Debug" ".\src\tpcc_com_ps_p.c" ".\src\tpcc_com_ps_i.c"
".\src\tpcc_com_ps.h" ".\src\dlldata.c" "$(OUTDIR)\tpcc_com_ps.dll"
"..\tpcc_com_all\src\tpcc_com_ps.h"

!ENDIF

!IF "$(RECURSE)" == "1"
CLEAN :"db_dblib_dll - Win32 DebugCLEAN"
!ELSE
CLEAN :
!ENDIF
          -@erase "$(INTDIR)\dlldata.obj"
          -@erase "$(INTDIR)\tpcc_com_ps_i.obj"
          -@erase "$(INTDIR)\tpcc_com_ps_p.obj"
          -@erase "$(INTDIR)\vc60.idb"
          -@erase "$(INTDIR)\vc60.pdb"
          -@erase "$(OUTDIR)\tpcc_com_ps.dll"
          -@erase "$(OUTDIR)\tpcc_com_ps.exp"
          -@erase "$(OUTDIR)\tpcc_com_ps.ilk"
          -@erase "$(OUTDIR)\tpcc_com_ps.lib"
          -@erase "$(OUTDIR)\tpcc_com_ps.pdb"
          -@erase "..\tpcc_com_all\src\tpcc_com_ps.h"
          -@erase ".\src\dlldata.c"
          -@erase ".\src\tpcc_com_ps.h"
          -@erase ".\src\tpcc_com_ps_i.c"
          -@erase ".\src\tpcc_com_ps_p.c"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

CPP=cl.exe
CPP_PROJ=/nologo /MLd /ZI /Od /D "_ATL_STATIC_REGISTRY" /D "WIN32" /D "_DEBUG" /D
_WIN32_WINNT=0x0400 /D "REGISTER_PROXY_DLL" /Fo"$(INTDIR)\\" /Fd"$(INTDIR)\\" /FD /c

.c{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.obj::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.c{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.sbr::
   $(CPP) @<<
   $(CPP_PROJ) $<
<<

MTL=midl.exe
MTL_PROJ=/nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
RSC=rc.exe
BSC32=bscmake.exe
BSC32_FLAGS=/nologo /o"$(OUTDIR)\tpcc_com_ps.bsc"
BSC32_SBRS= \

LINK32=link.exe
LINK32_FLAGS=kernel32.lib rpcndr.lib rpcns4.lib rpcrt4.lib oleaut32.lib uuid.lib
/nologo /entry:"DllMain" /dll /incremental:yes /pdb:"$(OUTDIR)\tpcc_com_ps.pdb"
/debug /machine:IX86 /def:".\src\tpcc_com_ps.def" /out:"$(OUTDIR)\tpcc_com_ps.dll"
/implib:"$(OUTDIR)\tpcc_com_ps.lib" /pdbtype:sept
LINK32_OBJS= \
          "$(INTDIR)\dlldata.obj" \
          "$(INTDIR)\tpcc_com_ps_i.obj" \
          "$(INTDIR)\tpcc_com_ps_p.obj" \
          "..\db_dblib_dll\bin\tpcc_dblib.lib"

"$(OUTDIR)\tpcc_com_ps.dll" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

InputPath=.\bin\tpcc_com_ps.dll
SOURCE="$(InputPath)"

"..\tpcc_com_all\src\tpcc_com_ps.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
          <<tempfile.bat
          @echo off
          copy     .\src\tpcc_com_ps.h     ..\tpcc_com_all\src\
<<


!ENDIF


!IF "$(NO_EXTERNAL_DEPS)" != "1"
!IF EXISTS("tpcc_com_ps.dep")
!INCLUDE "tpcc_com_ps.dep"
!ELSE
!MESSAGE Warning: cannot find "tpcc_com_ps.dep"
!ENDIF
!ENDIF


!IF "$(CFG)" == "tpcc_com_ps - Win32 Release" || "$(CFG)" == "tpcc_com_ps - Win32
Debug"
SOURCE=.\src\dlldata.c
```

```
"$(INTDIR)\dlldata.obj" : $(SOURCE) "$(INTDIR)"
         $(CPP) $(CPP_PROJ) $(SOURCE)


SOURCE=.\src\tpcc_com_ps.idl

!IF  "$(CFG)" == "tpcc_com_ps - Win32 Release"

InputPath=.\src\tpcc_com_ps.idl

".\src\tpcc_com_ps.h"         ".\src\tpcc_com_ps_i.c"       ".\src\dlldata.c"
          ".\src\tpcc_com_ps_p.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
          <<tempfile.bat
          @echo off
          midl /Oicf /h "tpcc_com_ps.h" /iid "tpcc_com_ps_i.c"
".\src\tpcc_com_ps.idl"    /out ".\src"
<<


!ELSEIF  "$(CFG)" == "tpcc_com_ps - Win32 Debug"

InputPath=.\src\tpcc_com_ps.idl

".\src\tpcc_com_ps.h"         ".\src\tpcc_com_ps_i.c"       ".\src\dlldata.c"
          ".\src\tpcc_com_ps_p.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
          <<tempfile.bat
          @echo off
          midl /Oicf /h "tpcc_com_ps.h" /iid "tpcc_com_ps_i.c"
".\src\tpcc_com_ps.idl"    /out ".\src"
<<


!ENDIF

SOURCE=.\src\tpcc_com_ps_i.c

"$(INTDIR)\tpcc_com_ps_i.obj" : $(SOURCE) "$(INTDIR)"
         $(CPP) $(CPP_PROJ) $(SOURCE)


SOURCE=.\src\tpcc_com_ps_p.c

"$(INTDIR)\tpcc_com_ps_p.obj" : $(SOURCE) "$(INTDIR)"
         $(CPP) $(CPP_PROJ) $(SOURCE)


!IF  "$(CFG)" == "tpcc_com_ps - Win32 Release"

"db_dblib_dll - Win32 Release" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Release"
   cd "..\tpcc_com_ps"

"db_dblib_dll - Win32 ReleaseCLEAN" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Release"
RECURSE=1 CLEAN
   cd "..\tpcc_com_ps"

!ELSEIF  "$(CFG)" == "tpcc_com_ps - Win32 Debug"

"db_dblib_dll - Win32 Debug" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Debug"
   cd "..\tpcc_com_ps"

"db_dblib_dll - Win32 DebugCLEAN" :
   cd "\webclnt\db_dblib_dll"
   $(MAKE) /$(MAKEFLAGS) /F .\db_dblib_dll.mak CFG="db_dblib_dll - Win32 Debug"
RECURSE=1 CLEAN
   cd "..\tpcc_com_ps"

!ENDIF


!ENDIF
```

tpcc_com_ps_i.c

```
/* this file contains the actual definitions of */
/* the IIDs and CLSIDs */

/* link this file in with the server and any clients */


/* File created by MIDL compiler version 5.01.0164 */
/* at Wed Jul 07 10:57:32 2004
 */
/* Compiler settings for .\src\tpcc_com_ps.idl:
    Oicf (OptLev=i2), W1, Zp8, env=Win32, ms_ext, c_ext
    error checks: allocation ref bounds_check enum stub_data
*/
//@@MIDL_FILE_HEADING(  )
#ifdef __cplusplus
extern "C"{
#endif


#ifndef __IID_DEFINED__
#define __IID_DEFINED__

typedef struct _IID
{
    unsigned long x;
    unsigned short s1;
    unsigned short s2;
    unsigned char  c[8];
} IID;

#endif // __IID_DEFINED__

#ifndef CLSID_DEFINED
#define CLSID_DEFINED
typedef IID CLSID;
#endif // CLSID_DEFINED

const IID IID_ITPCC =
{0xFEEE6AA2,0x84B1,0x11d2,{0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}};


#ifdef __cplusplus
}
#endif
```

tpcc_com_ps_p.c

```
/* this ALWAYS GENERATED file contains the proxy stub code */


/* File created by MIDL compiler version 5.01.0164 */
/* at Wed Jul 07 10:57:32 2004
 */
/* Compiler settings for .\src\tpcc_com_ps.idl:
    Oicf (OptLev=i2), W1, Zp8, env=Win32, ms_ext, c_ext
    error checks: allocation ref bounds_check enum stub_data
*/
//@@MIDL_FILE_HEADING(  )

#define USE_STUBLESS_PROXY


/* verify that the <rpcproxy.h> version is high enough to compile this file*/
#ifndef __REDQ_RPCPROXY_H_VERSION__
#define __REQUIRED_RPCPROXY_H_VERSION__ 440
#endif


#include "rpcproxy.h"
#ifndef __RPCPROXY_H_VERSION__
#error this stub requires an updated version of <rpcproxy.h>
#endif // __RPCPROXY_H_VERSION__


#include "tpcc_com_ps.h"

#define TYPE_FORMAT_STRING_SIZE   1025
#define PROC_FORMAT_STRING_SIZE   193

typedef struct _MIDL_TYPE_FORMAT_STRING
    {
    short          Pad;
    unsigned char  Format[ TYPE_FORMAT_STRING_SIZE ];
    } MIDL_TYPE_FORMAT_STRING;

typedef struct _MIDL_PROC_FORMAT_STRING
    {
    short          Pad;
    unsigned char  Format[ PROC_FORMAT_STRING_SIZE ];
    } MIDL_PROC_FORMAT_STRING;


extern const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString;
extern const MIDL_PROC_FORMAT_STRING __MIDL_ProcFormatString;


/* Standard interface: __MIDL_itf_tpcc_com_ps_0000, ver. 0.0,
   GUID={0x00000000,0x0000,0x0000,{0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00}} */


/* Object interface: IUnknown, ver. 0.0,
   GUID={0x00000000,0x0000,0x0000,{0xC0,0x00,0x00,0x00,0x00,0x00,0x00,0x46}} */


/* Object interface: ITPCC, ver. 0.0,
   GUID={0xFEEE6AA2,0x84B1,0x11d2,{0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}} */

extern const MIDL_STUB_DESC Object_StubDesc;


extern const MIDL_SERVER_INFO ITPCC_ServerInfo;

#pragma code_seg(".orpc")
extern const USER_MARSHAL_ROUTINE_QUADRUPLE UserMarshalRoutines[1];

static const MIDL_STUB_DESC Object_StubDesc =
    {
    0,
    NdrOleAllocate,
    NdrOleFree,
    0,
    0,
    0,
    0,
    0,
    __MIDL_TypeFormatString.Format,
    1, /* -error bounds_check flag */
    0x20000, /* Ndr library version */
    0,
    0x50100a4, /* MIDL Version 5.1.164 */
    0,
    UserMarshalRoutines,
    0,  /* notify & notify_flag routine table */
    1,  /* Flags */
    0,  /* Reserved3 */
    0,  /* Reserved4 */
    0   /* Reserved5 */
    };

static const unsigned short ITPCC_FormatStringOffsetTable[] =
    {
    0,
    34,
    68,
    102,
    136,
    170
    };

static const MIDL_SERVER_INFO ITPCC_ServerInfo =
    {
    &Object_StubDesc,
    0,
    __MIDL_ProcFormatString.Format,
    &ITPCC_FormatStringOffsetTable[-3],
    0,
    0,
    0,
    0
    };

static const MIDL_STUBLESS_PROXY_INFO ITPCC_ProxyInfo =
    {
    &Object_StubDesc,
    __MIDL_ProcFormatString.Format,
    &ITPCC_FormatStringOffsetTable[-3],
    0,
    0,
    0
```

```
    };

CINTERFACE_PROXY_VTABLE(9) _ITPCCProxyVtbl =
{
    &ITPCC_ProxyInfo,
    &IID_ITPCC,
    IUnknown_QueryInterface_Proxy,
    IUnknown_AddRef_Proxy,
    IUnknown_Release_Proxy ,
    (void *)-1 /* ITPCC::NewOrder */ ,
    (void *)-1 /* ITPCC::Payment */ ,
    (void *)-1 /* ITPCC::Delivery */ ,
    (void *)-1 /* ITPCC::StockLevel */ ,
    (void *)-1 /* ITPCC::OrderStatus */ ,
    (void *)-1 /* ITPCC::CallSetComplete */
};

const CInterfaceStubVtbl _ITPCCStubVtbl =
{
    &IID_ITPCC,
    &ITPCC_ServerInfo,
    9,
    0, /* pure interpreted */
    CStdStubBuffer_METHODS
};

#pragma data_seg(".rdata")

static const USER_MARSHAL_ROUTINE_QUADRUPLE UserMarshalRoutines[1] =
        {

            {
            VARIANT_UserSize
            ,VARIANT_UserMarshal
            ,VARIANT_UserUnmarshal
            ,VARIANT_UserFree
            }

        };


#if !defined(__RPC_WIN32__)
#error  Invalid build platform for this stub.
#endif

#if !(TARGET_IS_NT40_OR_LATER)
#error You need a Windows NT 4.0 or later to run this stub because it uses these
features:
#error   -Oif or -Oicf, [wire_marshal] or [user_marshal] attribute, more than 32
methods in the interface.
#error However, your C/C++ compilation flags indicate you intend to run this app on
earlier systems.
#error This app will die there with the RPC_X_WRONG_STUB_VERSION error.
#endif


static const MIDL_PROC_FORMAT_STRING __MIDL_ProcFormatString =
    {
        0,
        {

          /* Procedure NewOrder */

                                0x33,               /* FC_AUTO_HANDLE */
                                0x6c,               /* Old Flags:  object, Oi2 */
/*  2 */  NdrFcLong( 0x0 ),   /* 0 */
/*  6 */  NdrFcShort( 0x3 ),  /* 3 */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/*  8 */  NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
                                NdrFcShort( 0x20 ), /* MIPS & PPC Stack size/offset =
32 */
#endif
#else
                                NdrFcShort( 0x28 ), /* Alpha Stack size/offset = 40 */
#endif
/* 10 */  NdrFcShort( 0x0 ),  /* 0 */
/* 12 */  NdrFcShort( 0x8 ),  /* 8 */
/* 14 */  0x7,                /* Oi2 Flags:  srv must size, clt must size, has
return, */
                                0x3,                /* 3 */

          /* Parameter txn_in */

/* 16 */  NdrFcShort( 0x8b ), /* Flags:  must size, must free, in, by val, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 18 */  NdrFcShort( 0x4 ),  /* x86 Stack size/offset = 4 */
#else
                                NdrFcShort( 0x8 ),  /* MIPS & PPC Stack size/offset =
8 */
#endif
#else
                                NdrFcShort( 0x8 ),  /* Alpha Stack size/offset = 8 */
#endif
/* 20 */  NdrFcShort( 0x3e4 ),          /* Type Offset=996 */

          /* Parameter txn_out */

/* 22 */  NdrFcShort( 0x4113 ),         /* Flags:  must size, must free, out, simple
ref, srv alloc size=16 */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 24 */  NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
                                NdrFcShort( 0x18 ), /* MIPS & PPC Stack size/offset =
24 */
#endif
#else
                                NdrFcShort( 0x18 ), /* Alpha Stack size/offset = 24 */
#endif
/* 26 */  NdrFcShort( 0x3f6 ),          /* Type Offset=1014 */

          /* Return value */

/* 28 */  NdrFcShort( 0x70 ), /* Flags:  out, return, base type, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 30 */  NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
                                NdrFcShort( 0x1c ), /* MIPS & PPC Stack size/offset =
28 */
#endif
#else
                                NdrFcShort( 0x20 ), /* Alpha Stack size/offset = 32 */
```

```
#endif
/* 32 */  0x8,                /* FC_LONG */
          0x0,                /* 0 */

          /* Procedure Payment */

/* 34 */  0x33,               /* FC_AUTO_HANDLE */
          0x6c,               /* Old Flags:  object, Oi2 */
/* 36 */  NdrFcLong( 0x0 ),   /* 0 */
/* 40 */  NdrFcShort( 0x4 ),  /* 4 */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 42 */  NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
                              NdrFcShort( 0x20 ), /* MIPS & PPC Stack size/offset =
32 */
#endif
#else
                              NdrFcShort( 0x28 ), /* Alpha Stack size/offset = 40 */
#endif
/* 44 */  NdrFcShort( 0x0 ),  /* 0 */
/* 46 */  NdrFcShort( 0x8 ),  /* 8 */
/* 48 */  0x7,                /* Oi2 Flags:  srv must size, clt must size, has
return, */
          0x3,                /* 3 */

          /* Parameter txn_in */

/* 50 */  NdrFcShort( 0x8b ), /* Flags:  must size, must free, in, by val, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 52 */  NdrFcShort( 0x4 ),  /* x86 Stack size/offset = 4 */
#else
                              NdrFcShort( 0x8 ),  /* MIPS & PPC Stack size/offset =
8 */
#endif
#else
                              NdrFcShort( 0x8 ),  /* Alpha Stack size/offset = 8 */
#endif
/* 54 */  NdrFcShort( 0x3e4 ),          /* Type Offset=996 */

          /* Parameter txn_out */

/* 56 */  NdrFcShort( 0x4113 ),         /* Flags:  must size, must free, out, simple
ref, srv alloc size=16 */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 58 */  NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
                              NdrFcShort( 0x18 ), /* MIPS & PPC Stack size/offset =
24 */
#endif
#else
                              NdrFcShort( 0x18 ), /* Alpha Stack size/offset = 24 */
#endif
/* 60 */  NdrFcShort( 0x3f6 ),          /* Type Offset=1014 */

          /* Return value */

/* 62 */  NdrFcShort( 0x70 ), /* Flags:  out, return, base type, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 64 */  NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
                              NdrFcShort( 0x1c ), /* MIPS & PPC Stack size/offset =
28 */
#endif
#else
                              NdrFcShort( 0x20 ), /* Alpha Stack size/offset = 32 */
#endif
/* 66 */  0x8,                /* FC_LONG */
          0x0,                /* 0 */

          /* Procedure Delivery */

/* 68 */  0x33,               /* FC_AUTO_HANDLE */
          0x6c,               /* Old Flags:  object, Oi2 */
/* 70 */  NdrFcLong( 0x0 ),   /* 0 */
/* 74 */  NdrFcShort( 0x5 ),  /* 5 */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 76 */  NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
                              NdrFcShort( 0x20 ), /* MIPS & PPC Stack size/offset =
32 */
#endif
#else
                              NdrFcShort( 0x28 ), /* Alpha Stack size/offset = 40 */
#endif
/* 78 */  NdrFcShort( 0x0 ),  /* 0 */
/* 80 */  NdrFcShort( 0x8 ),  /* 8 */
/* 82 */  0x7,                /* Oi2 Flags:  srv must size, clt must size, has
return, */
          0x3,                /* 3 */

          /* Parameter txn_in */

/* 84 */  NdrFcShort( 0x8b ), /* Flags:  must size, must free, in, by val, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 86 */  NdrFcShort( 0x4 ),  /* x86 Stack size/offset = 4 */
#else
                              NdrFcShort( 0x8 ),  /* MIPS & PPC Stack size/offset =
8 */
#endif
#else
                              NdrFcShort( 0x8 ),  /* Alpha Stack size/offset = 8 */
#endif
/* 88 */  NdrFcShort( 0x3e4 ),          /* Type Offset=996 */

          /* Parameter txn_out */

/* 90 */  NdrFcShort( 0x4113 ),         /* Flags:  must size, must free, out, simple
ref, srv alloc size=16 */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 92 */  NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
                              NdrFcShort( 0x18 ), /* MIPS & PPC Stack size/offset =
24 */
#endif
#else
                              NdrFcShort( 0x18 ), /* Alpha Stack size/offset = 24 */
#endif
/* 94 */  NdrFcShort( 0x3f6 ),          /* Type Offset=1014 */
```

```
         /* Return value */

/* 96 */  NdrFcShort( 0x70 ), /* Flags:  out, return, base type, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 98 */  NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
                               NdrFcShort( 0x1c ), /* MIPS & PPC Stack size/offset =
28 */
#endif
#else
                               NdrFcShort( 0x20 ), /* Alpha Stack size/offset = 32 */
#endif
/* 100 */ 0x8,                 /* FC_LONG */
                               0x0,                /* 0 */

         /* Procedure StockLevel */

/* 102 */ 0x33,                /* FC_AUTO_HANDLE */
                               0x6c,               /* Old Flags:  object, Oi2 */
/* 104 */ NdrFcLong( 0x0 ),    /* 0 */
/* 108 */ NdrFcShort( 0x6 ),   /* 6 */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 110 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
                               NdrFcShort( 0x20 ), /* MIPS & PPC Stack size/offset =
32 */
#endif
#else
                               NdrFcShort( 0x28 ), /* Alpha Stack size/offset = 40 */
#endif
/* 112 */ NdrFcShort( 0x0 ),   /* 0 */
/* 114 */ NdrFcShort( 0x8 ),   /* 8 */
/* 116 */ 0x7,                 /* Oi2 Flags:  srv must size, clt must size, has
return, */
                               0x3,                /* 3 */

         /* Parameter txn_in */

/* 118 */ NdrFcShort( 0x8b ), /* Flags:  must size, must free, in, by val, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 120 */ NdrFcShort( 0x4 ),  /* x86 Stack size/offset = 4 */
#else
                               NdrFcShort( 0x8 ),  /* MIPS & PPC Stack size/offset =
8 */
#endif
#else
                               NdrFcShort( 0x8 ),  /* Alpha Stack size/offset = 8 */
#endif
/* 122 */ NdrFcShort( 0x3e4 ),          /* Type Offset=996 */

         /* Parameter txn_out */

/* 124 */ NdrFcShort( 0x4113 ),         /* Flags:  must size, must free, out, simple
ref, srv alloc size=16 */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 126 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
                               NdrFcShort( 0x18 ), /* MIPS & PPC Stack size/offset =
24 */
#endif
#else
                               NdrFcShort( 0x18 ), /* Alpha Stack size/offset = 24 */
#endif
/* 128 */ NdrFcShort( 0x3f6 ),          /* Type Offset=1014 */

         /* Return value */

/* 130 */ NdrFcShort( 0x70 ), /* Flags:  out, return, base type, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 132 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
                               NdrFcShort( 0x1c ), /* MIPS & PPC Stack size/offset =
28 */
#endif
#else
                               NdrFcShort( 0x20 ), /* Alpha Stack size/offset = 32 */
#endif
/* 134 */ 0x8,                 /* FC_LONG */
                               0x0,                /* 0 */

         /* Procedure OrderStatus */

/* 136 */ 0x33,                /* FC_AUTO_HANDLE */
                               0x6c,               /* Old Flags:  object, Oi2 */
/* 138 */ NdrFcLong( 0x0 ),    /* 0 */
/* 142 */ NdrFcShort( 0x7 ),   /* 7 */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 144 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
                               NdrFcShort( 0x20 ), /* MIPS & PPC Stack size/offset =
32 */
#endif
#else
                               NdrFcShort( 0x28 ), /* Alpha Stack size/offset = 40 */
#endif
/* 146 */ NdrFcShort( 0x0 ),   /* 0 */
/* 148 */ NdrFcShort( 0x8 ),   /* 8 */
/* 150 */ 0x7,                 /* Oi2 Flags:  srv must size, clt must size, has
return, */
                               0x3,                /* 3 */

         /* Parameter txn_in */

/* 152 */ NdrFcShort( 0x8b ), /* Flags:  must size, must free, in, by val, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 154 */ NdrFcShort( 0x4 ),  /* x86 Stack size/offset = 4 */
#else
                               NdrFcShort( 0x8 ),  /* MIPS & PPC Stack size/offset =
8 */
#endif
#else
                               NdrFcShort( 0x8 ),  /* Alpha Stack size/offset = 8 */
#endif
/* 156 */ NdrFcShort( 0x3e4 ),          /* Type Offset=996 */

         /* Parameter txn_out */

/* 158 */ NdrFcShort( 0x4113 ),         /* Flags:  must size, must free, out, simple
ref, srv alloc size=16 */
```

```
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 160 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
                            NdrFcShort( 0x18 ), /* MIPS & PPC Stack size/offset =
24 */
#endif
#else
                            NdrFcShort( 0x18 ), /* Alpha Stack size/offset = 24 */
#endif
/* 162 */ NdrFcShort( 0x3f6 ),          /* Type Offset=1014 */

         /* Return value */

/* 164 */ NdrFcShort( 0x70 ), /* Flags:  out, return, base type, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 166 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
                            NdrFcShort( 0x1c ), /* MIPS & PPC Stack size/offset =
28 */
#endif
#else
                            NdrFcShort( 0x20 ), /* Alpha Stack size/offset = 32 */
#endif
/* 168 */ 0x8,                /* FC_LONG */
                            0x0,                /* 0 */

         /* Procedure CallSetComplete */

/* 170 */ 0x33,               /* FC_AUTO_HANDLE */
                            0x6c,               /* Old Flags:  object, Oi2 */
/* 172 */ NdrFcLong( 0x0 ),   /* 0 */
/* 176 */ NdrFcShort( 0x8 ),  /* 8 */
#ifndef _ALPHA_
/* 178 */ NdrFcShort( 0x8 ),  /* x86, MIPS, PPC Stack size/offset = 8 */
#else
                            NdrFcShort( 0x10 ), /* Alpha Stack size/offset = 16 */
#endif
/* 180 */ NdrFcShort( 0x0 ),  /* 0 */
/* 182 */ NdrFcShort( 0x8 ),  /* 8 */
/* 184 */ 0x4,                /* Oi2 Flags:  has return, */
                            0x1,                /* 1 */

         /* Return value */

/* 186 */ NdrFcShort( 0x70 ), /* Flags:  out, return, base type, */
#ifndef _ALPHA_
/* 188 */ NdrFcShort( 0x4 ),  /* x86, MIPS, PPC Stack size/offset = 4 */
#else
                            NdrFcShort( 0x8 ),  /* Alpha Stack size/offset = 8 */
#endif
/* 190 */ 0x8,                /* FC_LONG */
                            0x0,                /* 0 */

                            0x0
        }
    };

static const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString =
    {
        0,
        {
                            NdrFcShort( 0x0 ),  /* 0 */
/*  2 */
                            0x12, 0x0,          /* FC_UP */
/*  4 */  NdrFcShort( 0x3cc ),          /* Offset= 972 (976) */
/*  6 */
                            0x2b,               /* FC_NON_ENCAPSULATED_UNION */
                            0x9,                /* FC_ULONG */
/*  8 */  0x7,                /* Corr desc: FC_USHORT */
                            0x0,                /*  */
/* 10 */  NdrFcShort( 0xfff8 ),         /* -8 */
/* 12 */  NdrFcShort( 0x2 ),  /* Offset= 2 (14) */
/* 14 */  NdrFcShort( 0x10 ), /* 16 */
/* 16 */  NdrFcShort( 0x2f ), /* 47 */
/* 18 */  NdrFcLong( 0x14 ),  /* 20 */
/* 22 */  NdrFcShort( 0x800b ),         /* Simple arm type: FC_HYPER */
/* 24 */  NdrFcLong( 0x3 ),   /* 3 */
/* 28 */  NdrFcShort( 0x8008 ),         /* Simple arm type: FC_LONG */
/* 30 */  NdrFcLong( 0x11 ),  /* 17 */
/* 34 */  NdrFcShort( 0x8001 ),         /* Simple arm type: FC_BYTE */
/* 36 */  NdrFcLong( 0x2 ),   /* 2 */
/* 40 */  NdrFcShort( 0x8006 ),         /* Simple arm type: FC_SHORT */
/* 42 */  NdrFcLong( 0x4 ),   /* 4 */
/* 46 */  NdrFcShort( 0x800a ),         /* Simple arm type: FC_FLOAT */
/* 48 */  NdrFcLong( 0x5 ),   /* 5 */
/* 52 */  NdrFcShort( 0x800c ),         /* Simple arm type: FC_DOUBLE */
/* 54 */  NdrFcLong( 0xb ),   /* 11 */
/* 58 */  NdrFcShort( 0x8006 ),         /* Simple arm type: FC_SHORT */
/* 60 */  NdrFcLong( 0xa ),   /* 10 */
/* 64 */  NdrFcShort( 0x8008 ),         /* Simple arm type: FC_LONG */
/* 66 */  NdrFcLong( 0x6 ),   /* 6 */
/* 70 */  NdrFcShort( 0xe8 ), /* Offset= 232 (302) */
/* 72 */  NdrFcLong( 0x7 ),   /* 7 */
/* 76 */  NdrFcShort( 0x800c ),         /* Simple arm type: FC_DOUBLE */
/* 78 */  NdrFcLong( 0x8 ),   /* 8 */
/* 82 */  NdrFcShort( 0xe2 ), /* Offset= 226 (308) */
/* 84 */  NdrFcLong( 0xd ),   /* 13 */
/* 88 */  NdrFcShort( 0xf4 ), /* Offset= 244 (332) */
/* 90 */  NdrFcLong( 0x9 ),   /* 9 */
/* 94 */  NdrFcShort( 0x100 ),          /* Offset= 256 (350) */
/* 96 */  NdrFcLong( 0x2000 ),          /* 8192 */
/* 100 */ NdrFcShort( 0x10c ),          /* Offset= 268 (368) */
/* 102 */ NdrFcLong( 0x24 ),  /* 36 */
/* 106 */ NdrFcShort( 0x31a ),          /* Offset= 794 (900) */
/* 108 */ NdrFcLong( 0x4024 ),          /* 16420 */
/* 112 */ NdrFcShort( 0x314 ),          /* Offset= 788 (900) */
/* 114 */ NdrFcLong( 0x4011 ),          /* 16401 */
/* 118 */ NdrFcShort( 0x312 ),          /* Offset= 786 (904) */
/* 120 */ NdrFcLong( 0x4002 ),          /* 16386 */
/* 124 */ NdrFcShort( 0x310 ),          /* Offset= 784 (908) */
/* 126 */ NdrFcLong( 0x4003 ),          /* 16387 */
/* 130 */ NdrFcShort( 0x30e ),          /* Offset= 782 (912) */
/* 132 */ NdrFcLong( 0x4014 ),          /* 16404 */
/* 136 */ NdrFcShort( 0x30c ),          /* Offset= 780 (916) */
/* 138 */ NdrFcLong( 0x4004 ),          /* 16388 */
/* 142 */ NdrFcShort( 0x30a ),          /* Offset= 778 (920) */
/* 144 */ NdrFcLong( 0x4005 ),          /* 16389 */
/* 148 */ NdrFcShort( 0x308 ),          /* Offset= 776 (924) */
/* 150 */ NdrFcLong( 0x400b ),          /* 16395 */
/* 154 */ NdrFcShort( 0x2f2 ),          /* Offset= 754 (908) */
/* 156 */ NdrFcLong( 0x400a ),          /* 16394 */
/* 160 */ NdrFcShort( 0x2f0 ),          /* Offset= 752 (912) */
/* 162 */ NdrFcLong( 0x4006 ),          /* 16390 */
/* 166 */ NdrFcShort( 0x2fa ),          /* Offset= 762 (928) */
```

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/* 168 */ NdrFcLong( 0x4007 ),          /* 16391 */
/* 172 */ NdrFcShort( 0x2f0 ),         /* Offset= 752 (924) */
/* 174 */ NdrFcLong( 0x4008 ),          /* 16392 */
/* 178 */ NdrFcShort( 0x2f2 ),         /* Offset= 754 (932) */
/* 180 */ NdrFcLong( 0x400d ),          /* 16397 */
/* 184 */ NdrFcShort( 0x2f0 ),         /* Offset= 752 (936) */
/* 186 */ NdrFcLong( 0x4009 ),          /* 16393 */
/* 190 */ NdrFcShort( 0x2ee ),         /* Offset= 750 (940) */
/* 192 */ NdrFcLong( 0x6000 ),          /* 24576 */
/* 196 */ NdrFcShort( 0x2ec ),         /* Offset= 748 (944) */
/* 198 */ NdrFcLong( 0x400c ),          /* 16396 */
/* 202 */ NdrFcShort( 0x2ea ),         /* Offset= 746 (948) */
/* 204 */ NdrFcLong( 0x10 ),  /* 16 */
/* 208 */ NdrFcShort( 0x8002 ),        /* Simple arm type: FC_CHAR */
/* 210 */ NdrFcLong( 0x12 ),  /* 18 */
/* 214 */ NdrFcShort( 0x8006 ),        /* Simple arm type: FC_SHORT */
/* 216 */ NdrFcLong( 0x13 ),  /* 19 */
/* 220 */ NdrFcShort( 0x8008 ),        /* Simple arm type: FC_LONG */
/* 222 */ NdrFcLong( 0x15 ),  /* 21 */
/* 226 */ NdrFcShort( 0x800b ),        /* Simple arm type: FC_HYPER */
/* 228 */ NdrFcLong( 0x16 ),  /* 22 */
/* 232 */ NdrFcShort( 0x8008 ),        /* Simple arm type: FC_LONG */
/* 234 */ NdrFcLong( 0x17 ),  /* 23 */
/* 238 */ NdrFcShort( 0x8008 ),        /* Simple arm type: FC_LONG */
/* 240 */ NdrFcLong( 0xe ),   /* 14 */
/* 244 */ NdrFcShort( 0x2c8 ),         /* Offset= 712 (956) */
/* 246 */ NdrFcLong( 0x400e ),          /* 16398 */
/* 250 */ NdrFcShort( 0x2ce ),         /* Offset= 718 (968) */
/* 252 */ NdrFcLong( 0x4010 ),          /* 16400 */
/* 256 */ NdrFcShort( 0x2cc ),         /* Offset= 716 (972) */
/* 258 */ NdrFcLong( 0x4012 ),          /* 16402 */
/* 262 */ NdrFcShort( 0x286 ),         /* Offset= 646 (908) */
/* 264 */ NdrFcLong( 0x4013 ),          /* 16403 */
/* 268 */ NdrFcShort( 0x284 ),         /* Offset= 644 (912) */
/* 270 */ NdrFcLong( 0x4015 ),          /* 16405 */
/* 274 */ NdrFcShort( 0x282 ),         /* Offset= 642 (916) */
/* 276 */ NdrFcLong( 0x4016 ),          /* 16406 */
/* 280 */ NdrFcShort( 0x278 ),         /* Offset= 632 (912) */
/* 282 */ NdrFcLong( 0x4017 ),          /* 16407 */
/* 286 */ NdrFcShort( 0x272 ),         /* Offset= 626 (912) */
/* 288 */ NdrFcLong( 0x0 ),   /* 0 */
/* 292 */ NdrFcShort( 0x0 ),  /* Offset= 0 (292) */
/* 294 */ NdrFcLong( 0x1 ),   /* 1 */
/* 298 */ NdrFcShort( 0x0 ),  /* Offset= 0 (298) */
/* 300 */ NdrFcShort( 0xffffffff ),    /* Offset= -1 (299) */
/* 302 */
                           0x15,               /* FC_STRUCT */
                           0x7,                /* 7 */
/* 304 */ NdrFcShort( 0x8 ),  /* 8 */
/* 306 */ 0xb,                /* FC_HYPER */
                           0x5b,               /* FC_END */
/* 308 */
                           0x12, 0x0,          /* FC_UP */
/* 310 */ NdrFcShort( 0xc ),  /* Offset= 12 (322) */
/* 312 */
                           0x1b,               /* FC_CARRAY */
                           0x1,                /* 1 */
/* 314 */ NdrFcShort( 0x2 ),  /* 2 */
/* 316 */ 0x9,                /* Corr desc: FC_ULONG */
                           0x0,                /*  */
/* 318 */ NdrFcShort( 0xfffc ),        /* -4 */
/* 320 */ 0x6,                /* FC_SHORT */
                           0x5b,               /* FC_END */
```

```
/* 322 */
                           0x17,               /* FC_CSTRUCT */
                           0x3,                /* 3 */
/* 324 */ NdrFcShort( 0x8 ),  /* 8 */
/* 326 */ NdrFcShort( 0xfffffff2 ),    /* Offset= -14 (312) */
/* 328 */ 0x8,                /* FC_LONG */
                           0x8,                /* FC_LONG */
/* 330 */ 0x5c,               /* FC_PAD */
                           0x5b,               /* FC_END */
/* 332 */
                           0x2f,               /* FC_IP */
                           0x5a,               /* FC_CONSTANT_IID */
/* 334 */ NdrFcLong( 0x0 ),   /* 0 */
/* 338 */ NdrFcShort( 0x0 ),  /* 0 */
/* 340 */ NdrFcShort( 0x0 ),  /* 0 */
/* 342 */ 0xc0,               /* 192 */
                           0x0,                /* 0 */
/* 344 */ 0x0,                /* 0 */
                           0x0,                /* 0 */
/* 346 */ 0x0,                /* 0 */
                           0x0,                /* 0 */
/* 348 */ 0x0,                /* 0 */
                           0x46,               /* 70 */
/* 350 */
                           0x2f,               /* FC_IP */
                           0x5a,               /* FC_CONSTANT_IID */
/* 352 */ NdrFcLong( 0x20400 ),        /* 132096 */
/* 356 */ NdrFcShort( 0x0 ),  /* 0 */
/* 358 */ NdrFcShort( 0x0 ),  /* 0 */
/* 360 */ 0xc0,               /* 192 */
                           0x0,                /* 0 */
/* 362 */ 0x0,                /* 0 */
                           0x0,                /* 0 */
/* 364 */ 0x0,                /* 0 */
                           0x0,                /* 0 */
/* 366 */ 0x0,                /* 0 */
                           0x46,               /* 70 */
/* 368 */
                           0x12, 0x10,         /* FC_UP */
/* 370 */ NdrFcShort( 0x2 ),  /* Offset= 2 (372) */
/* 372 */
                           0x12, 0x0,          /* FC_UP */
/* 374 */ NdrFcShort( 0x1fc ),         /* Offset= 508 (882) */
/* 376 */
                           0x2a,               /* FC_ENCAPSULATED_UNION */
                           0x49,               /* 73 */
/* 378 */ NdrFcShort( 0x18 ), /* 24 */
/* 380 */ NdrFcShort( 0xa ),  /* 10 */
/* 382 */ NdrFcLong( 0x8 ),   /* 8 */
/* 386 */ NdrFcShort( 0x58 ), /* Offset= 88 (474) */
/* 388 */ NdrFcLong( 0xd ),   /* 13 */
/* 392 */ NdrFcShort( 0x78 ), /* Offset= 120 (512) */
/* 394 */ NdrFcLong( 0x9 ),   /* 9 */
/* 398 */ NdrFcShort( 0x94 ), /* Offset= 148 (546) */
/* 400 */ NdrFcLong( 0xc ),   /* 12 */
/* 404 */ NdrFcShort( 0xbc ), /* Offset= 188 (592) */
/* 406 */ NdrFcLong( 0x24 ),  /* 36 */
/* 410 */ NdrFcShort( 0x114 ),         /* Offset= 276 (686) */
/* 412 */ NdrFcLong( 0x800d ),         /* 32781 */
/* 416 */ NdrFcShort( 0x130 ),         /* Offset= 304 (720) */
/* 418 */ NdrFcLong( 0x10 ),  /* 16 */
/* 422 */ NdrFcShort( 0x148 ),         /* Offset= 328 (750) */
/* 424 */ NdrFcLong( 0x2 ),   /* 2 */
```

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/* 428 */ NdrFcShort( 0x160 ),          /* Offset= 352 (780) */
/* 430 */ NdrFcLong( 0x3 ),   /* 3 */
/* 434 */ NdrFcShort( 0x178 ),          /* Offset= 376 (810) */
/* 436 */ NdrFcLong( 0x14 ),  /* 20 */
/* 440 */ NdrFcShort( 0x190 ),          /* Offset= 400 (840) */
/* 442 */ NdrFcShort( 0xffffffff ),     /* Offset= -1 (441) */
/* 444 */
                                0x1b,               /* FC_CARRAY */
                                0x3,                /* 3 */
/* 446 */ NdrFcShort( 0x4 ),  /* 4 */
/* 448 */ 0x19,               /* Corr desc:  field pointer, FC_ULONG */
                                0x0,                /*  */
/* 450 */ NdrFcShort( 0x0 ),  /* 0 */
/* 452 */
                                0x4b,               /* FC_PP */
                                0x5c,               /* FC_PAD */
/* 454 */
                                0x48,               /* FC_VARIABLE_REPEAT */
                                0x49,               /* FC_FIXED_OFFSET */
/* 456 */ NdrFcShort( 0x4 ),  /* 4 */
/* 458 */ NdrFcShort( 0x0 ),  /* 0 */
/* 460 */ NdrFcShort( 0x1 ),  /* 1 */
/* 462 */ NdrFcShort( 0x0 ),  /* 0 */
/* 464 */ NdrFcShort( 0x0 ),  /* 0 */
/* 466 */ 0x12, 0x0,          /* FC_UP */
/* 468 */ NdrFcShort( 0xffffff6e ),     /* Offset= -146 (322) */
/* 470 */
                                0x5b,               /* FC_END */

                                0x8,                /* FC_LONG */
/* 472 */ 0x5c,               /* FC_PAD */
                                0x5b,               /* FC_END */
/* 474 */
                                0x16,               /* FC_PSTRUCT */
                                0x3,                /* 3 */
/* 476 */ NdrFcShort( 0x8 ),  /* 8 */
/* 478 */
                                0x4b,               /* FC_PP */
                                0x5c,               /* FC_PAD */
/* 480 */
                                0x46,               /* FC_NO_REPEAT */
                                0x5c,               /* FC_PAD */
/* 482 */ NdrFcShort( 0x4 ),  /* 4 */
/* 484 */ NdrFcShort( 0x4 ),  /* 4 */
/* 486 */ 0x11, 0x0,          /* FC_RP */
/* 488 */ NdrFcShort( 0xffffffd4 ),     /* Offset= -44 (444) */
/* 490 */
                                0x5b,               /* FC_END */

                                0x8,                /* FC_LONG */
/* 492 */ 0x8,                /* FC_LONG */
                                0x5b,               /* FC_END */
/* 494 */
                                0x21,               /* FC_BOGUS_ARRAY */
                                0x3,                /* 3 */
/* 496 */ NdrFcShort( 0x0 ),  /* 0 */
/* 498 */ 0x19,               /* Corr desc:  field pointer, FC_ULONG */
                                0x0,                /*  */
/* 500 */ NdrFcShort( 0x0 ),  /* 0 */
/* 502 */ NdrFcLong( 0xffffffff ),      /* -1 */
/* 506 */ 0x4c,               /* FC_EMBEDDED_COMPLEX */
                                0x0,                /* 0 */
/* 508 */ NdrFcShort( 0xffffff50 ),     /* Offset= -176 (332) */
/* 510 */ 0x5c,               /* FC_PAD */
                                0x5b,               /* FC_END */
/* 512 */
                                0x1a,               /* FC_BOGUS_STRUCT */
                                0x3,                /* 3 */
/* 514 */ NdrFcShort( 0x8 ),  /* 8 */
/* 516 */ NdrFcShort( 0x0 ),  /* 0 */
/* 518 */ NdrFcShort( 0x6 ),  /* Offset= 6 (524) */
/* 520 */ 0x8,                /* FC_LONG */
                                0x36,               /* FC_POINTER */
/* 522 */ 0x5c,               /* FC_PAD */
                                0x5b,               /* FC_END */
/* 524 */
                                0x11, 0x0,          /* FC_RP */
/* 526 */ NdrFcShort( 0xffffffe0 ),     /* Offset= -32 (494) */
/* 528 */
                                0x21,               /* FC_BOGUS_ARRAY */
                                0x3,                /* 3 */
/* 530 */ NdrFcShort( 0x0 ),  /* 0 */
/* 532 */ 0x19,               /* Corr desc:  field pointer, FC_ULONG */
                                0x0,                /*  */
/* 534 */ NdrFcShort( 0x0 ),  /* 0 */
/* 536 */ NdrFcLong( 0xffffffff ),      /* -1 */
/* 540 */ 0x4c,               /* FC_EMBEDDED_COMPLEX */
                                0x0,                /* 0 */
/* 542 */ NdrFcShort( 0xffffff40 ),     /* Offset= -192 (350) */
/* 544 */ 0x5c,               /* FC_PAD */
                                0x5b,               /* FC_END */
/* 546 */
                                0x1a,               /* FC_BOGUS_STRUCT */
                                0x3,                /* 3 */
/* 548 */ NdrFcShort( 0x8 ),  /* 8 */
/* 550 */ NdrFcShort( 0x0 ),  /* 0 */
/* 552 */ NdrFcShort( 0x6 ),  /* Offset= 6 (558) */
/* 554 */ 0x8,                /* FC_LONG */
                                0x36,               /* FC_POINTER */
/* 556 */ 0x5c,               /* FC_PAD */
                                0x5b,               /* FC_END */
/* 558 */
                                0x11, 0x0,          /* FC_RP */
/* 560 */ NdrFcShort( 0xffffffe0 ),     /* Offset= -32 (528) */
/* 562 */
                                0x1b,               /* FC_CARRAY */
                                0x3,                /* 3 */
/* 564 */ NdrFcShort( 0x4 ),  /* 4 */
/* 566 */ 0x19,               /* Corr desc:  field pointer, FC_ULONG */
                                0x0,                /*  */
/* 568 */ NdrFcShort( 0x0 ),  /* 0 */
/* 570 */
                                0x4b,               /* FC_PP */
                                0x5c,               /* FC_PAD */
/* 572 */
                                0x48,               /* FC_VARIABLE_REPEAT */
                                0x49,               /* FC_FIXED_OFFSET */
/* 574 */ NdrFcShort( 0x4 ),  /* 4 */
/* 576 */ NdrFcShort( 0x0 ),  /* 0 */
/* 578 */ NdrFcShort( 0x1 ),  /* 1 */
/* 580 */ NdrFcShort( 0x0 ),  /* 0 */
/* 582 */ NdrFcShort( 0x0 ),  /* 0 */
/* 584 */ 0x12, 0x0,          /* FC_UP */
/* 586 */ NdrFcShort( 0xfffffdb6 ),     /* Offset= -586 (0) */
/* 588 */
                                0x5b,               /* FC_END */
```

```
                                0x8,                /* FC_LONG */
/* 590 */ 0x5c,                 /* FC_PAD */
                                0x5b,               /* FC_END */
/* 592 */
                                0x1a,               /* FC_BOGUS_STRUCT */
                                0x3,                /* 3 */
/* 594 */ NdrFcShort( 0x8 ),    /* 8 */
/* 596 */ NdrFcShort( 0x0 ),    /* 0 */
/* 598 */ NdrFcShort( 0x6 ),    /* Offset= 6 (604) */
/* 600 */ 0x8,                  /* FC_LONG */
                                0x36,               /* FC_POINTER */
/* 602 */ 0x5c,                 /* FC_PAD */
                                0x5b,               /* FC_END */
/* 604 */
                                0x11, 0x0,          /* FC_RP */
/* 606 */ NdrFcShort( 0xfffffd4 ),     /* Offset= -44 (562) */
/* 608 */
                                0x2f,               /* FC_IP */
                                0x5a,               /* FC_CONSTANT_IID */
/* 610 */ NdrFcLong( 0x2f ),    /* 47 */
/* 614 */ NdrFcShort( 0x0 ),    /* 0 */
/* 616 */ NdrFcShort( 0x0 ),    /* 0 */
/* 618 */ 0xc0,                 /* 192 */
                                0x0,                /* 0 */
/* 620 */ 0x0,                  /* 0 */
                                0x0,                /* 0 */
/* 622 */ 0x0,                  /* 0 */
                                0x0,                /* 0 */
/* 624 */ 0x0,                  /* 0 */
                                0x46,               /* 70 */
/* 626 */
                                0x1b,               /* FC_CARRAY */
                                0x0,                /* 0 */
/* 628 */ NdrFcShort( 0x1 ),    /* 1 */
/* 630 */ 0x19,                 /* Corr desc:  field pointer, FC_ULONG */
                                0x0,                /*  */
/* 632 */ NdrFcShort( 0x4 ),    /* 4 */
/* 634 */ 0x1,                  /* FC_BYTE */
                                0x5b,               /* FC_END */
/* 636 */
                                0x1a,               /* FC_BOGUS_STRUCT */
                                0x3,                /* 3 */
/* 638 */ NdrFcShort( 0x10 ),   /* 16 */
/* 640 */ NdrFcShort( 0x0 ),    /* 0 */
/* 642 */ NdrFcShort( 0xa ),    /* Offset= 10 (652) */
/* 644 */ 0x8,                  /* FC_LONG */
                                0x8,                /* FC_LONG */
/* 646 */ 0x4c,                 /* FC_EMBEDDED_COMPLEX */
                                0x0,                /* 0 */
/* 648 */ NdrFcShort( 0xfffffd8 ),     /* Offset= -40 (608) */
/* 650 */ 0x36,                 /* FC_POINTER */
                                0x5b,               /* FC_END */
/* 652 */
                                0x12, 0x0,          /* FC_UP */
/* 654 */ NdrFcShort( 0xffffffe4 ),     /* Offset= -28 (626) */
/* 656 */
                                0x1b,               /* FC_CARRAY */
                                0x3,                /* 3 */
/* 658 */ NdrFcShort( 0x4 ),    /* 4 */
/* 660 */ 0x19,                 /* Corr desc:  field pointer, FC_ULONG */
                                0x0,                /*  */
/* 662 */ NdrFcShort( 0x0 ),    /* 0 */
/* 664 */
                                0x4b,               /* FC_PP */
                                0x5c,               /* FC_PAD */
/* 666 */
                                0x48,               /* FC_VARIABLE_REPEAT */
                                0x49,               /* FC_FIXED_OFFSET */
/* 668 */ NdrFcShort( 0x4 ),    /* 4 */
/* 670 */ NdrFcShort( 0x0 ),    /* 0 */
/* 672 */ NdrFcShort( 0x1 ),    /* 1 */
/* 674 */ NdrFcShort( 0x0 ),    /* 0 */
/* 676 */ NdrFcShort( 0x0 ),    /* 0 */
/* 678 */ 0x12, 0x0,            /* FC_UP */
/* 680 */ NdrFcShort( 0xfffffd4 ),     /* Offset= -44 (636) */
/* 682 */
                                0x5b,               /* FC_END */

                                0x8,                /* FC_LONG */
/* 684 */ 0x5c,                 /* FC_PAD */
                                0x5b,               /* FC_END */
/* 686 */
                                0x1a,               /* FC_BOGUS_STRUCT */
                                0x3,                /* 3 */
/* 688 */ NdrFcShort( 0x8 ),    /* 8 */
/* 690 */ NdrFcShort( 0x0 ),    /* 0 */
/* 692 */ NdrFcShort( 0x6 ),    /* Offset= 6 (698) */
/* 694 */ 0x8,                  /* FC_LONG */
                                0x36,               /* FC_POINTER */
/* 696 */ 0x5c,                 /* FC_PAD */
                                0x5b,               /* FC_END */
/* 698 */
                                0x11, 0x0,          /* FC_RP */
/* 700 */ NdrFcShort( 0xfffffd4 ),     /* Offset= -44 (656) */
/* 702 */
                                0x1d,               /* FC_SMFARRAY */
                                0x0,                /* 0 */
/* 704 */ NdrFcShort( 0x8 ),    /* 8 */
/* 706 */ 0x1,                  /* FC_BYTE */
                                0x5b,               /* FC_END */
/* 708 */
                                0x15,               /* FC_STRUCT */
                                0x3,                /* 3 */
/* 710 */ NdrFcShort( 0x10 ),   /* 16 */
/* 712 */ 0x8,                  /* FC_LONG */
                                0x6,                /* FC_SHORT */
/* 714 */ 0x6,                  /* FC_SHORT */
                                0x4c,               /* FC_EMBEDDED_COMPLEX */
/* 716 */ 0x0,                  /* 0 */
                                NdrFcShort( 0xfffffff1 ),     /* Offset= -15 (702) */
                                0x5b,               /* FC_END */
/* 720 */
                                0x1a,               /* FC_BOGUS_STRUCT */
                                0x3,                /* 3 */
/* 722 */ NdrFcShort( 0x18 ),   /* 24 */
/* 724 */ NdrFcShort( 0x0 ),    /* 0 */
/* 726 */ NdrFcShort( 0xa ),    /* Offset= 10 (736) */
/* 728 */ 0x8,                  /* FC_LONG */
                                0x36,               /* FC_POINTER */
/* 730 */ 0x4c,                 /* FC_EMBEDDED_COMPLEX */
                                0x0,                /* 0 */
/* 732 */ NdrFcShort( 0xfffffe8 ),     /* Offset= -24 (708) */
/* 734 */ 0x5c,                 /* FC_PAD */
                                0x5b,               /* FC_END */
/* 736 */
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                            0x11, 0x0,          /* FC_RP */
/* 738 */ NdrFcShort( 0xffffff0c ),     /* Offset= -244 (494) */
/* 740 */
                            0x1b,               /* FC_CARRAY */
                            0x0,                /* 0 */
/* 742 */ NdrFcShort( 0x1 ),  /* 1 */
/* 744 */ 0x19,               /* Corr desc:  field pointer, FC_ULONG */
                            0x0,                /*  */
/* 746 */ NdrFcShort( 0x0 ),  /* 0 */
/* 748 */ 0x1,                /* FC_BYTE */
                            0x5b,               /* FC_END */
/* 750 */
                            0x16,               /* FC_PSTRUCT */
                            0x3,                /* 3 */
/* 752 */ NdrFcShort( 0x8 ),  /* 8 */
/* 754 */
                            0x4b,               /* FC_PP */
                            0x5c,               /* FC_PAD */
/* 756 */
                            0x46,               /* FC_NO_REPEAT */
                            0x5c,               /* FC_PAD */
/* 758 */ NdrFcShort( 0x4 ),  /* 4 */
/* 760 */ NdrFcShort( 0x4 ),  /* 4 */
/* 762 */ 0x12, 0x0,          /* FC_UP */
/* 764 */ NdrFcShort( 0xfffffff8 ),     /* Offset= -24 (740) */
/* 766 */
                            0x5b,               /* FC_END */

                            0x8,                /* FC_LONG */
/* 768 */ 0x8,                /* FC_LONG */
                            0x5b,               /* FC_END */
/* 770 */
                            0x1b,               /* FC_CARRAY */
                            0x1,                /* 1 */
/* 772 */ NdrFcShort( 0x2 ),  /* 2 */
/* 774 */ 0x19,               /* Corr desc:  field pointer, FC_ULONG */
                            0x0,                /*  */
/* 776 */ NdrFcShort( 0x0 ),  /* 0 */
/* 778 */ 0x6,                /* FC_SHORT */
                            0x5b,               /* FC_END */
/* 780 */
                            0x16,               /* FC_PSTRUCT */
                            0x3,                /* 3 */
/* 782 */ NdrFcShort( 0x8 ),  /* 8 */
/* 784 */
                            0x4b,               /* FC_PP */
                            0x5c,               /* FC_PAD */
/* 786 */
                            0x46,               /* FC_NO_REPEAT */
                            0x5c,               /* FC_PAD */
/* 788 */ NdrFcShort( 0x4 ),  /* 4 */
/* 790 */ NdrFcShort( 0x4 ),  /* 4 */
/* 792 */ 0x12, 0x0,          /* FC_UP */
/* 794 */ NdrFcShort( 0xfffffff8 ),     /* Offset= -24 (770) */
/* 796 */
                            0x5b,               /* FC_END */

                            0x8,                /* FC_LONG */
/* 798 */ 0x8,                /* FC_LONG */
                            0x5b,               /* FC_END */
/* 800 */
                            0x1b,               /* FC_CARRAY */
                            0x3,                /* 3 */
```

```
/* 802 */ NdrFcShort( 0x4 ),  /* 4 */
/* 804 */ 0x19,               /* Corr desc:  field pointer, FC_ULONG */
                            0x0,                /*  */
/* 806 */ NdrFcShort( 0x0 ),  /* 0 */
/* 808 */ 0x8,                /* FC_LONG */
                            0x5b,               /* FC_END */
/* 810 */
                            0x16,               /* FC_PSTRUCT */
                            0x3,                /* 3 */
/* 812 */ NdrFcShort( 0x8 ),  /* 8 */
/* 814 */
                            0x4b,               /* FC_PP */
                            0x5c,               /* FC_PAD */
/* 816 */
                            0x46,               /* FC_NO_REPEAT */
                            0x5c,               /* FC_PAD */
/* 818 */ NdrFcShort( 0x4 ),  /* 4 */
/* 820 */ NdrFcShort( 0x4 ),  /* 4 */
/* 822 */ 0x12, 0x0,          /* FC_UP */
/* 824 */ NdrFcShort( 0xfffffff8 ),     /* Offset= -24 (800) */
/* 826 */
                            0x5b,               /* FC_END */

                            0x8,                /* FC_LONG */
/* 828 */ 0x8,                /* FC_LONG */
                            0x5b,               /* FC_END */
/* 830 */
                            0x1b,               /* FC_CARRAY */
                            0x7,                /* 7 */
/* 832 */ NdrFcShort( 0x8 ),  /* 8 */
/* 834 */ 0x19,               /* Corr desc:  field pointer, FC_ULONG */
                            0x0,                /*  */
/* 836 */ NdrFcShort( 0x0 ),  /* 0 */
/* 838 */ 0xb,                /* FC_HYPER */
                            0x5b,               /* FC_END */
/* 840 */
                            0x16,               /* FC_PSTRUCT */
                            0x3,                /* 3 */
/* 842 */ NdrFcShort( 0x8 ),  /* 8 */
/* 844 */
                            0x4b,               /* FC_PP */
                            0x5c,               /* FC_PAD */
/* 846 */
                            0x46,               /* FC_NO_REPEAT */
                            0x5c,               /* FC_PAD */
/* 848 */ NdrFcShort( 0x4 ),  /* 4 */
/* 850 */ NdrFcShort( 0x4 ),  /* 4 */
/* 852 */ 0x12, 0x0,          /* FC_UP */
/* 854 */ NdrFcShort( 0xfffffff8 ),     /* Offset= -24 (830) */
/* 856 */
                            0x5b,               /* FC_END */

                            0x8,                /* FC_LONG */
/* 858 */ 0x8,                /* FC_LONG */
                            0x5b,               /* FC_END */
/* 860 */
                            0x15,               /* FC_STRUCT */
                            0x3,                /* 3 */
/* 862 */ NdrFcShort( 0x8 ),  /* 8 */
/* 864 */ 0x8,                /* FC_LONG */
                            0x8,                /* FC_LONG */
/* 866 */ 0x5c,               /* FC_PAD */
                            0x5b,               /* FC_END */
```

```
/* 868 */
                                0x1b,               /* FC_CARRAY */
                                0x3,                /* 3 */
/* 870 */ NdrFcShort( 0x8 ),  /* 8 */
/* 872 */ 0x7,                /* Corr desc: FC_USHORT */
                                0x0,                /*  */
/* 874 */ NdrFcShort( 0xffd8 ),         /* -40 */
/* 876 */ 0x4c,               /* FC_EMBEDDED_COMPLEX */
                                0x0,                /* 0 */
/* 878 */ NdrFcShort( 0xffffffee ),     /* Offset= -18 (860) */
/* 880 */ 0x5c,               /* FC_PAD */
                                0x5b,               /* FC_END */
/* 882 */
                                0x1a,               /* FC_BOGUS_STRUCT */
                                0x3,                /* 3 */
/* 884 */ NdrFcShort( 0x28 ), /* 40 */
/* 886 */ NdrFcShort( 0xffffffee ),     /* Offset= -18 (868) */
/* 888 */ NdrFcShort( 0x0 ),  /* Offset= 0 (888) */
/* 890 */ 0x6,                /* FC_SHORT */
                                0x6,                /* FC_SHORT */
/* 892 */ 0x38,               /* FC_ALIGNM4 */
                                0x8,                /* FC_LONG */
/* 894 */ 0x8,                /* FC_LONG */
                                0x4c,               /* FC_EMBEDDED_COMPLEX */
/* 896 */ 0x0,                /* 0 */
                                NdrFcShort( 0xfffffdf7 ),     /* Offset= -521 (376) */
                                0x5b,               /* FC_END */
/* 900 */
                                0x12, 0x0,          /* FC_UP */
/* 902 */ NdrFcShort( 0xfffffef6 ),     /* Offset= -266 (636) */
/* 904 */
                                0x12, 0x8,          /* FC_UP [simple_pointer] */
/* 906 */ 0x1,                /* FC_BYTE */
                                0x5c,               /* FC_PAD */
/* 908 */
                                0x12, 0x8,          /* FC_UP [simple_pointer] */
/* 910 */ 0x6,                /* FC_SHORT */
                                0x5c,               /* FC_PAD */
/* 912 */
                                0x12, 0x8,          /* FC_UP [simple_pointer] */
/* 914 */ 0x8,                /* FC_LONG */
                                0x5c,               /* FC_PAD */
/* 916 */
                                0x12, 0x8,          /* FC_UP [simple_pointer] */
/* 918 */ 0xb,                /* FC_HYPER */
                                0x5c,               /* FC_PAD */
/* 920 */
                                0x12, 0x8,          /* FC_UP [simple_pointer] */
/* 922 */ 0xa,                /* FC_FLOAT */
                                0x5c,               /* FC_PAD */
/* 924 */
                                0x12, 0x8,          /* FC_UP [simple_pointer] */
/* 926 */ 0xc,                /* FC_DOUBLE */
                                0x5c,               /* FC_PAD */
/* 928 */
                                0x12, 0x0,          /* FC_UP */
/* 930 */ NdrFcShort( 0xfffffd8c ),     /* Offset= -628 (302) */
/* 932 */
                                0x12, 0x10,         /* FC_UP */
/* 934 */ NdrFcShort( 0xfffffd8e ),     /* Offset= -626 (308) */
/* 936 */
                                0x12, 0x10,         /* FC_UP */
/* 938 */ NdrFcShort( 0xfffffda2 ),     /* Offset= -606 (332) */
```

```
/* 940 */
                                0x12, 0x10,         /* FC_UP */
/* 942 */ NdrFcShort( 0xfffffdb0 ),     /* Offset= -592 (350) */
/* 944 */
                                0x12, 0x10,         /* FC_UP */
/* 946 */ NdrFcShort( 0xfffffdbe ),     /* Offset= -578 (368) */
/* 948 */
                                0x12, 0x10,         /* FC_UP */
/* 950 */ NdrFcShort( 0x2 ),  /* Offset= 2 (952) */
/* 952 */
                                0x12, 0x0,          /* FC_UP */
/* 954 */ NdrFcShort( 0xfffffc46 ),     /* Offset= -954 (0) */
/* 956 */
                                0x15,               /* FC_STRUCT */
                                0x7,                /* 7 */
/* 958 */ NdrFcShort( 0x10 ), /* 16 */
/* 960 */ 0x6,                /* FC_SHORT */
                                0x1,                /* FC_BYTE */
/* 962 */ 0x1,                /* FC_BYTE */
                                0x38,               /* FC_ALIGNM4 */
/* 964 */ 0x8,                /* FC_LONG */
                                0x39,               /* FC_ALIGNM8 */
/* 966 */ 0xb,                /* FC_HYPER */
                                0x5b,               /* FC_END */
/* 968 */
                                0x12, 0x0,          /* FC_UP */
/* 970 */ NdrFcShort( 0xfffffff2 ),     /* Offset= -14 (956) */
/* 972 */
                                0x12, 0x8,          /* FC_UP [simple_pointer] */
/* 974 */ 0x2,                /* FC_CHAR */
                                0x5c,               /* FC_PAD */
/* 976 */
                                0x1a,               /* FC_BOGUS_STRUCT */
                                0x7,                /* 7 */
/* 978 */ NdrFcShort( 0x20 ), /* 32 */
/* 980 */ NdrFcShort( 0x0 ),  /* 0 */
/* 982 */ NdrFcShort( 0x0 ),  /* Offset= 0 (982) */
/* 984 */ 0x8,                /* FC_LONG */
                                0x8,                /* FC_LONG */
/* 986 */ 0x6,                /* FC_SHORT */
                                0x6,                /* FC_SHORT */
/* 988 */ 0x6,                /* FC_SHORT */
                                0x6,                /* FC_SHORT */
/* 990 */ 0x4c,               /* FC_EMBEDDED_COMPLEX */
                                0x0,                /* 0 */
/* 992 */ NdrFcShort( 0xfffffc26 ),     /* Offset= -986 (6) */
/* 994 */ 0x5c,               /* FC_PAD */
                                0x5b,               /* FC_END */
/* 996 */ 0xb4,               /* FC_USER_MARSHAL */
                                0x83,               /* 131 */
/* 998 */ NdrFcShort( 0x0 ),  /* 0 */
/* 1000 */          NdrFcShort( 0x10 ), /* 16 */
/* 1002 */          NdrFcShort( 0x0 ),  /* 0 */
/* 1004 */          NdrFcShort( 0xfffffc16 ),     /* Offset= -1002 (2) */
/* 1006 */
                                0x11, 0x4,          /* FC_RP [alloced_on_stack] */
/* 1008 */          NdrFcShort( 0x6 ),  /* Offset= 6 (1014) */
/* 1010 */
                                0x13, 0x0,          /* FC_OP */
/* 1012 */          NdrFcShort( 0xffffffdc ),     /* Offset= -36 (976) */
/* 1014 */          0xb4,               /* FC_USER_MARSHAL */
                                0x83,               /* 131 */
/* 1016 */          NdrFcShort( 0x0 ),  /* 0 */
```

```
/* 1018 */          NdrFcShort( 0x10 ), /* 16 */
/* 1020 */          NdrFcShort( 0x0 ),  /* 0 */
/* 1022 */          NdrFcShort( 0xfffffff4 ),     /* Offset= -12 (1010) */

                            0x0
        }
    };

const CInterfaceProxyVtbl * _tpcc_com_ps_ProxyVtblList[] =
{
    ( CInterfaceProxyVtbl *) &_ITPCCProxyVtbl,
    0
};

const CInterfaceStubVtbl * _tpcc_com_ps_StubVtblList[] =
{
    ( CInterfaceStubVtbl *) &_ITPCCStubVtbl,
    0
};

PCInterfaceName const _tpcc_com_ps_InterfaceNamesList[] =
{
    "ITPCC",
    0
};


#define _tpcc_com_ps_CHECK_IID(n)       IID_GENERIC_CHECK_IID( _tpcc_com_ps, pIID,
n)

int __stdcall _tpcc_com_ps_IID_Lookup( const IID * pIID, int * pIndex )
{

    if(!_tpcc_com_ps_CHECK_IID(0))
        {
        *pIndex = 0;
        return 1;
        }

    return 0;
}

const ExtendedProxyFileInfo tpcc_com_ps_ProxyFileInfo =
{
    (PCInterfaceProxyVtblList *) & _tpcc_com_ps_ProxyVtblList,
    (PCInterfaceStubVtblList *) & _tpcc_com_ps_StubVtblList,
    (const PCInterfaceName * ) & _tpcc_com_ps_InterfaceNamesList,
    0, // no delegation
    & _tpcc_com_ps_IID_Lookup,
    1,
    2,
    0, /* table of [async_uuid] interfaces */
    0, /* Filler1 */
    0, /* Filler2 */
    0  /* Filler3 */
};
```

tpcc_com_sl.rgs

```
HKCR
{
TPCC.StockLevel.1 = s 'StockLevel Class'
{
CLSID = s '{2668369E-A50D-11D2-BA4E-00C04FBFE08B}'
}
TPCC.StockLevel = s 'StockLevel Class'
{
CurVer = s 'TPCC.StockLevel.1'
}
NoRemove CLSID
{
ForceRemove {2668369E-A50D-11D2-BA4E-00C04FBFE08B} = s 'StockLevel
Class'
{
ProgID = s 'TPCC.StockLevel.1'
VersionIndependentProgID = s 'TPCC.StockLevel'
InprocServer32 = s '%MODULE%'
{
val ThreadingModel = s 'Both'
}
}
}
}
```

tpcc_dblib.cpp

```
#include <windows.h>
#include <stdio.h>
#include <time.h>
#define DBNTWIN32

// need to declare functions for export
#define DllDecl  __declspec( dllexport )

#include "..\..\common\src\error.h"
#include "..\..\common\src\trans.h"
#include "..\..\common\src\txn_base.h"
#include "tpcc_dblib.h"

static    CRITICAL_SECTION              DBLIBCriticalSection;

BOOL APIENTRY DllMain(HMODULE hModule, DWORD ul_reason_for_call, LPVOID lpReserved)
{
    //  DebugBreak();
    switch( ul_reason_for_call )
    {
    case DLL_PROCESS_ATTACH:
        DisableThreadLibraryCalls(hModule);
                InitializeCriticalSection(&DBLIBCriticalSection);
        break;
    case DLL_PROCESS_DETACH:
                DeleteCriticalSection(&DBLIBCriticalSection);
        break;
    default:
        /* nothing */;
    }
    return TRUE;
}


// wrapper routine for class constructor
__declspec(dllexport) CTPCC_DBLIB* CTPCC_DBLIB_new(
                                                    LPCSTR szUser,           // user
name for login
```

```
                                                LPCSTR szPassword,       //
password for login
                                                LPCSTR szDatabase )      // name
of database to use
{
    return new CTPCC_DBLIB( szUser, szPassword, szDatabase );
}


CTPCC_DBLIB::CTPCC_DBLIB (
                                                                LPCSTR szUser,
// user name for login
                        LPCSTR szPassword,        // password for login
                        LPCSTR szDatabase )       // name of database to use
{

    EnterCriticalSection(&DBLIBCriticalSection);
    int rc = connect_to_TM_auth((char *) szDatabase, (char *) szUser,(char *)
szPassword);
    if(rc != 0)
    {
        /* throw error */
                    throw CDBLIBERR( "DBLIB: CONNECT TO DB2" );
    }

    if ( (rc = get_context(&connection_ctx)) != 0)
    {
                    /*throw error */
                    throw CDBLIBERR( "DBLIB: GET CTX" );
    }

          if ( (rc = detach_context(connection_ctx)) != 0)
    {
        /* throw error */
                    throw CDBLIBERR( "DBLIB: CONNECT TO DB2" );
    }

          LeaveCriticalSection(&DBLIBCriticalSection);

}


CTPCC_DBLIB::~CTPCC_DBLIB( void )
{
    // close db connection and deallocate resources
          EnterCriticalSection(&DBLIBCriticalSection);
          int rc = attach_context(connection_ctx);
          if(rc != 0)
          {
                    throw CDBLIBERR( "DBLIB: DESTRUCTOR ATTACH" );
          }
    disconnect_from_TM();
          LeaveCriticalSection(&DBLIBCriticalSection);
}

#define STR_CPY(target, source) memcpy(target,source, sizeof(source)); \
          target[sizeof(source)-1]='\0'

#define int_to_dbl(i,d) d=(double)(i/100.0)

#define  SQL_TIMESTAMP(ts,pts,dr)   dr = localtime ( ((long *)pts) ); \
    ts.year   = dr->tm_year+1900;   \
    ts.month  = ++(dr->tm_mon);     \
    ts.day    = dr->tm_mday;        \
    ts.hour   = dr->tm_hour;        \
    ts.minute = dr->tm_min;         \
          ts.second = dr->tm_sec;


/*
The mapping
year   = daterec->tm_year+1900;  //years since 1900
month  = ++(daterec->tm_mon);     //0-11
day    = daterec->tm_mday; //1-31
hour   = daterec->tm_hour;  //0-23
minute = daterec->tm_min;  //0-59
second = daterec->tm_sec; //0-59

*/


#define SET0(s) ZeroMemory(&s, sizeof(s))

void CTPCC_DBLIB::StockLevel()
{

    int rc = attach_context(connection_ctx);
    if(rc != 0)
    {
        //throw errror;
                    throw CDBLIBERR( "DBLIB: ATTACH STK" );
    }
    SET0(m_in_txn.stk);
          SET0(m_out_txn.stk);

    m_in_txn.stk.s_W_ID=m_txn.StockLevel.w_id;
    m_in_txn.stk.s_D_ID=m_txn.StockLevel.d_id;
    m_in_txn.stk.s_threshold=m_txn.StockLevel.threshold;

    stocklev_sql(&m_in_txn.stk, &m_out_txn.stk);

    m_txn.StockLevel.low_stock=m_out_txn.stk.s_low_stock;

    ASSIGN_STATUS(m_txn.StockLevel.exec_status_code,m_out_txn.stk.s_transtatus);

    rc = detach_context(connection_ctx);
    if(rc != 0)
    {
        //throw error
                    throw CDBLIBERR( "DBLIB: DETACH STK" );
    }
    return;
}



void CTPCC_DBLIB::NewOrder()
{
    int         i;
    tm *daterec;

    int rc = attach_context(connection_ctx);
    if(rc != 0)
    {
        //throw errror;
                    throw CDBLIBERR( "DBLIB: ATTACH NO" );
```

```
    }

    //zero out the new ord struct, takes care of unused items
          SET0(m_in_txn.no);
          SET0(m_out_txn.no);


    m_in_txn.no.s_W_ID=m_txn.NewOrder.w_id;
    m_in_txn.no.s_D_ID=m_txn.NewOrder.d_id;
    m_in_txn.no.s_C_ID=m_txn.NewOrder.c_id;
    m_in_txn.no.s_O_OL_CNT=m_txn.NewOrder.o_ol_cnt;

    for (i = 0; i<m_in_txn.no.s_O_OL_CNT; i++)
    {
        m_in_txn.no.in_item[i].s_OL_I_ID=m_txn.NewOrder.OL[i].ol_i_id;
        m_in_txn.no.in_item[i].s_OL_SUPPLY_W_ID=m_txn.NewOrder.OL[i].ol_supply_w_id;
        m_in_txn.no.in_item[i].s_OL_QUANTITY=m_txn.NewOrder.OL[i].ol_quantity;
    }


    //call new order
    neword_sql(&m_in_txn.no,&m_out_txn.no);

    STR_CPY(m_txn.NewOrder.c_last,m_out_txn.no.s_C_LAST);
    STR_CPY(m_txn.NewOrder.c_credit,m_out_txn.no.s_C_CREDIT);


    int_to_dbl(m_out_txn.no.s_C_DISCOUNT,m_txn.NewOrder.c_discount);
    int_to_dbl(m_out_txn.no.s_W_TAX,m_txn.NewOrder.w_tax);
    int_to_dbl(m_out_txn.no.s_D_TAX,m_txn.NewOrder.d_tax);

    m_txn.NewOrder.o_id=m_out_txn.no.s_O_ID;



    SQL_TIMESTAMP( m_txn.NewOrder.o_entry_d, &m_out_txn.no.s_O_ENTRY_D_time,daterec)


    int_to_dbl(m_out_txn.no.s_total_amount,m_txn.NewOrder.total_amount);

    m_txn.NewOrder.o_ol_cnt=m_in_txn.no.s_O_OL_CNT;

    for (i = 0; i<m_txn.NewOrder.o_ol_cnt; i++)
    {
        m_txn.NewOrder.OL[i].ol_i_id=m_in_txn.no.in_item[i].s_OL_I_ID;
        m_txn.NewOrder.OL[i].ol_supply_w_id=m_in_txn.no.in_item[i].s_OL_SUPPLY_W_ID;
        m_txn.NewOrder.OL[i].ol_quantity=m_in_txn.no.in_item[i].s_OL_QUANTITY;
                    STR_CPY(m_txn.NewOrder.OL[i].ol_i_name,
m_out_txn.no.item[i].s_I_NAME);
        STR_CPY(m_txn.NewOrder.OL[i].ol_brand_generic,
&m_out_txn.no.item[i].s_brand_generic);
        int_to_dbl(m_out_txn.no.item[i].s_I_PRICE,m_txn.NewOrder.OL[i].ol_i_price) ;
        int_to_dbl(m_out_txn.no.item[i].s_OL_AMOUNT,m_txn.NewOrder.OL[i].ol_amount)
;
        m_txn.NewOrder.OL[i].ol_stock = m_out_txn.no.item[i].s_S_QUANTITY;

    }

    ASSIGN_STATUS(m_txn.NewOrder.exec_status_code,m_out_txn.no.s_transtatus);

    rc = detach_context(connection_ctx);
    if(rc != 0)
    {
          //throw error
                    throw CDBLIBERR( "DBLIB: DETACH NO" );
    }
    return;
}

void CTPCC_DBLIB::Payment()
{
          tm *daterec;
          int rc = attach_context(connection_ctx);
          if(rc != 0)
          {
                    //throw errror;
                    throw CDBLIBERR( "DBLIB: ATTACH PMT" );
          }


          SET0(m_in_txn.pay);
          SET0(m_out_txn.pay);

          m_in_txn.pay.s_W_ID=m_txn.Payment.w_id;
          m_in_txn.pay.s_D_ID=m_txn.Payment.d_id;
          m_in_txn.pay.s_C_ID=m_txn.Payment.c_id;
          m_in_txn.pay.s_C_D_ID=m_txn.Payment.c_d_id;
          m_in_txn.pay.s_C_W_ID=m_txn.Payment.c_w_id;

          m_in_txn.pay.s_H_AMOUNT=(__int64)(m_txn.Payment.h_amount*100);
          // if customer id is zero, then payment is by name
          if (m_txn.Payment.c_id == 0) {

          memcpy(m_in_txn.pay.s_C_LAST,m_txn.Payment.c_last,sizeof(m_txn.Payment.c_l
ast));
          }
          payment_sql(&m_in_txn.pay, &m_out_txn.pay);



          SQL_TIMESTAMP(m_txn.Payment.h_date,&m_out_txn.pay.s_H_DATE_time,daterec)


          STR_CPY(m_txn.Payment.w_street_1,m_out_txn.pay.s_W_STREET_1);
          STR_CPY(m_txn.Payment.w_street_2,m_out_txn.pay.s_W_STREET_2);
          STR_CPY(m_txn.Payment.w_city,m_out_txn.pay.s_W_CITY);
          STR_CPY(m_txn.Payment.w_state,m_out_txn.pay.s_W_STATE);
          STR_CPY(m_txn.Payment.w_zip,m_out_txn.pay.s_W_ZIP);
          STR_CPY(m_txn.Payment.d_street_1,m_out_txn.pay.s_D_STREET_1);
          STR_CPY(m_txn.Payment.d_street_2,m_out_txn.pay.s_D_STREET_2);
          STR_CPY(m_txn.Payment.d_city,m_out_txn.pay.s_D_CITY);
          STR_CPY(m_txn.Payment.d_state,m_out_txn.pay.s_D_STATE);
          STR_CPY(m_txn.Payment.d_zip,m_out_txn.pay.s_D_ZIP);
          STR_CPY(m_txn.Payment.c_first,m_out_txn.pay.s_C_FIRST);
          STR_CPY(m_txn.Payment.c_middle,m_out_txn.pay.s_C_MIDDLE);
          // if customer id is zero, then payment is by name
          if (m_in_txn.pay.s_C_ID != 0){
                    STR_CPY(m_txn.Payment.c_last,m_out_txn.pay.s_C_LAST);
          }
          STR_CPY(m_txn.Payment.c_street_1,m_out_txn.pay.s_C_STREET_1);
          STR_CPY(m_txn.Payment.c_street_2,m_out_txn.pay.s_C_STREET_2);
          STR_CPY(m_txn.Payment.c_city,m_out_txn.pay.s_C_CITY);
          STR_CPY(m_txn.Payment.c_state,m_out_txn.pay.s_C_STATE);
          STR_CPY(m_txn.Payment.c_zip,m_out_txn.pay.s_C_ZIP);
          STR_CPY(m_txn.Payment.c_phone,m_out_txn.pay.s_C_PHONE);
```

```
          SQL_TIMESTAMP(m_txn.Payment.c_since,&m_out_txn.pay.s_C_SINCE_time,daterec)
        STR_CPY(m_txn.Payment.c_credit,m_out_txn.pay.s_C_CREDIT);
          if (m_in_txn.pay.s_C_ID == 0){
                  m_txn.Payment.c_id=m_out_txn.pay.s_C_ID;
          }
          int_to_dbl(m_out_txn.pay.s_C_CREDIT_LIM,m_txn.Payment.c_credit_lim);
          int_to_dbl(m_out_txn.pay.s_C_DISCOUNT,m_txn.Payment.c_discount);
          int_to_dbl(m_out_txn.pay.s_C_BALANCE,m_txn.Payment.c_balance);
          STR_CPY(m_txn.Payment.c_data,m_out_txn.pay.s_C_DATA);

          ASSIGN_STATUS(m_txn.Payment.exec_status_code,m_out_txn.pay.s_transtatus);

          rc = detach_context(connection_ctx);
          if(rc != 0)
          {
        //throw error
                  throw CDBLIBERR( "DBLIB: DETACH PMT" );
          }

          /*if (m_txn.Payment.c_id == 0)
                  throw CDBLIBERR( "DBLIB: INVALID CUSTOMER PMT" );
           taken care of in isapi*/

          return;
}



void CTPCC_DBLIB::OrderStatus()
{
          int         i;
          tm*       daterec;
          int rc = attach_context(connection_ctx);
          if(rc != 0)
          {
                  //throw errror;
                  throw CDBLIBERR( "DBLIB: ATTTACH OS" );
          }

          SET0(m_in_txn.os);
          SET0(m_out_txn.os);

          m_in_txn.os.s_W_ID=m_txn.OrderStatus.w_id;
          m_in_txn.os.s_D_ID=m_txn.OrderStatus.d_id;
          m_in_txn.os.s_C_ID=m_txn.OrderStatus.c_id;
          //look up by last
          if(m_txn.OrderStatus.c_id == 0){
                  memcpy(m_in_txn.os.s_C_LAST,
m_txn.OrderStatus.c_last,sizeof(m_txn.OrderStatus.c_last));
          }
          ordstat_sql(&m_in_txn.os,&m_out_txn.os);

          STR_CPY(m_txn.OrderStatus.c_first,m_out_txn.os.s_C_FIRST);
          STR_CPY(m_txn.OrderStatus.c_middle,m_out_txn.os.s_C_MIDDLE);
          if(m_txn.OrderStatus.c_id != 0){
                  STR_CPY(m_txn.OrderStatus.c_last,m_out_txn.os.s_C_LAST);
          }
          else {
                  m_txn.OrderStatus.c_id=m_out_txn.os.s_C_ID;
          }
          int_to_dbl(m_out_txn.os.s_C_BALANCE,m_txn.OrderStatus.c_balance);
          m_txn.OrderStatus.o_id=m_out_txn.os.s_O_ID;
          SQL_TIMESTAMP(m_txn.OrderStatus.o_entry_d,&m_out_txn.os.s_O_ENTRY_D_time,d
aterec)
                  m_txn.OrderStatus.o_carrier_id=m_out_txn.os. s_O_CARRIER_ID;
          m_txn.OrderStatus.o_ol_cnt=m_out_txn.os.s_ol_cnt;


          for (i=0; i < m_out_txn.os.s_ol_cnt; i++) {
                  m_txn.OrderStatus.OL[i].ol_i_id=m_out_txn.os.item[i].s_OL_I_ID;

          m_txn.OrderStatus.OL[i].ol_supply_w_id=m_out_txn.os.item[i].s_OL_SUPPLY_W_
ID;

          m_txn.OrderStatus.OL[i].ol_quantity=m_out_txn.os.item[i].s_OL_QUANTITY;

          int_to_dbl(m_out_txn.os.item[i].s_OL_AMOUNT,m_txn.OrderStatus.OL[i].ol_amo
unt);
                  if (m_out_txn.os.item[i].s_OL_DELIVERY_D_time != 0 ){

          SQL_TIMESTAMP(m_txn.OrderStatus.OL[i].ol_delivery_d,&m_out_txn.os.item[i].
s_OL_DELIVERY_D_time,daterec)
                  }
                  else
                          m_txn.OrderStatus.OL[i].ol_delivery_d.year=0;
          }



          rc = detach_context(connection_ctx);
          if(rc != 0)
          {
                  //throw error
                  throw CDBLIBERR( "DBLIB: DETACH OS" );
          }

          ASSIGN_STATUS(m_txn.OrderStatus.exec_status_code,m_out_txn.os.s_transtatus
);
/*        if (m_txn.OrderStatus.o_ol_cnt == 0)
                  throw CDBLIBERR( "DBLIB: ERR NO SUCH ORDER OS" );
          else if (m_txn.OrderStatus.c_id == 0 && m_txn.OrderStatus.c_last[0] == 0)
                  throw CDBLIBERR( "DBLIB: INVALID CUSTOMER OS" );
*/

          return;

}


void CTPCC_DBLIB::Delivery()
{
    int         i;
          int rc = attach_context(connection_ctx);
    if(rc != 0)
    {
        //throw errror;
                  throw CDBLIBERR( "DBLIB: ATTACH DEL" );
    }

          SET0(m_in_txn.del);
          SET0(m_out_txn.del);
```

```
        m_in_txn.del.s_W_ID=m_txn.Delivery.w_id;
        m_in_txn.del.s_O_CARRIER_ID=m_txn.Delivery.o_carrier_id;
        delivery_sql(&m_in_txn.del,&m_out_txn.del);

        for (i=0; i<10; i++)
        {
                m_txn.Delivery.o_id[i] = m_out_txn.del.s_O_ID[i];
        }


        ASSIGN_STATUS(m_txn.Delivery.exec_status_code,
m_out_txn.del.s_transtatus);

        rc = detach_context(connection_ctx);
        if(rc != 0)
        {
                //throw error
                throw CDBLIBERR( "DBLIB: DETACH DEL" );
        }

        return;


}
```

tpcc_dblib.h

```
#pragma once


// need to declare functions for import, unless define has already been created
// by the DLL's .cpp module for export.
#ifndef DllDecl
#define DllDecl  __declspec( dllimport )
#endif


#define ERR_ATTACH  1
#define ERR_DETACH  2
#define ERR_CONNECT 3
#define ERR_GET_CTX 4
#define ERR_DEST    5

class CDBLIBERR : public CBaseErr
{
public:

        CDBLIBERR(char * dberrstr)
        {
                m_dberror=0;
                m_dberrstr = dberrstr;
                if (strstr(m_dberrstr,"DETACH"))
                        m_dberror=ERR_DETACH;
                else if(strstr(m_dberrstr,"ATTACH"))
                        m_dberror=ERR_ATTACH;
                else if(strstr(m_dberrstr,"CONNECT"))
                        m_dberror=ERR_CONNECT;
                else if(strstr(m_dberrstr,"GET CTX"))
                        m_dberror=ERR_GET_CTX;
                else if (strstr(m_dberrstr,"DESTRUCTOR"))
                        m_dberror=ERR_DEST;
        };

        ~CDBLIBERR()
        {
                delete [] m_dberrstr;
        };

        int ErrorType() {return ERR_TYPE_DBLIB;};
        int ErrorNum() {return m_dberror;};
        char *ErrorText() {return m_dberrstr;};

private:
        char *m_dberrstr;
        int  m_dberror;


};


class DllDecl CTPCC_DBLIB : public CTPCC_BASE
{
private:
        void                *connection_ctx; //connection context

        union
        {
                NEW_ORDER_DATA              NewOrder;
                PAYMENT_DATA                Payment;
                DELIVERY_DATA               Delivery;
                STOCK_LEVEL_DATA    StockLevel;
                ORDER_STATUS_DATA   OrderStatus;
        }       m_txn;



        union
        {
                in_neword_struct no;
                in_payment_struct pay;
                in_delivery_struct del;
                in_stocklev_struct stk;
                in_ordstat_struct os;
        }       m_in_txn;

        union
        {
                out_neword_struct no;
                out_payment_struct pay;
                out_delivery_struct del;
                out_stocklev_struct stk;
                out_ordstat_struct os;
        }       m_out_txn;



public:
        CTPCC_DBLIB(LPCSTR szUser, LPCSTR szPassword, LPCSTR szDatabase );
        ~CTPCC_DBLIB(void);
```

```
        inline PNEW_ORDER_DATA                  BuffAddr_NewOrder()          {
return &m_txn.NewOrder;    };
        inline PPAYMENT_DATA                    BuffAddr_Payment()           {
return &m_txn.Payment;     };
        inline PDELIVERY_DATA                   BuffAddr_Delivery()          {
return &m_txn.Delivery;    };
        inline PSTOCK_LEVEL_DATA      BuffAddr_StockLevel()         { return
&m_txn.StockLevel;  };
        inline PORDER_STATUS_DATA     BuffAddr_OrderStatus()        { return
&m_txn.OrderStatus; };

        void NewOrder                 ();
        void Payment                  ();
        void Delivery                 ();
        void StockLevel               ();
        void OrderStatus    ();
};

extern "C" DllDecl CTPCC_DBLIB* CTPCC_DBLIB_new
(  LPCSTR szUser, LPCSTR szPassword, LPCSTR szDatabase );

typedef CTPCC_DBLIB* (TYPE_CTPCC_DBLIB)( LPCSTR, LPCSTR, LPCSTR);
```

trans.h

```
/*        FILE:               TRANS.H
 *                                    Microsoft TPC-C Kit Ver. 4.20.000
 *                                    Copyright Microsoft, 1999
 *             All Rights Reserved
 *
 *                                    Version 4.10.000 audited by Richard Gimarc,
Performance Metrics, 3/17/99
 *
 *        PURPOSE:  Header file for TPC-C structure templates.
 *
 *  Change history:
 *                  4.20.000 - updated rev number to match kit
 */
#pragma once

#include "db2tpcc.h"



// String length constants
#define SERVER_NAME_LEN           20
#define DATABASE_NAME_LEN         20
#define USER_NAME_LEN             20
#define PASSWORD_LEN              20
#define TABLE_NAME_LEN            20
#define I_DATA_LEN                50
#define I_NAME_LEN                24
#define BRAND_LEN                  1
#define LAST_NAME_LEN             16
#define W_NAME_LEN                10
#define ADDRESS_LEN               20
#define STATE_LEN                  2
#define ZIP_LEN                    9
#define S_DIST_LEN                24
#define S_DATA_LEN                50
#define D_NAME_LEN                10
#define FIRST_NAME_LEN            16
#define MIDDLE_NAME_LEN            2
#define PHONE_LEN                 16
#define DATETIME_LEN              30
#define CREDIT_LEN                 2
#define C_DATA_LEN               250
#define H_DATA_LEN                24
#define DIST_INFO_LEN             24
#define MAX_OL_NEW_ORDER_ITEMS    15
#define MAX_OL_ORDER_STATUS_ITEMS 15
#define STATUS_LEN                25
#define OL_DIST_INFO_LEN                  24

// TIMESTAMP_STRUCT is provided by the ODBC header file sqltypes.h, but is not
available
// when compiling with dblib, so redefined here.  Note: we are using the symbol
"__SQLTYPES"
// (declared in sqltypes.h) as a way to determine if TIMESTAMP_STRUCT has been
declared.
#ifndef __SQLTYPES
          typedef struct
          {
                              short                         /* SQLSMALLINT */
          year;
                              unsigned short      /* SQLUSMALLINT */  month;
                              unsigned short      /* SQLUSMALLINT */  day;
                              unsigned short      /* SQLUSMALLINT */  hour;
                              unsigned short      /* SQLUSMALLINT */  minute;
                              unsigned short      /* SQLUSMALLINT */  second;
                              unsigned long       /* SQLUINTEGER */   fraction;
          } TIMESTAMP_STRUCT;
#endif

// possible values for exec_status_code after transaction completes
enum EXEC_STATUS
{
          eSqlError = -1,               // -1     "Sql error."
          eOK = 0 ,                     // 0      "Transaction commited."
          eDeliveryFailed = 1,// 1      "Delivery Post Failed."
          eInvalidItem =100   // 100    "Item number is not valid."
};

#define ASSIGN_STATUS(es, i) switch (i) {
                    \
                                                                        case -1:
es=eSqlError;break;           \
                                                                        case  0:
es=eOK; break;                                  \
                                                                        case  1:
es=eDeliveryFailed; break;    \
                                                                        case 100:
es=eInvalidItem; break; }

// transaction structures
typedef struct
{
          // input params
          short                                 ol_supply_w_id;
          long                                  ol_i_id;
          short                                 ol_quantity;

          // output params
          char                                  ol_i_name[I_NAME_LEN+1];
          char                                  ol_brand_generic[BRAND_LEN+1];
```

```
        double                                  ol_i_price;
        double                                  ol_amount;
        short                                   ol_stock;
} OL_NEW_ORDER_DATA;

typedef struct
{
        // input params
        short               w_id;
        short               d_id;
        long                c_id;
        short               o_ol_cnt;

        // output params
        EXEC_STATUS                             exec_status_code;
        char                c_last[LAST_NAME_LEN+1];
        char                c_credit[CREDIT_LEN+1];
        double              c_discount;
        double              w_tax;
        double              d_tax;
        long                          o_id;
        short                                   o_commit_flag;
        TIMESTAMP_STRUCT    o_entry_d;
        short               o_all_local;
        double              total_amount;
        OL_NEW_ORDER_DATA   OL[MAX_OL_NEW_ORDER_ITEMS];
} NEW_ORDER_DATA, *PNEW_ORDER_DATA;

typedef struct
{       // input params
        short                                    w_id;
        short                                    d_id;
        long                                     c_id;
        short                                    c_d_id;
        short                                    c_w_id;
        double                                   h_amount;
        char                              c_last[LAST_NAME_LEN+1];

        // output params
        EXEC_STATUS                              exec_status_code;
        TIMESTAMP_STRUCT     h_date;
        char                                     w_street_1[ADDRESS_LEN+1];
        char                                     w_street_2[ADDRESS_LEN+1];
        char                                     w_city[ADDRESS_LEN+1];
        char                                     w_state[STATE_LEN+1];
        char                                     w_zip[ZIP_LEN+1];
        char                                     d_street_1[ADDRESS_LEN+1];
        char                                     d_street_2[ADDRESS_LEN+1];
        char                                     d_city[ADDRESS_LEN+1];
        char                                     d_state[STATE_LEN+1];
        char                                d_zip[ZIP_LEN+1];
        char                                     c_first[FIRST_NAME_LEN+1];
        char                                     c_middle[MIDDLE_NAME_LEN + 1];
        char                                     c_street_1[ADDRESS_LEN+1];
        char                                     c_street_2[ADDRESS_LEN+1];
        char                                     c_city[ADDRESS_LEN+1];
        char                           c_state[STATE_LEN+1];
        char                                     c_zip[ZIP_LEN+1];
        char                                     c_phone[PHONE_LEN+1];
        TIMESTAMP_STRUCT     c_since;
        char                                     c_credit[CREDIT_LEN+1];
        double                                   c_credit_lim;
        double                                   c_discount;
        double                                    c_balance;
        char                                      c_data[200+1];
} PAYMENT_DATA, *PPAYMENT_DATA;

typedef struct
{
        long                                    ol_i_id;
        short                                   ol_supply_w_id;
        short                                   ol_quantity;
        double                                  ol_amount;
        TIMESTAMP_STRUCT    ol_delivery_d;
} OL_ORDER_STATUS_DATA;

typedef struct
{       // input params
        short                w_id;
        short                d_id;
        long                 c_id;
        char                 c_last[LAST_NAME_LEN+1];

        // output params
        EXEC_STATUS                              exec_status_code;
        char                 c_first[FIRST_NAME_LEN+1];
        char                 c_middle[MIDDLE_NAME_LEN+1];
        double               c_balance;
        long                 o_id;
        TIMESTAMP_STRUCT     o_entry_d;
        short                o_carrier_id;
        OL_ORDER_STATUS_DATA OL[MAX_OL_ORDER_STATUS_ITEMS];
        short                o_ol_cnt;
} ORDER_STATUS_DATA, *PORDER_STATUS_DATA;


typedef struct
{       // input params
        short                          w_id;
        short                          o_carrier_id;

        // output params
        EXEC_STATUS                                exec_status_code;
        SYSTEMTIME                     queue_time;
        long                                       o_id[10];           // id's of
delivered orders for districts 1 to 10
} DELIVERY_DATA, *PDELIVERY_DATA;

//This structure is used for posting delivery transactions and for writing them to
the delivery server.
typedef struct _DELIVERY_TRANSACTION
{
        __int64   queue;                        //time delivery transaction queued
        short               w_id;                       //delivery warehouse
        short               o_carrier_id;       //carrier id
} DELIVERY_TRANSACTION;

typedef struct
{       // input params
        short                                   w_id;
        short                                   d_id;
        short                                   threshold;

        // output params
        EXEC_STATUS                             exec_status_code;
        long                                    low_stock;
```

```
} STOCK_LEVEL_DATA, *PSTOCK_LEVEL_DATA;
```

txnlog.h

```
#include <fstream.h>

#define LOG_START "Start of Delivery Log"
#define LOG_END   "End of Delivery Log"

#define   TXN_EVENT_START               2
#define   TXN_EVENT_STOP                4



typedef struct _TXN_RECORD_TPCC_DELIV_DEF
{
          __int64                       TxnStartT0;                   // start of
txn
          int                                   DeltaT4;            // response
time (ms)
          int                                   DeltaTxnExec;       // execution
time (ms)
          WORD                          w_id;                         // warehouse
ID
          BYTE                          TxnStatus;                    // completion
status for txn to indicate errors
          short                         o_carrier_id;       // carrier id
          long                          o_id[10];           // returned delivery
transaction ids
} TXN_RECORD_TPCC_DELIV_DEF, *PTXN_RECORD_TPCC_DELIV_DEF;


typedef struct _TXN_LOG_HEADER
{
          char                          Start[sizeof(LOG_START)];               //
begin string
          char                          Host[MAX_COMPUTERNAME_LENGTH+1];// which
computer this log is from
          __int64                       BeginLog;
                  // timestamp of log start
          __int64                       BeginCTLog;
                          // clock ticks in ms
          __int64                       iRecCount;
                          // number of records in log file
          __int64                               iFileSize;
                          // file size in bytes
} TXN_LOG_HEADER;


class CTxnLog
{
private:
          __int64                        BeginLog;                    // timestamp
of log start
          __int64                        BeginCTLog;        // clock ticks in ms
          int                                iRecCount;              // number of
records in log file
          int                                       iFileSize;                  //
size of the log so far
          TXN_LOG_HEADER       lh;                          // log header
          ofstream             log;                         // log file
          CRITICAL_SECTION LogCriticalSection;
public:
          CTxnLog::CTxnLog(LPCTSTR szFileName);
          ~CTxnLog(void);

          int WriteToLog(PTXN_RECORD_TPCC_DELIV_DEF pTxnRcrd);
          int WriteCtrlRecToLog(BYTE SubType, LPTSTR lpStr, DWORD dwLen);
};


CTxnLog::CTxnLog(LPCTSTR szFileName){
          log.open(szFileName,ios::out|ios::binary);
          memset(&lh, sizeof(TXN_LOG_HEADER),0);
          memcpy(&lh.Start,LOG_START,sizeof(LOG_START));
          InitializeCriticalSection(&LogCriticalSection);
}



CTxnLog::WriteCtrlRecToLog(BYTE type, LPTSTR lpStr, DWORD dwLen){
          if (type == TXN_EVENT_START ){
                    strcpy(lh.Host,lpStr);
                    iFileSize=sizeof(TXN_LOG_HEADER);
                    BeginLog=time(NULL);                    //get start date time
                    BeginCTLog=GetCurrentTime(); //get start clock ticks
                    iRecCount=0;
                    log.write((char*)&lh,sizeof(TXN_LOG_HEADER));
                    return 0;
          }else if( type == TXN_EVENT_STOP) {
                    lh.BeginLog=BeginLog;
                    lh.BeginCTLog=BeginCTLog;
                    lh.iFileSize=iFileSize;
                    lh.iRecCount=iRecCount;
                    log.seekp(0); //go to the front of the file
                    log.write((char*)&lh,sizeof(TXN_LOG_HEADER));
                    log.flush(); //flush any outstanding ios
                    return 0;
          }
          return 1;
}

CTxnLog::~CTxnLog(){
          log.close();
}

CTxnLog::WriteToLog(PTXN_RECORD_TPCC_DELIV_DEF pTxnRcrd){
          EnterCriticalSection(&LogCriticalSection);

          log.write((char *)pTxnRcrd,sizeof(TXN_RECORD_TPCC_DELIV_DEF));

          //log accounting
          iFileSize+=sizeof(TXN_RECORD_TPCC_DELIV_DEF);
          ++iRecCount;

          LeaveCriticalSection(&LogCriticalSection);
          return 0;
}
```

txn_base.h

```
/*        FILE:               TXN_BASE.H
```

```
 *                                  Microsoft TPC-C Kit Ver. 4.20.000
 *                                  Copyright Microsoft, 1999
 *              All Rights Reserved
 *
 *                                  Version 4.10.000 audited by Richard Gimarc,
Performance Metrics, 3/17/99
 *
 *        PURPOSE:  Header file for TPC-C txn class implementation.
 *
 *  Change history:
 *                  4.20.000 - updated rev number to match kit
 */

#pragma once

// need to declare functions for import, unless define has already been created
// by the DLL's .cpp module for export.
#ifndef DllDecl
#define DllDecl  __declspec( dllimport )
#endif

class DllDecl CTPCC_BASE
{
          public:
                    CTPCC_BASE(void) {};
                    virtual ~CTPCC_BASE(void) {};

                    virtual PNEW_ORDER_DATA                BuffAddr_NewOrder()
          = 0;
                    virtual PPAYMENT_DATA                  BuffAddr_Payment()
          = 0;
                    virtual PDELIVERY_DATA                 BuffAddr_Delivery()
          = 0;
                    virtual PSTOCK_LEVEL_DATA     BuffAddr_StockLevel()         = 0;
                    virtual PORDER_STATUS_DATA    BuffAddr_OrderStatus()        = 0;

                    virtual void NewOrder                  () = 0;
                    virtual void Payment                   () = 0;
                    virtual void Delivery                  () = 0;
                    virtual void StockLevel                () = 0;
                    virtual void OrderStatus      () = 0;
};
```

Appendix B: Database Design

The TPC-C database was created with the following scripts:

alter_bufferpool_perf.ddl

```
connect to tpcc;
alter bufferpool IBMDEFAULTBP size 50000;
alter bufferpool IBM8KBP size 75000;
alter bufferpool IBM16KBP size 128;


create bufferpool WD size 512    pagesize    4096;
create bufferpool I  size 1250   pagesize     8192;
create bufferpool STK size 410000 pagesize     4096;
create bufferpool CST size 40000  pagesize     4096;

alter tablespace ts_customer_01 bufferpool cst;
alter tablespace ts_stock_01 bufferpool stk;
alter tablespace ts_ware_01 bufferpool wd;
alter tablespace ts_dist_01 bufferpool wd;
alter tablespace ts_item_01 bufferpool i;

connect reset;
```

ALTTBSP_PF_0.ddl

```
connect to TPCC;
alter tablespace is_customer_01 prefetchsize 0;
alter tablespace is_neword_01 prefetchsize 0;
alter tablespace is_order_01 prefetchsize 0;
alter tablespace ts_customer_01 prefetchsize 0;
alter tablespace ts_dist_01 prefetchsize 0;
alter tablespace ts_history_01 prefetchsize 0;
alter tablespace ts_item_01 prefetchsize 0;
alter tablespace ts_neword_01 prefetchsize 0;
alter tablespace ts_order_01 prefetchsize 0;
alter tablespace ts_orderline_01 prefetchsize 0;
alter tablespace ts_stock_01 prefetchsize 0;
alter tablespace ts_ware_01 prefetchsize 0;
connect reset;
```

cat-func.ddl

```
--------------------------------------------------------------------------------
-- Licensed Materials - Property of IBM
--
-- Governed under the terms of the International
-- License Agreement for Non-Warranted Sample Code.
--
-- (C) COPYRIGHT International Business Machines Corp. 1996 - 2002
-- All Rights Reserved.
--
-- US Government Users Restricted Rights - Use, duplication or
-- disclosure restricted by GSA ADP Schedule Contract with IBM Corp.
--------------------------------------------------------------------------------
--
-- cat-func.ddl - Create table functions
--
-- Change Activity:
-- defect Date        Who Description
-- ====== ========== === ==============================================
-- 262565 2002/11/27  mte Initial Drop
-- 265265 2003/01/14  mte Merge SQL changes, type conversions for new schema
-- 265265 2003/01/16  dje Deadlock fix for DEL
-- 267180 2003/01/21  mte Fix bug in PAY transaction, back out 265265
-- 267940 2003/01/27  mte Remove NEW_OL_ALL2 and NEW_OL_REMOTE
-- 269478 2003/02/07  mte Use OLD TABLE unless NEW TABLE is neccessary
-- 270212 2003/02/14  mte Merge SQL changes (see defect notes)
-- 273748 2003/03/12  mte Fix H_AMOUNT scaling problem in PAY
-- 274719 2003/03/20  mte Column reordering to improve log, d-cache perf
-- 275913 2003/03/28  mte Integrate group logging SQL
-- 275919 2003/03/28  mte Combine two statements in DEL
-- 276081 2003/03/28  mte Use new SQL syntax for OLD/NEW TABLE
-- 276900 2003/04/04  mte Fix old/new schema migration issues
-- 310772 2004/02/06  mte Use READS SQL DATA for ORD_C_ID/ORD_C_LAST
-- 314029 2004/02/26  mte Remove OL_NUMBER from NEW_OL_ALL and NEW_OL_LOCAL
--

--
-- DELIVERY
--

CREATE FUNCTION DEL(   W_ID           INTEGER
                     , D_ID           SMALLINT
                     , CARRIER_ID     SMALLINT
                     , DELIVERY_D     BIGINT
                   )

RETURNS TABLE ( O_ID INTEGER )

SPECIFIC DELIVERY

MODIFIES SQL DATA DETERMINISTIC NO EXTERNAL ACTION LANGUAGE SQL

VAR: BEGIN ATOMIC

  DECLARE O_ID   INTEGER ;
  DECLARE C_ID   INTEGER ;
  DECLARE AMOUNT INTEGER ;

  /* Delete the order from new order table */

  SET VAR.O_ID = ( SELECT NO_O_ID

                     FROM OLD TABLE ( DELETE

                                        FROM ( SELECT NO_O_ID
```

```
                                        FROM NEW_ORDER

                                       WHERE NO_W_ID = DEL.W_ID
                                         AND NO_D_ID = DEL.D_ID

                                       ORDER BY NO_O_ID ASC

                                       FETCH FIRST 1 ROW ONLY
                                     ) AS NEW_ORDER
                                ) AS D
              )
  ;

  /* Update the order as delivered and retrieve the customer id */

  SET VAR.C_ID = ( SELECT O_C_ID

                     FROM OLD TABLE ( UPDATE ORDERS

                                         SET O_CARRIER_ID = DEL.CARRIER_ID

                                       WHERE O_W_ID = DEL.W_ID
                                         AND O_D_ID = DEL.D_ID
                                         AND O_ID   = VAR.O_ID
                                ) AS U
              )
  ;

  SET VAR.AMOUNT = ( SELECT SUM( OL_AMOUNT )

                       FROM OLD TABLE ( UPDATE ORDER_LINE

                                           SET OL_DELIVERY_D = DEL.DELIVERY_D

                                         WHERE OL_W_ID = DEL.W_ID
                                           AND OL_D_ID = DEL.D_ID
                                           AND OL_O_ID = VAR.O_ID
                                  ) AS U
                 )
  ;

  /* Charge the customer */

  UPDATE CUSTOMER

     SET   C_BALANCE      = C_BALANCE + VAR.AMOUNT
         , C_DELIVERY_CNT = C_DELIVERY_CNT + SMALLINT( 1 )

   WHERE C_W_ID = DEL.W_ID
     AND C_D_ID = DEL.D_ID
     AND C_ID   = VAR.C_ID
  ;

  /* Return the order id to the caller (or NULL) */

  RETURN VALUES VAR.O_ID ;

END
$


--
-- ORDER STATUS
--

CREATE FUNCTION ORD_C_LAST(   W_ID INTEGER
                            , D_ID SMALLINT
                            , C_LAST VARCHAR(16)
                          )

RETURNS TABLE(   O_ID         INTEGER
               , O_CARRIER_ID SMALLINT
               , O_ENTRY_D    BIGINT
               , C_BALANCE    BIGINT
               , C_FIRST      VARCHAR(16)
               , C_MIDDLE     CHAR(2)
               , C_ID         INTEGER
             )

SPECIFIC ORD_C_LAST

READS SQL DATA NO EXTERNAL ACTION DETERMINISTIC LANGUAGE SQL

VAR: BEGIN ATOMIC

  DECLARE C_BALANCE    BIGINT ;
  DECLARE C_FIRST      VARCHAR(16) ;
  DECLARE C_MIDDLE     CHAR(2) ;
  DECLARE C_ID         INTEGER ;
  DECLARE O_ID         INTEGER;
  DECLARE O_CARRIER_ID SMALLINT;
  DECLARE O_ENTRY_D    BIGINT;

  /* Retrieve the Customer information */

  SET ( C_BALANCE, C_FIRST, C_MIDDLE, C_ID )

    = ( SELECT  C_BALANCE, C_FIRST, C_MIDDLE , C_ID

          FROM ( SELECT   C_ID
                        , C_BALANCE
                        , C_FIRST
                        , C_MIDDLE
                        , COUNT(*) OVER() AS COUNT
                        , ROWNUMBER() OVER (ORDER BY C_FIRST) AS NUM

                   FROM CUSTOMER
                  WHERE C_W_ID = ORD_C_LAST.W_ID
                    AND C_D_ID = ORD_C_LAST.D_ID
                    AND C_LAST = ORD_C_LAST.C_LAST

               ) AS V1

         WHERE NUM = (COUNT + BIGINT( 1 ) ) / BIGINT( 2 )
      )
  ;

/* Take advantage of the index to fetch the first row (and hence max(o_id) ) */

  SET ( O_ID , O_CARRIER_ID , O_ENTRY_D )
    =    ( SELECT   O_ID
                  , O_CARRIER_ID
                  , O_ENTRY_D

             FROM ORDERS
```

```
           WHERE O_W_ID = ORD_C_LAST.W_ID
             AND O_D_ID = ORD_C_LAST.D_ID
             AND O_C_ID = VAR.C_ID

           ORDER BY O_ID DESC
           FETCH FIRST 1 ROW ONLY

       )
  ;


  RETURN VALUES (   VAR.O_ID
                  , VAR.O_CARRIER_ID
                  , VAR.O_ENTRY_D
                  , VAR.C_BALANCE
                  , VAR.C_FIRST
                  , VAR.C_MIDDLE
                  , VAR.C_ID
                )
  ;


END $

CREATE FUNCTION ORD_C_ID(   W_ID INTEGER
                          , D_ID SMALLINT
                          , C_ID INTEGER
                        )

RETURNS TABLE(   O_ID         INTEGER
               , O_CARRIER_ID SMALLINT
               , O_ENTRY_D    BIGINT
               , C_BALANCE    BIGINT
               , C_FIRST      VARCHAR(16)
               , C_MIDDLE     CHAR(2)
               , C_LAST       VARCHAR(16)
             )

SPECIFIC ORD_C_ID

READS SQL DATA NO EXTERNAL ACTION DETERMINISTIC LANGUAGE SQL

VAR: BEGIN ATOMIC

  DECLARE C_BALANCE    BIGINT ;
  DECLARE C_FIRST      VARCHAR(16) ;
  DECLARE C_MIDDLE     CHAR(2) ;
  DECLARE C_LAST       VARCHAR(16) ;
  DECLARE O_ID         INTEGER;
  DECLARE O_CARRIER_ID SMALLINT;
  DECLARE O_ENTRY_D    BIGINT;

  /* Retrieve the Customer information */

  SET ( C_BALANCE, C_FIRST, C_MIDDLE, C_LAST )

    = ( SELECT  C_BALANCE, C_FIRST, C_MIDDLE, C_LAST

          FROM CUSTOMER

         WHERE C_ID   = ORD_C_ID.C_ID
           AND C_W_ID = ORD_C_ID.W_ID
           AND C_D_ID = ORD_C_ID.D_ID
```

```
       )
  ;

  SET (O_ID, O_CARRIER_ID, O_ENTRY_D)

    =    ( SELECT   O_ID
                  , O_CARRIER_ID
                  , O_ENTRY_D

             FROM ORDERS

                   WHERE O_W_ID = ORD_C_ID.W_ID
                     AND O_D_ID = ORD_C_ID.D_ID
                     AND O_C_ID = ORD_C_ID.C_ID

            ORDER BY O_ID DESC
            FETCH FIRST 1 ROW ONLY
         )
  ;

  RETURN VALUES (   VAR.O_ID
                  , VAR.O_CARRIER_ID
                  , VAR.O_ENTRY_D
                  , VAR.C_BALANCE
                  , VAR.C_FIRST
                  , VAR.C_MIDDLE
                  , VAR.C_LAST
                ) ;

END $



--
-- PAYMENT
--

CREATE FUNCTION PAY_C_LAST(  W_ID INTEGER
                           , D_ID SMALLINT
                           , C_W_ID INTEGER
                           , C_D_ID SMALLINT
                           , C_LAST VARCHAR(16)
                           , H_DATE BIGINT
                           , H_AMOUNT BIGINT
                           , BAD_CREDIT_PREFIX VARCHAR(28)
                          )

RETURNS TABLE(   W_STREET_1 CHAR(20)
               , W_STREET_2 CHAR(20)
               , W_CITY CHAR(20)
               , W_STATE CHAR(2)
               , W_ZIP CHAR(9)
               , D_STREET_1 CHAR(20)
               , D_STREET_2 CHAR(20)
               , D_CITY CHAR(20)
               , D_STATE CHAR(2)
               , D_ZIP CHAR(9)
               , C_ID INTEGER
               , C_FIRST VARCHAR(16)
               , C_MIDDLE CHAR(2)
               , C_STREET_1 VARCHAR(20)
               , C_STREET_2 VARCHAR(20)
               , C_CITY VARCHAR(20)
```

```
              , C_STATE CHAR(2)
              , C_ZIP CHAR(9)
              , C_PHONE CHAR(16)
              , C_SINCE BIGINT
              , C_CREDIT CHAR(2)
              , C_CREDIT_LIM BIGINT
              , C_DISCOUNT INTEGER
              , C_BALANCE BIGINT
              , C_DATA CHAR(200)
            )

SPECIFIC PAY_C_LAST

MODIFIES SQL DATA DETERMINISTIC NO EXTERNAL ACTION LANGUAGE SQL

VAR: BEGIN ATOMIC

  DECLARE  W_NAME CHAR(10) ;
  DECLARE  D_NAME CHAR(10) ;

  DECLARE  W_STREET_1 CHAR(20) ;
  DECLARE  W_STREET_2 CHAR(20) ;
  DECLARE  W_CITY CHAR(20) ;
  DECLARE  W_STATE CHAR(2) ;
  DECLARE  W_ZIP CHAR(9) ;

  DECLARE  D_STREET_1 CHAR(20) ;
  DECLARE  D_STREET_2 CHAR(20) ;
  DECLARE  D_CITY CHAR(20) ;
  DECLARE  D_STATE CHAR(2) ;
  DECLARE  D_ZIP CHAR(9) ;

  DECLARE  C_ID INTEGER ;

  DECLARE  C_FIRST VARCHAR(16) ;
  DECLARE  C_MIDDLE CHAR(2) ;
  DECLARE  C_STREET_1 VARCHAR(20) ;
  DECLARE  C_STREET_2 VARCHAR(20) ;
  DECLARE  C_CITY VARCHAR(20) ;
  DECLARE  C_STATE CHAR(2) ;
  DECLARE  C_ZIP CHAR(9) ;
  DECLARE  C_PHONE CHAR(16) ;
  DECLARE  C_SINCE BIGINT ;
  DECLARE  C_CREDIT CHAR(2) ;
  DECLARE  C_CREDIT_LIM BIGINT ;
  DECLARE  C_DISCOUNT INTEGER ;
  DECLARE  C_BALANCE BIGINT ;
  DECLARE  C_DATA CHAR(200) ;

  /* Update District and retieve its data */

  SET ( D_NAME, D_STREET_1, D_STREET_2, D_CITY, D_STATE, D_ZIP)

    =  ( SELECT   D_NAME, D_STREET_1, D_STREET_2, D_CITY, D_STATE, D_ZIP

           FROM OLD TABLE ( UPDATE DISTRICT

                              SET D_YTD = D_YTD + PAY_C_LAST.H_AMOUNT

                            WHERE D_W_ID = PAY_C_LAST.W_ID
                              AND D_ID   = PAY_C_LAST.D_ID
                          ) AS U
       )
  ;

  /* Determine the C_ID */

  SET ( C_ID )

    = ( SELECT C_ID
          FROM ( SELECT   C_ID
                        , COUNT(*) OVER() AS COUNT
                        , ROWNUMBER() OVER (ORDER BY C_FIRST) AS NUM

                   FROM CUSTOMER
                   WHERE C_LAST = PAY_C_LAST.C_LAST
                     AND C_W_ID = PAY_C_LAST.C_W_ID
                     AND C_D_ID = PAY_C_LAST.C_D_ID
               ) AS T

         WHERE NUM = (COUNT + BIGINT( 1 ) ) / BIGINT( 2 )
      )
  ;


  /* Update the middle customer */

  SET (   C_ID, C_FIRST, C_MIDDLE, C_STREET_1, C_STREET_2
        , C_CITY, C_STATE, C_ZIP, C_PHONE, C_SINCE, C_CREDIT, C_CREDIT_LIM
        , C_DISCOUNT, C_BALANCE, C_DATA )

    = ( SELECT   C_ID, C_FIRST, C_MIDDLE, C_STREET_1, C_STREET_2
               , C_CITY, C_STATE, C_ZIP, C_PHONE, C_SINCE, C_CREDIT, C_CREDIT_LIM
               , C_DISCOUNT, C_BALANCE
               , CASE WHEN C_CREDIT = 'BC' THEN SUBSTR(C_DATA, 1, 200) ELSE NULL END
AS C_DATA

          FROM NEW TABLE ( UPDATE CUSTOMER

                              SET   C_BALANCE     = C_BALANCE - PAY_C_LAST.H_AMOUNT
                                  , C_YTD_PAYMENT = C_YTD_PAYMENT +
PAY_C_LAST.H_AMOUNT
                                  , C_PAYMENT_CNT = C_PAYMENT_CNT + SMALLINT( 1 )

                                  , C_DATA = CASE WHEN C_CREDIT = 'BC'
                                                  THEN    CHAR( C_ID )             -
- 11 bytes long
                                                       || BAD_CREDIT_PREFIX        -
- 28 bytes long
                                                       || SUBSTR( C_DATA, 1, 461 ) -
- 461 + 39 = 500
                                                  ELSE C_DATA
                                             END

                            WHERE C_W_ID = PAY_C_LAST.C_W_ID
                              AND C_D_ID = PAY_C_LAST.C_D_ID
                              AND C_ID   = VAR.C_ID
                          ) AS U
      )
  ;

  /* Update the warehouse */

  SET ( W_NAME, W_STREET_1, W_STREET_2, W_CITY, W_STATE,  W_ZIP )

   = ( SELECT W_NAME, W_STREET_1, W_STREET_2, W_CITY, W_STATE,  W_ZIP
```

```
        FROM OLD TABLE ( UPDATE WAREHOUSE

                           SET W_YTD = W_YTD + PAY_C_LAST.H_AMOUNT

                         WHERE W_ID = PAY_C_LAST.W_ID
                       ) AS U
    )
  ;

  /* Finally insert into the warehouse */

  INSERT

    INTO HISTORY ( H_C_ID, H_C_D_ID, H_C_W_ID, H_D_ID, H_W_ID, H_DATA, H_DATE,
H_AMOUNT )

    VALUES (   VAR.C_ID
             , PAY_C_LAST.C_D_ID
             , PAY_C_LAST.C_W_ID
             , PAY_C_LAST.D_ID
             , PAY_C_LAST.W_ID
             , VAR.W_NAME || CHAR( '    ', 4 )  || VAR.D_NAME
             , PAY_C_LAST.H_DATE
             , PAY_C_LAST.H_AMOUNT
           )
  ;

  /* Done - return the collected data */

  RETURN VALUES (   W_STREET_1, W_STREET_2, W_CITY, W_STATE,  W_ZIP
                  , D_STREET_1, D_STREET_2, D_CITY, D_STATE, D_ZIP
                  , C_ID, C_FIRST, C_MIDDLE, C_STREET_1, C_STREET_2
                  , C_CITY, C_STATE, C_ZIP, C_PHONE, C_SINCE, C_CREDIT, C_CREDIT_LIM
                  , C_DISCOUNT, C_BALANCE, C_DATA
                )
  ;

END
$

CREATE FUNCTION PAY_C_ID(  W_ID INTEGER
                     , D_ID SMALLINT
                     , C_W_ID INTEGER
                     , C_D_ID SMALLINT
                     , C_ID INTEGER
                     , H_DATE BIGINT
                     , H_AMOUNT BIGINT
                     , BAD_CREDIT_PREFIX VARCHAR(34)
                    )

RETURNS TABLE(   W_STREET_1 CHAR(20)
               , W_STREET_2 CHAR(20)
               , W_CITY CHAR(20)
               , W_STATE CHAR(2)
               , W_ZIP CHAR(9)
               , D_STREET_1 CHAR(20)
               , D_STREET_2 CHAR(20)
               , D_CITY CHAR(20)
               , D_STATE CHAR(2)
               , D_ZIP CHAR(9)
               , C_LAST VARCHAR(16)
               , C_FIRST VARCHAR(16)
               , C_MIDDLE CHAR(2)
               , C_STREET_1 VARCHAR(20)
               , C_STREET_2 VARCHAR(20)
               , C_CITY VARCHAR(20)
               , C_STATE CHAR(2)
               , C_ZIP CHAR(9)
               , C_PHONE CHAR(16)
               , C_SINCE BIGINT
               , C_CREDIT CHAR(2)
               , C_CREDIT_LIM BIGINT
               , C_DISCOUNT INTEGER
               , C_BALANCE BIGINT
               , C_DATA CHAR(200)
              )
SPECIFIC PAY_C_ID

MODIFIES SQL DATA DETERMINISTIC NO EXTERNAL ACTION LANGUAGE SQL

VAR: BEGIN ATOMIC

  DECLARE  W_NAME CHAR(10) ;
  DECLARE  D_NAME CHAR(10) ;

  DECLARE  W_STREET_1 CHAR(20) ;
  DECLARE  W_STREET_2 CHAR(20) ;
  DECLARE  W_CITY CHAR(20) ;
  DECLARE  W_STATE CHAR(2) ;
  DECLARE  W_ZIP CHAR(9) ;

  DECLARE  D_STREET_1 CHAR(20) ;
  DECLARE  D_STREET_2 CHAR(20) ;
  DECLARE  D_CITY CHAR(20) ;
  DECLARE  D_STATE CHAR(2) ;
  DECLARE  D_ZIP CHAR(9) ;

  DECLARE  C_LAST VARCHAR(16) ;

  DECLARE  C_FIRST VARCHAR(16) ;
  DECLARE  C_MIDDLE CHAR(2) ;
  DECLARE  C_STREET_1 VARCHAR(20) ;
  DECLARE  C_STREET_2 VARCHAR(20) ;
  DECLARE  C_CITY VARCHAR(20) ;
  DECLARE  C_STATE CHAR(2) ;
  DECLARE  C_ZIP CHAR(9) ;
  DECLARE  C_PHONE CHAR(16) ;
  DECLARE  C_SINCE BIGINT ;
  DECLARE  C_CREDIT CHAR(2) ;
  DECLARE  C_CREDIT_LIM BIGINT ;
  DECLARE  C_DISCOUNT INTEGER ;
  DECLARE  C_BALANCE BIGINT ;
  DECLARE  C_DATA CHAR(200) ;


  /* Update District and retieve its data */

  SET ( D_NAME, D_STREET_1, D_STREET_2, D_CITY, D_STATE, D_ZIP )

    =  ( SELECT   D_NAME, D_STREET_1, D_STREET_2, D_CITY, D_STATE, D_ZIP

           FROM OLD TABLE ( UPDATE DISTRICT

                              SET D_YTD = D_YTD + PAY_C_ID.H_AMOUNT
```

```
                           WHERE D_W_ID = PAY_C_ID.W_ID
                             AND D_ID   = PAY_C_ID.D_ID
                         ) AS U
      )
  ;

  /* Update the middle customer */

  SET (   C_LAST, C_FIRST, C_MIDDLE, C_STREET_1, C_STREET_2
        , C_CITY, C_STATE, C_ZIP, C_PHONE, C_SINCE, C_CREDIT, C_CREDIT_LIM
        , C_DISCOUNT, C_BALANCE, C_DATA )

    = ( SELECT   C_LAST, C_FIRST, C_MIDDLE, C_STREET_1, C_STREET_2
               , C_CITY, C_STATE, C_ZIP, C_PHONE, C_SINCE, C_CREDIT, C_CREDIT_LIM
               , C_DISCOUNT, C_BALANCE
               , CASE WHEN C_CREDIT = 'BC' THEN SUBSTR(C_DATA, 1, 200) ELSE NULL END
AS C_DATA

          FROM NEW TABLE ( UPDATE CUSTOMER

                              SET   C_BALANCE     = C_BALANCE - PAY_C_ID.H_AMOUNT
                                  , C_YTD_PAYMENT = C_YTD_PAYMENT +
PAY_C_ID.H_AMOUNT
                                  , C_PAYMENT_CNT = C_PAYMENT_CNT + SMALLINT( 1 )

                                  , C_DATA = CASE WHEN C_CREDIT = 'BC'
                                                  THEN    BAD_CREDIT_PREFIX        -
- 34 bytes long
                                                       || SUBSTR( C_DATA, 1, 466 ) -
- 466 + 34 = 500 bytes
                                                  ELSE C_DATA
                                             END

                            WHERE C_W_ID = PAY_C_ID.C_W_ID
                              AND C_D_ID = PAY_C_ID.C_D_ID
                              AND C_ID   = PAY_C_ID.C_ID
                          ) AS U
      )
  ;

  /* Update the warehouse */

  SET ( W_NAME, W_STREET_1, W_STREET_2, W_CITY, W_STATE,  W_ZIP )

   = ( SELECT W_NAME, W_STREET_1, W_STREET_2, W_CITY, W_STATE,  W_ZIP

         FROM OLD TABLE ( UPDATE WAREHOUSE

                             SET W_YTD = W_YTD + PAY_C_ID.H_AMOUNT

                           WHERE W_ID = PAY_C_ID.W_ID
                        ) AS U
     )
  ;

  /* Finally insert into the warehouse */

  INSERT

    INTO HISTORY ( H_C_ID, H_C_D_ID, H_C_W_ID, H_D_ID, H_W_ID, H_DATA, H_DATE,
H_AMOUNT )

    VALUES (   PAY_C_ID.C_ID
             , PAY_C_ID.C_D_ID
             , PAY_C_ID.C_W_ID
             , PAY_C_ID.D_ID
             , PAY_C_ID.W_ID
             , VAR.W_NAME || CHAR( '    ', 4 ) || VAR.D_NAME
             , PAY_C_ID.H_DATE
             , PAY_C_ID.H_AMOUNT
           )
  ;

  /* Done - return the collected data */

  RETURN VALUES (   W_STREET_1, W_STREET_2, W_CITY, W_STATE,  W_ZIP
                  , D_STREET_1, D_STREET_2, D_CITY, D_STATE, D_ZIP
                  , C_LAST, C_FIRST, C_MIDDLE, C_STREET_1, C_STREET_2
                  , C_CITY, C_STATE, C_ZIP, C_PHONE, C_SINCE, C_CREDIT, C_CREDIT_LIM
                  , C_DISCOUNT, C_BALANCE, C_DATA
                )
  ;

END
$

--
-- NEW ORDER
--

CREATE FUNCTION NEW_OL_ALL(   I_ID      INT
                            , I_QTY     SMALLINT
                            , W_ID      INT
                            , SUPP_W_ID INT
                            , O_ID      INT
                            , D_ID      SMALLINT
                          )

RETURNS TABLE(   I_PRICE       INTEGER
               , I_NAME        CHAR(24)
               , I_DATA        VARCHAR(50)
               , OL_DIST_INFO  CHAR(24)
               , S_DATA        VARCHAR(50)
               , S_QUANTITY    SMALLINT
             )

SPECIFIC NEW_OL_ALL

MODIFIES SQL DATA DETERMINISTIC NO EXTERNAL ACTION LANGUAGE SQL

VAR: BEGIN ATOMIC

  DECLARE I_PRICE       INTEGER  ;
  DECLARE I_NAME        CHAR(24)  ;
  DECLARE I_DATA        VARCHAR(50)  ;
  DECLARE OL_DIST_INFO  CHAR(24)  ;
  DECLARE S_DATA        VARCHAR(50)  ;
  DECLARE S_QUANTITY    SMALLINT  ;


  SET   ( I_PRICE , I_NAME , I_DATA )

    =  ( SELECT
                 I_PRICE
               , I_NAME
               , I_DATA
```

```
           FROM ITEM

          WHERE ITEM.I_ID = NEW_OL_ALL.I_ID
       ) ;

    SET ( OL_DIST_INFO , S_DATA , S_QUANTITY )

      = ( SELECT   OL_DIST_INFO
                 , S_DATA
                 , S_QUANTITY

            FROM NEW TABLE (    UPDATE STOCK

                               INCLUDE (  OL_DIST_INFO CHAR( 24 )  )

                                   SET S_QUANTITY = CASE WHEN S_QUANTITY -
NEW_OL_ALL.I_QTY >= 10
                                                         THEN S_QUANTITY -
NEW_OL_ALL.I_QTY
                                                         ELSE S_QUANTITY -
NEW_OL_ALL.I_QTY + 91
                                                    END

                                                    , S_ORDER_CNT = S_ORDER_CNT +
SMALLINT( 1 )

                                                    , S_YTD = S_YTD +
NEW_OL_ALL.I_QTY

                                                    , S_REMOTE_CNT = CASE WHEN
NEW_OL_ALL.SUPP_W_ID = NEW_OL_ALL.W_ID
                                                                          THEN
S_REMOTE_CNT
                                                                          ELSE
S_REMOTE_CNT + SMALLINT( 1 )
                                                                     END

                                                    , OL_DIST_INFO = CASE D_ID WHEN
SMALLINT(  1 )  THEN S_DIST_01
                                                                           WHEN
SMALLINT(  2 )  THEN S_DIST_02
                                                                           WHEN
SMALLINT(  3 )  THEN S_DIST_03
                                                                           WHEN
SMALLINT(  4 )  THEN S_DIST_04
                                                                           WHEN
SMALLINT(  5 )  THEN S_DIST_05
                                                                           WHEN
SMALLINT(  6 )  THEN S_DIST_06
                                                                           WHEN
SMALLINT(  7 )  THEN S_DIST_07
                                                                           WHEN
SMALLINT(  8 )  THEN S_DIST_08
                                                                           WHEN
SMALLINT(  9 )  THEN S_DIST_09
                                                                           WHEN
SMALLINT( 10 )  THEN S_DIST_10
                                                                     END
                                 WHERE S_I_ID = NEW_OL_ALL.I_ID
                                   AND S_W_ID = NEW_OL_ALL.SUPP_W_ID
                             ) AS U
        )
    ;

    RETURN VALUES(   VAR.I_PRICE
                   , VAR.I_NAME
                   , VAR.I_DATA
                   , VAR.OL_DIST_INFO
                   , VAR.S_DATA
                   , VAR.S_QUANTITY
                 )
    ;

END
$

CREATE FUNCTION NEW_OL_LOCAL(   I_ID      INT
                              , I_QTY     SMALLINT
                              , W_ID      INT
                              , O_ID      INT
                              , D_ID      SMALLINT
                            )

RETURNS TABLE(   I_PRICE       INTEGER
               , I_NAME        CHAR(24)
               , I_DATA        VARCHAR(50)
               , OL_DIST_INFO  CHAR(24)
               , S_DATA        VARCHAR(50)
               , S_QUANTITY    SMALLINT
             )

SPECIFIC NEW_OL_LOCAL

MODIFIES SQL DATA DETERMINISTIC NO EXTERNAL ACTION LANGUAGE SQL

VAR: BEGIN ATOMIC

  DECLARE I_PRICE       INTEGER  ;
  DECLARE I_NAME        CHAR(24)  ;
  DECLARE I_DATA        VARCHAR(50)  ;
  DECLARE OL_DIST_INFO  CHAR(24)  ;
  DECLARE S_DATA        VARCHAR(50)  ;
  DECLARE S_QUANTITY    SMALLINT  ;


  SET   ( I_PRICE , I_NAME , I_DATA )

    =  ( SELECT
                 I_PRICE
               , I_NAME
               , I_DATA

           FROM ITEM

          WHERE ITEM.I_ID = NEW_OL_LOCAL.I_ID
       ) ;

    SET ( OL_DIST_INFO , S_DATA , S_QUANTITY )

      = ( SELECT   OL_DIST_INFO
                 , S_DATA
                 , S_QUANTITY

            FROM NEW TABLE (    UPDATE STOCK
```

```
                            INCLUDE (  OL_DIST_INFO CHAR( 24 )  )

                                SET S_QUANTITY = CASE WHEN S_QUANTITY -
NEW_OL_LOCAL.I_QTY >= 10
                                                      THEN S_QUANTITY -
NEW_OL_LOCAL.I_QTY
                                                      ELSE S_QUANTITY -
NEW_OL_LOCAL.I_QTY + 91
                                                 END

                                                 , S_ORDER_CNT = S_ORDER_CNT +
SMALLINT( 1 )

                                                 , S_YTD = S_YTD +
NEW_OL_LOCAL.I_QTY

                                                 , OL_DIST_INFO = CASE D_ID WHEN
SMALLINT(  1 )  THEN S_DIST_01                                                 WHEN
SMALLINT(  2 )  THEN S_DIST_02                                                 WHEN
SMALLINT(  3 )  THEN S_DIST_03                                                 WHEN
SMALLINT(  4 )  THEN S_DIST_04                                                 WHEN
SMALLINT(  5 )  THEN S_DIST_05                                                 WHEN
SMALLINT(  6 )  THEN S_DIST_06                                                 WHEN
SMALLINT(  7 )  THEN S_DIST_07                                                 WHEN
SMALLINT(  8 )  THEN S_DIST_08                                                 WHEN
SMALLINT(  9 )  THEN S_DIST_09                                                 WHEN
SMALLINT( 10 )  THEN S_DIST_10                                                 END
                              WHERE S_I_ID = NEW_OL_LOCAL.I_ID
                                AND S_W_ID = NEW_OL_LOCAL.W_ID
                         ) AS U
        )
    ;

    RETURN VALUES(   VAR.I_PRICE
                   , VAR.I_NAME
                   , VAR.I_DATA
                   , VAR.OL_DIST_INFO
                   , VAR.S_DATA
                   , VAR.S_QUANTITY
                 )
    ;

END
$

CREATE FUNCTION NEW_WH (   O_ID        INTEGER
                         , W_ID        INTEGER
                         , D_ID        SMALLINT
                         , C_ID        INTEGER
                         , O_ENTRY_D   BIGINT
                         , O_OL_CNT    SMALLINT
                         , O_ALL_LOCAL SMALLINT
                       )

RETURNS TABLE (   W_TAX       INTEGER
                , C_DISCOUNT  INTEGER
                , C_LAST      VARCHAR(16)
                , C_CREDIT    CHAR(2)
              )

SPECIFIC NEW_WH

MODIFIES SQL DATA DETERMINISTIC NO EXTERNAL ACTION LANGUAGE SQL

VAR: BEGIN ATOMIC

  DECLARE C_DISCOUNT  INTEGER ;
  DECLARE C_LAST      VARCHAR(16) ;
  DECLARE C_CREDIT    CHAR(2) ;
  DECLARE W_TAX       INTEGER ;

  INSERT

    INTO NEW_ORDER ( NO_O_ID, NO_D_ID, NO_W_ID )

            VALUES (   O_ID
                     , D_ID
                     , W_ID
                   )
  ;


  INSERT

    INTO ORDERS ( O_C_ID, O_ENTRY_D, O_CARRIER_ID, O_OL_CNT, O_ALL_LOCAL, O_ID,
O_W_ID, O_D_ID )

          VALUES (   C_ID
                   , O_ENTRY_D
                   , 0
                   , O_OL_CNT
                   , O_ALL_LOCAL
                   , O_ID
                   , W_ID
                   , D_ID
                 )
  ;

  SET ( C_DISCOUNT, C_LAST, C_CREDIT )

   =  ( SELECT  C_DISCOUNT, C_LAST, C_CREDIT

          FROM  CUSTOMER

         WHERE  C_ID = NEW_WH.C_ID
           AND  C_W_ID = W_ID
           AND  C_D_ID = D_ID
      )
  ;


  SET W_TAX
    =    ( SELECT W_TAX

             FROM WAREHOUSE
```

```
          WHERE W_ID = NEW_WH.W_ID
        )
  ;

  RETURN VALUES ( W_TAX , C_DISCOUNT , C_LAST , C_CREDIT ) ;

END
$
```

cat-proc.ddl

```
CREATE PROCEDURE news
                      (in new_in   varchar(270) FOR BIT DATA,
                       out new_out varchar(662) FOR BIT DATA)
                      LANGUAGE C
                      PARAMETER STYLE GENERAL
                      EXTERNAL NAME '/home/db2admin/sqllib/function/news!news'
                      not fenced;

CREATE PROCEDURE ords
                      (in ord_in   varchar(42) FOR BIT DATA,
                       out ord_out varchar(446) FOR BIT DATA)
                      LANGUAGE C
                      PARAMETER STYLE GENERAL
                      EXTERNAL NAME '/home/db2admin/sqllib/function/ords!ords'
                      not fenced;

CREATE PROCEDURE dels
                      (in del_in   varchar(22) FOR BIT DATA,
                       out del_out varchar(50) FOR BIT DATA)
                      LANGUAGE C
                      PARAMETER STYLE GENERAL
                      EXTERNAL NAME '/home/db2admin/sqllib/function/dels!dels'
                      not fenced;
```

create_database.ddl

```
drop database tpcc;
create database tpcc collate using identity;
```

create_tablespace.ddl

```
connect to tpcc;
drop bufferpool IBM8KBP;
create bufferpool IBM8KBP size 40000 pagesize 8K;
drop bufferpool IBM16KBP;
create bufferpool IBM16KBP size 20000 pagesize 16K;

drop tablespace ts_ware_01;
create regular tablespace ts_ware_01 pagesize 4K
         managed by database using ( device '/dev/db2/ware' 16320K)
        extentsize 256
        prefetchsize 512;

drop tablespace ts_dist_01;
create regular tablespace ts_dist_01 pagesize 4K
         managed by database using ( device '/dev/db2/dist' 16320K)
        extentsize 256
        prefetchsize 512;

drop tablespace ts_item_01;
create regular tablespace ts_item_01 pagesize 8K
         managed by database using ( device '/dev/db2/item' 24480K )
        extentsize 256
        prefetchsize 512
        bufferpool IBM8KBP;

drop tablespace ts_stock_01;
create regular tablespace ts_stock_01 pagesize 4K
         managed by database using ( device '/dev/db2/stk1' 27442080K, device
'/dev/db2/stk2' 27442080K)
        extentsize 256
        prefetchsize 512;

drop tablespace ts_customer_01;
create regular tablespace ts_customer_01 pagesize 4K
         managed by database using ( device '/dev/db2/cst1' 19967520K, device
'/dev/db2/cst2' 19967520K)
        extentsize 256
        prefetchsize 512;

drop tablespace is_customer_01;
create regular tablespace is_customer_01 pagesize 8K
         managed by database using ( device '/dev/db2/csti' 2456160K)
        extentsize 256
        prefetchsize 512
        bufferpool IBM8KBP;

drop tablespace ts_history_01;
create regular tablespace ts_history_01 pagesize 16K
         managed by database using ( device '/dev/db2/hist' 4300320K )
        extentsize 256
        prefetchsize 512
        bufferpool IBM16KBP;

drop tablespace ts_order_01;
create regular tablespace ts_order_01 pagesize 8K
         managed by database using ( device '/dev/db2/ord' 2252160K)
        extentsize 256
        prefetchsize 512
        bufferpool IBM8KBP;

drop tablespace is_order_01;
create regular tablespace is_order_01 pagesize 8K
         managed by database using ( device '/dev/db2/ordi' 1946160K)
        extentsize 256
        prefetchsize 512
        bufferpool IBM8KBP;

drop tablespace ts_orderline_01;
create regular tablespace ts_orderline_01 pagesize 8K
         managed by database using ( device '/dev/db2/orl' 59392560K)
        extentsize 256
        prefetchsize 512
        bufferpool IBM8KBP;

drop tablespace ts_neword_01;
create regular tablespace ts_neword_01 pagesize 4K
        managed by database using ( device '/dev/db2/nor' 1450M,
                    device '/dev/db2/nori' 1450M)
        extentsize 256
```

```
        prefetchsize 512;


commit;
connect reset;
```

CRIDX_CUST_IDXB.ddl

```
connect to TPCC in share mode;
DROP INDEX CUST_IDXB;
CREATE INDEX CUST_IDXB
                        ON CUSTOMER(C_LAST, C_W_ID, C_D_ID, C_FIRST, C_ID) PCTFREE
0;
connect reset;
```

CRIDX_ORDR_IDXB.ddl

```
connect to TPCC in share mode;
DROP INDEX ORDR_IDXB;
CREATE INDEX ORDR_IDXB
                        ON ORDERS(O_C_ID, O_W_ID, O_D_ID, O_ID DESC) PCTFREE 20
LEVEL2 PCTFREE 20;
connect reset;
```

CRTB_CUSTOMER.ddl

```
connect to TPCC in share mode;
DROP TABLE CUSTOMER;
CREATE TABLE CUSTOMER
                  (
                   C_ID            INTEGER       NOT NULL,
                   C_STATE         CHAR(2)       NOT NULL,
                   C_ZIP           CHAR(9)       NOT NULL,
                   C_PHONE         CHAR(16)      NOT NULL,
                   C_SINCE         BIGINT        NOT NULL,
                   C_CREDIT_LIM    BIGINT        NOT NULL,
                   C_MIDDLE        CHAR(2)       NOT NULL,
                   C_CREDIT        CHAR(2)       NOT NULL,
                   C_DISCOUNT      INTEGER       NOT NULL,
                   C_DATA          VARCHAR(500)  NOT NULL,
                   C_LAST          VARCHAR(16)   NOT NULL,
                   C_FIRST         VARCHAR(16)   NOT NULL,
                   C_STREET_1      VARCHAR(20)   NOT NULL,
                   C_STREET_2      VARCHAR(20)   NOT NULL,
                   C_CITY          VARCHAR(20)   NOT NULL,
                   C_D_ID          SMALLINT      NOT NULL,
                   C_W_ID          INTEGER       NOT NULL,
                   C_DELIVERY_CNT  INTEGER       NOT NULL,
                   C_BALANCE       BIGINT        NOT NULL,
                   C_YTD_PAYMENT   BIGINT        NOT NULL,
                   C_PAYMENT_CNT   INTEGER       NOT NULL
                  )
                  IN ts_customer_01
                  INDEX IN is_customer_01
                  ORGANIZE BY KEY SEQUENCE (
                   C_ID STARTING FROM 1 ENDING AT 3000,
                   C_W_ID STARTING FROM 1 ENDING AT 1530,
                   C_D_ID STARTING FROM 1 ENDING AT 10
                  )
                  ALLOW OVERFLOW;
connect reset;
```

CRTB_DISTRICT.ddl

```
connect to TPCC in share mode;
DROP TABLE DISTRICT;
CREATE TABLE DISTRICT
                  (
                   D_NEXT_O_ID INTEGER         NOT NULL,
                   D_TAX       INTEGER         NOT NULL,
                   D_YTD       BIGINT          NOT NULL,
                   D_NAME      CHAR(10)        NOT NULL,
                   D_STREET_1  CHAR(20)        NOT NULL,
                   D_STREET_2  CHAR(20)        NOT NULL,
                   D_CITY      CHAR(20)        NOT NULL,
                   D_STATE     CHAR(2)         NOT NULL,
                   D_ZIP       CHAR(9)         NOT NULL,
                   D_ID        SMALLINT        NOT NULL,
                   D_W_ID      INTEGER         NOT NULL
                  )
                  IN ts_dist_01
                  INDEX IN ts_dist_01
                  ORGANIZE BY KEY SEQUENCE (
                   D_ID STARTING FROM 1 ENDING AT 10,
                   D_W_ID STARTING FROM 1 ENDING AT 1530
                  )
                  ALLOW OVERFLOW;
connect reset;
```

CRTB_HISTORY.ddl

```
connect to TPCC in share mode;
DROP TABLE HISTORY;
CREATE TABLE HISTORY
                  (
                   H_C_ID          INTEGER     NOT NULL,
                   H_C_D_ID        SMALLINT    NOT NULL,
                   H_C_W_ID        INTEGER     NOT NULL,
                   H_D_ID          SMALLINT    NOT NULL,
                   H_W_ID          INTEGER     NOT NULL,
                   H_DATE          BIGINT      NOT NULL,
                   H_AMOUNT        INTEGER     NOT NULL,
                   H_DATA          CHAR(24)    NOT NULL
                  )
                  IN ts_history_01
                  INDEX IN ts_history_01;
ALTER TABLE HISTORY APPEND ON;
connect reset;
```

CRTB_ITEM.ddl

```
connect to TPCC in share mode;
DROP TABLE ITEM;
CREATE TABLE ITEM
                  (
                   I_NAME          CHAR(24)    NOT NULL,
                   I_PRICE         INTEGER     NOT NULL,
```

```
                 I_DATA          VARCHAR(50) NOT NULL,
                 I_IM_ID         INTEGER     NOT NULL,
                 I_ID            INTEGER     NOT NULL
                )
                IN ts_item_01
                INDEX IN ts_item_01
                ORGANIZE BY KEY SEQUENCE (
                 I_ID STARTING FROM 1 ENDING AT 100000
                )
                ALLOW OVERFLOW;
ALTER TABLE ITEM LOCKSIZE TABLE;
connect reset;
```

CRTB_NEW_ORDER.ddl

```
connect to TPCC in share mode;
DROP TABLE NEW_ORDER;
CREATE TABLE NEW_ORDER
                (
                 NO_O_ID         INTEGER     NOT NULL,
                 NO_D_ID         SMALLINT    NOT NULL,
                 NO_W_ID         INTEGER     NOT NULL
                )
                IN ts_neword_01
                ORGANIZE BY KEY SEQUENCE (
                 NO_W_ID STARTING FROM 1 ENDING AT 1530,
                 NO_D_ID STARTING FROM 1 ENDING AT 10,
                 NO_O_ID STARTING FROM 999 ENDING AT 7200
                )
                ALLOW OVERFLOW;
connect reset;
```

CRTB_ORDERS.ddl

```
connect to TPCC in share mode;
DROP TABLE ORDERS;
CREATE TABLE ORDERS
                (
                 O_C_ID          INTEGER     NOT NULL,
                 O_ENTRY_D       BIGINT      NOT NULL,
                 O_CARRIER_ID    SMALLINT    NOT NULL,
                 O_OL_CNT        SMALLINT    NOT NULL,
                 O_ALL_LOCAL     SMALLINT    NOT NULL,
                 O_ID            INTEGER     NOT NULL,
                 O_W_ID          INTEGER     NOT NULL,
                 O_D_ID          SMALLINT    NOT NULL
                )
                IN ts_order_01
                INDEX IN is_order_01
                ORGANIZE BY KEY SEQUENCE (
                 O_ID STARTING FROM 0 ENDING AT 3597,
                 O_W_ID STARTING FROM 1 ENDING AT 1530,
                 O_D_ID STARTING FROM 1 ENDING AT 10
                )
                ALLOW OVERFLOW;
connect reset;
```

CRTB_ORDER_LINE.ddl

```
connect to TPCC in share mode;
DROP TABLE ORDER_LINE;
CREATE TABLE ORDER_LINE
                (
                 OL_DELIVERY_D    BIGINT     NOT NULL,
                 OL_AMOUNT        INTEGER    NOT NULL,
                 OL_I_ID          INTEGER    NOT NULL,
                 OL_SUPPLY_W_ID   INTEGER    NOT NULL,
                 OL_QUANTITY      SMALLINT   NOT NULL,
                 OL_DIST_INFO     CHAR(24)   NOT NULL,
                 OL_O_ID          INTEGER    NOT NULL,
                 OL_D_ID          SMALLINT   NOT NULL,
                 OL_W_ID          INTEGER    NOT NULL,
                 OL_NUMBER        SMALLINT   NOT NULL
                )
                IN ts_orderline_01
                INDEX IN ts_orderline_01
                ORGANIZE BY KEY SEQUENCE (
                 OL_W_ID STARTING FROM 1 ENDING AT 1530,
                 OL_D_ID STARTING FROM 1 ENDING AT 10,
                 OL_O_ID STARTING FROM 0 ENDING AT 3597,
                 OL_NUMBER STARTING FROM 1 ENDING AT 15
                )
                ALLOW OVERFLOW;
connect reset;
```

CRTB_STOCK.ddl

```
connect to TPCC in share mode;
DROP TABLE STOCK;
CREATE TABLE STOCK
                (
                 S_REMOTE_CNT    INTEGER     NOT NULL,
                 S_QUANTITY      INTEGER     NOT NULL,
                 S_ORDER_CNT     INTEGER     NOT NULL,
                 S_YTD           INTEGER     NOT NULL,
                 S_DATA          VARCHAR(50) NOT NULL,
                 S_DIST_01       CHAR(24)    NOT NULL,
                 S_DIST_02       CHAR(24)    NOT NULL,
                 S_DIST_03       CHAR(24)    NOT NULL,
                 S_DIST_04       CHAR(24)    NOT NULL,
                 S_DIST_05       CHAR(24)    NOT NULL,
                 S_DIST_06       CHAR(24)    NOT NULL,
                 S_DIST_07       CHAR(24)    NOT NULL,
                 S_DIST_08       CHAR(24)    NOT NULL,
                 S_DIST_09       CHAR(24)    NOT NULL,
                 S_DIST_10       CHAR(24)    NOT NULL,
                 S_I_ID          INTEGER     NOT NULL,
                 S_W_ID          INTEGER     NOT NULL
                )
                IN ts_stock_01
                INDEX IN ts_stock_01
                ORGANIZE BY KEY SEQUENCE (
                 S_I_ID STARTING FROM 1 ENDING AT 100000,
                 S_W_ID STARTING FROM 1 ENDING AT 1530
                )
                ALLOW OVERFLOW;
connect reset;
```

CRTB_WAREHOUSE.ddl

```
connect to TPCC in share mode;
DROP TABLE WAREHOUSE;
CREATE TABLE WAREHOUSE
                  (
                   W_NAME      CHAR(10)        NOT NULL,
                   W_STREET_1  CHAR(20)        NOT NULL,
                   W_STREET_2  CHAR(20)        NOT NULL,
                   W_CITY      CHAR(20)        NOT NULL,
                   W_STATE     CHAR(2)         NOT NULL,
                   W_ZIP       CHAR(9)         NOT NULL,
                   W_TAX       INTEGER         NOT NULL,
                   W_YTD       BIGINT          NOT NULL,
                   W_ID        INTEGER         NOT NULL
                  )
                  IN ts_ware_01
                  INDEX IN ts_ware_01
                  ORGANIZE BY KEY SEQUENCE (
                   W_ID STARTING FROM 1 ENDING AT 1530
                  )
                  ALLOW OVERFLOW;
connect reset;
```

db2tpcc.h

```
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*************************************************************************/

/*
 * db2tpcc.h - Macros and Miscellany
 *
 * Change Activity:
 * defect Date        Who Description
 * ====== ========== === ==============================================
 * 225200 2002/04/05  mte Initial Code Drop
 * 228237 2002/05/31  mte Remove DLCHK_COMPOUND
 * 226824 2002/06/18  mte FOR BIT DATA support (-DSPGENERAL)
 * 240328 2002/06/21  mte Generate timestamps in client stubs
 * 251704 2002/08/20  mte Renumber transactions
 * 261193 2002/11/19  mte Fix NOT ATOMIC COMPOUND error handling
 * 261133 2002/11/25  mte Add NURand A and C constants
 * 262542 2002/11/27  dje Introduce constants for unused and invalid items
 * 262643 2002/11/28  mte Add header guards
 * 265265 2003/01/14  mte New schema to avoid type conversions
 * 268652 2003/02/03  mte Header file cleanup
 * 269614 2003/02/10  mte Header file cleanup
 * 270212 2003/02/14  mte Merge SQL changes (see defect notes)
 * 272753 2003/03/05  mte Align input/output structures for 32/64-bit
 * 273565 2003/03/11  mte Error handing cleanup
 * 273748 2003/03/12  mte Fix H_AMOUNT scaling problem in PAY
 * 274273 2003/03/17  jnh avoid duplicate symbols with some compilers
 * 283859 2003/06/23  mte Use Austin RTE values for C_OL_I_ID and C_ID
 * 299531 2003/11/11  mte Support authentication during connect
 * 299530 2003/11/11  mte Better error-handling during connect/disconnect
 * 301364 2003/11/24  mte Add context routine hooks
 *
 */

#ifndef __DB2TPCC_H
#define __DB2TPCC_H

#include <sys/types.h>                                          //@d269614mte

#include "lval.h"

/* ********************************************************************** */
/* Transaction Return Codes (s_transtatus)                                */
/* ********************************************************************** */

#define INVALID_ITEM           100
#define TRAN_OK                0
#define FATAL_SQLERROR         -1

/* ********************************************************************** */
/* Definition of Unused and Bad Items                                     */
/* ********************************************************************** */
/* Define unused item ID to be 0. This allows the SUT to determine the    */
/* number of items in the order as required by 2.4.1.3 and 2.4.2.2 since  */
/* the assumption that any item with OL_I_ID = 0 is unused will be true.  */
/* This in turn requires that the value used for an invalid item is       */
/* equal to ITEMS + 1.                                                    */
/* ********************************************************************** */

#define INVALID_ITEM_ID (2 * ITEMS) + 1                         //@d274273jnh
#define UNUSED_ITEM_ID 0                                        //@d274273jnh

#define MIN_WAREHOUSE 1                                         //@d274273jnh
#define MAX_WAREHOUSE WAREHOUSES                                //@d274273jnh

/************************************************************************/
/* NURand Constants                                                     */
/* C_C_LAST_RUN and C_C_LAST_LOAD must adhere to clause 2.1.6.          */
/* Analysis indicates that a C_LAST delta of 85 is optimal.             */
/************************************************************************/
#define C_C_LAST_RUN          88
#define C_C_LAST_LOAD         173
#define C_C_ID                319
//@d283859mte
#define C_OL_I_ID   3849                                  //@d283859mte
#define A_C_LAST    255
#define A_C_ID                1023
#define A_OL_I_ID   8191

/************************************************************************/
/* Transaction Type Identifiers                                         */
/************************************************************************/

#define CLIENT_SQL   0                                          //@d299530mte
#define NEWORD_SQL   1
#define PAYMENT_SQL  2                                          //@d251704mte
#define ORDSTAT_SQL  3                                          //@d251704mte
#define DELIVERY_SQL 4                                          //@d251704mte
#define STOCKLEV_SQL 5

/* ********************************************************************** */
/* Defect 226824 - varchar host variables to support FOR BIT DATA         */
```

```
/* ********************************************************************** */
/* Whenever changing these structures, you MUST update the char[] array    */
/* size in the varchar hostvars, the xx->len values in Src.Cli/???c.sqc    */
/* and the utils/cat.ddl and utils/uncat.ddl scripts.                      */
/*                                                                         */
/* In all cases, the proper value to use is:                               */
/*                                                                         */
/*              sizeof(struct xxx) - SPGENERAL_ADJUST                      */
/*                                                                         */
/* SPGENERAL_PAD is the number of int16_ts required to pad the structures  */
/* so that the data is aligned the same as if the len/pad elements were    */
/* not present.                                                            */
/*                                                                         */
/* NOTE:  It is almost guaranteed that this will break when using clients  */
/*        that use a different byte ordering and/or compiler padding.      */
/* ********************************************************************** */

#define SPGENERAL_PAD 3                                          //@d226824mte
#define SPGENERAL_ADJUST sizeof(int16_t)                         //@d226824mte

struct in_neword_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  struct   in_items_struct {
    int32_t  s_OL_I_ID;
    int32_t  s_OL_SUPPLY_W_ID;
    int16_t  s_OL_QUANTITY;
    int16_t  pad1[3];
  } in_item[15];
  int64_t  s_O_ENTRY_D_time;  /* init by SUT */
  int32_t  s_C_ID;
  int32_t  s_W_ID;
  int16_t  s_D_ID;
  int16_t  s_O_OL_CNT;                 /* init by SUT */
  int16_t  s_all_local;
  int16_t  duplicate_items;
};

struct out_neword_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  struct   items_struct {
    int32_t  s_I_PRICE;                                          //@d265265mte
    int32_t  s_OL_AMOUNT;                                        //@d265265mte
    int16_t  s_S_QUANTITY;
    int16_t  pad2;
    char     s_I_NAME[25];
    char     s_brand_generic;
  } item[15];
  int64_t  s_O_ENTRY_D_time;
  int32_t  s_W_TAX;                                              //@d265265mte
  int32_t  s_D_TAX;                                              //@d265265mte
  int32_t  s_C_DISCOUNT;                                         //@d265265mte
  int32_t  s_total_amount;                                       //@d265265mte
  int32_t  s_O_ID;
  int16_t  s_O_OL_CNT;
  int16_t  s_transtatus;
  int16_t  deadlocks;
  char     s_C_LAST[17];
  char     s_C_CREDIT[3];
};

struct in_payment_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_H_DATE_time;     /* init by SUT */
  int64_t  s_H_AMOUNT;                                            //@d273748mte
  int32_t  s_W_ID;
  int32_t  s_C_W_ID;
  int32_t  s_C_ID;
  int16_t  s_C_D_ID;
  int16_t  s_D_ID;
  char     s_C_LAST[17];
};

struct out_payment_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_H_DATE_time;
  int64_t  s_C_SINCE_time;
  int64_t  s_C_CREDIT_LIM;                                        //@d265265mte
  int64_t  s_C_BALANCE;                                           //@d265265mte
  int32_t  s_C_DISCOUNT;                                          //@d265265mte
  int32_t  s_C_ID;
  int16_t  s_transtatus;
  int16_t  deadlocks;
  char     s_W_STREET_1[21];
  char     s_W_STREET_2[21];
  char     s_W_CITY[21];
  char     s_W_STATE[3];
  char     s_W_ZIP[10];
  char     s_D_STREET_1[21];
  char     s_D_STREET_2[21];
  char     s_D_CITY[21];
  char     s_D_STATE[3];
  char     s_D_ZIP[10];
  char     s_C_FIRST[17];
  char     s_C_MIDDLE[3];
  char     s_C_LAST[17];
  char     s_C_STREET_1[21];
  char     s_C_STREET_2[21];
  char     s_C_CITY[21];
  char     s_C_STATE[3];
  char     s_C_ZIP[10];
  char     s_C_PHONE[17];
  char     s_C_CREDIT[3];
  char     s_C_DATA[201];
};

struct in_ordstat_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_C_ID;
  int32_t  s_W_ID;
  int16_t  s_D_ID;
  int16_t  pad1[3];
  char     s_C_LAST[17];
};

struct out_ordstat_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_C_BALANCE;                                           //@d265265mte
  int64_t  s_O_ENTRY_D_time;
  int32_t  s_C_ID;
  int32_t  s_O_ID;
```

```
  int16_t  s_O_CARRIER_ID;
  int16_t  s_ol_cnt;
  int16_t  pad1[2];
  struct   oitems_struct {
    int64_t  s_OL_DELIVERY_D_time;
    int32_t  s_OL_AMOUNT;                                    //@d265265mte
    int32_t  s_OL_I_ID;
    int32_t  s_OL_SUPPLY_W_ID;
    int16_t  s_OL_QUANTITY;
    int16_t  pad2;
  } item[15];
  int16_t  s_transtatus;
  int16_t  deadlocks;
  char     s_C_FIRST[17];
  char     s_C_MIDDLE[3];
  char     s_C_LAST[17];
};

struct in_delivery_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_O_DELIVERY_D_time;         /* init by SUT */
  int32_t  s_W_ID;
  int16_t  s_O_CARRIER_ID;
};

struct out_delivery_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_O_ID[10];
  int16_t  s_transtatus;
  int16_t  deadlocks;
};

struct in_stocklev_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_threshold;                                      //@d270212mte
  int32_t  s_W_ID;
  int16_t  s_D_ID;
};

struct out_stocklev_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_low_stock;
  int16_t  s_transtatus;
  int16_t  deadlocks;
};

/* ********************************************************************** */
/* Transaction Prototypes                                                 */
/* ********************************************************************** */

#ifdef __cplusplus
extern "C" {
#endif

extern int neword_sql(struct in_neword_struct*, struct out_neword_struct*);
extern int payment_sql(struct in_payment_struct*, struct out_payment_struct*);
extern int ordstat_sql(struct in_ordstat_struct*, struct out_ordstat_struct*);
extern int delivery_sql(struct in_delivery_struct*, struct out_delivery_struct*);
extern int stocklev_sql(struct in_stocklev_struct*, struct out_stocklev_struct*);

#ifdef __cplusplus
}
#endif

/* ********************************************************************** */
/* DB2 Connect/Disconnect & Thread Context Wrappers                       */
/* ********************************************************************** */

#ifdef __cplusplus
extern "C" {
#endif

extern int connect_to_TM(char*);                                 //@d273565mte
extern int connect_to_TM_auth(char*, char*, char*);              //@d299531mte
extern int disconnect_from_TM(void);                             //@d273565mte


#ifdef __cplusplus
}
#endif

#endif // __DB2TPCC_H
```

dbgen.Makefile

```
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##############################################################################

# Makefile - Build gendata tool
#
# Change Activity:
# defect Date        Who Description
# ====== ========== === ============================================
# 225200 2002/04/05  mte Initial Code Drop
# 226693 2002/04/19  mte UNION ALL Support
# 229598 2002/04/24  mte gendata.sqc -> gendata.c conversion
# 230738 2002/04/30  vhl RCT Support
# 239017 2002/06/11  mte Move INCLUDE before CFLAGS
# 258158 2002/10/09  mte Fix rctload build rules
# 264386 2002/12/18  mte Various Makefile changes
# 266954 2003/01/20  mte Cleanup for audit
# 267881 2003/01/27  mte Wrap all local-warehouse code with #ifdef EEE
# 278649 2003/04/22  mte Remove rctload build rules
# 282309 2003/06/05  mte Makefile changes for Linux (gnumake)
#

include $(TPCC_ROOT)/Makefile.config

# ############################################################################
# Preprocessor, Compiler and Linker Flags
# ############################################################################
```

```
INCLUDE =       -I$(TPCC_SQLLIB)/include -I$(TPCC_ROOT)/include

CFLAGS =  $(INCLUDE) $(CFLAGS_OS) -DLINT_ARGS -DSQLA_NOLINES \
                  -D$(DB2EDITION) -D$(DB2VERSION) $(CFLAGS_DEBUG)

LDFLAGS = $(LDFLAGS_EXEC) $(LDFLAGS_LIB)

# ########################################################################
# File Collections
# ########################################################################

OBJS =              tpccrnd$(OBJEXT) \
                    $(TPCC_ROOT)/Src.Common/tpccmisc$(OBJEXT)
OBJ_EEE = $(TPCC_ROOT)/Src.Common/tpcclwh$(OBJEXT)

EXEC =              gendata$(BINEXT)

# ########################################################################
# End-User Targets
# ########################################################################

all:      $(EXEC)

clean:
          - $(ERASE) *$(OBJEXT) $(EXEC)

# ########################################################################
# Build Rules
# ########################################################################

.SUFFIXES:
.SUFFIXES:      $(OBJEXT) .c

# We use $@$(OBJEXT) here so that the UNIX makefiles work with both
# 'traditional' make and GNU make
$(EXEC):
          $(LD_EXEC) $(LDFLAGS) $(OBJS) $@$(OBJEXT) $(LDFLAGS_OUT)$@

# ########################################################################
# Dependencies
# ########################################################################

# Link Dependencies
gendata$(BINEXT):   $(OBJS) gendata$(OBJEXT)

# Build Dependencies
# Source
gendata$(OBJEXT):   gendata.c

# Headers
gendata.c:          $(TPCC_ROOT)/include/tpccrnd.h $(TPCC_ROOT)/include/lval.h
```

gendata.c

```
/**************************************************************************
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**
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**
** (C) COPYRIGHT International Business Machines Corp. 1996 - 2002
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** disclosure restricted by GSA ADP Schedule Contract with IBM Corp.
**************************************************************************/

/*
 * gendata.c - Generate data for TPC-C database
 *
 * Change Activity:
 * defect Date        Who Description
 * ====== ========== === ==========================================
 * 225200 2002/04/05  mte Initial Code Drop
 * 226615 2002/04/09  mte Allow generation for warehouse ranges
 * 226831 2002/04/10  mte Print scaling summary
 * 226879 2002/04/11  mte seed_1_3000 requires ranges in non-REG_KIT code
 * 227131 2002/04/12  mte Fix incorrect stats messages
 * 226693 2002/04/19  mte UNION ALL Support
 * 229592 2002/04/24  mte Remove INSERT support
 * 229598 2002/04/24  mte gendata.sqc -> gendata.c conversion
 * 230738 2002/04/30  vhl RCT Support
 * 233496 2002/05/13  mte Fix command line option parsing (-rct parameter)
 * 238599 2002/06/07  mte Allow for arbitrary column delimiters
 * 239146 2002/06/10  mte Remove unused variables, rescope some globals
 * 239166 2002/06/11  mte Move scaling report into separate function
 * 240587 2002/06/19  mte Use 64-bit integers for timestamps
 * 241195 2002/06/21  mte Fix typo in 239166
 * 241457 2002/06/24  mte Use generic file/pipe I/O routines
 * 239157 2002/06/27  mte Revamp command-line option parsing & validation
 * 243925 2002/07/10  mte Remove unused variables, rename load_ to gen_
 * 244735 2002/07/15  mte Convert ware_end to use 0-based numbering
 * 253005 2002/08/26  mte Miscellanous NT fixes
 * 258698 2002/10/16  mte Change stock index order
 * 261189 2002/11/13  mte Only open O/OL flat files in append-mode
 * 261575 2002/11/18  mte Check return codes from Generic I/O functions
 * 262307 2002/11/25  mte Use stdout/stderr more appropriately
 * 264315 2002/12/17  mte Change customer index order
 * 265265 2003/01/14  mte Change schema to avoid type conversions
 * 266954 2003/01/20  mte Cleanup for audit
 * 267881 2003/01/27  mte Wrap all local-warehouse code with #ifdef EEE
 * 267951 2003/01/27  mte Cleanup random number functions
 * 269471 2003/02/07  mte Add command-line arg to call ScalingReport()
 * 271551 2003/02/27  jva Changes to gendata.c
 * 273338 2003/03/12  mte Change using_rct to using_rctload
 * 273338 2003/03/12  mte Reduce printf output
 * 274719 2003/03/20  mte Column reordering to improve log, d-cache perf
 * 276900 2003/04/04  mte Fix 32/64-bit issues
 * 283977 2003/06/24  jnh Change LL literals to sqlint64 variables
 * 285977 2003/07/18  mte Purge use of %hd and %ld
 * 286192 2003/07/21  mte Add -q "quiet mode" operation
 * 289027 2003/08/22  mte Clean up error handling
 * 289783 2003/09/02  mte Fix status message in gen_ware_tbl()
 * 318803 2004/03/23  mte Add comments to gen_nu_ord()
 */

#include <stdlib.h>
#include <stdio.h>                                              //@d266954mte
#include <string.h>                                             //@d266954mte
#include <sqlutil.h>
/* UNIX named pipe support */
#include <sys/stat.h>
#include <errno.h>
#include <fcntl.h>
```

```
#include "platform.h"                                          //@d241457mte
#include "tpccrnd.h"                                           //@d266954mte
#include "lval.h"                                              //@d266954mte


/*  PROTOTYPES.  */
void gen_dist_tbl( void );                                    //@bd243925mte
void gen_cust_tbl( void );
void gen_hist_tbl( void );
void gen_nu_ord_tbl( void );
void gen_ordr_tbl( void );
void gen_item_tbl( void );
void gen_stock_tbl( void );
void gen_ware_tbl( void );                                    //@ed243925mte

int i, j;
double timestamp1, timestamp2, elapse;
int rc, rc1, rc2;                                              //@d261575mte

int using_range = 0;                                           //@d226615mte
int using_npipe = 0;
int using_rctload = 0;                                         //@d273338mte
int quiet_mode = 0;                                            //@d286192mte
sqlint32 ware_start=-1, ware_end=-1;                           //@d226615mte

char fmtWare[]    = "%s|%s|%s|%s|%s|%s|%d|%lld|%d\n";          //@d276900mte
char fmtDist[]    = "%d|%d|%lld|%s|%s|%s|%s|%s|%d|%d\n";       //@d285977mte
char fmtItem[]    = "%s|%d|%s|%d|%d\n";
char fmtStock[]   = "%d|%d|%d|%d|%s|%s|%s|%s|%s|%s|%s|%s|%s|%s|%d|%d\n";
//@d285977mte
char fmtCust[]    =
"%d|%s|%s|%s|%lld|%lld|%s|%s|%d|%s|%s|%s|%s|%s|%s|%d|%d|%d|%lld|%lld|%d\n";
//@d285977mte
char fmtHist[]    = "%d|%d|%d|%d|%d|%lld|%d|%s\n";              //@d285977mte
char fmtOrdr[]    = "%d|%lld|%d|%d|%d|%d|%d|%d\n";              //@d285977mte
char fmtOLine[]   = "%lld|%d|%d|%d|%d|%s|%d|%d|%d|%d\n";       //@d285977mte
char fmtNewOrd[]  = "%d|%d|%d\n";                              //@d285977mte
void InitFormatStrings(char delim);                           //@ed238599mte
void ScalingReport(void);                                      //@d239166mte

int outtype1 = 0;                                              //@d239157mte
int outtype2 = 0;                                              //@d239157mte
char *outname1 = NULL;                                         //@d239157mte
char *outname2 = NULL;                                         //@d239157mte

/*---------------------------------------------------------------------------*/
/*      main                                                                 */
/*---------------------------------------------------------------------------*/
int main (int argc, char *argv[])
{
   int option = -1;
   char *delim = NULL;                                         //@d239157mte

   /* ************************************************************** */
   /* Compute Warehouse Ranges                                       */
   /* ************************************************************** */
   ware_start = 1;                                             //@d239157mte
   ware_end = WAREHOUSES;                                      //@d267881mte

   /* ************************************************************** */
   /* Process Command Line Arguments                                 */
   /* ************************************************************** */
```

```
                                                               //@bd239157mte
/* Valid Command Line Options
 * -------------------------
 * Table Option:             -t <table>         (-t 3 for warehouse)
 * Output Column Delimiter:  -d <char>          (-d ' ', -d '|', etc)
 * Output to File:           -f[n] <file>       (-f customer.dat)
 * Output to Pipe:           -p[n] <pipename>   (-p tpccpipe.000)
 * Warehouse Range:          -r <start> <end>   (-r 1 100)
 * Scaling Report:           -s
 * Quiet Mode:               -q
 *
 * The -f[n] and/or -p[n] options are required.
 * The -t, -d, -r, -s and -q options are optional.
 *
 * If -d is omitted, the vertical bar (pipe) symbol ('|') will be used.
 * If -r is omitted, the range [1..WAREHOUSES] will be used.
 *
 * Due to the TPC-C spec requiring that orders and orderline be
 * generated at the same time, there is an extension to the -f and -p
 * options to specify one of the two output streams for each argument.
 *
 * -f1 orders.dat -f2 orderline.dat will output to two files
 * -f1 orders.dat -p2 tpccpipe.000 will output to a file and a pipe
 *
 * -f1/-p1 specifies the destination for the orders table
 * -f2/-p2 specifies the destination for the orderline table
 *
 */

/* Read Arguments */
for (i=1; i<argc; i++)
{
   if (strcmp(argv[i], "-t") == 0) {
      option = atoi(argv[i+1]);
      i++;
   } else if (strcmp(argv[i], "-r") == 0) {
      ware_start = atoi(argv[i+1]);
      ware_end = atoi(argv[i+2]);
      i += 2;
   } else if (strcmp(argv[i], "-d") == 0) {
      delim = argv[i+1];
      i++;
   } else if ((strcmp(argv[i], "-f")  == 0) ||
              (strcmp(argv[i], "-f1") == 0)) {
      outtype1 = IOH_FILE;
      outname1 = argv[i+1];
      i++;
   } else if (strcmp(argv[i], "-f2") == 0) {
      outtype2 = IOH_FILE;
      outname2 = argv[i+1];
      i++;
   } else if ((strcmp(argv[i], "-p")  == 0) ||
              (strcmp(argv[i], "-p1") == 0)) {
      outtype1 = IOH_PIPE;
      outname1 = argv[i+1];
      i++;
   } else if (strcmp(argv[i], "-p2") == 0) {
      outtype2 = IOH_PIPE;
      outname2 = argv[i+1];
      i++;
   } else if (strcmp(argv[i], "-s") == 0) {                    //@bd269471mte
      ScalingReport();
      exit(0);                                                 //@ed269471mte
```

```
      } else if (strcmp(argv[i], "-q") == 0) {                    //@d286192mte
        quiet_mode = 1;                                           //@d286192mte
      } else {
         fprintf(stderr, "gendata: Don't understand argument: %s\n",argv[i]);
         exit(-1);
      }
   }

   /* ************************************************************** */
   /* Validate Command Line Arguments                                */
   /* ************************************************************** */

   /* Validate Table Argument */
   if (option < 3 || option > 11 || option == 10)
   {
      fprintf(stderr,"gendata: Invalid table selected: %d\n",option);
      exit(-1);
   }

   /* Validate Delimiter Argument */
   if (delim == NULL) {
     // default delimiter is used for IMPORT & LOAD, no changes neccessary
     using_rctload = 0;                                           //@d273338mte
   } else if (strlen(delim) == 1 && !isalnum(delim[0]) &&
            delim[0] != '.' && delim[0] != '%')
   {
      // user-supplied delimiter used for rctload
      InitFormatStrings(delim[0]);
      using_rctload = 1;                                          //@d273338mte
   } else {
      fprintf(stderr,"gendata: Invalid delimiter specified: %s\n",delim);
      exit(-1);
   }

   /* Validate File/Pipe Arguments */
   if (option != 9 && outtype1 > 0 && outtype2 > 0)
   {
      fprintf(stderr,"gendata: Specifying two output file/pipes allowed only when
generating\norders/orderline.\n");
      exit(-1);
   }
   if (option == 9 && ((outtype1 == 0) || (outtype2 == 0)))
   {
      fprintf(stderr,"gendata: Must specify two output file/pipes when generating
orders/orderline.\n");
      exit(-1);
   }
   if (outtype1 == 0 || outname1 == NULL || strcmp(outname1,"") == 0)
   {
      fprintf(stderr,"gendata: Invalid 1st output file/pipe specified.\n");
      exit(-1);
   }
   if (option == 9 && (outtype2 == 0 || outname2 == NULL || strcmp(outname2,"") ==
0))
   {
      fprintf(stderr,"gendata: Invalid 2nd output file/pipe specified.\n");
      exit(-1);
   }                                                              //@ed239157mte
   /* Ensure O/OL flat files are opened in append mode.  This is required */
   /* because we generate O/OL concurrently.  See comments in genload.pl  */
   /* for further details on why this is neccessary.                      */
   if (option == 9)                                               //@bd261189mte
   {
      if (outtype1 == IOH_FILE) outtype1 = IOH_FILE_APPEND;
      if (outtype2 == IOH_FILE) outtype2 = IOH_FILE_APPEND;
   }                                                              //@ed261189mte

   /* Validate Range Arguments */
   if (ware_start <= 0 || ware_start > WAREHOUSES) {
      fprintf(stderr,"gendata: Invalid range starting value: %d\n",ware_start);
       exit(-1);
   }
   if (ware_end <= 0 || ware_end > WAREHOUSES || ware_end < ware_start) {
      fprintf(stderr,"gendata: Invalid range ending value: %d\n",ware_end);
      exit(-1);
   }

   /* ************************************************************** */
   /* Generate Data                                                  */
   /* ************************************************************** */
   switch (option) {
    case 3: /* WAREHOUSE */                                       //@d226693mte
      gen_ware_tbl();                                             //@d243925mte
      break;
    case 4: /* DISTRICT  */                                       //@d226693mte
      gen_dist_tbl();                                             //@d243925mte
      break;
    case 5: /* ITEM  */                                           //@d226693mte
      gen_item_tbl();                                             //@d243925mte
      break;
    case 6: /* STOCK     */                                      //@d226693mte
      gen_stock_tbl();                                            //@d243925mte
      break;
    case 7: /* CUSTOMER  */                                       //@d226693mte
      gen_cust_tbl();                                             //@d243925mte
      break;
    case 8: /* HISTORY   */                                       //@d226693mte
      gen_hist_tbl();                                             //@d243925mte
      break;
    case 9: /* ORDERS + ORDER_LINE */
      gen_ordr_tbl();                                             //@d243925mte
      break;
    case 11: /* NEW_ORDER */                                      //@d226693mte
      gen_nu_ord_tbl();                                           //@d243925mte
      break;
    case 2:
    case 10:
    default:
      fprintf(stderr, "Error: invalid option = %d \n",(option));
      break;
   }
   return 0;
}

/*-------------------------------------------------------------------*/
/* generate item table                                               */
/*-------------------------------------------------------------------*/

void gen_item_tbl( void )                                         //@d243925mte
{
   sqlint32  item_num = 0 ;                                       //@d289027mte
   sqlint32  item_im_id ;
   char  item_name[25] ;
   sqlint32  item_price ;
   char  item_data[51] ;
```

```
   IOH_NUM numBytes;                                          //@d241457mte
   ioHandle hnd;                                              //@d241457mte
   char Buffer[1024];

   initialize_random(13,42);
   timestamp1 = current_time();                               //@d261575mte

   rc = GenericOpen(&hnd, outtype1, outname1);                //@d261575mte
   if (rc != 0) { goto item_done; }                           //@d261575mte

   for(item_num = 1; item_num <= ITEMS; item_num++)
   {
      /* create image id field */
      item_im_id = rand_integer( 1, 10000 ) ;
      /* create name field */
      create_random_a_string( item_name, 14, 24);
      /* create price field */
      item_price = rand_integer( 100, 10000 ) ;
      /* create ORIGINAL field */
      create_a_string_with_original( item_data, 26, 50, 10) ;  //@d267951mte

      numBytes = sprintf(Buffer, fmtItem,                     //@bd274719mte
                         item_name,
                         item_price,
                         item_data,
                         item_im_id,
                         item_num);                           //@ed274719mte

      rc = GenericWrite(&hnd, Buffer, numBytes);              //@d261575mte
      if (rc != 0) { goto item_done; }                        //@d261575mte

   } /* end for... */

   rc = GenericClose(&hnd);                                   //@d261575mte

item_done:

   timestamp2 = current_time();
   elapse = timestamp2 - timestamp1;
   if (rc == 0) {                                             //@bd261575mte
      fprintf(stdout,"\nITEM table generated in %8.2f seconds.\n\n",elapse);
//@d262307mte
      fflush(stdout);                                         //@d262307mte
   } else {
      fprintf(stderr,"\nITEM table FAILED at (I %d) after %8.2f
seconds.\n\n",item_num,elapse);
      fflush(stderr);                                         //@d262307mte
   }                                                          //@ed261575mte
}

/*-------------------------------------------------------------------------*/
/* generate stock table                                                    */
/*-------------------------------------------------------------------------*/
void gen_stock_tbl( void )                                    //@d243925mte
{
   sqlint32 ware_num = 0 ;                                    //@d289027mte
   sqlint32 stock_num = 0 ;                                   //@d289027mte
   sqlint32 stock_quant;
   sqlint32 s_ytd;
   sqlint32 s_order_cnt, s_remote_cnt;
   char  stock_dist_01[25] ;
   char  stock_dist_02[25] ;
   char  stock_dist_03[25] ;
   char  stock_dist_04[25] ;
   char  stock_dist_05[25] ;
   char  stock_dist_06[25] ;
   char  stock_dist_07[25] ;
   char  stock_dist_08[25] ;
   char  stock_dist_09[25] ;
   char  stock_dist_10[25] ;
   char  stock_data[51] ;

   IOH_NUM numBytes;                                          //@d241457mte
   ioHandle hnd;                                              //@d241457mte
   char Buffer[1024];

   initialize_random(7,11);
   timestamp1 = current_time();                               //@d261575mte

   rc = GenericOpen(&hnd, outtype1, outname1);                //@d261575mte
   if (rc != 0) { goto stock_done; }                          //@d261575mte

   // ------------------------------------------------------------
   // Defect 258698:  Change STOCK index order
   // ------------------------------------------------------------
   // The STOCK index needs to be created in (S_I_ID, S_W_ID) order
   // in order to take advantage of the skew on S_I_ID.  We need to
   // generate the data in that order to get CLUSTERRATIO 100%.
   // ------------------------------------------------------------

   for (stock_num = 1; stock_num <= STOCK_PER_WAREHOUSE; stock_num++)
   {
      if (!quiet_mode && (stock_num%500 == 0))                //@d286192mte
      {
         fprintf(stdout, "STOCK for Item #%d\n",stock_num);    //@d273338mte
         fflush(stdout);                                      //@d262307mte
      }
      for (ware_num = ware_start; ware_num <= ware_end; ware_num++) //@d244735mte
      {
         stock_quant = rand_integer( 10, 100 ) ;
         create_random_a_string( stock_dist_01, 24, 24);
         create_random_a_string( stock_dist_02, 24, 24);
         create_random_a_string( stock_dist_03, 24, 24);
         create_random_a_string( stock_dist_04, 24, 24);
         create_random_a_string( stock_dist_05, 24, 24);
         create_random_a_string( stock_dist_06, 24, 24);
         create_random_a_string( stock_dist_07, 24, 24);
         create_random_a_string( stock_dist_08, 24, 24);
         create_random_a_string( stock_dist_09, 24, 24);
         create_random_a_string( stock_dist_10, 24, 24);

         /* create ORIGINAL field */
         create_a_string_with_original( stock_data, 26, 50, 10 ); //@d267951mte
         s_ytd = s_order_cnt = s_remote_cnt = 0;

         numBytes = sprintf(Buffer, fmtStock,                 //@bd274719mte
                            s_remote_cnt,
                            stock_quant,
                            s_order_cnt,
                            s_ytd,
                            stock_data,
                            stock_dist_01,
                            stock_dist_02,
                            stock_dist_03,
                            stock_dist_04,
                            stock_dist_05,
```

```
                        stock_dist_06,
                        stock_dist_07,
                        stock_dist_08,
                        stock_dist_09,
                        stock_dist_10,
                        stock_num,
                        ware_num);                              //@ed274719mte

        rc = GenericWrite(&hnd, Buffer, numBytes);               //@d261575mte
        if (rc != 0) { goto stock_done; }                        //@d261575mte

      } /* end for... */
   } /* end for... */

   rc = GenericClose(&hnd);                                      //@d261575mte

stock_done:

   timestamp2 = current_time();
   elapse = timestamp2 - timestamp1;
   if (rc == 0) {                                               //@bd261575mte
      fprintf(stdout,"\nSTOCK table generated in %8.2f seconds.\n\n",elapse);
//@d262307mte
      fflush(stdout);                                           //@d262307mte
   } else {
      fprintf(stderr,"\nSTOCK table FAILED at (S %d W %d) after %8.2f
seconds.\n\n",stock_num, ware_num, elapse);
      fflush(stderr);                                           //@d262307mte
   }                                                            //@ed261575mte
}

/*---------------------------------------------------------------------------*/
/* generate warehouse table                                                  */
/*---------------------------------------------------------------------------*/
void gen_ware_tbl( void )                                       //@d243925mte
{
   sqlint32 ware_num = 0 ;                                      //@d289027mte
   char ware_name[11] ;
   char ware_street_1[21] ;
   char ware_street_2[21] ;
   char ware_city[21] ;
   char ware_state[3]  ;
   char ware_zip[10]  ;
   sqlint32 ware_tax ;                                          //@d265265mte
   sqlint64 ware_YTD ;                                          //@d283977jnh

   IOH_NUM numBytes;                                            //@d241457mte
   ioHandle hnd;                                                //@d241457mte
   char Buffer[1024];

   initialize_random(23,111);
   timestamp1 = current_time();                                 //@d261575mte

   rc = GenericOpen(&hnd, outtype1, outname1);                  //@d261575mte
   if (rc != 0) { goto ware_done; }                             //@d261575mte

   for (ware_num = ware_start; ware_num <= ware_end; ware_num++)  //@d244735mte
   {
      if (!quiet_mode && ((ware_num % 500) == 0)) {             //@dxxxxxxmte
         fprintf(stdout, "Warehouse #%d\n", ware_num);          //@d273338mte
         fflush(stdout);                                        //@d262307mte
      }

      create_random_a_string( ware_name,      6,10) ; /* create name */
      create_random_a_string( ware_street_1, 10,20) ; /* create street 1 */
      create_random_a_string( ware_street_2, 10,20) ; /* create street 2 */
      create_random_a_string( ware_city,     10,20) ; /* create city */
      create_random_a_string( ware_state,     2,2) ;  /* create state */
      create_random_n_string( ware_zip,       4,4) ;  /* create zip */
      strcat(ware_zip, "11111");

      ware_tax = rand_integer(0, 2000);                          //@d265265mte
      ware_YTD = 30000000;                                       //@d283977jnh

      numBytes = sprintf(Buffer, fmtWare,                       //@bd274719mte
                         ware_name,
                         ware_street_1,
                         ware_street_2,
                         ware_city,
                         ware_state,
                         ware_zip,
                         ware_tax,
                         ware_YTD,                              //@d283977jnh
                         ware_num);                             //@ed274719mte

      rc = GenericWrite(&hnd, Buffer, numBytes);                 //@d261575mte
      if (rc != 0) { goto ware_done; }                           //@d261575mte

   } /* end for */

   rc = GenericClose(&hnd);                                     //@d261575mte

ware_done:

   timestamp2 = current_time();
   elapse = timestamp2 - timestamp1;
   if (rc == 0) {                                               //@bd261575mte
      fprintf(stdout,"\nWAREHOUSE table generated in %8.2f seconds.\n\n",elapse);
//@d262307mte
      fflush(stdout);                                           //@d262307mte
   } else {
      fprintf(stderr,"\nWAREHOUSE table FAILED at (W %d) after %8.2f
seconds.\n\n",ware_num, elapse);
      fflush(stderr);                                           //@d262307mte
   }                                                            //@ed261575mte
}

/*---------------------------------------------------------------------------*/
/* generate dist table                                                       */
/*---------------------------------------------------------------------------*/
void gen_dist_tbl( void )                                       //@d243925mte
{
   sqlint32 ware_num = 0 ;                                      //@d289027mte
   sqlint32 dist_num = 0 ;                                      //@d289027mte
   char dist_name[11];
   char dist_street_1[21];
   char dist_street_2[21];
   char dist_city[21];
   char dist_state[3];
   char dist_zip[10];
   sqlint32 dist_tax;                                           //@d265265mte
   sqlint32 next_o_id;
   sqlint64 dist_YTD;                                           //@d283977jnh

   IOH_NUM numBytes;                                            //@d241457mte
   ioHandle hnd;                                                //@d241457mte
```

```
   char Buffer[1024];

   next_o_id = CUSTOMERS_PER_DISTRICT + 1;
   initialize_random(44,73);
   timestamp1 = current_time();                                    //@d261575mte

   rc = GenericOpen(&hnd, outtype1, outname1);                     //@d261575mte
   if (rc != 0) { goto dist_done; }                                //@d261575mte

   for (ware_num = ware_start; ware_num <= ware_end; ware_num++)  //@d244735mte
   {
      if (!quiet_mode) {                                           //@d286192mte
         fprintf(stdout, "DISTRICT for Warehouse #%d\n", ware_num); //@d273338mte
         fflush(stdout);                                           //@d262307mte
      }                                                            //@d286192mte
      for (dist_num = 1; dist_num <= DISTRICTS_PER_WAREHOUSE; dist_num++)
      {
         create_random_a_string( dist_name,      6,10) ; /* create name */
         create_random_a_string( dist_street_1, 10,20) ; /* create street 1 */
         create_random_a_string( dist_street_2, 10,20) ; /* create street 2 */
         create_random_a_string( dist_city,     10,20) ; /* create city */
         create_random_a_string( dist_state,     2,2) ;  /* create state */
         create_random_n_string( dist_zip,       4,4) ;  /* create zip */
         strcat(dist_zip, "11111");
         dist_tax = rand_integer(0, 2000);                         //@d265265mte
         dist_YTD = 3000000;                                       //@d283977jnh

         numBytes = sprintf(Buffer, fmtDist,                      //@bd274719mte
                            next_o_id,
                            dist_tax,
                            dist_YTD,                              //@d283977jnh
                            dist_name,
                            dist_street_1,
                            dist_street_2,
                            dist_city,
                            dist_state,
                            dist_zip,
                            dist_num,
                            ware_num);                             //@ed274719mte

         rc = GenericWrite(&hnd, Buffer, numBytes);                //@d261575mte
         if (rc != 0) { goto dist_done; }                          //@d261575mte

      } /* end for... */
   } /* end for... */

   rc = GenericClose(&hnd);                                        //@d261575mte

dist_done:

   timestamp2 = current_time();
   elapse = timestamp2 - timestamp1;
   if (rc == 0) {                                                  //@bd261575mte
      fprintf(stdout,"\nDISTRICT table generated in %8.2f seconds.\n\n",elapse);
//@d262307mte
      fflush(stdout);                                              //@d262307mte
   } else {
      fprintf(stderr,"\nDISTRICT table FAILED at (W %d D %d) after %8.2f
seconds.\n\n",ware_num,dist_num,elapse);
      fflush(stderr);                                              //@d262307mte
   }                                                               //@ed261575mte
}
```

```
/*-------------------------------------------------------------------*/
/* generate customer table                                           */
/*-------------------------------------------------------------------*/
void gen_cust_tbl( void )                                          //@d243925mte
{
   sqlint32 ware_num = 0 ;                                         //@d289027mte
   sqlint32 dist_num = 0 ;                                         //@d289027mte
   sqlint32 cust_num = 0 ;                                         //@d289027mte
   char cust_last[17];
   char cust_middle[3];
   char cust_first[17];
   char cust_street_1[21];
   char cust_street_2[21];
   char cust_city[21];
   char cust_state[3];
   char cust_zip[10];
   char cust_phone[17];
   char cust_credit[3];
   char cust_data[501];                                            //@d265265mte
   sqlint32 cust_discount;                                         //@d265265mte
   sqlint64 currtmstmp;                                            //@d240587mte
   sqlint64 cust_balance;                                          //@bd283977jnh
   sqlint64 cust_YTD_payment;
   sqlint64 cust_credit_lim;                                       //@ed283977jnh

   IOH_NUM numBytes;                                               //@d241457mte
   ioHandle hnd;                                                   //@d241457mte
   char Buffer[1024];
   int len, pos;                                                   //@d265265mte

   initialize_random(10,64);
   timestamp1 = current_time();                                    //@d261575mte

   rc = GenericOpen(&hnd, outtype1, outname1);                     //@d261575mte
   if (rc != 0) { goto cust_done; }                                //@d261575mte

   strcpy(cust_middle, "OE");                                      //@d239146mte
   currtmstmp = time(NULL);                                        //@d240587mte

   // ------------------------------------------------------------
   // Defect 264315:  Change CUSTOMER index order
   // ------------------------------------------------------------
   // The CUSTOMER index needs to be created in (C_ID, C_W_ID, C_D_ID)
   // order in order to take advantage of the skew on C_ID.  We need
   // to generate the data in that order to get CLUSTERRATIO 100%.
   // ------------------------------------------------------------

   for (cust_num = 1; cust_num <= CUSTOMERS_PER_DISTRICT; cust_num++)
   {
      if (!quiet_mode) {                                           //@d286192mte
         fprintf(stdout, "CUSTOMER #%d:\n", cust_num);             //@d273338mte
         fflush(stdout);                                           //@d262307mte
      }                                                            //@d286192mte

      for (ware_num = ware_start; ware_num <= ware_end; ware_num++) //@d244735mte
      {
         for (dist_num = 1; dist_num <= DISTRICTS_PER_WAREHOUSE; dist_num++)
         {
            if (cust_num <= 1000)                        /* create last name */
               create_random_last_name( cust_last, cust_num);
            else                                         /* create last name */
               create_random_last_name( cust_last, 0);
            create_random_a_string( cust_first,     8,16) ; /* create first name */
```

```
      create_random_a_string( cust_street_1, 10,20) ; /* create street 1 */
      create_random_a_string( cust_street_2, 10,20) ; /* create street 2 */
      create_random_a_string( cust_city,     10,20) ; /* create city */
      create_random_a_string( cust_state,     2,2) ;  /* create state */
      create_random_n_string( cust_zip,       4,4) ;  /* create zip */
      strcat(cust_zip, "11111");

      /* create phone number */
      create_random_n_string( cust_phone, 16,16) ;
      if ( rand_integer( 1, 100 ) <= 10 )                  //@d267951mte
         strcpy( cust_credit, "BC" ) ;
      else
         strcpy( cust_credit, "GC" ) ;

      /* create discount rate */
      cust_discount = rand_integer(0, 5000);               //@d265265mte

      /* create customer data */
      create_random_a_string(cust_data, 300, 500);         //@d265265mte

      /* pad customer data (only for non-rctload) */
      if (using_rctload == 0) {            //@d273338mte  //@bd265265mte
        for (pos=strlen(cust_data); pos<500; pos++)
          cust_data[pos] = ' ';
        cust_data[500] = '\0';
      }                                                    //@ed265265mte

      cust_credit_lim = 5000000;                           //@bd283977jnh
      cust_balance = -1000;
      cust_YTD_payment = 1000;                             //@ed283977jnh

      numBytes = sprintf(Buffer, fmtCust,                  //@bd274719mte
                         cust_num,
                         cust_state,
                         cust_zip,
                         cust_phone,
                         currtmstmp,
                         cust_credit_lim,                   //@d283977jnh
                         cust_middle,                       //@d239146mte
                         cust_credit,
                         cust_discount,
                         cust_data,
                         cust_last,
                         cust_first,
                         cust_street_1,
                         cust_street_2,
                         cust_city,
                         dist_num,
                         ware_num,                          //@d267881mte
                         0,
                         cust_balance,                     //@d283977jnh
                         cust_YTD_payment,                 //@d283977jnh
                         1);                               //@ed274719mte

      rc = GenericWrite(&hnd, Buffer, numBytes);           //@d261575mte
      if (rc != 0) { goto cust_done; }                     //@d261575mte

    } /* end for district... */
  } /* end for warehouse... */
} /* end for customer... */

rc = GenericClose(&hnd);                                   //@d261575mte
```

```
cust_done:

   timestamp2 = current_time();
   elapse = timestamp2 - timestamp1;
   if (rc == 0) {                                          //@bd261575mte
      fprintf(stdout,"\nCUSTOMER table generated in %8.2f seconds.\n\n",elapse);
//@d262307mte
      fflush(stdout);                                      //@d262307mte
   } else {
      fprintf(stderr,"\nCUSTOMER table FAILED at (W %d D %d C %d) after %8.2f
seconds.\n\n",ware_num, dist_num, cust_num, elapse);
      fflush(stderr);                                      //@d262307mte
   }                                                       //@ed261575mte
}

/*---------------------------------------------------------------------*/
/* generate hist table                                                 */
/*---------------------------------------------------------------------*/
void gen_hist_tbl( void )                                  //@d243925mte
{
   sqlint32 ware_num = 0 ;                                 //@d289027mte
   sqlint32 dist_num = 0 ;                                 //@d289027mte
   sqlint32 cust_num = 0 ;                                 //@d289027mte
   char hist_data[25] ;
   sqlint64 currtmstmp;                                    //@d240587mte

   IOH_NUM numBytes;                                       //@d241457mte
   ioHandle hnd;                                           //@d241457mte
   char Buffer[1024];

   initialize_random(15,63);
   timestamp1 = current_time();                            //@d261575mte

   rc = GenericOpen(&hnd, outtype1, outname1);             //@d261575mte
   if (rc != 0) { goto hist_done; }                        //@d261575mte

   currtmstmp = time(NULL);                                //@d240587mte

   for (ware_num = ware_start; ware_num <= ware_end; ware_num++)  //@d244735mte
   {
      if (!quiet_mode) {                                   //@d286192mte
         fprintf(stdout, "HISTORY for Warehouse #%d:\n", ware_num);  //@d273338mte
         fflush(stdout);                                   //@d262307mte
      }                                                    //@d286192mte
      for (dist_num = 1; dist_num <= DISTRICTS_PER_WAREHOUSE; dist_num++)
      {
         for (cust_num = 1; cust_num <= CUSTOMERS_PER_DISTRICT; cust_num++)
         {
            /* create history data */
            create_random_a_string( hist_data, 12,24) ;

            numBytes = sprintf(Buffer, fmtHist,            //@d238599mte
                               cust_num,
                               dist_num,
                               ware_num,                   //@d267881mte
                               dist_num,
                               ware_num,                   //@d267881mte
                               currtmstmp,
                               1000,
                               hist_data);

            rc = GenericWrite(&hnd, Buffer, numBytes);     //@d261575mte
            if (rc != 0) { goto hist_done; }               //@d261575mte
```

```
         } /* end for customer... */
      } /* end for district... */
   } /* end for warehouse... */

   rc = GenericClose(&hnd);                                          //@d261575mte

hist_done:

   timestamp2 = current_time();
   elapse = timestamp2 - timestamp1;
   if (rc == 0) {                                                    //@bd261575mte
      fprintf(stdout,"\nHISTORY table generated in %8.2f seconds.\n\n",elapse);
//@d262307mte
      fflush(stdout);                                                //@d262307mte
   } else {
      fprintf(stderr,"\nHISTORY table FAILED at (W %d D %d C %d) after %8.2f
seconds.\n\n",ware_num, dist_num, cust_num, elapse);
      fflush(stderr);                                                //@d262307mte
   }                                                                 //@ed261575mte
}

/*---------------------------------------------------------------------*/
/* generate nu_ord table                                               */
/*---------------------------------------------------------------------*/
void gen_nu_ord_tbl( void )                                          //@d243925mte
{
   sqlint32 ware_num = 0 ;                                           //@d289027mte
   sqlint32 dist_num = 0 ;                                           //@d289027mte
   sqlint32 nu_ord_id = 0 ;                                          //@d289027mte
   int nu_ord_hi ;

   IOH_NUM numBytes;                                                 //@d241457mte
   ioHandle hnd;                                                     //@d241457mte
   char Buffer[1024];

   /* compute maximum and minimum
      order numbers for this
      district */
   nu_ord_hi = CUSTOMERS_PER_DISTRICT - NU_ORDERS_PER_DISTRICT + 1;
   if (nu_ord_hi < 0) {
      nu_ord_hi = CUSTOMERS_PER_DISTRICT - (CUSTOMERS_PER_DISTRICT / 3) + 1;
      fprintf(stderr,"\n**** WARNING **** NU_ORDERS_PER_DISTRICT is >
CUSTOMERS_PER_DISTRICT\n");
      fprintf(stderr,"                Check the values in file lval.h\n");
      fprintf(stderr,"                Loading New-Order with 1/3 of
CUSTOMERS_PER_DISTRICT\n");
   }
   initialize_random(99,37);
   timestamp1 = current_time();                                      //@d261575mte

   rc = GenericOpen(&hnd, outtype1, outname1);                       //@d261575mte
   if (rc != 0) { goto neword_done; }                                //@d261575mte

   /* We generate in O/W/D order for non-RCT tables.  With the
    * data clustered on O_ID, this gives us good bufferpool
    * characteristics.  We also create a btree index in W/D/O
    * order, to satisfy MIN(O_ID) queries.
    *
    * For RCT tables *with* RCT Jump Cache, we *should* generate
    * the data in W/D/O order (to match the table definition.)
    * We don't since it would push schema decisions into flat file
    * generation (and I don't want to do that.)  It's just as easy
    * to sort the flat files afterwards.
    */

   for (nu_ord_id = nu_ord_hi;
        nu_ord_id <= CUSTOMERS_PER_DISTRICT;
        nu_ord_id++)
   {
      if (!quiet_mode) {                                             //@d286192mte
         fprintf(stdout, "NEW_ORDER for Customer #%d:\n", nu_ord_id); //@d273338mte
         fflush(stdout);                                             //@d262307mte
      }                                                              //@d286192mte
      for (ware_num = ware_start; ware_num <= ware_end; ware_num++) //@d244735mte
      {
         for (dist_num = 1; dist_num <= DISTRICTS_PER_WAREHOUSE; dist_num++)
         {
            numBytes = sprintf(Buffer, fmtNewOrd,                    //@d238599mte
                               nu_ord_id,
                               dist_num,
                               ware_num);                            //@d267881mte

            rc = GenericWrite(&hnd, Buffer, numBytes);               //@d261575mte
            if (rc != 0) { goto neword_done; }                       //@d261575mte

         } /* end for... */
      } /* end for... */
   } /* end for... */

   rc = GenericClose(&hnd);                                          //@d261575mte

neword_done:

   timestamp2 = current_time();
   elapse = timestamp2 - timestamp1;
   if (rc == 0) {                                                    //@bd261575mte
      fprintf(stdout,"\nNEW_ORDER table generated in %8.2f seconds.\n\n",elapse);
//@d262307mte
      fflush(stdout);                                                //@d262307mte
   } else {
      fprintf(stderr,"\nNEW_ORDER table FAILED at (W %d D %d O %d) after %8.2f
seconds.\n\n",ware_num, dist_num, nu_ord_id, elapse);
      fflush(stderr);                                                //@d262307mte
   }                                                                 //@ed261575mte
}

/*---------------------------------------------------------------------*/
/* generate order and order_line tables                                */
/*---------------------------------------------------------------------*/
void gen_ordr_tbl( void )                                            //@d243925mte
{
   sqlint32 ware_num = 0 ;                                           //@d289027mte
   sqlint32 dist_num = 0 ;                                           //@d289027mte
   sqlint32 cust_num = 0 ;                                           //@d289027mte
   sqlint32 ord_num = 0 ;                                            //@d289027mte
   sqlint32 ordr_carrier_id;
   sqlint32 ordr_ol_cnt;
   sqlint32 oline_ol_num;
   sqlint32 oline_item_num;

   sqlint32 oline_amount;
   char oline_dist_info[25];
   sqlint64 nulltmstmp = 0;                                          //@d240587mte
   sqlint64 currtmstmp;                                              //@d240587mte
```

```
   IOH_NUM numBytes;                                          //@d241457mte
   ioHandle hnd1, hnd2;                                       //@d241457mte
   char Buffer[1024];

   oline_dist_info[24] = '\0';
   initialize_random(42,13);
   timestamp1 = current_time();                               //@d261575mte

   rc1 = GenericOpen(&hnd1, outtype1, outname1);              //@d261575mte
   if (rc1 != 0) { goto ool_done; }                           //@d261575mte
   rc2 = GenericOpen(&hnd2, outtype2, outname2);              //@d261575mte
   if (rc2 != 0) { goto ool_done; }                           //@d261575mte

   currtmstmp = time(NULL);                                    //@d240587mte

   // ---------------------------------------------------------------
   // Defect 264432:  Change ORDERS index order
   // ---------------------------------------------------------------
   // The ORDERS index needs to be created in (O_ID, O_W_ID, O_D_ID)
   // order in order to take advantage of the spread on O_ID.  We
   // should generate the data in that order to get CLUSTERRATIO 100%.
   // ---------------------------------------------------------------
   // However, doing so means that we need to keep state for all of
   // the O_ID permulations for each warehouse, which has too high of
   // a memory cost.  So, we generate in O_W_ID, O_D_ID, O_ID order
   // and then sort the flat files before loading in order to get
   // CLUSTERRATIO 100% after loading.
   // ---------------------------------------------------------------

   for (ware_num = ware_start; ware_num <= ware_end; ware_num++) //@d244735mte
   {
      if (!quiet_mode) {                                      //@d286192mte
         fprintf(stdout, "ORDERS & ORDER_LINE for Warehouse #%d\n", ware_num);
//@d273338mte
         fflush(stdout);                                      //@d262307mte
      }                                                       //@d286192mte
      for (dist_num = 1; dist_num <= DISTRICTS_PER_WAREHOUSE; dist_num++)
      {
          if (!quiet_mode) {                                  //@d286192mte
             fprintf(stdout, "District #%d\t", dist_num);     //@d262307mte
             fflush(stdout);                                  //@d262307mte
          }                                                   //@d286192mte

          seed_1_3000();

          for (ord_num = 1; ord_num <= CUSTOMERS_PER_DISTRICT; ord_num++)
          {
            if (ord_num < 2101)
               ordr_carrier_id = rand_integer( 1, 10 ) ;
            else
               ordr_carrier_id = 0;

            cust_num = random_1_3000();                       //@d266954mte
            ordr_ol_cnt = rand_integer(MIN_OL_PER_ORDER,MAX_OL_PER_ORDER);

            numBytes = sprintf(Buffer, fmtOrdr,              //@bd274719mte
                               cust_num,
                               currtmstmp,
                               ordr_carrier_id,
                               ordr_ol_cnt,
                               1,
                               ord_num,
                               ware_num,                      //@d267881mte
                               dist_num);                     //@ed274719mte

            rc1 = GenericWrite(&hnd1, Buffer, numBytes);      //@d261575mte
            if (rc1 != 0) { goto ool_done; }                  //@d261575mte

            for ( oline_ol_num = 1; oline_ol_num <= ordr_ol_cnt; oline_ol_num++ )
            {
               oline_item_num = rand_integer(1, ITEMS) ;
               create_random_a_string( oline_dist_info, 24, 24) ;

               numBytes = sprintf(Buffer, fmtOLine,           //@bd274719mte
                                  ((ord_num < 2101) ? currtmstmp : nulltmstmp),
                                  ((ord_num < 2101) ? 0 : rand_integer(1,999999)),
                                  oline_item_num,
                                  ware_num,                   //@d267881mte
                                  5,
                                  oline_dist_info,
                                  ord_num,
                                  dist_num,
                                  ware_num,                   //@d267881mte
                                  oline_ol_num);              //@ed274719mte

               rc2 = GenericWrite(&hnd2, Buffer, numBytes);   //@d261575mte
               if (rc2 != 0) { goto ool_done; }               //@d261575mte

            } /* for order_line */
          } /* for order */
      } /* for dist */
   } /* for ware */

   rc1 = GenericClose(&hnd2);                                 //@d261575mte
   rc2 = GenericClose(&hnd1);                                 //@d261575mte

ool_done:

   timestamp2 = current_time();
   elapse = timestamp2 - timestamp1;
   if (rc1 == 0 && rc2 == 0) {
      fprintf(stdout,"\nORDERS & ORDER_LINE table(s) generated in %8.2f
seconds.\n\n",elapse); //@d262307mte
      fflush(stdout);                                         //@d262307mte
   } else {
      fprintf(stderr,"\nORDERS & ORDER_LINE table(s) FAILED at (W %d D %d O %d OL
%d) after %8.2f seconds.\n\n",ware_num, dist_num, ord_num, oline_ol_num, elapse);
      fflush(stderr);                                         //@d262307mte
   }
}

// This routine will initalize the printf format strings and replace the
// delimiter with the one provided.  The pipe symbol is the default.
void InitFormatStrings(char delim)                            //@bd238599mte
{
  char *p;

  // Check if Using Default Delimiter
  if (delim == '|') return;

  // Replace Delimiters
  while (p = strchr(fmtWare,'|'))   { *p = delim; }
  while (p = strchr(fmtDist,'|'))   { *p = delim; }
  while (p = strchr(fmtItem,'|'))   { *p = delim; }
  while (p = strchr(fmtStock,'|'))  { *p = delim; }
  while (p = strchr(fmtCust,'|'))   { *p = delim; }
```

```
  while (p = strchr(fmtHist,'|'))   { *p = delim; }
  while (p = strchr(fmtOrdr,'|'))   { *p = delim; }
  while (p = strchr(fmtOLine,'|'))  { *p = delim; }
  while (p = strchr(fmtNewOrd,'|')) { *p = delim; }
}                                                                    //@ed238599mte

void ScalingReport(void)                                             //@bd239166mte
{
   /* Print Scaling Values */
   fprintf(stdout,"Scaling Values in Use\n");
   fprintf(stdout,"------------------------------\n");
   fprintf(stdout,"Warehouses:            %d\n", WAREHOUSES);
   fprintf(stdout,"Districts/Warehouse:   %d\n", DISTRICTS_PER_WAREHOUSE);
   fprintf(stdout,"Customers/District:    %d\n", CUSTOMERS_PER_DISTRICT);
   fprintf(stdout,"Items:                 %d\n", ITEMS);
   fprintf(stdout,"Stock/Warehouse:       %d\n", STOCK_PER_WAREHOUSE);
   fprintf(stdout,"Min Order Lines/Order: %d\n", MIN_OL_PER_ORDER);
   fprintf(stdout,"Max Order Lines/Order: %d\n", MAX_OL_PER_ORDER);
   fprintf(stdout,"New Orders/District:   %d\n", NU_ORDERS_PER_DISTRICT);
   fprintf(stdout,"------------------------------\n");
}                                                                    //@ed239166mte
```

LOAD_CUSTOMER_1.ddl

```
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM /flat/customer_1.dat OF DEL MODIFIED BY COLDEL| KEEPBLANKS COMPOUND=50
ALLOW WRITE ACCESS COMMITCOUNT 1000 INSERT INTO CUSTOMER;
COMMIT WORK;
CONNECT RESET;
```

LOAD_DISTRICT_1.ddl

```
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM /flat/district_1.dat OF DEL MODIFIED BY COLDEL| KEEPBLANKS COMPOUND=50
ALLOW WRITE ACCESS COMMITCOUNT 1000 INSERT INTO DISTRICT;
COMMIT WORK;
CONNECT RESET;
```

LOAD_HISTORY.ddl

```
connect to TPCC in share mode;
LOAD FROM /flat/history_1.dat OF DEL MODIFIED BY COLDEL| KEEPBLANKS FASTPARSE
REPLACE INTO HISTORY NONRECOVERABLE DATA BUFFER 16000 CPU_PARALLELISM 4 ;
connect reset;
```

LOAD_ITEM_1.ddl

```
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM /flat/item_1.dat OF DEL MODIFIED BY COLDEL| KEEPBLANKS COMPOUND=50
COMMITCOUNT 1000 INSERT INTO ITEM;
COMMIT WORK;
CONNECT RESET;
```

LOAD_NEW_ORDER.ddl

```
connect to TPCC in share mode;
LOAD FROM /flat/neworder_1.dat OF DEL MODIFIED BY COLDEL| KEEPBLANKS FASTPARSE
REPLACE INTO NEW_ORDER NONRECOVERABLE DATA BUFFER 16000 CPU_PARALLELISM 4 ;
connect reset;
```

LOAD_NEW_ORDER_1.ddl

```
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM /flat/neworder_1.dat OF DEL MODIFIED BY COLDEL| KEEPBLANKS COMPOUND=50
ALLOW WRITE ACCESS COMMITCOUNT 1000 INSERT INTO NEW_ORDER;
COMMIT WORK;
CONNECT RESET;
```

LOAD_ORDERS_1.ddl

```
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM /flat/orders_1.dat OF DEL MODIFIED BY COLDEL| KEEPBLANKS COMPOUND=50
ALLOW WRITE ACCESS COMMITCOUNT 1000 INSERT INTO ORDERS;
COMMIT WORK;
CONNECT RESET;
```

LOAD_ORDER_LINE_1.ddl

```
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM /flat/orderline_1.dat OF DEL MODIFIED BY COLDEL| KEEPBLANKS COMPOUND=50
ALLOW WRITE ACCESS COMMITCOUNT 1000 INSERT INTO ORDER_LINE;
COMMIT WORK;
CONNECT RESET;
```

LOAD_STOCK_1.ddl

```
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM /flat/stock_1.dat OF DEL MODIFIED BY COLDEL| KEEPBLANKS COMPOUND=50
ALLOW WRITE ACCESS COMMITCOUNT 1000 INSERT INTO STOCK;
COMMIT WORK;
CONNECT RESET;
```

LOAD_WAREHOUSE_1.ddl

```
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM /flat/warehouse_1.dat OF DEL MODIFIED BY COLDEL| KEEPBLANKS COMPOUND=50
ALLOW WRITE ACCESS COMMITCOUNT 1000 INSERT INTO WAREHOUSE;
COMMIT WORK;
CONNECT RESET;
```

lval.h

```
/* lval.h - generated automatically at 20040713.0900 */

#ifndef __LVAL_H
#define __LVAL_H
#define WAREHOUSES 1530
#define DISTRICTS_PER_WAREHOUSE 10
#define CUSTOMERS_PER_DISTRICT 3000
#define ITEMS 100000
#define STOCK_PER_WAREHOUSE 100000
#define MIN_OL_PER_ORDER 5
```

```
#define MAX_OL_PER_ORDER 15
#define NU_ORDERS_PER_DISTRICT 900
#endif // __LVAL_H
```

Makefile.config

```
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###############################################################################

#
# Makefile.config - Linux 32/64-bit
#
# NOTE: Due to the fact that 32/64-bit on Intel/AMD involves architecture
#       changes, no changes to CFLAGS are neccessary in order to generate
#       code for the proper bit width.
#
# Change Activity:
# defect Date        Who Description
# ====== =========== === ==============================================
# 271551 2003/02/27  mte Remove REG_KIT_METHOD
# 282309 2003/06/05  mte Add -fpic to LDFLAGS_STORP
# 286944 2003/07/29  mte Add AR, ARFLAGS
# 288568 2003/08/19  mte Add ARFLAGS_LIB and ARFLAGS_OUT
# 291887 2003/09/18  mte Move -fpic from LDFLGS_STORP to CFLAGS_OS
# 297500 2003/10/28  mte Update sorted proc flags
#

# Make Configuration
MAKE=make

# Compiler Configuration.
# CFLAGS_DEBUG may be set to "-g", "-DDEBUGIT" "-g -DDEBUGIT" or left blank
CC=gcc
CFLAGS_OS=-DSQLUNIX -DSQLLinux -O3 -fpic
CFLAGS_OUT=-o
CFLAGS_DEBUG=

# Linker Configuration
LD_EXEC=gcc
LD_STORP=gcc
LDFLAGS_EXEC=
LDFLAGS_SHLIB=-shared
LDFLAGS_STORP=$(LDFLAGS_SHLIB)
LDFLAGS_LIB=-L$(TPCC_SQLLIB)/lib -ldb2
LDFLAGS_OUT=-o

# Library Configuration
AR=ar
ARFLAGS=-r -v
ARFLAGS_LIB=
ARFLAGS_OUT=

# OS Commands
ERASE=rm -f
ERASEDIR=$(ERASE) -R
MOVE=mv
COPY=cp

# OS File Extensions & Path Separators
OBJEXT=.o
LIBEXT=.a
SHLIBEXT=.so
BINEXT=
SLASH=/
CMDSEP=;
```

platform.h

```
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*****************************************************************************/

/*
 * platform.h - Platform Isolation Layer
 *
 * Change Activity:
 * defect Date        Who Description
 * ====== =========== === ==============================================
 * 241457 2002/06/24  mte Use generic I/O routines
 * 246366 2002/07/22  mte Open files in append mode, not trunc mode
 * 261189 2002/11/13  mte Make append mode optional
 * 262643 2002/11/28  mte Add header guards
 * 263142 2002/12/04  mte Fix bogus rc handling on Windows
 * 276380 2003/03/20  jnh More fixes for rc handling on Windows
 * 280713 2003/05/15  jnh define INVALID_SET_FILE_POINTER
 *
 */

#ifndef __PLATFORM_H
#define __PLATFORM_H                                                    //@bd241457mte

/* ************************************************************************/
/* Generic Macros                                                         */
/* ************************************************************************/
#define GEN_ERRCODE errno

/* ************************************************************************/
/* Windows I/O Macros                                                     */
/* ************************************************************************/

/* ************************************************************************/
/* UNIX I/O Macros                                                        */
/* ************************************************************************/
#include <fcntl.h>
```

```
#define IOH_INIT(hnd, type, name)                                       \
   hnd->fd = -1;                                                        \
   hnd->type = type;                                                    \
   hnd->name = name;

#define IOH_CREATE(hnd)                                                 \
   if (hnd->type == IOH_PIPE) {                                         \
      rc = mkfifo(hnd->name, 0666);                                     \
   } else {                                                             \
      rc = 0;                                                           \
   }
#define O_LARGEFILE 0100000
#define IOH_OPEN(hnd)                                                   \
   if (hnd->type == IOH_FILE_APPEND) {                                  \
     hnd->fd = open(hnd->name, O_WRONLY | O_LARGEFILE | O_CREAT | O_APPEND, 0666);
\
   } else {                                                             \
     hnd->fd = open(hnd->name, O_WRONLY | O_LARGEFILE | O_CREAT | O_TRUNC, 0666);
\
   }                                                                    \
   if (hnd->fd == -1) {                                                 \
      rc = -1;                                                          \
   } else {                                                             \
      rc = 0;                                                           \
   }

#define IOH_WRITE(hnd, buff, num, num2)                                 \
   rc = write(hnd->fd, buff, num);                                      \
   if (rc >= 0) {                                                       \
      num2 = rc;                                                        \
      rc = 0;                                                           \
   }

#define IOH_FLUSH(hnd)        rc = 0;
#define IOH_CLOSE(hnd)        rc = close(hnd->fd);
#define IOH_DELETE(hnd)       if (hnd->type == IOH_PIPE) { rc = unlink(hnd->name); }

typedef unsigned int IOH_NUM;
typedef int IOH_HND;

/************************************************************************/
/* UNIX Semaphore Macros                                                */
/************************************************************************/
#include <sys/types.h>
#include <sys/ipc.h>
#include <sys/sem.h>

union semun {
  int val;
  struct semid_ds *buf;
  unsigned short int *array;
} semUnion;

struct sembuf semBuf;

#define SEM_HANDLE int

#define SEM_INIT(hnd, x, name)                                          \
   if ( (hnd = semget(IPC_PRIVATE, 1 , IPC_CREAT | IPC_EXCL | S_IRUSR | S_IWUSR |
S_IRGRP | S_IWGRP | S_IROTH | S_IWOTH)) == -1)                         \
      API_ERROR(__LINE__, "semget", (rc=GEN_ERRCODE));                  \
   semUnion.val = x;                                                    \
   if ( semctl(hnd, 0, SETVAL, semUnion) < 0 )                          \
      API_ERROR(__LINE__, "semctl SETVAL", (rc=GEN_ERRCODE));

#define SEM_WAIT(hnd)                                                   \
   semBuf.sem_num = 0;                                                  \
   semBuf.sem_op = -1;                                                  \
   semBuf.sem_flg = SEM_UNDO;                                           \
   if ( semop(hnd, &semBuf, 1) < 0 )                                    \
      API_ERROR(__LINE__, "semop wait", (rc=GEN_ERRCODE));

#define SEM_FREE(hnd)                                                   \
   semBuf.sem_num = 0;                                                  \
   semBuf.sem_op = 1;                                                   \
   semBuf.sem_flg = SEM_UNDO;                                           \
   if ( semop(hnd, &semBuf, 1) < 0 )                                    \
      API_ERROR(__LINE__, "semop free", (rc=GEN_ERRCODE));

#define SEM_DESTROY(hnd)                                                \
   if ( semctl(hnd, 0, IPC_RMID, 0) )                                   \
      API_ERROR(__LINE__, "semctl IPC_RMID", (rc=GEN_ERRCODE));


/************************************************************************/
/* Common I/O Macros and Definitions                                    */
/************************************************************************/
#define IOH_FILE 1
#define IOH_PIPE 2
#define IOH_FILE_APPEND 3

#define IOH_ERRMSG(hnd, msg)                                             \
  if (rc != 0) {                                                         \
    fprintf(stderr, "Error %d %s fd %d (%d, %s)\n", GEN_ERRCODE, msg,    \
                    hnd->fd, hnd->type, hnd->name);                      \
    return rc;                                                           \
  }

struct _ioh {
  IOH_HND fd;
  int type;
  char *name;
};

typedef struct _ioh ioHandle;

/************************************************************************/
/* Generic I/O Routine Prototypes                                       */
/************************************************************************/
int GenericOpen(ioHandle *hnd, int type, char *name);
int GenericWrite(ioHandle *hnd, char *Buffer, unsigned int numBytes);
int GenericClose(ioHandle *hnd);

/************************************************************************/
/* Generic I/O Routines                                                 */
/************************************************************************/
int GenericOpen(ioHandle *hnd, int type, char *name)
{
   int rc = 0;

   IOH_INIT(hnd, type, name)

   IOH_CREATE(hnd)
   IOH_ERRMSG(hnd, "creating")

   IOH_OPEN(hnd)
```

```
   IOH_ERRMSG(hnd, "opening")

   return rc;
}

int GenericWrite(ioHandle *hnd, char *Buffer, unsigned int numBytes)
{
   int rc = 0;
   int numBytesWritten = -1;

   IOH_WRITE(hnd, Buffer, numBytes, numBytesWritten)
   IOH_ERRMSG(hnd, "writing")
   if (numBytes != numBytesWritten) {
      fprintf(stderr, "Truncated data writing to fd %d (%d, %s)\n", hnd->fd, hnd-
>type, hnd->name);
      rc = -1;
   }
   return rc;
}

int GenericClose(ioHandle *hnd)
{
   int rc = 0;

   IOH_FLUSH(hnd)
   IOH_ERRMSG(hnd, "flushing")

   IOH_CLOSE(hnd)
   IOH_ERRMSG(hnd, "closing")

   IOH_DELETE(hnd)
   IOH_ERRMSG(hnd, "deleting")

   return rc;
}                                                                    //@ed241457mte

#endif // __PLATFORM_H
```

RNST_CUSTOMER.out

```
connect to TPCC in share mode

   Database Connection Information

 Database server        = DB2/LINUX 8.1.5
 SQL authorization ID   = DB2ADMIN
 Local database alias   = TPCC


RUNSTATS ON TABLE db2admin.CUSTOMER AND INDEXES ALL
DB20000I  The RUNSTATS command completed successfully.

COMMIT WORK
DB20000I  The SQL command completed successfully.

connect reset
DB20000I  The SQL command completed successfully.
```

RNST_DISTRICT.out

```
connect to TPCC in share mode

   Database Connection Information

 Database server        = DB2/LINUX 8.1.5
 SQL authorization ID   = DB2ADMIN
 Local database alias   = TPCC


RUNSTATS ON TABLE db2admin.DISTRICT AND INDEXES ALL
DB20000I  The RUNSTATS command completed successfully.

COMMIT WORK
DB20000I  The SQL command completed successfully.

connect reset
DB20000I  The SQL command completed successfully.
```

RNST_HISTORY.out

```
connect to TPCC in share mode

   Database Connection Information

 Database server        = DB2/LINUX 8.1.5
 SQL authorization ID   = DB2ADMIN
 Local database alias   = TPCC


RUNSTATS ON TABLE db2admin.HISTORY AND INDEXES ALL
DB20000I  The RUNSTATS command completed successfully.

COMMIT WORK
DB20000I  The SQL command completed successfully.

connect reset
DB20000I  The SQL command completed successfully.
```

RNST_ITEM.out

```
connect to TPCC in share mode

   Database Connection Information

 Database server        = DB2/LINUX 8.1.5
 SQL authorization ID   = DB2ADMIN
 Local database alias   = TPCC


RUNSTATS ON TABLE db2admin.ITEM AND INDEXES ALL
DB20000I  The RUNSTATS command completed successfully.

COMMIT WORK
DB20000I  The SQL command completed successfully.

connect reset
DB20000I  The SQL command completed successfully.
```

RNST_NEW_ORDER.out

```
connect to TPCC in share mode

   Database Connection Information

 Database server        = DB2/LINUX 8.2.0
 SQL authorization ID   = DB2ADMIN
 Local database alias   = TPCC


RUNSTATS ON TABLE db2admin.NEW_ORDER AND INDEXES ALL
DB20000I  The RUNSTATS command completed successfully.

COMMIT WORK
DB20000I  The SQL command completed successfully.

connect reset
DB20000I  The SQL command completed successfully.
```

RNST_ORDERS.out

```
connect to TPCC in share mode

   Database Connection Information

 Database server        = DB2/LINUX 8.1.5
 SQL authorization ID   = DB2ADMIN
 Local database alias   = TPCC


RUNSTATS ON TABLE db2admin.ORDERS AND INDEXES ALL
DB20000I  The RUNSTATS command completed successfully.

COMMIT WORK
DB20000I  The SQL command completed successfully.

connect reset
DB20000I  The SQL command completed successfully.
```

RNST_ORDER_LINE.out

```
connect to TPCC in share mode

   Database Connection Information

 Database server        = DB2/LINUX 8.1.5
 SQL authorization ID   = DB2ADMIN
 Local database alias   = TPCC


RUNSTATS ON TABLE db2admin.ORDER_LINE AND INDEXES ALL
DB20000I  The RUNSTATS command completed successfully.

COMMIT WORK
DB20000I  The SQL command completed successfully.

connect reset
DB20000I  The SQL command completed successfully.
```

RNST_STOCK.out

```
connect to TPCC in share mode

   Database Connection Information

 Database server        = DB2/LINUX 8.1.5
 SQL authorization ID   = DB2ADMIN
 Local database alias   = TPCC


RUNSTATS ON TABLE db2admin.STOCK AND INDEXES ALL
DB20000I  The RUNSTATS command completed successfully.

COMMIT WORK
DB20000I  The SQL command completed successfully.

connect reset
DB20000I  The SQL command completed successfully.
```

RNST_WAREHOUSE.out

```
connect to TPCC in share mode

   Database Connection Information

 Database server        = DB2/LINUX 8.1.5
 SQL authorization ID   = DB2ADMIN
 Local database alias   = TPCC


RUNSTATS ON TABLE db2admin.WAREHOUSE AND INDEXES ALL
DB20000I  The RUNSTATS command completed successfully.

COMMIT WORK
DB20000I  The SQL command completed successfully.

connect reset
DB20000I  The SQL command completed successfully.
```

SrcCli.Makefile

```
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```

```
##############################################################################

#
# Makefile - Makefile for Src.Cli (RTE/Driver Interface)
#
# Change Activity:
# defect Date        Who Description
# ====== ========== === ==============================================
# 289958 2003/10/28  mte Split driver and client interface
# 306888 2004/01/15  mte Ensure package consistency
# 309406 2004/01/29  mte Add QUERYOPT 7 to rebind
#

include $(TPCC_ROOT)/Makefile.config

# ############################################################################
# Preprocessor, Compiler and Linker Flags
# ############################################################################

BND_OPTS =          GRANT PUBLIC \
                    MESSAGES $*.bnd.msg
PRP_OPTS =          BINDFILE \
                    ISOLATION RR \
                    EXPLAIN ALL \
                    MESSAGES $*.prep.msg \
                    LEVEL $(TPCC_VERSION) \
                    NOLINEMACRO

INCLUDES =          -I$(TPCC_SQLLIB)/include -I$(TPCC_ROOT)/include

CFLAGS =  $(CFLAGS_OS) $(INCLUDES) $(CFLAGS_DEBUG) \
                    $(UOPTS) -D$(DB2EDITION) -D$(DB2VERSION) -D$(TPCC_SPTYPE)

OBJS =              $(TPCC_ROOT)/Src.Common/tpccmisc$(OBJEXT) \
                    $(TPCC_ROOT)/Src.Common/tpccdbg$(OBJEXT) \
                    $(TPCC_ROOT)/Src.Common/tpccctx$(OBJEXT) \
                    tpcccli$(OBJEXT)

LIBS =              tpcccli$(LIBEXT)

# ############################################################################
# User Targets
# ############################################################################

all:      connect $(OBJS) plan $(LIBS) disconnect
          $(AR) $(ARFLAGS) $(ARFLAGS_OUT)tpcccli$(LIBEXT) $(OBJS) $(ARFLAGS_LIB)
          @echo "----------------------------------------------------------"
          @echo "Please copy lval.h, db2tpcc.h, and tpcccli$(LIBEXT) to"
          @echo "a place where they can be #included and linked with the"
          @echo "RTE/driver code."
          @echo "----------------------------------------------------------"

clean:
          - $(ERASE) *.msg *.bnd *.plan *$(OBJEXT) *$(LIBEXT) tpcccli.c

# ############################################################################
# Helper Targets
# ############################################################################

connect:
          - db2 connect to $(TPCC_DBNAME)

disconnect:
          - db2 connect reset
          - db2 terminate

plan:
          - db2exfmt -d $(TPCC_DBNAME) -e $(TPCC_SCHEMA) -s $(TPCC_SCHEMA) -w -1 -n
TPCCCLI -g -# 0 -o TPCCCLI.exfmt.plan
          - (export DB2EXPLN_BUFFER=3000000; db2expln -d $(TPCC_DBNAME) -c
$(TPCC_SCHEMA) -p TPCCCLI -s 0 -g -o TPCCCLI.expln.plan )

rebind:   connect
          db2 bind tpcccli.bnd $(BND_OPTS) QUERYOPT 7

# ############################################################################
# Build Rules
# ############################################################################

.SUFFIXES:
.SUFFIXES: $(OBJEXT) .c .sqc

tpcccli.c:
          @echo "Prepping $*.sqc"
          -db2 prep $*.sqc $(PRP_OPTS) ISOLATION RR
          @echo "Binding $*.bnd"
          db2 bind $*.bnd $(BND_OPTS) QUERYOPT 7

# ############################################################################
# Dependencies
# ############################################################################

# Client Library:
tpcccli$(LIBEXT):   $(OBJS)

# Source
tpcc_all_sql$(OBJEXT):                  tpcc_all_sql.c

# Headers
tpcc_all_sql.c:               $(TPCC_ROOT)/include/db2tpcc.h
$(TPCC_ROOT)/include/lval.h
```

SrcCommon.Makefile

```
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##############################################################################

#
# Makefile - Makefile for Src.Common
#
# Change Activity:
# defect Date        Who Description
# ====== ========== === ==============================================
# 225200 2002/04/05  mte Initial Code Drop
# 239017 2002/06/11  mte Move INCLUDE before CFLAGS
```

```
# 238709 2002/06/13  mte Reduce DB2 CONNECT commands
# 226824 2002/06/18  mte FOR BIT DATA (-DSPGENERAL) support
# 256386 2002/09/23  mte Remove tpcclwh.c during clean
# 264386 2002/12/18  mte Various Makefile changes
# 267881 2003/01/27  mte Wrap all local-warehouse code with #ifdef EEE
# 277607 2003/04/10  mte Add rebind target
# 280183 2003/05/08  mte Ignore prep failures
# 306888 2004/01/15  mte Ensure package consistency
#

include $(TPCC_ROOT)/Makefile.config

# ########################################################################
# Preprocessor, Compiler and LInker Flags
# ########################################################################

BND_OPTS =          GRANT PUBLIC \
                    MESSAGES $*.bnd.msg
PRP_OPTS =          BINDFILE \
                    OPTLEVEL 1 \
                    ISOLATION RR \
                    MESSAGES $*.prep.msg \
                    LEVEL $(TPCC_VERSION) \
                    NOLINEMACRO

INCLUDE = -I$(TPCC_SQLLIB)/include -I$(TPCC_ROOT)/include

CFLAGS =  $(CFLAGS_OS) $(CFLAGS_DEBUG) $(INCLUDE) \
                    -DSQLA_NOLINES -D$(DB2EDITION) -D$(DB2VERSION) \
                    -D$(TPCC_SPTYPE)

UTIL_OBJ =          tpccmisc$(OBJEXT) tpccdbg$(OBJEXT) tpccctx$(OBJEXT)

# ########################################################################
# User Targets
# ########################################################################

all:      connect $(UTIL_OBJ) disconnect

clean:
          - $(ERASE) *$(OBJEXT) *.bnd *.msg tpccctx.c

# ########################################################################
# Helper Targets
# ########################################################################

connect:
          - db2 connect to $(TPCC_DBNAME)

disconnect:
          - db2 connect reset
          - db2 terminate

rebind:   connect
          db2 bind tpccctx.bnd $(BND_OPTS)

# ########################################################################
# Build Rules
# ########################################################################

.SUFFIXES:
.SUFFIXES: $(OBJEXT) .c .sqc

.sqc.c:
          @echo "Prepping $*.sqc"
          -db2 prep $*.sqc $(PRP_OPTS)
          @echo "Binding $*.bnd"
          db2 bind $*.bnd $(BND_OPTS)

# ########################################################################
# Dependencies
# ########################################################################

# Source
tpccdbg$(OBJEXT):   tpccdbg.c
tpccctx$(OBJEXT):   tpccctx.c
tpccmisc$(OBJEXT):  tpccmisc.c

# Headers
tpccdbg.c:          $(TPCC_ROOT)/include/db2tpcc.h
```

SrcSrv.Makefile

```
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################################################################################

#
# Makefile - Makefile for Src.Srv
#
# Change Activity:
# defect Date        Who Description
# ====== =========== === ==============================================
# 262565 2002/11/27  mte Initial Drop (based on Src.Srv.baseline/Makefile)
# 264386 2002/12/18  mte Various Makefile changes
# 267999 2003/01/28  mte Clean up SP catalog scripts
# 268701 2003/02/03  mte Add explain targets
# 268869 2003/02/04  mte Add plans target
# 270212 2003/02/14  mte Fix db2expln
# 273155 2003/03/10  mte Fix db2expln
# 274429 2003/04/09  jnh Use genproc.pl to catalog procedures
# 277607 2003/04/10  mte Add rebind target
# 280183 2003/05/08  mte Ignore prep and genproc.pl failures
# 301360 2003/12/02  mte Redirect CLP output to file
# 304024 2003/12/11  mte Add script to patch EXPLAIN.DDL
# 309406 2004/01/29  mte Add QUERYOPT 7 to rebind
#

include $(TPCC_ROOT)/Makefile.config

# ########################################################################
# Preprocessor, Compiler and Linker Flags
# ########################################################################

BND_OPTS =          GRANT PUBLIC \
                    MESSAGES $*.bnd.msg
```

```
PRP_OPTS =          BINDFILE \
                    EXPLAIN ALL \
                    MESSAGES $*.prep.msg

INCLUDE =       -I$(TPCC_SQLLIB)/include -I$(TPCC_ROOT)/include

CFLAGS =  $(CFLAGS_OS) $(INCLUDE) $(CFLAGS_DEBUG) \
                    -D$(DB2EDITION) -D$(DB2VERSION) \
                    -DSQLA_NOLINES -DLINT_ARGS

LDFLAGS = $(LDFLAGS_STORP) $(LDFLAGS_LIB)

# ########################################################################
# File Collections
# ########################################################################

STORED_PROCS =  new ord del

UTIL_OBJ =          $(TPCC_ROOT)/Src.Common/tpccmisc$(OBJEXT) \
                    $(TPCC_ROOT)/Src.Common/tpccdbg$(OBJEXT)

EXE =               news ords dels

# ########################################################################
# User Targets
# ########################################################################

all:      connect explain catalog $(EXE) install plan disconnect

clean:    connect uncatalog unexplain disconnect
          - $(ERASE) $(TPCC_SPDIR)$(SLASH)news
          - $(ERASE) $(TPCC_SPDIR)$(SLASH)ords
          - $(ERASE) $(TPCC_SPDIR)$(SLASH)dels
          - $(ERASE) *.bnd *.msg *.out *$(OBJEXT) $(EXE) tpcc_all_sql.c
          - $(ERASE) TPCC_ALL.*.plan

# ########################################################################
# Helper Targets
# ########################################################################

catalog:  uncatalog
          - perl $(TPCC_ROOT)$(SLASH)utils$(SLASH)genproc.pl $(STORED_PROCS)
          - db2 -tvf cat-proc.ddl +o -z cat-proc.out
          - db2 -td$$ -vf cat-func.ddl +o -z cat-func.out

uncatalog:
          - perl $(TPCC_ROOT)$(SLASH)utils$(SLASH)genproc.pl $(STORED_PROCS)
          - db2 -td$$ -vf uncat-func.ddl +o -z uncat-func.out
          - db2 -tvf uncat-proc.ddl +o -z uncat-proc.out

explain:
          - perl $(TPCC_ROOT)$(SLASH)utils$(SLASH)fixup_explain.pl
          - db2 -tvf $(TPCC_ROOT)$(SLASH)utils$(SLASH)EXPLAIN.DDL +o -z EXPLAIN.out

unexplain:
          - db2 -tvf $(TPCC_ROOT)$(SLASH)utils$(SLASH)UNEXPLAIN.DDL +o -z
UNEXPLAIN.out

connect:
          - db2 connect to $(TPCC_DBNAME)

disconnect:
          - db2 connect reset
          - db2 terminate

plan:
          - db2exfmt -d $(TPCC_DBNAME) -e $(TPCC_SCHEMA) -s $(TPCC_SCHEMA) -w -1 -n
TPCC_ALL -g -# 0 -o TPCC_ALL.exfmt.plan
          - (export DB2EXPLN_BUFFER=3000000; db2expln -d $(TPCC_DBNAME) -c
$(TPCC_SCHEMA) -p TPCC_ALL -s 0 -g -o TPCC_ALL.expln.plan )

rebind:   connect catalog
          db2 bind tpcc_all_sql.bnd $(BND_OPTS) QUERYOPT 7

# ########################################################################
# Install Targets
# ########################################################################

install:  $(EXE)
          - mkdir $(TPCC_SPDIR)
          $(COPY) ords $(TPCC_SPDIR)
          $(COPY) news $(TPCC_SPDIR)
          $(COPY) dels $(TPCC_SPDIR)

# ########################################################################
# Build Rules
# ########################################################################

.SUFFIXES: $(OBJEXT) .c .sqc

# d230437mte: QUERYOPT 7 required for UNION ALL
# Only stock needs CS , and that can be specified on the SELECT statement
tpcc_all_sql.c:
          @echo "Prepping $*.sqc"
          -db2 prep $*.sqc $(PRP_OPTS) ISOLATION RR
          @echo "Binding $*.bnd"
          db2 bind $*.bnd $(BND_OPTS) QUERYOPT 7

# Stored procedures are built in a special way

tpcc_all_sql$(OBJEXT):
          $(CC) -c tpcc_all_sql.c $(CFLAGS) -D$(TPCC_SPTYPE) $(CFLAGS_OUT)$@

$(EXE): $(UTIL_OBJ) tpcc_all_sql.o
          $(LD_STORP) $(LDFLAGS) $(UTIL_OBJ) tpcc_all_sql.o $(LDFLAGS_OUT)$@

# ########################################################################
# Dependencies
# ########################################################################

# Executables (Stored Procedures)
$(EXE): $(UTIL_OBJ) tpcc_all_sql.o

# Source
tpcc_all_sql$(OBJEXT): tpcc_all_sql.c

# Headers
tpcc_all_sql.c:     $(TPCC_ROOT)/include/db2tpcc.h
```

uncat-func.ddl

```
-------------------------------------------------------------------------------
-- Licensed Materials - Property of IBM
--
```

```
-- Governed under the terms of the International
-- License Agreement for Non-Warranted Sample Code.
--
-- (C) COPYRIGHT International Business Machines Corp. 1996 - 2002
-- All Rights Reserved.
--
-- US Government Users Restricted Rights - Use, duplication or
-- disclosure restricted by GSA ADP Schedule Contract with IBM Corp.
-------------------------------------------------------------------------------
--
-- uncat-func.ddl - Drop table function DDL
--
-- Change Activity:
-- defect Date        Who Description
-- ====== ========== === ==============================================
-- 262565 2002/11/27  mte Initial Drop
-- 265265 2003/01/14  mte Merge SQL changes, type conversions for new schema
-- 267940 2003/01/27  mte Remove NEW_OL_ALL2, NEW_OL_REMOTE
--

-- STOCK LEVEL
DROP SPECIFIC FUNCTION STOCK_LEVEL $
-- DELIVERY
DROP SPECIFIC FUNCTION DELIVERY $
-- ORDER STATUS
DROP SPECIFIC FUNCTION ORD_C_LAST $
DROP SPECIFIC FUNCTION ORD_C_ID $
-- PAYMENT
DROP SPECIFIC FUNCTION PAY_C_LAST $
DROP SPECIFIC FUNCTION PAY_C_ID $
-- NEW ORDER
DROP SPECIFIC FUNCTION NEW_OL_ALL $
DROP SPECIFIC FUNCTION NEW_OL_LOCAL $
DROP SPECIFIC FUNCTION NEW_WH $
```

uncat-proc.ddl

```
DROP PROCEDURE news
                        (varchar(270),varchar(662));

DROP PROCEDURE news;



DROP PROCEDURE pays;

DROP PROCEDURE ords
                        (varchar(42),varchar(446));

DROP PROCEDURE ords;

DROP PROCEDURE dels
                        (varchar(22),varchar(50));

DROP PROCEDURE dels;

DROP PROCEDURE stks
                        (varchar(18),varchar(14));

DROP PROCEDURE stks;
```

Appendix C: Tunable Parameters

IBM DB2 Database Manager Configuration Parameters

```
         Database Manager Configuration

     Node type = Database Server with local and
remote clients

 Database manager configuration release level
= 0x0a00

 CPU speed (millisec/instruction)
(CPUSPEED) = 3.306410e-07

 Max number of concurrently active databases
(NUMDB) = 1
 Data Links support
(DATALINKS) = NO
 Federated Database System Support
(FEDERATED) = NO
 Transaction processor monitor name
(TP_MON_NAME) =

 Default charge-back account
(DFT_ACCOUNT_STR) =

 Java Development Kit installation path
(JDK_PATH) = /opt/IBMJava2-141

 Diagnostic error capture level
(DIAGLEVEL) = 1
 Notify Level
(NOTIFYLEVEL) = 3
 Diagnostic data directory path
(DIAGPATH) =

 Default database monitor switches
   Buffer pool
(DFT_MON_BUFPOOL) = OFF
   Lock
(DFT_MON_LOCK) = OFF
   Sort
(DFT_MON_SORT) = OFF
   Statement
(DFT_MON_STMT) = OFF
   Table
(DFT_MON_TABLE) = OFF
   Timestamp
(DFT_MON_TIMESTAMP) = OFF
   Unit of work
(DFT_MON_UOW) = OFF
 Monitor health of instance and databases
(HEALTH_MON) = OFF

 SYSADM group name
(SYSADM_GROUP) = STAFF
 SYSCTRL group name
(SYSCTRL_GROUP) =
 SYSMAINT group name
(SYSMAINT_GROUP) =
 SYSMON group name
(SYSMON_GROUP) =

 Client Userid-Password Plugin
(CLNT_PW_PLUGIN) =
 Client Kerberos Plugin
(CLNT_KRB_PLUGIN) =
 Group Plugin
(GROUP_PLUGIN) =
 GSS Plugin for Local Authorization
(LOCAL_GSSPLUGIN) =
 Server Plugin Mode
(SRV_PLUGIN_MODE) = UNFENCED
 Server List of GSS Plugins
(SRVCON_GSSPLUGIN_LIST) =
 Server Userid-Password Plugin
(SRVCON_PW_PLUGIN) =
 Server Connection Authentication
(SRVCON_AUTH) = NOT_SPECIFIED
 Database manager authentication
(AUTHENTICATION) = CLIENT
 Cataloging allowed without authority
(CATALOG_NOAUTH) = NO
 Trust all clients
(TRUST_ALLCLNTS) = YES
 Trusted client authentication
(TRUST_CLNTAUTH) = CLIENT
 Bypass federated authentication
(FED_NOAUTH) = NO

 Default database path
(DFTDBPATH) = /home/db2admin

 Database monitor heap size (4KB)
(MON_HEAP_SZ) = 4096
 Java Virtual Machine heap size (4KB)
(JAVA_HEAP_SZ) = 512
 Audit buffer size (4KB)
(AUDIT_BUF_SZ) = 0
 Size of instance shared memory (4KB)
(INSTANCE_MEMORY) = AUTOMATIC
 Backup buffer default size (4KB)
(BACKBUFSZ) = 8
 Restore buffer default size (4KB)
(RESTBUFSZ) = 8

 Sort heap threshold (4KB)
(SHEAPTHRES) = 10000

 Directory cache support
(DIR_CACHE) = YES

 Application support layer heap size (4KB)
(ASLHEAPSZ) = 15
 Max requester I/O block size (bytes)
(RQRIOBLK) = 4096
 Query heap size (4KB)
(QUERY_HEAP_SZ) = 1000

 Workload impact by throttled
utilities(UTIL_IMPACT_LIM) = 10

 Priority of agents
(AGENTPRI) = SYSTEM
 Max number of existing agents
(MAXAGENTS) = 230
 Agent pool size
(NUM_POOLAGENTS) = 230
 Initial number of agents in pool
(NUM_INITAGENTS) = 230
 Max number of coordinating agents
(MAX_COORDAGENTS) = 230
 Max no. of concurrent coordinating agents
(MAXCAGENTS) = MAX_COORDAGENTS
 Max number of client connections
(MAX_CONNECTIONS) = MAX_COORDAGENTS

 Keep fenced process
(KEEPFENCED) = YES
 Number of pooled fenced processes
(FENCED_POOL) = MAX_COORDAGENTS
 Initial number of fenced processes
(NUM_INITFENCED) = 0

 Index re-creation time and redo index build
(INDEXREC) = RESTART

 Transaction manager database name
(TM_DATABASE) = 1ST_CONN
 Transaction resync interval (sec)
(RESYNC_INTERVAL) = 180

 SPM name
(SPM_NAME) =
 SPM log size
(SPM_LOG_FILE_SZ) = 256
 SPM resync agent limit
(SPM_MAX_RESYNC) = 20
 SPM log path
(SPM_LOG_PATH) =

 TCP/IP Service name
(SVCENAME) = db2_TPCC
 Discovery mode
(DISCOVER) = SEARCH
```

```
 Discover server instance
(DISCOVER_INST) = ENABLE

 Maximum query degree of parallelism
(MAX_QUERYDEGREE) = ANY
 Enable intra-partition parallelism
(INTRA_PARALLEL) = NO

 No. of int. communication
buffers(4KB)(FCM_NUM_BUFFERS) = 1024
 Number of FCM request blocks
(FCM_NUM_RQB) = AUTOMATIC
 Number of FCM connection entries
(FCM_NUM_CONNECT) = AUTOMATIC
 Number of FCM message anchors
(FCM_NUM_ANCHORS) = AUTOMATIC
```

IBM DB2 Database Configuration Parameters

```
       Database Configuration for Database tpcc

 Database configuration release level
= 0x0a00
 Database release level
= 0x0a00

 Database territory
= US
 Database code page
= 1208
 Database code set
= UTF-8
 Database country/region code
= 1
 Database collating sequence
= BINARY
 Alternate collating sequence
(ALT_COLLATE) =

 Dynamic SQL Query management
(DYN_QUERY_MGMT) = DISABLE

 Discovery support for this database
(DISCOVER_DB) = ENABLE

 Default query optimization class
(DFT_QUERYOPT) = 5
 Degree of parallelism
(DFT_DEGREE) = 1
 Continue upon arithmetic exceptions
(DFT_SQLMATHWARN) = NO

 Default refresh age
(DFT_REFRESH_AGE) = 0
 Default maintained table types for opt
(DFT_MTTB_TYPES) = SYSTEM
 Number of frequent values retained
(NUM_FREQVALUES) = 10
 Number of quantiles retained
(NUM_QUANTILES) = 20

 Backup pending
= NO

 Database is consistent
= NO
 Rollforward pending
= NO
 Restore pending
= NO

 Multi-page file allocation enabled
= NO

 Log retain for recovery status
= RECOVERY
 User exit for logging status
= NO

 Data Links Token Expiry Interval (sec)
(DL_EXPINT) = 60
 Data Links Write Token Init Expiry
Intvl(DL_WT_IEXPINT) = 60
 Data Links Number of Copies
(DL_NUM_COPIES) = 1
 Data Links Time after Drop (days)
(DL_TIME_DROP) = 1
 Data Links Token in Uppercase
(DL_UPPER) = NO
 Data Links Token Algorithm
(DL_TOKEN) = MAC0

 Database heap (4KB)
(DBHEAP) = 1024
 Size of database shared memory (4KB)
(DATABASE_MEMORY) = 451000
 Catalog cache size (4KB)
(CATALOGCACHE_SZ) = (MAXAPPLS*4)
 Log buffer size (4KB)
(LOGBUFSZ) = 512
 Utilities heap size (4KB)
(UTIL_HEAP_SZ) = 16
 Buffer pool size (pages)
(BUFFPAGE) = 10000
 Extended storage segments size (4KB)
(ESTORE_SEG_SZ) = 16000
 Number of extended storage segments
(NUM_ESTORE_SEGS) = 0
 Max storage for lock list (4KB)
(LOCKLIST) = 5000

 Max size of appl. group mem set (4KB)
(APPGROUP_MEM_SZ) = 1024
 Percent of mem for appl. group heap
(GROUPHEAP_RATIO) = 70

 Max appl. control heap size (4KB)
(APP_CTL_HEAP_SZ) = 128

 Sort heap thres for shared sorts (4KB)
(SHEAPTHRES_SHR) = (SHEAPTHRES)
 Sort list heap (4KB)
(SORTHEAP) = 16
 SQL statement heap (4KB)
(STMTHEAP) = 60000
 Default application heap (4KB)
(APPLHEAPSZ) = 1024
 Package cache size (4KB)
(PCKCACHESZ) = 1000
 Statistics heap size (4KB)
(STAT_HEAP_SZ) = 1096

 Interval for checking deadlock (ms)
(DLCHKTIME) = 3000
 Percent. of lock lists per application
(MAXLOCKS) = 100
 Lock timeout (sec)
(LOCKTIMEOUT) = -1

 Changed pages threshold
(CHNGPGS_THRESH) = 99
 Number of asynchronous page cleaners
(NUM_IOCLEANERS) = 2
 Number of I/O servers
(NUM_IOSERVERS) = 1
 Index sort flag
(INDEXSORT) = YES
 Sequential detect flag
(SEQDETECT) = NO
 Default prefetch size (pages)
(DFT_PREFETCH_SZ) = AUTOMATIC

 Track modified pages
(TRACKMOD) = OFF

 Default number of containers
= 1
 Default tablespace extentsize (pages)
(DFT_EXTENT_SZ) = 32

 Max number of active applications
(MAXAPPLS) = 230
 Average number of active applications
(AVG_APPLS) = 1
 Max DB files open per application
(MAXFILOP) = 800

 Log file size (4KB)
(LOGFILSIZ) = 65535
 Number of primary log files
(LOGPRIMARY) = 32
 Number of secondary log files
(LOGSECOND) = 0
 Changed path to log files
(NEWLOGPATH) =
 Path to log files
= /dev/db2/log
 Overflow log path
(OVERFLOWLOGPATH) =
```

```
 Mirror log path
(MIRRORLOGPATH) =
 First active log file
= S0000039.LOG
 Block log on disk full
(BLK_LOG_DSK_FUL) = NO
 Percent of max active log space by
transaction(MAX_LOG) = 0
 Num. of active log files for 1 active
UOW(NUM_LOG_SPAN) = 0

 Group commit count
(MINCOMMIT) = 3
 Percent log file reclaimed before soft chckpt
(SOFTMAX) = 500
 Log retain for recovery enabled
(LOGRETAIN) = RECOVERY
 User exit for logging enabled
(USEREXIT) = OFF

 HADR database role
= STANDARD
 HADR local host name
(HADR_LOCAL_HOST) =
 HADR local service name
(HADR_LOCAL_SVC) =
 HADR remote host name
(HADR_REMOTE_HOST) =
 HADR remote service name
(HADR_REMOTE_SVC) =
 HADR instance name of remote server
(HADR_REMOTE_INST) =
 HADR timeout value
(HADR_TIMEOUT) = 120
 HADR log write synchronization mode
(HADR_SYNCMODE) = NEARSYNC

 First log archive method
(LOGARCHMETH1) = LOGRETAIN
 Options for logarchmeth1
(LOGARCHOPT1) =
 Second log archive method
(LOGARCHMETH2) = OFF
 Options for logarchmeth2
(LOGARCHOPT2) =
 Failover log archive path
(FAILARCHPATH) =
 Number of log archive retries on error
(NUMARCHRETRY) = 5
 Log archive retry Delay (secs)
(ARCHRETRYDELAY) = 20
 Vendor options
(VENDOROPT) =

 Auto restart enabled
(AUTORESTART) = ON
 Index re-creation time and redo index build
(INDEXREC) = SYSTEM (RESTART)
 Log pages during index build
(LOGINDEXBUILD) = OFF
 Default number of loadrec sessions
(DFT_LOADREC_SES) = 1

 Number of database backups to retain
(NUM_DB_BACKUPS) = 12
 Recovery history retention (days)
(REC_HIS_RETENTN) = 366

 TSM management class
(TSM_MGMTCLASS) =
 TSM node name
(TSM_NODENAME) =
 TSM owner
(TSM_OWNER) =
 TSM password
(TSM_PASSWORD) =

 Automatic maintenance
(AUTO_MAINT) = OFF
   Automatic database backup
(AUTO_DB_BACKUP) = OFF
   Automatic table maintenance
(AUTO_TBL_MAINT) = OFF
     Automatic runstats
(AUTO_RUNSTATS) = OFF
     Automatic statistics profiling
(AUTO_STATS_PROF) = OFF
       Automatic profile updates
(AUTO_PROF_UPD) = OFF
     Automatic reorganization
(AUTO_REORG) = OFF
```

IBM DB2 DB2SET Configuration Parameters

```
DB2_MAPPED_BASE=0x09000000
DB2_USE_ALTERNATE_PAGE_CLEANING=YES
DB2_MAX_NON_TABLE_LOCKS=100
DB2_LGPAGE_BP=y
DB2_TRUSTED_BINDIN=ON
DB2_KEEPTABLELOCK=ON
DB2_EVENT_LOG_CONFIG=OFF
DB2MEMTRK=OFF
DB2_NO_FORK_CHECK=ON
DB2NOLIOAIO=NO
DB2_APM_PERFORMANCE=ALL
DB2_ENABLE_BUFPD=OFF
DB2_PINNED_BP=ON
DB2_SELECTIVITY=ON
DB2_MAXAPPENDATTEMPTS=-32
DB2ASSUMEUPDATE=ON
DB2CHECKCLIENTINTERVAL=0
DB2_HASH_JOIN=OFF
DB2CHKSQLDA=OFF
DB2_AGENT_LRB_CACHE=100
DB2_COLLECT_TS_REC_INFO=false
DB2NTNOCACHE=ON
DB2DBMSADDR=0x0e000000
DB2COMM=tcpip
DB2CHKPTR=OFF
```

PRTE Profile

```
echo


#########################################################
############################
#
#
#
#
#                       PRTE COMMAND FILE FOR v6-1-0
#
#
#
#
#
#########################################################
############################


noecho

disable initialized_messages
disable stopped_messages



#########################################################
##################
#
#
# PRTE internal variables.
#
#
#
#   set {var} {val}
#
#
#
#########################################################
##################
#
# startup_interval must be set (before connects).  It
controls the rate at
#                  which prte user processes are
forked off initially.
#
# start_interval   controls the rate at which prte
users are started when the
#                  "start" command is issued at the
console level.
#
# resume_interval  controls how fast resumes are done
when the "resume"
```

```
#                 command is issued at the console
level.  (NOTE: resumes
#                 done on the tester's behalf by the
master user are
#                 controlled by the network variable
RESUME_DELAY set below).
#
# stop_interval    controls how fast stops are done
when the "stop"
#                 command is issued at the console
level.  (NOTE: stops done
#                 on the tester's behalf by the
master user are controlled by
#                 the network variable STOP_DELAY
set below).
#
# type_rate        is the typing delay between each
character???

set startup_interval          0.002
set start_interval  0.002
set resume_interval 0.0001
set stop_interval   0.0001
set type_rate                 0.0



echo


######################################################
############################
#
#
# Initializing connections.
#
#
#
######################################################
############################


noecho

######################################################
##################
#
#
# Connect commands.
#
#
#
#   connect {exe} {prte to run on} {# users} {machine
to connect to}  #
#
#
######################################################
##################
#
# delay between the fork for each user process is
startup_interval,
# defined above in the "PRTE internal variables"
section.
#
# NOTE: The order of the connect statements is
relevant since it determines
#       the order in which prte user id's get
assigned.  All connect statements
#       for tpcc users (web_user, unix_user) should
come first, followed by
#       the connect statement for reduce, followed by
the connect
#       statement for tpcc_master.
#

connect /home/tpcc/bin/web_user
          localhost 1530      dani1
connect /home/tpcc/bin/web_user
          localhost 1530      dani1
connect /home/tpcc/bin/web_user
          localhost 1530      dani1
connect /home/tpcc/bin/web_user
          localhost 1530      dani1
connect /home/tpcc/bin/web_user
          localhost 1530      dani1
connect /home/tpcc/bin/web_user
          localhost 1530      dani1
connect /home/tpcc/bin/web_user
          localhost 1530      dani1
connect /home/tpcc/bin/web_user
          localhost 1530      dani1
connect /home/tpcc/bin/web_user
          localhost 1530      dani1
connect /home/tpcc/bin/web_user
          localhost 1530      dani1

connect /home/tpcc/bin/reduce           localhost 1
          localhost

#connect /home/tpcc/bin/aide            localhost 1
          localhost

connect /home/tpcc/bin/tpcc_master      localhost 1
          localhost

# NOTE:             timeout MUST be set after the
connect statements for it to
#                   take effect.
#
# timeout          is how long prte will wait for an
outstanding command to
#                  return its expected prompt before
timing out.
#

set timeout 300



echo


######################################################
############################
#
#
# Setting PRTE network variables.
#
#
#
######################################################
############################


noecho


######################################################
##################
#
#
# PRTE network variables.
#
#
#
#   set network_variable {name} {val}
#
#
#
######################################################
##################


#################################
#                               #
#  FRONT END NETWORK VARIABLES  #
#                               #
#################################
#
# FE_NAMES       A comma seperated list of the front
end network node names.
#
# FE_USER_COUNTS A comma seperated list of the users
to run on each front end.
#                NOTE: The order of counts in this
list should match the order
#                      of names in FE_NAMES.
# ADMIN_USER_COUNT is the number of aides to run.
#
# ADMIN_FE_NAMES is a comma seperated list of FEs on
which the aides will
#                   operated.

set network_variable FE_NAMES       dani1
set network_variable FE_USER_COUNTS 15300

set network_variable ADMIN_USER_COUNT 0
set network_variable ADMIN_FE_NAMES localhost


#################################
#                               #
#  REDUCER NETWORK VARIABLES  #
#                               #
#################################
#
```

```
# REDUCER_UPDATE_INTERVAL       The interval, in
seconds, between updates
#                               displayed on the
console.
#
# REDUCER_HEADER_INTERVAL       Every
REDUCER_HEADER_INTERVAL updates the
#                               column headers will
be displayed on the
#                               console.
#

set network_variable REDUCER_UPDATE_INTERVAL 30
set network_variable REDUCER_HEADER_INTERVAL 10


#################################
#                               #
#  TPCC USER NETWORK VARIABLES  #
#                               #
#################################
#
# TPCC_USER_LOG_TYPE controls what information the
prte users log to thier
#                   respective files. This is a bit
mask.
#
#                   0 - no logging
#                   1 - timer logging (required for
asci data reduction)
#                   2 - sut data logging (required
for durability)
#                   4 - script logging (required by
the tpcc user script)
#                   8 - user sut data logging
(required by web users for
#                       error checking)
#
#                   In general, leave this at 12 for
web clients doing binary
#                   data reduction, and 13 for web
clients doing asci data
#                   reduction.
#
# TPCC_USER_FLUSH_LOG is whether or not to flush
every write to the log.
#
# DURABILITY_LOGGING is whether or not to parse new
order response pages for
#                   durability data (to be sent to
reducer). This variable
#                       is a boolean so legal values
are 0,f,F and 1,t,T.
#
# C_LAST  is the constant value used for customer
last names.
#                 This value must be chosen with
care.  It must be based on
#                   the value you used when
populating your database.


set network_variable TPCC_USER_LOG_TYPE          0
set network_variable TPCC_USER_FLUSH_LOG         0
set network_variable DURABILITY_LOGGING          0
set network_variable C_LAST                      88


#####################################
#                                   #
#  CONFIGURATION NETWORK VARIABLES  #
#                                   #
#####################################
#
# CGI_SCRIPT_NAME is the name of the application to
run on the front ends.
#
# LOAD_DLL_TIMEOUT is how long master should wait (in
seconds) for the dll
#                     to initially load before
timing out.
#

set network_variable CGI_SCRIPT_NAME    /tpcc.dll
set network_variable LOAD_DLL_TIMEOUT   300

#####################################
#                                   #
#  TEST CONTROL NETWORK VARIABLES   #
#                                   #
#####################################
#
# LOOPBACK_MODE
#                   0 - Full end-to-end runs.
#                   1 - Back end loopback runs (not
implemented yet)
#                   2 - Front end loopback runs
#                   3 - RTE loopback runs
#
# RUN_NUMBER          is used to tag all output files
with the run number.
#
#                 1 - the primary measurement run.
#                 2 - the repeatability run.
#                 5 - the 50% run.
#                 8 - the 80% run.
#
#                     If you are unsure which run
this really will end up being,
#                     just leave it at 1, and you can
rename files later if you
#                     need to.
#
# VERSION_NUMBER      is used to tag all output files
with the version number.
#                     This is used if you submit
files to the auditor, and then
#                     need to rerun the test, and
resubmit files to the auditor,
#                     for some reason.  For example,
you submit a repeatability
#                     run (RUN_NUMBER 2,
VERSION_NUMBER 1) and the auditor finds
#                     a problem and asks you to re-
run the test (RUN_NUMBER 1,
#                     VERSION_NUMBER 2).
#                     Under normal circumstances,
this can just be left at 1.
#
# TEST_RESULTS_DIR    is the full directory path
where the test's run directory
#                     will be created.  All files
(data, log, etc) will be
#                     put into the run directory.
#
# WARMUP_TIME         is the time in seconds to warm
up.  This is the period
#                     of time after all users have
started doing transactions
#                     and before the measurement
interval begins.
#
# STEADY_STATE_TIME is the time for which the test is
considered to be
#                             in a steady running
state.  It is during this time
#                             that all data for
measurement intervals will be
#                             collected.
#
# MEASUREMENT_INTERVAL        defines the length of a
test period within the
#                             STEADY_STATE_TIME. The
steady state time may have 1
#                             or more measurement
intervals. Each measurement
#                             interval can be thought
of as a seperate measurement
#                             run.
#
# COOLDOWN_TIME       is the length of time the test
will continue to run
#                     after the measurement interval
is over.  This time can
#                     be used for doing various types
of data collection by
#                     hand if desired that might
otherwise have a negative
#                     impact on the measured test
results. Even if you are
#                     not collecting any extra data
by hand, it is recommended
#                     that you keep this value at
something like 300 or 600
#                     to avoid "clipping" effects at
the end of the measurement
#                     interval.
#
# CHECKPOINT_INTERVAL         is the total time
between the start of each
#                             checkpoint command.
#
# CKPT_PROXIMITY_ADDITIONAL_OFFSET      This value
will be added to any
#                             required proximity time
to give the actual start
#                             time of the first
checkpoint in the measurement
#                             interval.
```

```
#
# LOGIN_DELAY         is the delay between logins on
a per front end basis.
#                     NOTE: This is similar to the
prte internal variable
#                     resume_interval (tpcc users
start, then immediately
#                     pause, so the act of logging in
is just a resume) but
#                     not exactly the same.
#
# RESUME_DELAY        is the delay between resumes on
a per front end basis.
#                     NOTE: This is similar to the
prte internal variable
#                     resume_interval but not exactly
the same.
#
# STOP_DELAY          is the delay between stops on a
per front end basis.
#                     NOTE: This is similar to the
prte internal variable
#                     stop_interval but not exactly
the same.
#
# SYNC_OFFSET                 how many users we'll
allow to have outstanding
#                             when doing crowd
control.
#
# SYNC_UPDATE                 how often user
login/resume/stop progress is printed
#                             out to the console
(heartbeat of user synchronization
#                             effectively).
#
# MSG_TIMEOUT                 how long we'll wait for
status and sync messages.
#

set network_variable LOOPBACK_MODE       0

set network_variable RUN_NUMBER          1
set network_variable VERSION_NUMBER      1
set network_variable TEST_RESULTS_DIR
/home/tpcc/results

set network_variable WARMUP_TIME
         1800.0
set network_variable STEADY_STATE_TIME
         12600.0
set network_variable MEASUREMENT_INTERVAL
         12600.0
set network_variable COOLDOWN_TIME
         300.0

set network_variable CHECKPOINT_INTERVAL         0
set network_variable CKPT_PROXIMITY_ADDITIONAL_OFFSET
         0

set network_variable LOGIN_DELAY         0.0001
set network_variable RESUME_DELAY        0.0001
set network_variable STOP_DELAY          0.0001

set network_variable SYNC_OFFSET                  200
set network_variable SYNC_UPDATE                  500

set network_variable MSG_TIMEOUT
         300.0

set network_variable NO_THINK_TIME_UPDATE_INTERVAL
10.0

set network_variable NO_THINK_TIME      80.0


# In general, the SEED network variable should not be
set. A random value
# based on process id and the current time will be
used.  This varaible is
# really only exposed in case you want to exactly
reproduce a previous run
# using that previous run's seed.
#set network_variable         SEED
         123127777

#########################################################
#################
#
# AUDIT UTILITIES -- these are the replacement for
the audit
# shell scripts -- they currently only work for
Oracle on DUNIX.
# They do the following:
#     Collect logspace info
#     Write data to audit table for later use in
runcheck
#     Collect checkpoint info
#     Run optional custom scripts on back-end before
or after the test
#     For Oracle, collect bstat/estat (optional)
#
#########################################################
#################
#
# GET_ALL_AUDIT_FILES if True (or 1) will create the
following:
#                             Audit table for doing
runcheck later
#                             m1log.v1 -- a before &
after snapshot of the logsize
#
# BE_NAMES           Comma-separated list of back-
ends
#
# BE_USERNAME        Username to use when logging
into back-ends
#                    NOTE: you must have .rhosts
configured so no password
#                    is needed.
#
# DATABASE_TYPE      Oracle, Sybase or MsSql
#
# DATABASE_USERNAME  Username and password for
database.

# DATABASE_PASSWORD  Defaults are: tpcc/tpcc for
Oracle and sa/<no-passwd>
#                    for Sybase and MsSql
#
# Optional variables -- if you don't want them,
comment them out or set to ""
#
# ORACLE_STATS_SCRIPT_PATH
#                    Path to directory on back-end
containing Oracle's
#                    orst_<xxx>.sql files.
#                    For example:
$ORACLE_HOME/bench/gen/sql
#
# CUSTOM_BEFORE_TEST_SCRIPT
# CUSTOM_AFTER_TEST_SCRIPT
#                    Path of executable file on back-
end to be run before/after
#                    the test.  For example, if you
wanted to run processor
#                    affinity and load some stored
procedures before a test,
#                    you could put the commands in a
shell script on the BE
#                    and call put the path to that
shell script into the
#                    CUSTOM_BEFORE_TEST_SCRIPT
variable
#
#########################################################
#################

set network_variable GET_ALL_AUDIT_FILES FALSE


set network_variable BE_NAMES          be1, be2, be3
set network_variable BE_USERNAME         oracle

set network_variable DATABASE_TYPE       MSSQL
set network_variable DATABASE_USERNAME   db2admin
set network_variable DATABASE_PASSWORD   proliant

set network_variable MAX_W_ID            1530
set network_variable BASE_W_ID           1

set network_variable ORACLE_STATS_SCRIPT_PATH     ""
set network_variable CUSTOM_BEFORE_TEST_SCRIPT   ""
set network_variable CUSTOM_AFTER_TEST_SCRIPT    ""



#########################################################
#################


# now start all the users.  delay between each user
being started is controled
# by start_interval defined above in the "PRTE
internal variables" section.
#
```

```
echo


##################################################
##########################
#
#
# Starting all PRTE users (may take a while,
depending on the number of users) #
#
#
##################################################
##########################

noecho


start
```

Internet Information Server Registry Parameters

```
Windows Registry Editor Version 5.00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
\InetInfo]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
\InetInfo\Parameters]
"ListenBackLog"=dword:00000019
"DispatchEntries"=hex(7):4c,00,44,00,41,00,50,00,53,0
0,56,00,43,00,00,00,00,00
"PoolThreadLimit"=dword:000003fe
"ThreadTimeout"=dword:00015180

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
\InetInfo\Performance]
"Library"="infoctrs.dll"
"Open"="OpenINFOPerformanceData"
"Close"="CloseINFOPerformanceData"
"Collect"="CollectINFOPerformanceData"
"Last Counter"=dword:00000842
"Last Help"=dword:00000843
"First Counter"=dword:00000802
"First Help"=dword:00000803
"Library Validation
Code"=hex:06,5f,96,d8,da,92,c1,01,10,25,00,00,00,00,0
0,00
"WbemAdapFileTime"=hex:00,c8,12,f8,b2,40,bf,01
"WbemAdapFileSize"=dword:00002510
"WbemAdapStatus"=dword:00000000
```

World Wide Web Service Registry Parameters

```
Windows Registry Editor Version 5.00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
\W3SVC]
"Type"=dword:00000020
"Start"=dword:00000002
"ErrorControl"=dword:00000001
"ImagePath"=hex(2):43,00,3a,00,5c,00,57,00,49,00,4e,0
0,4e,00,54,00,5c,00,53,00,\

79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,69,00
,6e,00,65,00,74,00,73,\

00,72,00,76,00,5c,00,69,00,6e,00,65,00,74,00,69,00,6e
,00,66,00,6f,00,2e,00,\
  65,00,78,00,65,00,00,00
"DisplayName"="World Wide Web Publishing Service"
"DependOnService"=hex(7):49,00,49,00,53,00,41,00,44,0
0,4d,00,49,00,4e,00,00,00,\
  00,00
"DependOnGroup"=hex(7):00,00
"ObjectName"="LocalSystem"
"Description"="Provides Web connectivity and
administration through the Internet Information
Services snap-in."
"FailureActions"=hex:ff,ff,ff,ff,00,00,00,00,00,00,00
,00,03,00,00,00,20,f2,0f,\

00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
,00,00,00,00,00,00,00,00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
\W3SVC\ASP]
"NOTE"="This is for backward compatibility only."

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
\W3SVC\ASP\Parameters]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
\W3SVC\Parameters]
"MajorVersion"=dword:00000005
"MinorVersion"=dword:00000000
"InstallPath"="C:\\WINNT\\System32\\inetsrv"
"CertMapList"="C:\\WINNT\\System32\\inetsrv\\iiscrmap
.dll"
"AccessDeniedMessage"="Error: Access is Denied."
"Filter DLLs"=""
"LogFileDirectory"="C:\\WINNT\\System32\\LogFiles"
"AcceptExOutstanding"=dword:00000028

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
\W3SVC\Parameters\ADCLaunch]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
\W3SVC\Parameters\ADCLaunch\AdvancedDataFactory]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
\W3SVC\Parameters\ADCLaunch\RDSServer.DataFactory]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
\W3SVC\Parameters\Script Map]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
\W3SVC\Parameters\Virtual Roots]
"/"="c:\\inetpub\\wwwroot,,207"
"/Scripts"="c:\\inetpub\\scripts,,204"
"/IISHelp"="c:\\winnt\\help\\iishelp,,201"
"/IISAdmin"="C:\\WINNT\\System32\\inetsrv\\iisadmin,,
201"
"/IISSamples"="c:\\inetpub\\iissamples,,201"
"/MSADC"="c:\\program files\\common
files\\system\\msadc,,205"
"/Printers"="C:\\WINNT\\web\\printers,,201"

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
\W3SVC\Performance]
"Library"="w3ctrs.dll"
"Open"="OpenW3PerformanceData"
"Close"="CloseW3PerformanceData"
"Collect"="CollectW3PerformanceData"
"Last Counter"=dword:000008e6
"Last Help"=dword:000008e7
"First Counter"=dword:00000844
"First Help"=dword:00000845
"Library Validation
Code"=hex:54,2b,4c,db,da,92,c1,01,10,3d,00,00,00,00,0
0,00
"WbemAdapFileTime"=hex:00,c8,12,f8,b2,40,bf,01
"WbemAdapFileSize"=dword:00003d10
"WbemAdapStatus"=dword:00000000

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
\W3SVC\Security]
"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14
,00,00,00,30,00,00,00,02,\

00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00
,00,00,00,00,01,00,00,\

00,00,02,00,70,00,04,00,00,00,00,00,18,00,fd,01,02,00
,01,01,00,00,00,00,00,\

05,12,00,00,00,74,00,6f,00,00,00,1c,00,ff,01,0f,00,01
,02,00,00,00,00,00,05,\

20,00,00,00,20,02,00,00,72,00,73,00,00,00,18,00,8d,01
,02,00,01,01,00,00,00,\

00,00,05,0b,00,00,00,20,02,00,00,00,00,1c,00,fd,01,02
,00,01,02,00,00,00,00,\

00,05,20,00,00,00,23,02,00,00,72,00,73,00,01,01,00,00
,00,00,00,05,12,00,00,\
  00,01,01,00,00,00,00,00,05,12,00,00,00
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
\W3SVC\Enum]
"0"="Root\\LEGACY_W3SVC\\0000"
"Count"=dword:00000001
"NextInstance"=dword:00000001
```

TPCC Application Registry Parameters

```
Windows Registry Editor Version 5.00

[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\TPCC]
"Path"="c:\\inetpub\\wwwroot\\"
"MaxConnections"=dword:00007530
"MaxPendingDeliveries"=dword:00000bb8
"DB_Protocol"="DBLIB"
"TxnMonitor"="COM"
"DbServer"="SUSE"
"DbName"="TPCC"
"DbUser"="db2admin"
"DbPassword"="proliant"
"COM_SinglePool"="YES"
"NumberOfDeliveryThreads"=dword:0000002d
```

Array configuration

```
Array Diagnostic Utility Version 2.40.7.0
Array Diagnostic Utility Inspection Report Version
2.4.2.0

Date/Time:          Thursday, June 24, 2004 9:15:26AM
Computer Model:     Compaq Server
System ROM Version:

SLOT SUMMARY:
   Slot Num  Slot Type  Array Controllers and Host
Adapters Detected
   --------  ---------  ----------------------------
---------------
   SLOT 1    PCI        Smart Array 641 Controller
   SLOT 2    PCI        Smart Array 642 Controller
   SLOT 3    PCI        Smart Array 642 Controller

SLOT 1 Smart Array 641 Controller ERROR REPORT:

   No problems detected

SUBSYSTEM INFORMATION:
   Chassis Serial Num:              ROMQAD1407290001
   This Controller
      Array Serial Number:          P5A8B0EDAPKR2U
      Cache Serial Number:          P57840CDAPO5ND
   Other Controller
      Array Serial Number:          Not Available
      Cache Serial Number:          Not Available

CONTROLLER IDENTIFICATION:
   Configured Logical Drives: 9
   Configuration Signature:   0xa9a542e5
   Controller Firmware Rev:   1.92
   Controller ROM Revision:   1.92
   Controller Hardware Rev:   0x01
   Boot Block Version:        3.86
   Board ID:                  0x409a0e11
   Cable or Config Error:     0x00 (No)
   Invalid Host RAM Address:  No
   CPU Revision:              0x50
   CPU to PCI ASIC Rev:       0x00
   Cache Controller ASIC Rev: 0x00
   PCI to Host ASIC Rev:      0x00
   Marketing Revision:        0x42 (Rev B)
   Expand Disable Code:       0x01
   SCSI Chip Count:           1
   Max SCSI IDs per Bus:      16
   Big Drive Map:             0x003f 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
   Big Ext Drive Map:         0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
   Big Non-Disk Drive Map:    0x8000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
   Fibre Chip Count:          0
   LKS:                       0x00
   AMS:                       0x00
   FS:                        0x00 0x00 0x00 0x00
0x00 0x00 0x2e32 0x3231 0x01 0x00 0x00 0x4064
   Recovery ROM Inactive
   Image Revision:            2.12
   Recovery ROM Active Image
   Flags Status:              0x01
   Percent Write Cache:       100
   Daughterboard Size(MB):    64
   Cache Battery Count:       1
   Total Ctlr Memory Size:    128
   More Controller Flags:     0x00
   X-Board Host I2C Autorev:  0x00
   Battery PIC Rev:           0x1a

LOGICAL DRIVE IDENTIFICATION:

   Logical Drive 1:
      Sector Size:              512
      Sectors Available:        71122560
      Fault Tolerance Mode:     Mirroring
      Logical Param Table:      cyl=8716 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

   Logical Drive 2:
      Sector Size:              512
      Sectors Available:        118785120
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=14557 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

   Logical Drive 3:
      Sector Size:              512
      Sectors Available:        8804640
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=1079 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

   Logical Drive 4:
      Sector Size:              512
      Sectors Available:        4096320
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=502 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

   Logical Drive 5:
      Sector Size:              512
      Sectors Available:        3068160
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=376 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

   Logical Drive 6:
      Sector Size:              512
      Sectors Available:        3068160
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=376 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

   Logical Drive 7:
      Sector Size:              512
      Sectors Available:        57120
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=7 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

   Logical Drive 8:
      Sector Size:              512
      Sectors Available:        40800
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=5 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

   Logical Drive 9:
      Sector Size:              512
      Sectors Available:        40800
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=5 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

LOGICAL DRIVE CONFIGURATION:

   Logical Drive 1:
```

```
      Configuration Signature:  0xa89516d4
      Mapping Scheme:           Multiple Block
      Physical Drives:          6 (number not valid
after drive movement)
         This Logical Drive:    2 (excluding spare
drives)
      Fault Tolerance Mode:     Mirroring
      Logical Param Table:      cyl=8716 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           0
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        71122560
      Sectors per Drive:        71122560
      Big Drive Assignment Map: 0x0003 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is disabled for this logical
drive.

   Logical Drive 2:
      Configuration Signature:  0xa0cc5173
      Mapping Scheme:           Multiple Block
      Physical Drives:          6 (number not valid
after drive movement)
         This Logical Drive:    4 (excluding spare
drives)
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=14557 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           0
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        118785120
      Sectors per Drive:        29696512
      Big Drive Assignment Map: 0x003c 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

   Logical Drive 3:
      Configuration Signature:  0xa14c6173
      Mapping Scheme:           Multiple Block
      Physical Drives:          6 (number not valid
after drive movement)
         This Logical Drive:    4 (excluding spare
drives)
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=1079 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           29696512
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        8804640
      Sectors per Drive:        2201376
      Big Drive Assignment Map: 0x003c 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

   Logical Drive 4:
      Configuration Signature:  0xa1cc7173
      Mapping Scheme:           Multiple Block
      Physical Drives:          6 (number not valid
after drive movement)
         This Logical Drive:    4 (excluding spare
drives)
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=502 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           31897888
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        4096320
      Sectors per Drive:        1024320
      Big Drive Assignment Map: 0x003c 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

   Logical Drive 5:
      Configuration Signature:  0xa6a582b2
      Mapping Scheme:           Multiple Block
      Physical Drives:          6 (number not valid
after drive movement)
         This Logical Drive:    4 (excluding spare
drives)
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=376 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           32922208
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        3068160
      Sectors per Drive:        767232
      Big Drive Assignment Map: 0x003c 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

   Logical Drive 6:
      Configuration Signature:  0xaa6592bf
      Mapping Scheme:           Multiple Block
      Physical Drives:          6 (number not valid
after drive movement)
         This Logical Drive:    4 (excluding spare
drives)
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=376 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           33689440
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        3068160
      Sectors per Drive:        767232
      Big Drive Assignment Map: 0x003c 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

   Logical Drive 7:
      Configuration Signature:  0xaf25a2cd
      Mapping Scheme:           Multiple Block
      Physical Drives:          6 (number not valid
after drive movement)
         This Logical Drive:    4 (excluding spare
drives)
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=7 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           34456672
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        57120
      Sectors per Drive:        14336
      Big Drive Assignment Map: 0x003c 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

   Logical Drive 8:
      Configuration Signature:  0xa4e5b2d9
      Mapping Scheme:           Multiple Block
      Physical Drives:          6 (number not valid
after drive movement)
         This Logical Drive:    4 (excluding spare
drives)
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=5 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           34471008
```

```
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        40800
      Sectors per Drive:        10240
      Big Drive Assignment Map: 0x003c 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

   Logical Drive 9:
      Configuration Signature:  0xa9a542e5
      Mapping Scheme:           Multiple Block
      Physical Drives:          6 (number not valid
after drive movement)
         This Logical Drive:    4 (excluding spare
drives)
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=5 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           34481248
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        40800
      Sectors per Drive:        10240
      Big Drive Assignment Map: 0x003c 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

LOGICAL DRIVE STATUS:

   Logical Drive 1:
      Drive Status:           OK
      Blocks to Rebuild:      0
      Blocks Re-mapped:
      Spare Status Flags:     0x00
      Spare to Replaced Map:  See Big Spare to
Replace Map:
      Media Was Exchanged:    No
      Cache Failure:          No
      Expand Failure:         0x00
      Unit Flags:             0x00
      Big Remap Count:        All Counts Zero
      Big Drive Failure Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:      0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:   0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

   Logical Drive 2:
      Drive Status:           OK
      Blocks to Rebuild:      0
      Blocks Re-mapped:
      Spare Status Flags:     0x00
      Spare to Replaced Map:  See Big Spare to
Replace Map:
      Media Was Exchanged:    No
      Cache Failure:          No
      Expand Failure:         0x00
      Unit Flags:             0x00
      Big Remap Count:        All Counts Zero
      Big Drive Failure Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:      0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:   0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

   Logical Drive 3:
      Drive Status:           OK
      Blocks to Rebuild:      0
      Blocks Re-mapped:
      Spare Status Flags:     0x00
      Spare to Replaced Map:  See Big Spare to
Replace Map:
      Media Was Exchanged:    No
      Cache Failure:          No
      Expand Failure:         0x00
      Unit Flags:             0x00
      Big Remap Count:        All Counts Zero
      Big Drive Failure Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:      0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:   0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

   Logical Drive 4:
      Drive Status:           OK
      Blocks to Rebuild:      0
      Blocks Re-mapped:
      Spare Status Flags:     0x00
      Spare to Replaced Map:  See Big Spare to
Replace Map:
      Media Was Exchanged:    No
      Cache Failure:          No
      Expand Failure:         0x00
      Unit Flags:             0x00
      Big Remap Count:        All Counts Zero
      Big Drive Failure Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:      0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:   0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

   Logical Drive 5:
      Drive Status:           OK
      Blocks to Rebuild:      0
      Blocks Re-mapped:
      Spare Status Flags:     0x00
      Spare to Replaced Map:  See Big Spare to
Replace Map:
      Media Was Exchanged:    No
      Cache Failure:          No
      Expand Failure:         0x00
      Unit Flags:             0x00
      Big Remap Count:        All Counts Zero
      Big Drive Failure Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:      0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:   0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

   Logical Drive 6:
      Drive Status:           OK
      Blocks to Rebuild:      0
      Blocks Re-mapped:
      Spare Status Flags:     0x00
      Spare to Replaced Map:  See Big Spare to
Replace Map:
      Media Was Exchanged:    No
      Cache Failure:          No
      Expand Failure:         0x00
      Unit Flags:             0x00
      Big Remap Count:        All Counts Zero
      Big Drive Failure Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:      0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:   0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

   Logical Drive 7:
      Drive Status:           OK
      Blocks to Rebuild:      0
      Blocks Re-mapped:
      Spare Status Flags:     0x00
      Spare to Replaced Map:  See Big Spare to
Replace Map:
      Media Was Exchanged:    No
      Cache Failure:          No
      Expand Failure:         0x00
      Unit Flags:             0x00
      Big Remap Count:        All Counts Zero
      Big Drive Failure Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
```

```
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:      0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:   0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

   Logical Drive 8:
      Drive Status:           OK
      Blocks to Rebuild:      0
      Blocks Re-mapped:
      Spare Status Flags:     0x00
      Spare to Replaced Map:  See Big Spare to
Replace Map:
      Media Was Exchanged:    No
      Cache Failure:          No
      Expand Failure:         0x00
      Unit Flags:             0x00
      Big Remap Count:        All Counts Zero
      Big Drive Failure Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:      0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:   0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

   Logical Drive 9:
      Drive Status:           OK
      Blocks to Rebuild:      0
      Blocks Re-mapped:
      Spare Status Flags:     0x00
      Spare to Replaced Map:  See Big Spare to
Replace Map:
      Media Was Exchanged:    No
      Cache Failure:          No
      Expand Failure:         0x00
      Unit Flags:             0x00
      Big Remap Count:        All Counts Zero
      Big Drive Failure Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:      0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:   0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

MONITOR AND PERFORMANCE DATA:

   SCSI Port 1, Drive ID 0
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         42 32 39 31 31 36 58 4d 00 00 00 00 00 00 00
00      B29116XM........
         00 00 00 00 48 50 42 33 00 00 00 00 43 4f 4d
50      ....HPB3....COMP
         41 51 20 20 42 44 30 33 36 38 36 33 41 43 20
20      AQ  BD036863AC
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         42 32 39 31 31 36 58 4d 00 00 00 00 00 00 00
00      B29116XM........
         00 00 00 00 48 50 42 33 00 00 00 00 43 4f 4d
50      ....HPB3....COMP
         41 51 20 20 42 44 30 33 36 38 36 33 41 43 20
20      AQ  BD036863AC
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 00065e18         00000003
ffffffff        8184
      Read Blks  000000cc292e067f 0000000000dcb920
8108
      Hrd Read   00000000         00000000
ffffffff        8184
      Rtry Read  00000000         00000000
ffffffff        8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 0000000073440e18 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff        8184
      Rtry Write 00000000         00000000
ffffffff        8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000004         00000000
ffffffff        8184
      Spin Time  ffff             ffff
ffff            8a82
      Test 1     ffff             ffff
ffff            0a82
      Test 2     ffff             ffff
ffff            8a82
      Test 3     ffff             ffff
ffff            8a82
      Test 4     ffff             ffff
ffff            8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff        8d84
      DRQ Tmots  ffff             ffff
ffff            0982
      Timeouts   0000             0000
ffff            0182
      Rebuilds   0002             0000
ffff            0182
      Spn Retrs  ffff             ffff
ffff            0982
      Fl Rd Recv 0000             0000
ffff            8182
      Fl Wt Recv 0000             0000
ffff            0182
      Format Err 0000             0000
ffff            0182
      POST Err   ffff             ffff
ffff            0982
      Drv Nt Ry  00000000         00000000
ffffffff        0184
      Reallc Abt ffffffff         ffffffff
ffffffff        0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff        0984
      Bus Flts   00000000         00000000
ffffffff        8184
      Hot Plgs   00000000         00000000
ffffffff        0184
      Tk Rwt Err ffff             ffff
ffff            0982
      Rmp Wt Err ffff             ffff
ffff            0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff            0182
      Hrdw Errs  0000             0000
ffff            0182
      Abt Cmd Fl 0000             0000
ffff            0182
      Spn Up Fl  0000             0000
ffff            0182
      Bd Tgt Cnt 0000             0000
ffff            0182
      Pred Fails 00000000         00000000
00000000        2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x09
            Total Errors Logged = 0x0000001d
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     00486240(0)
000638b6   28   0000
00    0e    00     00      00     00810840(0)
000639ad   28   0000
```

```
00    0e    00     00      00     00679a40(0)
00064fc1   28   0000
00    0e    00     00      00     007f9e40(0)
00064ffd   28   0000
00    0e    00     00      00     015fe840(0)
00065129   28   0000
00    0e    00     00      00     02965440(0)
000653fe   28   0000
00    0e    00     00      00     01d9ca40(0)
0006545c   28   0000
00    0e    00     00      00     0126f040(0)
000658d7   28   0000
00    0e    00     00      00     0035f840(0)
00065e16   28   0000
00    0e    00     00      00     02e9c640(0)
0005e853   28   0000
00    0e    00     00      00     0052ec40(0)
0005f133   28   0000
00    0e    00     00      00     0081b240(0)
0005f2b3   28   0000
00    0e    00     00      00     007fd040(0)
00060177   28   0000
00    0e    00     00      00     00810840(0)
000606e7   28   0000
00    0e    00     00      00     0158c240(0)
00060726   28   0000
00    0e    00     00      00     018e0640(0)
00060824   28   0000
00    0e    00     00      00     00809c40(0)
00060d4c   28   0000
00    0e    00     00      00     0051a240(0)
000617da   28   0000
00    0e    00     00      00     01b55a40(0)
00062f0e   28   0000
00    0e    00     00      00     0080c240(0)
00063382   28   0000

   SCSI Port 1, Drive ID 1
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         42 32 39 31 31 39 47 4d 00 00 00 00 00 00 00
00       B29119GM........
         00 00 00 00 48 50 42 33 00 00 00 00 43 4f 4d
50       ....HPB3....COMP
         41 51 20 20 42 44 30 33 36 38 36 33 41 43 20
20       AQ  BD036863AC
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00           ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         42 32 39 31 31 39 47 4d 00 00 00 00 00 00 00
00       B29119GM........
         00 00 00 00 48 50 42 33 00 00 00 00 43 4f 4d
50       ....HPB3....COMP
         41 51 20 20 42 44 30 33 36 38 36 33 41 43 20
20       AQ  BD036863AC
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00           ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                  Factory          Since Power
Threshold         Control
      Serv. Time  0002eeb3         00000003
ffffffff          8184
      Read Blks   0000005d9ff97ff3 0000000000dcb917
8108
      Hrd Read    00000000         00000000
ffffffff          8184
      Rtry Read   00000000         00000000
ffffffff          8184
      ECC Read    0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks  0000000020ffe703 0000000000000036
8108
      Hrd Write   00000000         00000000
ffffffff          8184
      Rtry Write  00000000         00000000
ffffffff          8184
      Seeks       0000000000000000 0000000000000000
8108
      Seek Errs   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls   00000001         00000000
ffffffff          8184
      Spin Time   ffff             ffff
ffff              8a82
      Test 1      ffff             ffff
ffff              0a82
      Test 2      ffff             ffff
ffff              8a82
      Test 3      ffff             ffff
ffff              8a82
      Test 4      ffff             ffff
ffff              8a82
      Spare Blks  ffffffff         ffffffff
0a04
      Re-mapped   ffffffff         ffffffff
ffffffff          8d84
      DRQ Tmots   ffff             ffff
ffff              0982
      Timeouts    0000             0000
ffff              0182
      Rebuilds    0000             0000
ffff              0182
      Spn Retrs   ffff             ffff
ffff              0982
      Fl Rd Recv  0000             0000
ffff              8182
      Fl Wt Recv  0000             0000
ffff              0182
      Format Err  0000             0000
ffff              0182
      POST Err    ffff             ffff
ffff              0982
      Drv Nt Ry   00000000         00000000
ffffffff          0184
      Reallc Abt  ffffffff         ffffffff
ffffffff          0984
      IRQ Gltchs  ffffffff         ffffffff
ffffffff          0984
      Bus Flts    00000000         00000000
ffffffff          8184
      Hot Plgs    00000000         00000000
ffffffff          0184
      Tk Rwt Err  ffff             ffff
ffff              0982
      Rmp Wt Err  ffff             ffff
ffff              0982
      Bg Fw Rev   0000000000000000 0000000000000000
0a48
      Med Flrs    0000             0000
ffff              0182
      Hrdw Errs   0000             0000
ffff              0182
      Abt Cmd Fl  0000             0000
ffff              0182
      Spn Up Fl   0000             0000
ffff              0182
      Bd Tgt Cnt  0000             0000
ffff              0182
      Pred Fails  00000000         00000000
00000000          2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x0a
            Total Errors Logged = 0x0000000a
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     00486240(0)
0002c951   28   0000
00    0e    00     00      00     00810840(0)
0002ca48   28   0000
00    0e    00     00      00     039e3240(0)
0002ce80   28   0000
00    0e    00     00      00     006eae40(0)
0002cf5a   28   0000
00    0e    00     00      00     007f9e40(0)
0002e098   28   0000
00    0e    00     00      00     015fe840(0)
0002e1c4   28   0000
00    0e    00     00      00     00814440(0)
0002e41c   28   0000
00    0e    00     00      00     01d9ca40(0)
0002e4f7   28   0000
00    0e    00     00      00     0126f040(0)
0002e972   28   0000
00    0e    00     00      00     0035f840(0)
0002eeb1   28   0000

   SCSI Port 1, Drive ID 2
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
```

```
        33 4a 59 30 48 30 4b 51 30 30 30 30 37 33 34
37      3JY0H0KQ00007347
        5a 32 34 43 48 50 42 34 00 00 00 00 43 4f 4d
50      Z24CHPB4....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 48 30 4b 51 30 30 30 30 37 33 34
37      3JY0H0KQ00007347
        5a 32 34 43 48 50 42 36 00 00 00 00 43 4f 4d
50      Z24CHPB6....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 00052ce3         00000003
ffffffff        8184
      Read Blks  00000028253dbfb4 0000000000000157
8108
      Hrd Read   00000000         00000000
ffffffff        8184
      Rtry Read  00000000         00000000
ffffffff        8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000012d54cb6c 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff        8184
      Rtry Write 00000000         00000000
ffffffff        8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000001         00000000
ffffffff        8184
      Spin Time  ffff             ffff
ffff            8a82
      Test 1     ffff             ffff
ffff            0a82
      Test 2     ffff             ffff
ffff            8a82
      Test 3     ffff             ffff
ffff            8a82
      Test 4     ffff             ffff
ffff            8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff        8d84
      DRQ Tmots  ffff             ffff
ffff            0982
      Timeouts   0034             0000
ffff            0182
      Rebuilds   0000             0000
ffff            0182
      Spn Retrs  ffff             ffff
ffff            0982
      Fl Rd Recv 0000             0000
ffff            8182
      Fl Wt Recv 0000             0000
ffff            0182
      Format Err 0000             0000
ffff            0182
      POST Err   ffff             ffff
ffff            0982
      Drv Nt Ry  00000000         00000000
ffffffff        0184
      Reallc Abt ffffffff         ffffffff
ffffffff        0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff        0984
      Bus Flts   00000000         00000000
ffffffff        8184
      Hot Plgs   00000000         00000000
ffffffff        0184
      Tk Rwt Err ffff             ffff
ffff            0982
      Rmp Wt Err ffff             ffff
ffff            0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff            0182
      Hrdw Errs  0000             0000
ffff            0182
      Abt Cmd Fl 0000             0000
ffff            0182
      Spn Up Fl  0000             0000
ffff            0182
      Bd Tgt Cnt 0000             0000
ffff            0182
      Pred Fails 00000000         00000000
00000000        2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x0c
            Total Errors Logged = 0x00000034
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0b    00     00      00     00a3971f(0)
00022aea   28   0000
00    0b    00     00      00     00a3979f(0)
00022aea   28   0000
00    0b    00     00      00     00a397e0(0)
00022aea   28   0000
00    0b    00     00      00     00a3981f(0)
00022aea   28   0000
00    0b    00     00      00     00a3989f(0)
00022aea   28   0000
00    0b    00     00      00     00a3991f(0)
00022aea   28   0000
00    0b    00     00      00     00a3999f(0)
00022aea   28   0000
00    0b    00     00      00     00a399e0(0)
00022aea   28   0000
00    0b    00     00      00     00a39a1f(0)
00022aea   28   0000
00    0b    00     00      00     00a39a9f(0)
00022aea   28   0000
00    0b    00     00      00     00a39b1f(0)
00022aea   28   0000
00    0b    00     00      00     00a39b9f(0)
00022aea   28   0000
00    0b    00     00      00     002d09ff(0)
0001d908   28   0000
00    0b    00     00      00     002d0aff(0)
0001d908   28   0000
00    0b    00     00      00     002d0c7f(0)
0001d908   28   0000
00    0b    00     00      00     002d0e7f(0)
0001d908   28   0000
00    0b    00     00      00     002d0eff(0)
0001d908   28   0000
00    0b    00     00      00     002d117f(0)
0001d908   28   0000
00    0b    00     00      00     002d11ff(0)
0001d908   28   0000
00    0b    00     00      00     00a3969f(0)
00022aea   28   0000

   SCSI Port 1, Drive ID 3
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 47 4c 35 4d 30 30 30 30 37 33 34
35      3JY0GL5M00007345
        44 37 56 39 48 50 42 34 00 00 00 00 43 4f 4d
50      D7V9HPB4....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 47 4c 35 4d 30 30 30 30 37 33 34
35      3JY0GL5M00007345
        44 37 56 39 48 50 42 36 00 00 00 00 43 4f 4d
50      D7V9HPB6....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
```

```
        00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 00052ce3        00000003
ffffffff        8184
      Read Blks  0000002823fc5ce8 0000000000000117
8108
      Hrd Read   00000000        00000000
ffffffff        8184
      Rtry Read  00000000        00000000
ffffffff        8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000012d4d6926 0000000000000036
8108
      Hrd Write  00000000        00000000
ffffffff        8184
      Rtry Write 00000000        00000000
ffffffff        8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000002        00000000
ffffffff        8184
      Spin Time  ffff            ffff
ffff            8a82
      Test 1     ffff            ffff
ffff            0a82
      Test 2     ffff            ffff
ffff            8a82
      Test 3     ffff            ffff
ffff            8a82
      Test 4     ffff            ffff
ffff            8a82
      Spare Blks ffffffff        ffffffff
0a04
      Re-mapped  ffffffff        ffffffff
ffffffff        8d84
      DRQ Tmots  ffff            ffff
ffff            0982
      Timeouts   002a            0000
ffff            0182
      Rebuilds   0000            0000
ffff            0182
      Spn Retrs  ffff            ffff
ffff            0982
      Fl Rd Recv 0000            0000
ffff            8182
      Fl Wt Recv 0000            0000
ffff            0182
      Format Err 0000            0000
ffff            0182
      POST Err   ffff            ffff
ffff            0982
      Drv Nt Ry  00000000        00000000
ffffffff        0184
      Reallc Abt ffffffff        ffffffff
ffffffff        0984
      IRQ Gltchs ffffffff        ffffffff
ffffffff        0984
      Bus Flts   00000000        00000000
ffffffff        8184
      Hot Plgs   00000000        00000000
ffffffff        0184
      Tk Rwt Err ffff            ffff
ffff            0982
      Rmp Wt Err ffff            ffff
ffff            0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000            0000
ffff            0182
      Hrdw Errs  0000            0000
ffff            0182
      Abt Cmd Fl 0000            0000
ffff            0182
      Spn Up Fl  0000            0000
ffff            0182
      Bd Tgt Cnt 0000            0000
ffff            0182
      Pred Fails 00000000        00000000
00000000        2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x02
            Total Errors Logged = 0x0000002a
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0b    00     00      00     00a39b1f(0)
00022aea   28   0000
00    0b    00     00      00     00a39b9f(0)
00022aea   28   0000
00    0b    00     00      00     002d0a7f(0)
0001d908   28   0000
00    0b    00     00      00     002d0bff(0)
0001d908   28   0000
00    0b    00     00      00     002d0c40(0)
0001d908   28   0000
00    0b    00     00      00     002d0e7f(0)
0001d908   28   0000
00    0b    00     00      00     002d0f7f(0)
0001d908   28   0000
00    0b    00     00      00     00a395e0(0)
00022aea   28   0000
00    0b    00     00      00     00a3961f(0)
00022aea   28   0000
00    0b    00     00      00     00a3969f(0)
00022aea   28   0000
00    0b    00     00      00     00a3971f(0)
00022aea   28   0000
00    0b    00     00      00     00a3979f(0)
00022aea   28   0000
00    0b    00     00      00     00a397e0(0)
00022aea   28   0000
00    0b    00     00      00     00a3981f(0)
00022aea   28   0000
00    0b    00     00      00     00a3989f(0)
00022aea   28   0000
00    0b    00     00      00     00a3991f(0)
00022aea   28   0000
00    0b    00     00      00     00a3999f(0)
00022aea   28   0000
00    0b    00     00      00     00a399e0(0)
00022aea   28   0000
00    0b    00     00      00     00a39a1f(0)
00022aea   28   0000
00    0b    00     00      00     00a39a9f(0)
00022aea   28   0000

   SCSI Port 1, Drive ID 4
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 47 4d 31 4e 30 30 30 30 38 32 34
36      3JY0GM1N00008246
         31 4d 57 53 48 50 42 34 00 00 00 00 43 4f 4d
50      1MWSHPB4....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 47 4d 31 4e 30 30 30 30 38 32 34
36      3JY0GM1N00008246
         31 4d 57 53 48 50 42 36 00 00 00 00 43 4f 4d
50      1MWSHPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 00052ce3        00000003
ffffffff        8184
      Read Blks  0000002465d272ec 0000000000000117
8108
      Hrd Read   0000001a        00000000
ffffffff        8184
      Rtry Read  00000000        00000000
ffffffff        8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 00000000f8f266fb 0000000000000036
8108
```

```
      Hrd Write  00000000         00000000
ffffffff         8184
      Rtry Write 00000000         00000000
ffffffff         8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000001         00000000
ffffffff         8184
      Spin Time  ffff             ffff
ffff             8a82
      Test 1     ffff             ffff
ffff             0a82
      Test 2     ffff             ffff
ffff             8a82
      Test 3     ffff             ffff
ffff             8a82
      Test 4     ffff             ffff
ffff             8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff         8d84
      DRQ Tmots  ffff             ffff
ffff             0982
      Timeouts   0000             0000
ffff             0182
      Rebuilds   0000             0000
ffff             0182
      Spn Retrs  ffff             ffff
ffff             0982
      Fl Rd Recv 0000             0000
ffff             8182
      Fl Wt Recv 0000             0000
ffff             0182
      Format Err 0000             0000
ffff             0182
      POST Err   ffff             ffff
ffff             0982
      Drv Nt Ry  00000000         00000000
ffffffff         0184
      Reallc Abt ffffffff         ffffffff
ffffffff         0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff         0984
      Bus Flts   00000000         00000000
ffffffff         8184
      Hot Plgs   00000000         00000000
ffffffff         0184
      Tk Rwt Err ffff             ffff
ffff             0982
      Rmp Wt Err ffff             ffff
ffff             0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff             0182
      Hrdw Errs  0000             0000
ffff             0182
      Abt Cmd Fl 0000             0000
ffff             0182
```

```
      Spn Up Fl  0000             0000
ffff             0182
      Bd Tgt Cnt 0000             0000
ffff             0182
      Pred Fails 00000000         00000000
00000000         2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x02
            Total Errors Logged = 0x00000002
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
02    04    03     11      00     01ee044a(1)
00038bc6   28   0000
02    04    03     11      00     01ee044a(1)
00038bc7   28   0000

   SCSI Port 1, Drive ID 5
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 48 36 59 38 30 30 30 30 37 33 34
37      3JY0H6Y800007347
         41 55 55 33 48 50 42 34 00 00 00 00 43 4f 4d
50      AUU3HPB4....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00           ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 48 36 59 38 30 30 30 30 37 33 34
37      3JY0H6Y800007347
         41 55 55 33 48 50 42 36 00 00 00 00 43 4f 4d
50      AUU3HPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00           ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                  Factory          Since Power
Threshold         Control
      Serv. Time 00052ce3         00000003
ffffffff         8184
      Read Blks  0000002825234b15 0000000000000117
8108
      Hrd Read   00000000         00000000
ffffffff         8184
```

```
      Rtry Read  00000000         00000000
ffffffff         8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000012d72ff6a 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff         8184
      Rtry Write 00000000         00000000
ffffffff         8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000002         00000000
ffffffff         8184
      Spin Time  ffff             ffff
ffff             8a82
      Test 1     ffff             ffff
ffff             0a82
      Test 2     ffff             ffff
ffff             8a82
      Test 3     ffff             ffff
ffff             8a82
      Test 4     ffff             ffff
ffff             8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff         8d84
      DRQ Tmots  ffff             ffff
ffff             0982
      Timeouts   0030             0000
ffff             0182
      Rebuilds   0000             0000
ffff             0182
      Spn Retrs  ffff             ffff
ffff             0982
      Fl Rd Recv 0000             0000
ffff             8182
      Fl Wt Recv 0000             0000
ffff             0182
      Format Err 0000             0000
ffff             0182
      POST Err   ffff             ffff
ffff             0982
      Drv Nt Ry  00000000         00000000
ffffffff         0184
      Reallc Abt ffffffff         ffffffff
ffffffff         0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff         0984
      Bus Flts   00000000         00000000
ffffffff         8184
      Hot Plgs   00000000         00000000
ffffffff         0184
      Tk Rwt Err ffff             ffff
ffff             0982
      Rmp Wt Err ffff             ffff
ffff             0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
```

```
      Med Flrs   0000             0000
ffff             0182
      Hrdw Errs  0000             0000
ffff             0182
      Abt Cmd Fl 0000             0000
ffff             0182
      Spn Up Fl  0000             0000
ffff             0182
      Bd Tgt Cnt 0000             0000
ffff             0182
      Pred Fails 00000000         00000000
00000000         2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x08
            Total Errors Logged = 0x00000030
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0b    00     00      00     00a3979f(0)
00022aea   28   0000
00    0b    00     00      00     00a397e0(0)
00022aea   28   0000
00    0b    00     00      00     00a3981f(0)
00022aea   28   0000
00    0b    00     00      00     00a3989f(0)
00022aea   28   0000
00    0b    00     00      00     00a3991f(0)
00022aea   28   0000
00    0b    00     00      00     00a3999f(0)
00022aea   28   0000
00    0b    00     00      00     00a399e0(0)
00022aea   28   0000
00    0b    00     00      00     00a39a1f(0)
00022aea   28   0000
00    0b    00     00      00     002c7eff(0)
0001d908   28   0000
00    0b    00     00      00     002d0a7f(0)
0001d908   28   0000
00    0b    00     00      00     002d0cff(0)
0001d908   28   0000
00    0b    00     00      00     002d0e7f(0)
0001d908   28   0000
00    0b    00     00      00     002d0f7f(0)
0001d908   28   0000
00    0b    00     00      00     002d1040(0)
0001d908   28   0000
00    0b    00     00      00     002d10ff(0)
0001d908   28   0000
00    0b    00     00      00     0122a87f(0)
0001d908   2a   0000
00    0b    00     00      00     00a395e0(0)
00022aea   28   0000
00    0b    00     00      00     00a3961f(0)
00022aea   28   0000
00    0b    00     00      00     00a3969f(0)
00022aea   28   0000
00    0b    00     00      00     00a3971f(0)
00022aea   28   0000

   SCSI Port 1, Drive ID 6
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 1, Drive ID 7
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 1, Drive ID 8
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 1, Drive ID 9
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 1, Drive ID 10
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 1, Drive ID 11
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 1, Drive ID 12
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 1, Drive ID 13
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 1, Drive ID 14
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 1, Drive ID 15
      Not Available

      DRIVE ERROR LOG:
         Not Available

SURFACE ANALYSIS STATUS:

   Time remaining to start: 0 secs.
   Surface analysis delay:  30 secs.

   SCSI Port 1:
                  Big
      Drive ID   Current Block
      --------   -------------
         00      0x00dcb640
         01      0x00dcb640
         02      0x00000000
         03      0x00000000
         04      0x00000000
         05      0x00000000
         06      0x00000000
         07      0x00000000
         08      0x00000000
         09      0x00000000
         10      0x00000000
         11      0x00000000
         12      0x00000000
         13      0x00000000
         14      0x00000000
         15      0x00000000

                     Big
Surface     Surface
   Logical  Big     Inconsistent  Blocks
Controller  Analysis    Analysis
   Drive    Status  Block         Reassigned  Resets
Passes      Pass Time
   -------  ------  ------------  ----------  -------
---  ----------  ----------
         1   0x01   0x00000000             0      0
7917        1008
         2   0x00   0x00000000             0      6
0           0
         3   0x00   0x00000000             0      0
0           0
         4   0x00   0x00000000             0      1
0           0
         5   0x00   0x00000000             0      0
0           0
         6   0x00   0x00000000             0      0
0           0
         7   0x00   0x00000000             0      0
0           0
         8   0x00   0x00000000             0      4
0           0
         9   0x00   0x00000000             0     13
0           0
        10   0x00   0x00000000             0      0
0           0
        11   0x00   0x00000000             0      0
0           0
        12   0x00   0x00000000             0      0
0           0
        13   0x00   0x00000000             0      0
0           0
```

```
        14   0x00   0x00000000             0      0
0           0
        15   0x00   0x00000000             0      0
0           0
        16   0x00   0x00000000             0      0
0           0
        17   0x00   0x00000000             0      0
0           0
        18   0x00   0x00000000             0      0
0           0
        19   0x00   0x00000000             0      0
0           0
        20   0x00   0x00000000             0      0
0           0
        21   0x00   0x00000000             0      0
0           0
        22   0x00   0x00000000             0      0
0           0
        23   0x00   0x00000000             0      0
0           0
        24   0x00   0x00000000             0      0
0           0
        25   0x00   0x00000000             0      0
0           0
        26   0x00   0x00000000             0      0
0           0
        27   0x00   0x00000000             0      0
0           0
        28   0x00   0x00000000             0      0
0           0
        29   0x00   0x00000000             0      0
0           0
        30   0x00   0x00000000             0      0
0           0
        31   0x00   0x00000000             0      0
0           0
        32   0x00   0x00000000             0      0
0           0

ACCELERATOR STATUS:
   Logical Drive Disable Map: 0xfffffe01
   Read Cache Size:           0 MBytes
   Posted Write Size:         64 MBytes
   Disable Flag:              0x00
   Status:                    0x00000001
   Disable Code:              0x0000
   Total Memory Size:         64 MBytes
   Battery Count:             1
   Battery Status:            0x0001
   Parity Read Errors:        0000
   Parity Write Errors:       0000
   Error Log:                 N/A
   Failed Batteries:          0x0000
   Board Present:             Yes
   Accelerator Failure Map:   0x00000000
   Max Error Log Entries:     16
   NVRAM Load Status:         0x00
   Memory Size Shift Factor:  0x0a
   Non Battery Backed Memory: 0 MBytes
   Memory State:              0x00

PHYSICAL DRIVE IDENTIFICATION:

   SCSI Port 1, Drive ID 0
      Vendor Id:           COMPAQ
      Product Id:          BD036863AC
      Product Rev:         HPB3
      Vendor Specific:     B29116XM    00000 7
      Serial Number:       B29116XM
      SCSI Inquiry Header: 00 00 03 12 5b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        71123808 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x07 (Drive timeout)
      Phys Drive Flags:    0xcd 0x25 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J1 (controller connector
attached to drive)
      Physical Bay in Box: 0 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   01 04 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 04 aa 00 00 00 08 00 00
00
         Page 02:  82 0e 00 00 00 00 00 00 00 00 00
00 70 00 00 00
         Page 03:  83 16 00 02 00 54 00 00 00 00 02
db 02 00 00 01
                   00 28 00 28 40 00 00 00
         Page 04:  84 16 00 bf ae 02 00 bf ae 00 00
00 00 00 00 bf
                   ae 00 00 00 27 20 00 00
         Page 07:  87 0a 04 04 aa 00 00 00 00 00 00
00
         Page 08:  88 12 00 00 ff ff 00 00 07 f5 07
f5 00 0f 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 04
96
         Page 0c:  8c 16 80 00 00 18 00 00 00 00 00
00 00 bf ad 01
                   00 00 00 00 00 00 10 08
         Page 10:  90 16 02 00 00 00 01 00 00 00 00
00 00 00 00 00
                   00 00 00 00 00 00 00 00
         Page 19:  99 06 01 00 00 00 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 91 04 00 00 0b b8 00 00 00
02
         Page 39:  b9 18 0c 10 04 00 00 3c 00 30 08
22 05 05 07 01
                   00 28 80 00 0a 10 00 00 1f 1e
         Page 00:  80 02 00 00

   SCSI Port 1, Drive ID 1
      Vendor Id:           COMPAQ
      Product Id:          BD036863AC
      Product Rev:         HPB3
      Vendor Specific:     B29119GM    00000 7
      Serial Number:       B29119GM
      SCSI Inquiry Header: 00 00 03 12 5b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        71123808 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x07 (Drive timeout)
      Phys Drive Flags:    0xcd 0x25 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J1 (controller connector
attached to drive)
      Physical Bay in Box: 1 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   01 04 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 04 aa 00 00 00 08 00 00
00
         Page 02:  82 0e 00 00 00 00 00 00 00 00 00
00 70 00 00 00
```

```
         Page 03:  83 16 00 02 00 54 00 00 00 00 02
db 02 00 00 01
                   00 28 00 28 40 00 00 00
         Page 04:  84 16 00 bf ae 02 00 bf ae 00 00
00 00 00 00 bf
                   ae 00 00 00 27 20 00 00
         Page 07:  87 0a 04 04 aa 00 00 00 00 00 00
00
         Page 08:  88 12 00 00 ff ff 00 00 07 f5 07
f5 00 0f 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 04
96
         Page 0c:  8c 16 80 00 00 18 00 00 00 00 00
00 00 bf ad 01
                   00 00 00 00 00 00 10 08
         Page 10:  90 16 02 00 00 00 01 00 00 00 00
00 00 00 00 00
                   00 00 00 00 00 00 00 00
         Page 19:  99 06 01 00 00 00 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 91 04 00 00 0b b8 00 00 00
02
         Page 39:  b9 18 0c 10 04 00 00 3c 00 30 08
22 05 05 07 01
                   00 28 80 00 0a 10 00 00 1f 1e
         Page 00:  80 02 00 00

   SCSI Port 1, Drive ID 2
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY0H0KQ
      Serial Number:       3JY0H0KQ00007347Z24C
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x1C (Hot plug start unit
failed)
      Phys Drive Flags:    0xcd 0x25 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J1 (controller connector
attached to drive)
      Physical Bay in Box: 2 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 3
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY0GL5M
      Serial Number:       3JY0GL5M00007345D7V9
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x25 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J1 (controller connector
attached to drive)
      Physical Bay in Box: 3 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 4
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY0GM1N
      Serial Number:       3JY0GM1N000082461MWS
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
```

```
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x25 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J1 (controller connector
attached to drive)
      Physical Bay in Box: 4 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 5
```

```
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY0H6Y8
      Serial Number:       3JY0H6Y800007347AUU3
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x25 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J1 (controller connector
attached to drive)
      Physical Bay in Box: 5 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 6  ---> Not available
   SCSI Port 1, Drive ID 7  ---> Not available
   SCSI Port 1, Drive ID 8  ---> Not available
   SCSI Port 1, Drive ID 9  ---> Not available
   SCSI Port 1, Drive ID 10 ---> Not available
   SCSI Port 1, Drive ID 11 ---> Not available
   SCSI Port 1, Drive ID 12 ---> Not available
   SCSI Port 1, Drive ID 13 ---> Not available
   SCSI Port 1, Drive ID 14 ---> Not available
   SCSI Port 1, Drive ID 15 ---> Not available

CONTROLLER PARAMETERS:

   LED Control:               0x00
   Command List Verification: On
   Backed-out Write drives:   0
   Stripes for Parity:        0
   Distribution Mode:         0x00
   Maximum Driver Requests:   0xffff
   Elevator Trend Count:      0x0032
   Disable Elevator:          0x00
   Force Scan Complete:       0x00
   Synch/Asynch Mode:         Auto Detect
   Force Narrow:              No
   Rebuild Priority:          0
   Expand Priority:           0
   SDB ASIC Fix:              0x00
   PDIP Burst Disable:        0x00
   Software Name:
   Hardware Name:

SCSI BUS 1 PARAMETERS:
   Inquiry Data Valid:    Yes
   Inquiry Header:        03 00 02 02 23 00 00 00
   Vendor Id:             COMPAQ
   Product Id:            PROLIANT 4L6I
   Product Rev:           1.78
   Hot Plug Counts:
      All counts are zero
   Fan Alert Count:       0x0000
   Alarm Status:          0x00 (No Alarms)
   Temperature Status:    0x00
   Valid Alarm Bits:      0x02
   Alarm Count:           0000
   Specific Counts:       00000 00000 00000 00000
00000 00000 00000 00000
   Connection Info:       0x010a
   SCSI Device Rev:       0x01
   Fan Status:            0x0000
   More Inquiry Data:
        02 00 5a 00 00 00 00 00 00 00 00 00 00 00 00
00       ..Z.............
```

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       00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ..............
       00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ..............
       00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ..............
   SCSI Device Type:      0x00460e11 (unknown)
   Interrupt Count:       00000000
   Ultra Bus Faults:      0x00000000
   SCSI Initiator ID:     7
   SCSI Target ID:        15
   Chassis Serial Number: Not Available
   Physical Connector:    J1 (controller connector
attached to drive)
   Big Inst Drive Map:    0x003f 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000
   Big Bus Map:           0xffff 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000
   More Connection Info:  0x11 (LVD SCSI bus enabled)

MASTER BOOT RECORD (LOGICAL DRIVE 1)

      Logical Drive 1 (SCSI Port 1, Drive ID 0):
         Master Boot Record hex dump:
            33 c0 8e d0 bc 00 7c fb 50 07 50 1f fc be
1b 7c
            bf 1b 06 50 57 b9 e5 01 f3 a4 cb bd be 07
b1 04
            38 6e 00 7c 09 75 13 83 c5 10 e2 f4 cd 18
8b f5
            83 c6 10 49 74 19 38 2c 74 f6 a0 b5 07 b4
07 8b
            f0 ac 3c 00 74 fc bb 07 00 b4 0e cd 10 eb
f2 88
            4e 10 e8 46 00 73 2a fe 46 10 80 7e 04 0b
74 0b
            80 7e 04 0c 74 05 a0 b6 07 75 d2 80 46 02
06 83
            46 08 06 83 56 0a 00 e8 21 00 73 05 a0 b6
07 eb
            bc 81 3e fe 7d 55 aa 74 0b 80 7e 10 00 74
c8 a0
            b7 07 eb a9 8b fc 1e 57 8b f5 cb bf 05 00
8a 56
            00 b4 08 cd 13 72 23 8a c1 24 3f 98 8a de
8a fc
            43 f7 e3 8b d1 86 d6 b1 06 d2 ee 42 f7 e2
39 56
            0a 77 23 72 05 39 46 08 73 1c b8 01 02 bb
00 7c
            8b 4e 02 8b 56 00 cd 13 73 51 4f 74 4e 32
e4 8a
            56 00 cd 13 eb e4 8a 56 00 60 bb aa 55 b4
41 cd
            13 72 36 81 fb 55 aa 75 30 f6 c1 01 74 2b
61 60
            6a 00 6a 00 ff 76 0a ff 76 08 6a 00 68 00
7c 6a
            01 6a 10 b4 42 8b f4 cd 13 61 61 73 0e 4f
74 0b
            32 e4 8a 56 00 cd 13 eb d6 61 f9 c3 49 6e
76 61
            6c 69 64 20 70 61 72 74 69 74 69 6f 6e 20
74 61
            62 6c 65 00 45 72 72 6f 72 20 6c 6f 61 64
69 6e
            67 20 6f 70 65 72 61 74 69 6e 67 20 73 79
73 74
            65 6d 00 4d 69 73 73 69 6e 67 20 6f 70 65
72 61
            74 69 6e 67 20 73 79 73 74 65 6d 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
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            00 00 00 00 00 00 00 00 00 00 00 00 00 00
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            00 00 00 00 00 00 00 00 00 00 00 00 00 00
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            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 2c 44 63 77 9a 86 23 00 00
00 01
            01 00 06 fe ff ff 3f 00 00 00 4c 33 3d 04
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            00 00 00 00 00 00 00 00 00 00 00 00 00 00
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            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
55 aa

PARTITION TABLES:

      SCSI Port 1, Drive ID 0:
            00 01 01 00 06 fe ff ff 3f 00 00 00 4c 33
3d 04
               (Start C/H/S 0000/001/01, End
1023/254/63)
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
      SCSI Port 1, Drive ID 1:  ---> Same as above.
      SCSI Port 1, Drive ID 2:
            00 01 01 00 06 fe ff ff 3f 00 00 00 62 43
14 07
               (Start C/H/S 0000/001/01, End
1023/254/63)
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00

RIS DATA AREA:

   SCSI Port 1, Drive ID 0:
      RIS drive: 0x0
      RIS Copy 0:
         Drive id:          0
         RIS signature:     ASTROS
         Physical Drives:   6
         Logical Drives:    9
         Physical Drive State: (00=OK, 01=bad or not
present, 02=replacement)
            00 00 00 00 00 00 01 01 01 01 01 01 01 01
01 01
            01 01 01 01 01 01 01 01 01 01 01 01 01 01
01 01
            01 01 01 01 01 01 01 01 01 01 01 01 01 01
01 01
            01 01 01 01 01 01 01 01 01 01 01 01 01 01
01 01
         Signature:         0xa9a542e5
         RIS version:       1501
         Logical Drive State:  (00=OK, 01=failed,
02=unused)
            00 00 00 00 00 00 00 04 02 02 00 00 02 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
         RIS updates:       562
         Remap interrupted: 0
         Surface delay:     300
         Overheat delay:    0
         M&P delay:         60
         RIS hex dump:
            00 41 53 54 52 4f 53 20 a9 a5 42 e5 00 00
02 32
            05 dd 06 09 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
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            01 01 01 01 01 01 01 01 01 01 00 00 00 00
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41 38
              42 30 45 44 41 50 4b 52 32 55 38 41 46 45
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              42 30 45 44 41 50 4b 52 32 55 30 44 34 31
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41 38
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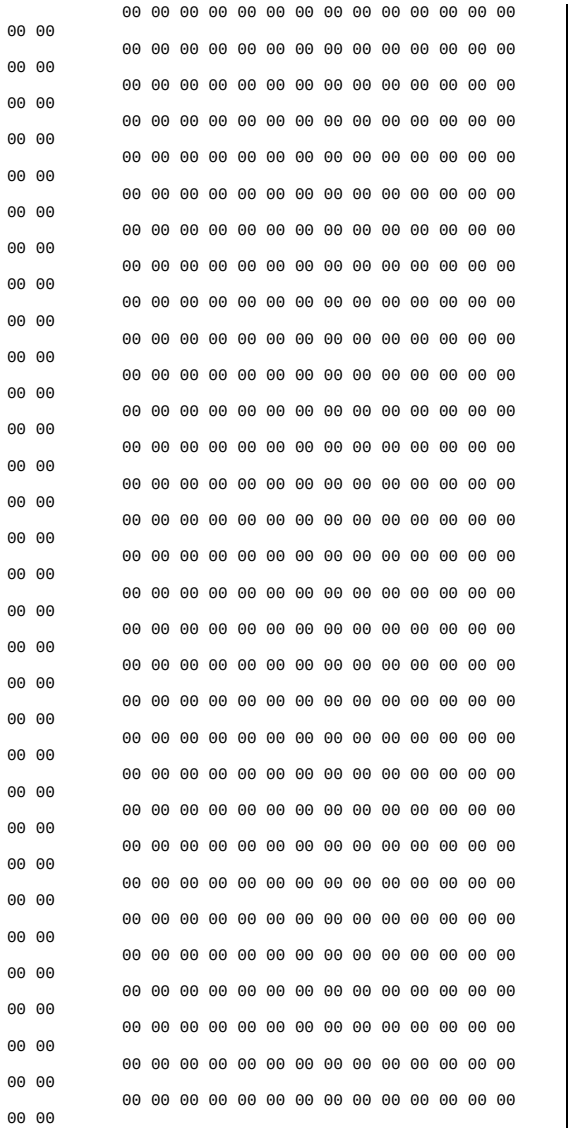

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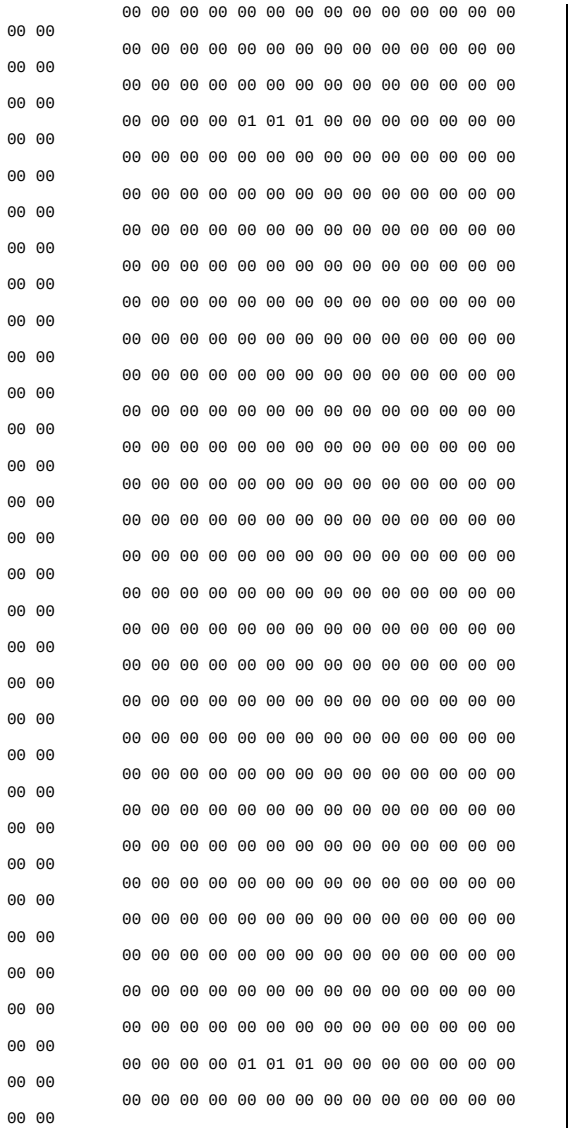

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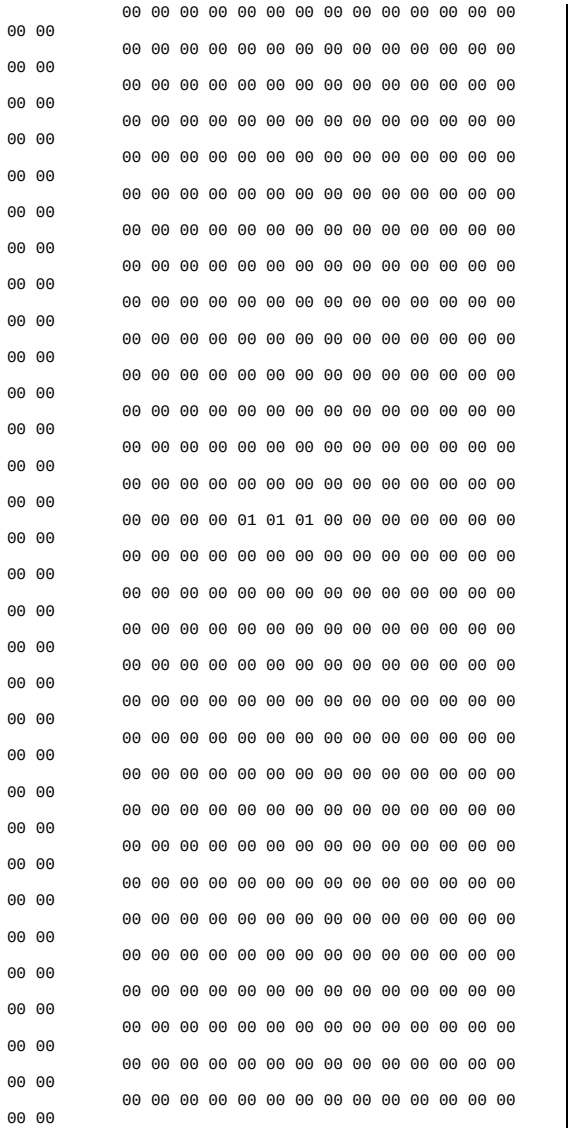

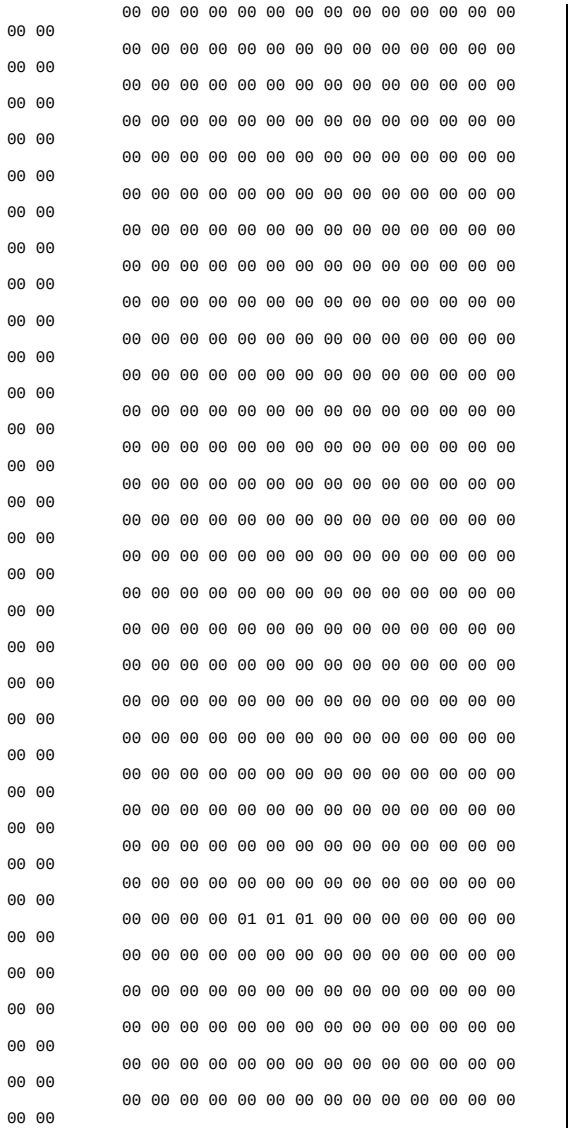

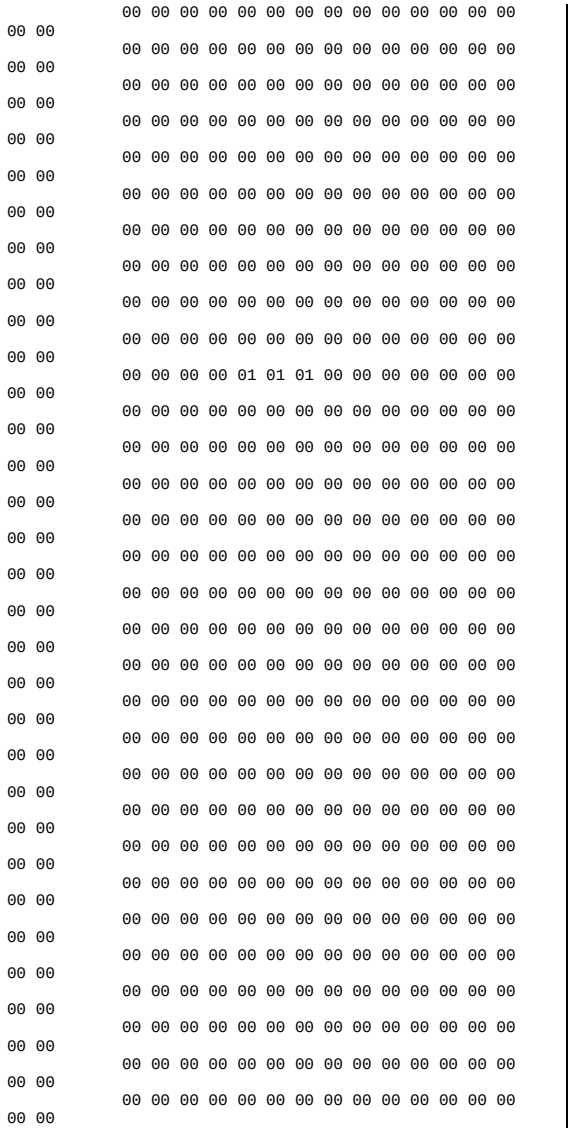

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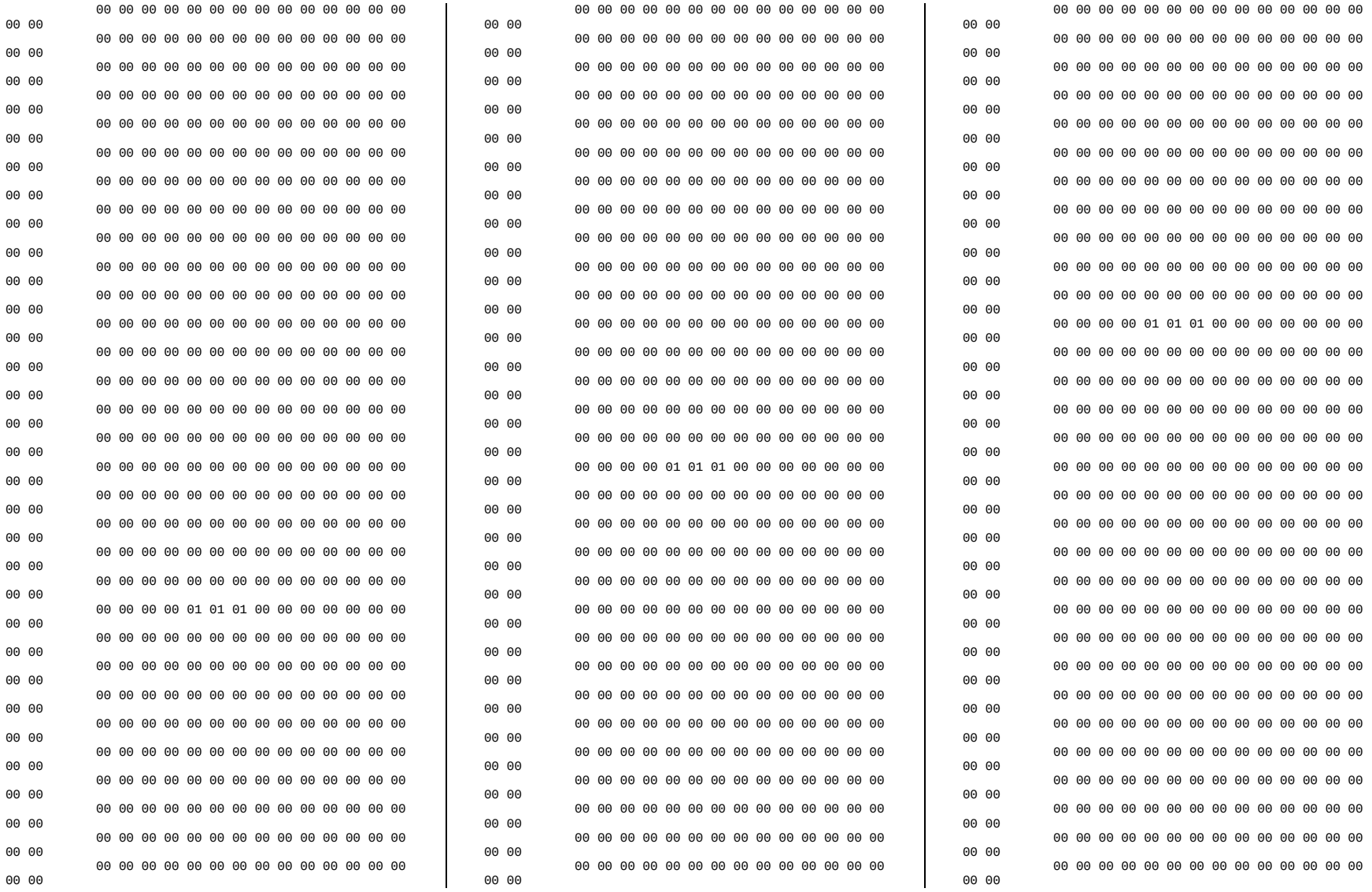

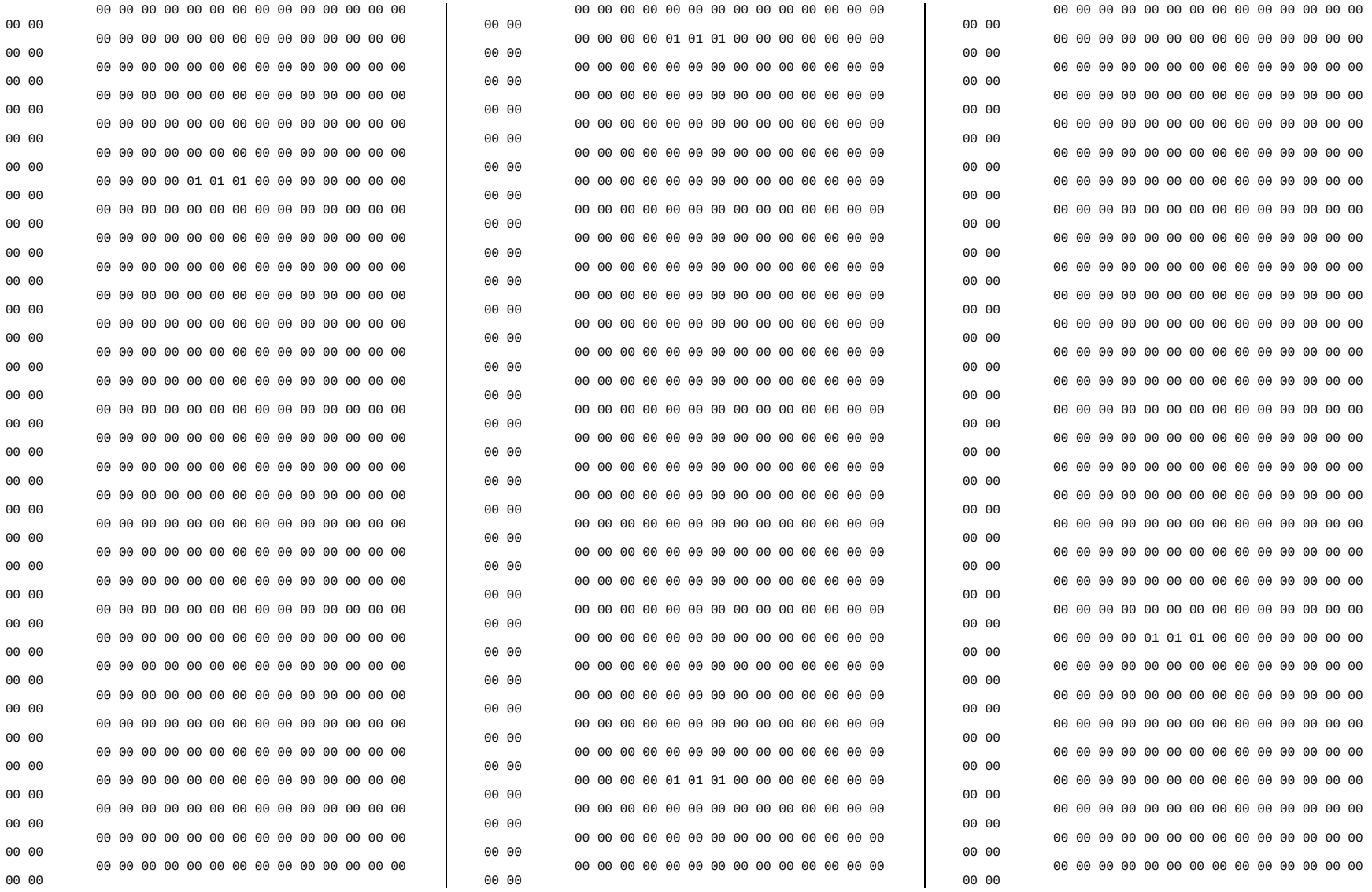

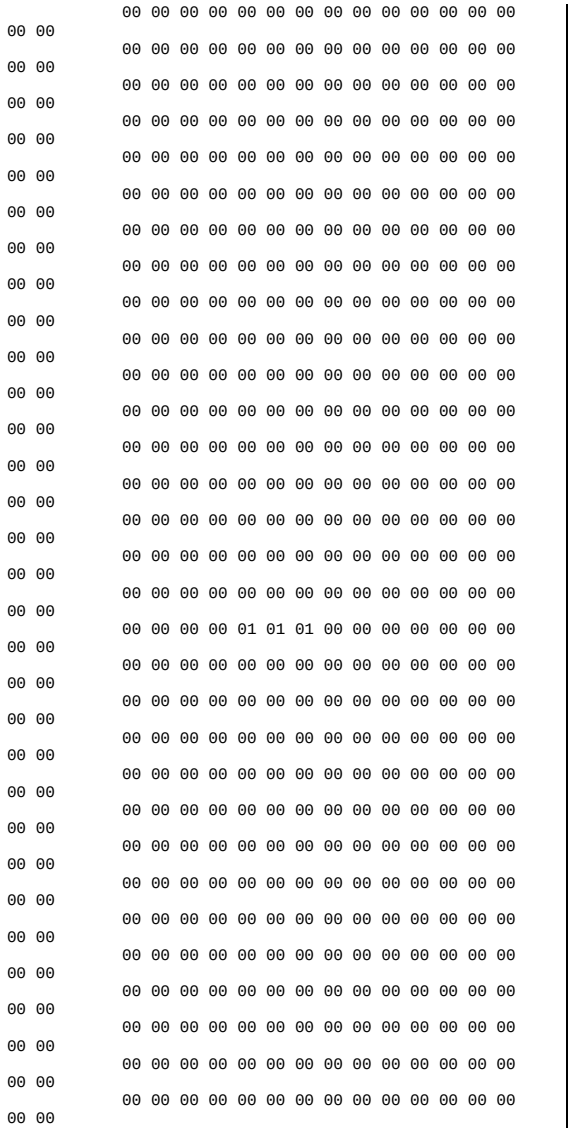

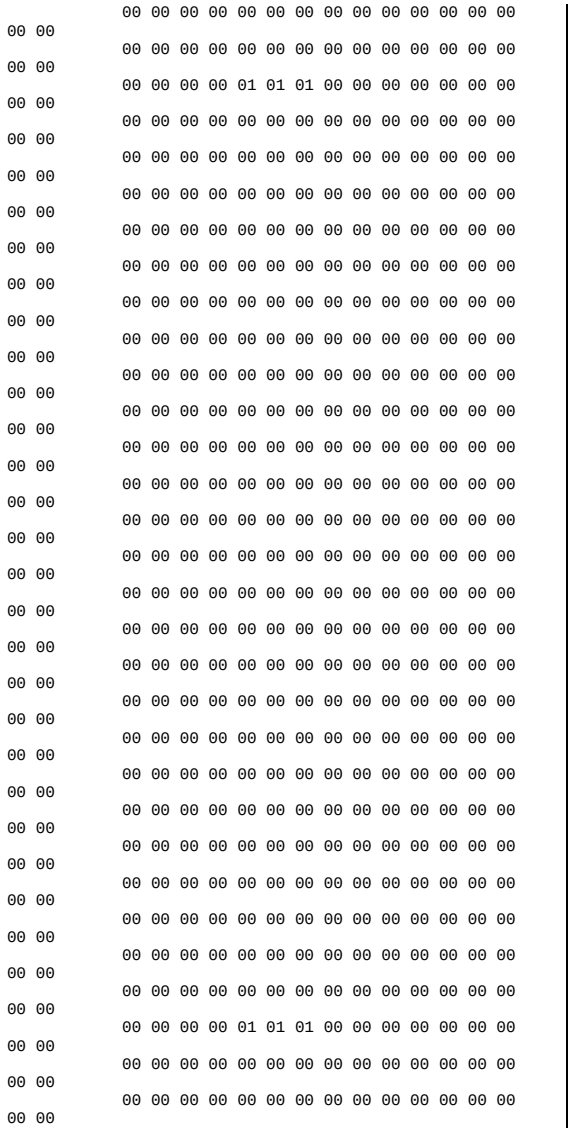

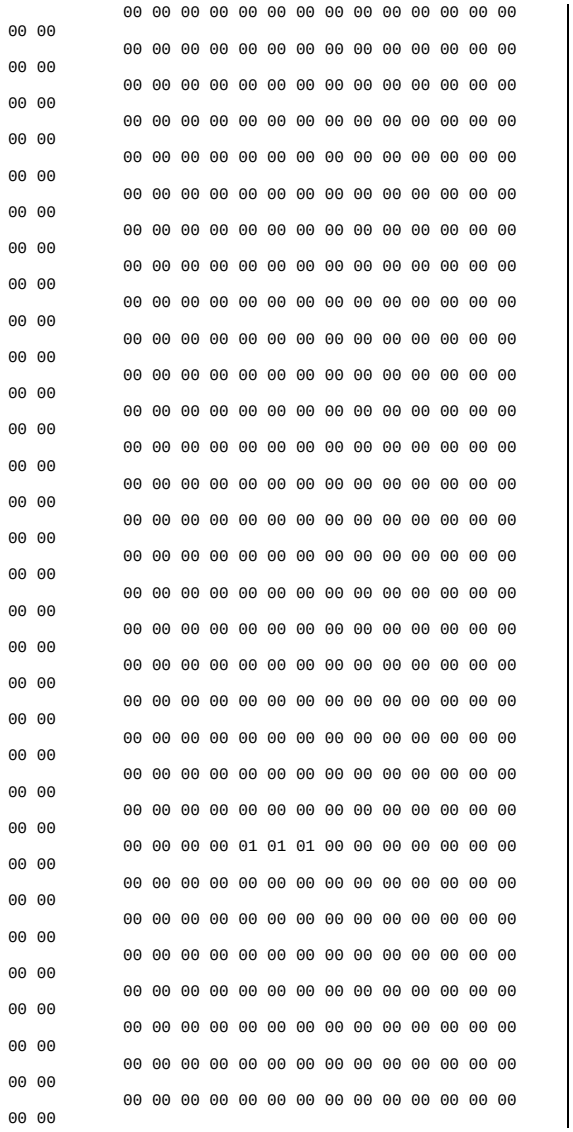

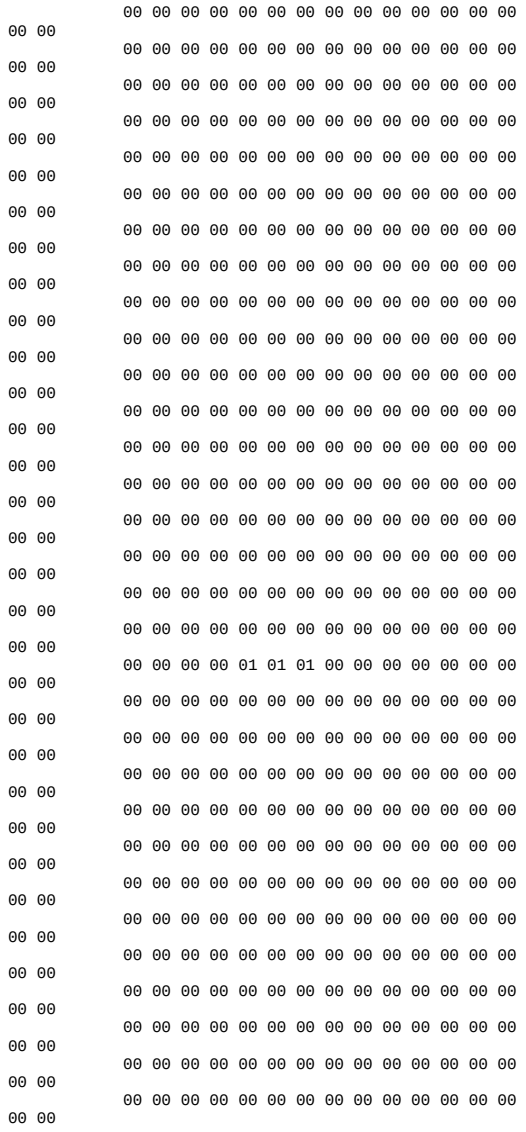

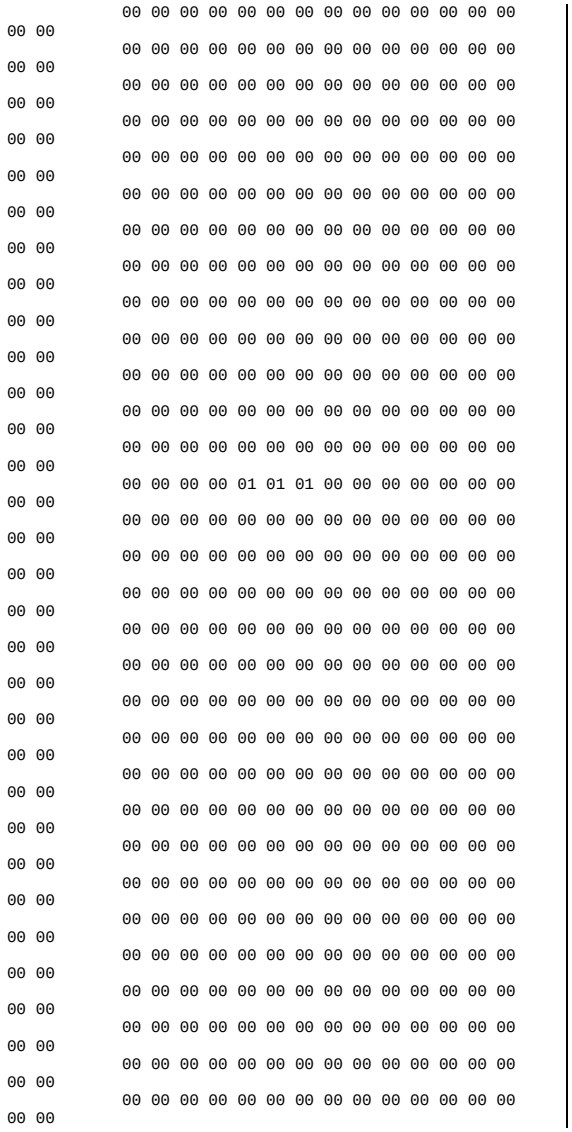

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      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 1:
      RIS drive: 0x1
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 2:
      RIS drive: 0x2
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 3:
      RIS drive: 0x3
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 4:
      RIS drive: 0x4
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 5:
      RIS drive: 0x5
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 6:  Physical drive not
connected.
   SCSI Port 1, Drive ID 7:  Physical drive not
connected.
   SCSI Port 1, Drive ID 8:  Physical drive not
connected.
   SCSI Port 1, Drive ID 9:  Physical drive not
connected.
   SCSI Port 1, Drive ID 10:  Physical drive not
connected.
   SCSI Port 1, Drive ID 11:  Physical drive not
connected.
   SCSI Port 1, Drive ID 12:  Physical drive not
connected.
   SCSI Port 1, Drive ID 13:  Physical drive not
connected.
   SCSI Port 1, Drive ID 14:  Physical drive not
connected.
   SCSI Port 1, Drive ID 15:  Physical drive not
connected.

SLOT 2 Smart Array 642 Controller ERROR REPORT:

   No problems detected

SUBSYSTEM INFORMATION:

   Chassis Serial Num:              6J38LK8DG00G
   This Controller
      Array Serial Number:          P5A8A0EDAPG8LS
      Cache Serial Number:          Not Available
   Other Controller
      Array Serial Number:          Not Available
      Cache Serial Number:          Not Available

CONTROLLER IDENTIFICATION:
   Configured Logical Drives: 4
   Configuration Signature:   0xa9ef836c
   Controller Firmware Rev:   1.92
   Controller ROM Revision:   1.92
   Controller Hardware Rev:   0x01
   Boot Block Version:        3.86
   Board ID:                  0x409b0e11
   Cable or Config Error:     0x00 (No)
   Invalid Host RAM Address:  No
   CPU Revision:              0x50
   CPU to PCI ASIC Rev:       0x00
   Cache Controller ASIC Rev: 0x00
   PCI to Host ASIC Rev:      0x00
   Marketing Revision:        0x42 (Rev B)
   Expand Disable Code:       0x01
   SCSI Chip Count:           2
   Max SCSI IDs per Bus:      16
   Big Drive Map:             0xff3f 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
   Big Ext Drive Map:         0xff3f 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
   Big Non-Disk Drive Map:    0x0080 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
   Fibre Chip Count:          0
   LKS:                       0x00
   AMS:                       0x00
   FS:                        0x00 0x00 0x00 0x00
0x00 0x00 0x2e32 0x3231 0x01 0x00 0x00 0x00
   Recovery ROM Inactive
   Image Revision:            2.12
   Recovery ROM Active Image
   Flags Status:              0x01
   Percent Write Cache:       0
   Daughterboard Size(MB):    0
   Cache Battery Count:       0
   Total Ctlr Memory Size:    64
   More Controller Flags:     0x00
   X-Board Host I2C Autorev:  0x00
   Battery PIC Rev:           0x00

LOGICAL DRIVE IDENTIFICATION:

   Logical Drive 1:
      Sector Size:              512
      Sectors Available:        54884160
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=6726 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

   Logical Drive 2:
      Sector Size:              512
      Sectors Available:        39935040
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=4894 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

   Logical Drive 3:
      Sector Size:              512
      Sectors Available:        5116320
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=627 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

   Logical Drive 4:
      Sector Size:              512
      Sectors Available:        369419520
      Fault Tolerance Mode:     Distributed Data
Guard (RAID 5)
      Logical Param Table:      cyl=45272 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

LOGICAL DRIVE CONFIGURATION:

   Logical Drive 1:
      Configuration Signature:  0xa754e1ce
      Mapping Scheme:           Multiple Block
      Physical Drives:          14 (number not valid
after drive movement)
         This Logical Drive:    14 (excluding spare
drives)
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=6726 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           0
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        54884160
      Sectors per Drive:        3920384
      Big Drive Assignment Map: 0xff3f 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

   Logical Drive 2:
      Configuration Signature:  0xa7d4f1ce
      Mapping Scheme:           Multiple Block
      Physical Drives:          14 (number not valid
after drive movement)
```

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        This Logical Drive:    14 (excluding spare
drives)
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=4894 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           3920384
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        39935040
      Sectors per Drive:        2852864
      Big Drive Assignment Map: 0xff3f 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

   Logical Drive 3:
      Configuration Signature:  0xa8dc6250
      Mapping Scheme:           Multiple Block
      Physical Drives:          14 (number not valid
after drive movement)
        This Logical Drive:    14 (excluding spare
drives)
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=627 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           6773248
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        5116320
      Sectors per Drive:        365568
      Big Drive Assignment Map: 0xff3f 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

   Logical Drive 4:
      Configuration Signature:  0xa9ef836c
      Mapping Scheme:           Multiple Block
      Physical Drives:          14 (number not valid
after drive movement)
        This Logical Drive:    14 (excluding spare
drives)
      Fault Tolerance Mode:     Distributed Data
Guard (RAID 5)
      Logical Param Table:      cyl=45272 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      128
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           7138816
      Backed-out Write drives:  0
      Stripes for Parity:       16
      Distribution Mode:        0x00
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        369419520
      Sectors per Drive:        28416896
      Big Drive Assignment Map: 0xff3f 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

LOGICAL DRIVE STATUS:

   Logical Drive 1:
      Drive Status:           OK
      Blocks to Rebuild:      0
      Blocks Re-mapped:
      Spare Status Flags:     0x00
      Spare to Replaced Map:  See Big Spare to
Replace Map:
      Media Was Exchanged:    No
      Cache Failure:          No
      Expand Failure:         0x00
      Unit Flags:             0x00
      Big Remap Count:        All Counts Zero
      Big Drive Failure Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:      0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:   0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

   Logical Drive 2:
      Drive Status:           OK
      Blocks to Rebuild:      0
      Blocks Re-mapped:
      Spare Status Flags:     0x00
      Spare to Replaced Map:  See Big Spare to
Replace Map:
      Media Was Exchanged:    No
      Cache Failure:          No
      Expand Failure:         0x00
      Unit Flags:             0x00
      Big Remap Count:        All Counts Zero
      Big Drive Failure Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:      0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:   0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

   Logical Drive 3:
      Drive Status:           OK
      Blocks to Rebuild:      0
      Blocks Re-mapped:
      Spare Status Flags:     0x00
      Spare to Replaced Map:  See Big Spare to
Replace Map:
      Media Was Exchanged:    No
      Cache Failure:          No
      Expand Failure:         0x00
      Unit Flags:             0x00
      Big Remap Count:        All Counts Zero
      Big Drive Failure Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:      0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:   0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

   Logical Drive 4:
      Drive Status:           OK
      Blocks to Rebuild:      0
      Blocks Re-mapped:
      Spare Status Flags:     0x00
      Spare to Replaced Map:  See Big Spare to
Replace Map:
      Media Was Exchanged:    No
      Cache Failure:          No
      Expand Failure:         0x00
      Unit Flags:             0x00
      Big Remap Count:        All Counts Zero
      Big Drive Failure Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:      0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:   0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

MONITOR AND PERFORMANCE DATA:

   SCSI Port 1, Drive ID 0
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 43 44 35 35 30 30 30 30 37 33 34
32      3JY0CD5500007342
         42 47 45 4d 48 50 42 33 00 00 00 00 43 4f 4d
50      BGEMHPB3....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 43 44 35 35 30 30 30 30 37 33 34
32      3JY0CD5500007342
         42 47 45 4d 48 50 42 36 00 00 00 00 43 4f 4d
50      BGEMHPB6....COMP
```

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        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 0003f6a1        00000003
ffffffff        8184
      Read Blks  0000002c925ce0eb 00000000003dda3a
8108
      Hrd Read   00000000        00000000
ffffffff        8184
      Rtry Read  00000000        00000000
ffffffff        8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000008d6f5527 0000000000000036
8108
      Hrd Write  00000000        00000000
ffffffff        8184
      Rtry Write 00000000        00000000
ffffffff        8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000        00000000
ffffffff        8184
      Spin Time  ffff            ffff
ffff            8a82
      Test 1     ffff            ffff
ffff            0a82
      Test 2     ffff            ffff
ffff            8a82
      Test 3     ffff            ffff
ffff            8a82
      Test 4     ffff            ffff
ffff            8a82
      Spare Blks ffffffff        ffffffff
0a04
      Re-mapped  ffffffff        ffffffff
ffffffff        8d84
      DRQ Tmots  ffff            ffff
ffff            0982
      Timeouts   005d            0000
ffff            0182
      Rebuilds   0000            0000
ffff            0182
      Spn Retrs  ffff            ffff
ffff            0982
      Fl Rd Recv 0000            0000
ffff            8182
      Fl Wt Recv 0000            0000
ffff            0182
      Format Err 0000            0000
ffff            0182
      POST Err   ffff            ffff
ffff            0982
      Drv Nt Ry  00000000        00000000
ffffffff        0184
      Reallc Abt ffffffff        ffffffff
ffffffff        0984
      IRQ Gltchs ffffffff        ffffffff
ffffffff        0984
      Bus Flts   00000000        00000000
ffffffff        8184
      Hot Plgs   00000000        00000000
ffffffff        0184
      Tk Rwt Err ffff            ffff
ffff            0982
      Rmp Wt Err ffff            ffff
ffff            0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000            0000
ffff            0182
      Hrdw Errs  0000            0000
ffff            0182
      Abt Cmd Fl 0000            0000
ffff            0182
      Spn Up Fl  0000            0000
ffff            0182
      Bd Tgt Cnt 0000            0000
ffff            0182
      Pred Fails 00000000        00000000
00000000        2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x0c
            Total Errors Logged = 0x00000020
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     008d7dc0(0)
000371d1   28   0000
00    0e    00     00      00     008d7ec0(0)
000375c3   28   0000
00    0e    00     00      00     00a4a240(0)
000379fa   28   0000
00    0e    00     00      00     008d8cc0(0)
00037b2d   28   0000
00    0e    00     00      00     00ae9b40(0)
00038020   28   0000
00    0e    00     00      00     008d84c0(0)
00038af3   28   0000
00    0e    00     00      00     00a344c0(0)
0003a0b4   28   0000
00    0e    00     00      00     00a79ec0(0)
0003c794   28   0000
00    0e    00     00      00     008df640(0)
0003d22b   28   0000
00    0e    00     00      00     00d9f840(0)
0003d662   28   0000
00    0e    00     00      00     0111a540(0)
0003d73c   28   0000
00    0e    00     00      00     007c1d40(0)
0003f69f   28   0000
00    0e    00     00      00     008d80c0(0)
0002f2a4   28   0000
00    0e    00     00      00     008d82c0(0)
0003030d   28   0000
00    0e    00     00      00     008d09c0(0)
0003265b   28   0000
00    0e    00     00      00     009f93c0(0)
00032967   28   0000
00    0e    00     00      00     008d88c0(0)
00033c6d   28   0000
00    0e    00     00      00     008d7c40(0)
0003571c   28   0000
00    0e    00     00      00     009e8d40(0)
000359e7   28   0000
00    0e    00     00      00     00ae3240(0)
00035a84   28   0000

   SCSI Port 1, Drive ID 1
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 43 59 4d 4b 30 30 30 30 37 33 34
31      3JY0CYMK00007341
        39 51 35 44 48 50 42 33 00 00 00 00 43 4f 4d
50      9Q5DHPB3....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 43 59 4d 4b 30 30 30 30 37 33 34
31      3JY0CYMK00007341
        39 51 35 44 48 50 42 36 00 00 00 00 43 4f 4d
50      9Q5DHPB6....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 0003f6a1        00000003
ffffffff        8184
      Read Blks  0000002c938ef1a9 00000000003dda19
8108
      Hrd Read   00000000        00000000
ffffffff        8184
      Rtry Read  00000000        00000000
ffffffff        8184
```

```
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000008e07ca5e 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff         8184
      Rtry Write 00000000         00000000
ffffffff         8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff         8184
      Spin Time  ffff             ffff
ffff             8a82
      Test 1     ffff             ffff
ffff             0a82
      Test 2     ffff             ffff
ffff             8a82
      Test 3     ffff             ffff
ffff             8a82
      Test 4     ffff             ffff
ffff             8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff         8d84
      DRQ Tmots  ffff             ffff
ffff             0982
      Timeouts   0060             0000
ffff             0182
      Rebuilds   0000             0000
ffff             0182
      Spn Retrs  ffff             ffff
ffff             0982
      Fl Rd Recv 0000             0000
ffff             8182
      Fl Wt Recv 0000             0000
ffff             0182
      Format Err 0000             0000
ffff             0182
      POST Err   ffff             ffff
ffff             0982
      Drv Nt Ry  00000000         00000000
ffffffff         0184
      Reallc Abt ffffffff         ffffffff
ffffffff         0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff         0984
      Bus Flts   00000000         00000000
ffffffff         8184
      Hot Plgs   00000000         00000000
ffffffff         0184
      Tk Rwt Err ffff             ffff
ffff             0982
      Rmp Wt Err ffff             ffff
ffff             0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff             0182
      Hrdw Errs  0000             0000
ffff             0182
      Abt Cmd Fl 0000             0000
ffff             0182
      Spn Up Fl  0000             0000
ffff             0182
      Bd Tgt Cnt 0000             0000
ffff             0182
      Pred Fails 00000000         00000000
00000000         2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x0a
            Total Errors Logged = 0x0000001e
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     00ae3240(0)
00035a84   28   0000
00    0e    00     00      00     00a4a240(0)
000379fa   28   0000
00    0e    00     00      00     008d8cc0(0)
00037b2d   28   0000
00    0e    00     00      00     008df6c0(0)
0003844d   28   0000
00    0e    00     00      00     00a344c0(0)
0003a0b4   28   0000
00    0e    00     00      00     00860f40(0)
0003a4ac   28   0000
00    0e    00     00      00     008decc0(0)
0003a5ca   28   0000
00    0e    00     00      00     008df640(0)
0003d22b   28   0000
00    0e    00     00      00     00a92f40(0)
0003ece5   28   0000
00    0e    00     00      00     007c1d40(0)
0003f69f   28   0000
00    0e    00     00      00     00aea440(0)
0002d9fb   28   0000
00    0e    00     00      00     00cdc140(0)
0002dd7e   28   0000
00    0e    00     00      00     008d80c0(0)
0002f2a4   28   0000
00    0e    00     00      00     008d82c0(0)
0003030d   28   0000
00    0e    00     00      00     008d8b40(0)
000318b8   28   0000
00    0e    00     00      00     008d77c0(0)
00032550   28   0000
00    0e    00     00      00     01064540(0)
0003553b   28   0000
00    0e    00     00      00     008d7c40(0)
0003571c   28   0000
00    0e    00     00      00     009e8d40(0)
000359e7   28   0000
00    0e    00     00      00     008d1240(0)
00035a48   28   0000

   SCSI Port 1, Drive ID 2
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 4d 57 4d 52 30 30 30 30 37 34 30
33      3JY0MWMR00007403
         38 4b 56 4c 48 50 42 36 00 00 00 00 43 4f 4d
50      8KVLHPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 4d 57 4d 52 30 30 30 30 37 34 30
33      3JY0MWMR00007403
         38 4b 56 4c 48 50 42 36 00 00 00 00 43 4f 4d
50      8KVLHPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                  Factory          Since Power
Threshold         Control
      Serv. Time 00029781         00000003
ffffffff         8184
      Read Blks  000000299425f746 00000000003dda19
8108
      Hrd Read   00000000         00000000
ffffffff         8184
      Rtry Read  00000000         00000000
ffffffff         8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000005ab92d06 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff         8184
      Rtry Write 00000000         00000000
ffffffff         8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff         8184
      Spin Time  ffff             ffff
ffff             8a82
      Test 1     ffff             ffff
ffff             0a82
      Test 2     ffff             ffff
ffff             8a82
```

```
      Test 3     ffff             ffff
ffff             8a82
      Test 4     ffff             ffff
ffff             8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff         8d84
      DRQ Tmots  ffff             ffff
ffff             0982
      Timeouts   0000             0000
ffff             0182
      Rebuilds   0000             0000
ffff             0182
      Spn Retrs  ffff             ffff
ffff             0982
      Fl Rd Recv 0000             0000
ffff             8182
      Fl Wt Recv 0000             0000
ffff             0182
      Format Err 0000             0000
ffff             0182
      POST Err   ffff             ffff
ffff             0982
      Drv Nt Ry  00000000         00000000
ffffffff         0184
      Reallc Abt ffffffff         ffffffff
ffffffff         0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff         0984
      Bus Flts   00000000         00000000
ffffffff         8184
      Hot Plgs   00000000         00000000
ffffffff         0184
      Tk Rwt Err ffff             ffff
ffff             0982
      Rmp Wt Err ffff             ffff
ffff             0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff             0182
      Hrdw Errs  0000             0000
ffff             0182
      Abt Cmd Fl 0000             0000
ffff             0182
      Spn Up Fl  0000             0000
ffff             0182
      Bd Tgt Cnt 0000             0000
ffff             0182
      Pred Fails 00000000         00000000
00000000         2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x13
            Total Errors Logged = 0x00000027
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     008d09c0(0)
0001c73b   28   0000
00    0e    00     00      00     008d88c0(0)
0001dd4d   28   0000
00    0e    00     00      00     008d7c40(0)
0001f7fc   28   0000
00    0e    00     00      00     009e8d40(0)
0001fac7   28   0000
00    0e    00     00      00     008d1240(0)
0001fb28   28   0000
00    0e    00     00      00     00ae3240(0)
0001fb64   28   0000
00    0e    00     00      00     008d7ec0(0)
000216a3   28   0000
00    0e    00     00      00     00a4a240(0)
00021ada   28   0000
00    0e    00     00      00     008d8cc0(0)
00021c0d   28   0000
00    0e    00     00      00     00ae9b40(0)
00022100   28   0000
00    0e    00     00      00     008df6c0(0)
0002252d   28   0000
00    0e    00     00      00     008d84c0(0)
00022bd3   28   0000
00    0e    00     00      00     00a344c0(0)
00024194   28   0000
00    0e    00     00      00     00860f40(0)
0002458c   28   0000
00    0e    00     00      00     00a79ec0(0)
00026874   28   0000
00    0e    00     00      00     008df640(0)
0002730b   28   0000
00    0e    00     00      00     0111a540(0)
0002781c   28   0000
00    0e    00     00      00     00a92f40(0)
00028dc5   28   0000
00    0e    00     00      00     007c1d40(0)
0002977f   28   0000
00    0e    00     00      00     008d77c0(0)
0001c630   28   0000

   SCSI Port 1, Drive ID 3
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 47 35 5a 38 30 30 30 30 37 33 34
37      3JY0G5Z800007347
         55 54 50 4e 48 50 42 36 00 00 00 00 43 4f 4d
50      UTPNHPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          .............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 47 35 5a 38 30 30 30 30 37 33 34
37      3JY0G5Z800007347
         55 54 50 4e 48 50 42 36 00 00 00 00 43 4f 4d
50      UTPNHPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          .............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                  Factory          Since Power
Threshold         Control
      Serv. Time 00029781         00000003
ffffffff         8184
      Read Blks  0000002994beda21 00000000003dda19
8108
      Hrd Read   00000000         00000000
ffffffff         8184
      Rtry Read  00000000         00000000
ffffffff         8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000005b2b1d31 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff         8184
      Rtry Write 00000000         00000000
ffffffff         8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff         8184
      Spin Time  ffff             ffff
ffff             8a82
      Test 1     ffff             ffff
ffff             0a82
      Test 2     ffff             ffff
ffff             8a82
      Test 3     ffff             ffff
ffff             8a82
      Test 4     ffff             ffff
ffff             8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff         8d84
      DRQ Tmots  ffff             ffff
ffff             0982
      Timeouts   0000             0000
ffff             0182
      Rebuilds   0000             0000
ffff             0182
      Spn Retrs  ffff             ffff
ffff             0982
      Fl Rd Recv 0000             0000
ffff             8182
      Fl Wt Recv 0000             0000
ffff             0182
```

```
      Format Err 0000             0000
ffff             0182
      POST Err   ffff             ffff
ffff             0982
      Drv Nt Ry  00000000         00000000
ffffffff         0184
      Reallc Abt ffffffff         ffffffff
ffffffff         0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff         0984
      Bus Flts   00000000         00000000
ffffffff         8184
      Hot Plgs   00000000         00000000
ffffffff         0184
      Tk Rwt Err ffff             ffff
ffff             0982
      Rmp Wt Err ffff             ffff
ffff             0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff             0182
      Hrdw Errs  0000             0000
ffff             0182
      Abt Cmd Fl 0000             0000
ffff             0182
      Spn Up Fl  0000             0000
ffff             0182
      Bd Tgt Cnt 0000             0000
ffff             0182
      Pred Fails 00000000         00000000
00000000         2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x0f
            Total Errors Logged = 0x00000023
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     008d88c0(0)
0001dd4d   28   0000
00    0e    00     00      00     008d7c40(0)
0001f7fc   28   0000
00    0e    00     00      00     009e8d40(0)
0001fac7   28   0000
00    0e    00     00      00     008d1240(0)
0001fb28   28   0000
00    0e    00     00      00     00ae3240(0)
0001fb64   28   0000
00    0e    00     00      00     008d7ec0(0)
000216a3   28   0000
00    0e    00     00      00     00a4a240(0)
00021ada   28   0000
00    0e    00     00      00     008d8cc0(0)
00021c0d   28   0000
00    0e    00     00      00     008d84c0(0)
00022bd3   28   0000
00    0e    00     00      00     00a344c0(0)
00024194   28   0000
00    0e    00     00      00     00860f40(0)
0002458c   28   0000
00    0e    00     00      00     00a79ec0(0)
00026874   28   0000
00    0e    00     00      00     008df640(0)
0002730b   28   0000
00    0e    00     00      00     0111a540(0)
0002781c   28   0000
00    0e    00     00      00     007c1d40(0)
0002977f   28   0000
00    0e    00     00      00     0093ce40(0)
00019308   28   0000
00    0e    00     00      00     008d80c0(0)
00019384   28   0000
00    0e    00     00      00     008d82c0(0)
0001a3ed   28   0000
00    0e    00     00      00     008d8b40(0)
0001b998   28   0000
00    0e    00     00      00     008d77c0(0)
0001c630   28   0000

   SCSI Port 1, Drive ID 4
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 39 57 54 30 30 30 30 30 37 33 33
39      3JY09WT000007339
         46 42 41 37 48 50 42 33 00 00 00 00 43 4f 4d
50      FBA7HPB3....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 39 57 54 30 30 30 30 30 37 33 33
39      3JY09WT000007339
         46 42 41 37 48 50 42 36 00 00 00 00 43 4f 4d
50      FBA7HPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                  Factory          Since Power
Threshold         Control
      Serv. Time 00043554         00000003
ffffffff          8184
      Read Blks  00000032dc7cd04c 00000000003dda19
8108
      Hrd Read   00000000         00000000
ffffffff          8184
      Rtry Read  00000000         00000000
ffffffff          8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 00000000a3bfaf80 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff          8184
      Rtry Write 00000000         00000000
ffffffff          8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff          8184
      Spin Time  ffff             ffff
ffff              8a82
      Test 1     ffff             ffff
ffff              0a82
      Test 2     ffff             ffff
ffff              8a82
      Test 3     ffff             ffff
ffff              8a82
      Test 4     ffff             ffff
ffff              8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff          8d84
      DRQ Tmots  ffff             ffff
ffff              0982
      Timeouts   0077             0000
ffff              0182
      Rebuilds   0000             0000
ffff              0182
      Spn Retrs  ffff             ffff
ffff              0982
      Fl Rd Recv 0000             0000
ffff              8182
      Fl Wt Recv 0000             0000
ffff              0182
      Format Err 0000             0000
ffff              0182
      POST Err   ffff             ffff
ffff              0982
      Drv Nt Ry  00000000         00000000
ffffffff          0184
      Reallc Abt ffffffff         ffffffff
ffffffff          0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff          0984
      Bus Flts   00000000         00000000
ffffffff          8184
      Hot Plgs   00000000         00000000
ffffffff          0184
      Tk Rwt Err ffff             ffff
ffff              0982
      Rmp Wt Err ffff             ffff
ffff              0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
```

```
      Med Flrs   0000             0000
ffff             0182
      Hrdw Errs  0000             0000
ffff             0182
      Abt Cmd Fl 0000             0000
ffff             0182
      Spn Up Fl  0000             0000
ffff             0182
      Bd Tgt Cnt 0000             0000
ffff             0182
      Pred Fails 00000000         00000000
00000000         2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x12
            Total Errors Logged = 0x00000026
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     0093ce40(0)
000330db   28   0000
00    0e    00     00      00     008d80c0(0)
00033157   28   0000
00    0e    00     00      00     008d82c0(0)
000341c0   28   0000
00    0e    00     00      00     008d8b40(0)
0003576b   28   0000
00    0e    00     00      00     008d77c0(0)
00036403   28   0000
00    0e    00     00      00     008d88c0(0)
00037b20   28   0000
00    0e    00     00      00     008d7c40(0)
000395cf   28   0000
00    0e    00     00      00     009e8d40(0)
0003989a   28   0000
00    0e    00     00      00     008d1240(0)
000398fb   28   0000
00    0e    00     00      00     00ae3240(0)
00039937   28   0000
00    0e    00     00      00     008d7ec0(0)
0003b476   28   0000
00    0e    00     00      00     00a4a240(0)
0003b8ad   28   0000
00    0e    00     00      00     008d8cc0(0)
0003b9e0   28   0000
00    0e    00     00      00     008d84c0(0)
0003c9a6   28   0000
00    0e    00     00      00     00a344c0(0)
0003df67   28   0000
00    0e    00     00      00     008df640(0)
000410de   28   0000
00    0e    00     00      00     0111a540(0)
000415ef   28   0000
00    0e    00     00      00     007c1d40(0)
00043552   28   0000
00    0e    00     00      00     00cdc140(0)
00031c31   28   0000
00    0e    00     00      00     008d8bc0(0)
00032aff   28   0000

   SCSI Port 1, Drive ID 5
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 43 48 50 42 30 30 30 30 37 33 32
36      3JY0CHPB00007326
         53 54 47 35 48 50 42 36 00 00 00 00 43 4f 4d
50      STG5HPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00

....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 43 48 50 42 30 30 30 30 37 33 32
36      3JY0CHPB00007326
         53 54 47 35 48 50 42 36 00 00 00 00 43 4f 4d
50      STG5HPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00

....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                  Factory          Since Power
Threshold         Control
      Serv. Time  00029781         00000003
ffffffff          8184
      Read Blks   000000299429873b 00000000003dda19
8108
      Hrd Read    00000000         00000000
ffffffff          8184
      Rtry Read   00000000         00000000
ffffffff          8184
      ECC Read    0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks  000000005b329765 0000000000000036
8108
      Hrd Write   00000000         00000000
ffffffff          8184
      Rtry Write  00000000         00000000
ffffffff          8184
      Seeks       0000000000000000 0000000000000000
8108
      Seek Errs   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls   00000000         00000000
ffffffff          8184
      Spin Time   ffff             ffff
ffff              8a82
      Test 1      ffff             ffff
ffff              0a82
      Test 2      ffff             ffff
ffff              8a82
      Test 3      ffff             ffff
ffff              8a82
      Test 4      ffff             ffff
ffff              8a82
      Spare Blks  ffffffff         ffffffff
0a04
      Re-mapped   ffffffff         ffffffff
ffffffff          8d84
      DRQ Tmots   ffff             ffff
ffff              0982
      Timeouts    000a             0000
ffff              0182
      Rebuilds    0000             0000
ffff              0182
      Spn Retrs   ffff             ffff
ffff              0982
      Fl Rd Recv  0000             0000
ffff              8182
      Fl Wt Recv  0000             0000
ffff              0182
      Format Err  0000             0000
ffff              0182
      POST Err    ffff             ffff
ffff              0982
      Drv Nt Ry   00000000         00000000
ffffffff          0184
      Reallc Abt  ffffffff         ffffffff
ffffffff          0984
      IRQ Gltchs  ffffffff         ffffffff
ffffffff          0984
      Bus Flts    00000000         00000000
ffffffff          8184
      Hot Plgs    00000000         00000000
ffffffff          0184
      Tk Rwt Err  ffff             ffff
ffff              0982
      Rmp Wt Err  ffff             ffff
ffff              0982
      Bg Fw Rev   0000000000000000 0000000000000000
0a48
      Med Flrs    0000             0000
ffff              0182
      Hrdw Errs   0000             0000
ffff              0182
      Abt Cmd Fl  0000             0000
ffff              0182
      Spn Up Fl   0000             0000
ffff              0182
      Bd Tgt Cnt  0000             0000
ffff              0182
      Pred Fails  00000000         00000000
00000000          2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x0e
            Total Errors Logged = 0x00000022
         Error Log Data:
```

```
SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     008d82c0(0)
0001a3ed   28   0000
00    0e    00     00      00     008d8b40(0)
0001b998   28   0000
00    0e    00     00      00     008d77c0(0)
0001c630   28   0000
00    0e    00     00      00     008d88c0(0)
0001dd4d   28   0000
00    0e    00     00      00     008d7c40(0)
0001f7fc   28   0000
00    0e    00     00      00     009e8d40(0)
0001fac7   28   0000
00    0e    00     00      00     00ae3240(0)
0001fb64   28   0000
00    0e    00     00      00     008d7ec0(0)
000216a3   28   0000
00    0e    00     00      00     00a4a240(0)
00021ada   28   0000
00    0e    00     00      00     008d8cc0(0)
00021c0d   28   0000
00    0e    00     00      00     008d84c0(0)
00022bd3   28   0000
00    0e    00     00      00     00a344c0(0)
00024194   28   0000
00    0e    00     00      00     008df640(0)
0002730b   28   0000
00    0e    00     00      00     007c1d40(0)
0002977f   28   0000
00    0e    00     00      00     008d9240(0)
0001523c   28   0000
00    0e    00     00      00     008e8b40(0)
00015891   28   0000
00    0e    00     00      00     009445c0(0)
00016ccb   28   0000
00    0e    00     00      00     00cdc140(0)
00017e5e   28   0000
00    0e    00     00      00     008d8bc0(0)
00018d2c   28   0000
00    0e    00     00      00     008d80c0(0)
00019384   28   0000

   SCSI Port 1, Drive ID 6
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 1, Drive ID 7
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 1, Drive ID 8
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 41 53 4b 43 30 30 30 30 37 33 33
38      3JY0ASKC00007338
         39 48 39 50 48 50 42 33 00 00 00 00 43 4f 4d
50      9H9PHPB3....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 41 53 4b 43 30 30 30 30 37 33 33
38      3JY0ASKC00007338
         39 48 39 50 48 50 42 36 00 00 00 00 43 4f 4d
50      9H9PHPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                  Factory          Since Power
Threshold         Control
      Serv. Time 00043554         00000003
ffffffff          8184
      Read Blks  0000002c92b6ab60 00000000003dda19
8108
      Hrd Read   00000000         00000000
ffffffff          8184
      Rtry Read  00000000         00000000
ffffffff          8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000008ff96cb9 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff          8184
      Rtry Write 00000000         00000000
ffffffff          8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff          8184
      Spin Time  ffff             ffff
ffff              8a82
      Test 1     ffff             ffff
ffff              0a82
      Test 2     ffff             ffff
ffff              8a82
      Test 3     ffff             ffff
ffff              8a82
      Test 4     ffff             ffff
ffff              8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff          8d84
      DRQ Tmots  ffff             ffff
ffff              0982
      Timeouts   0070             0000
ffff              0182
      Rebuilds   0000             0000
ffff              0182
      Spn Retrs  ffff             ffff
ffff              0982
      Fl Rd Recv 0000             0000
ffff              8182
      Fl Wt Recv 0000             0000
ffff              0182
      Format Err 0000             0000
ffff              0182
      POST Err   ffff             ffff
ffff              0982
      Drv Nt Ry  00000000         00000000
ffffffff          0184
      Reallc Abt ffffffff         ffffffff
ffffffff          0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff          0984
      Bus Flts   00000000         00000000
ffffffff          8184
      Hot Plgs   00000000         00000000
ffffffff          0184
      Tk Rwt Err ffff             ffff
ffff              0982
      Rmp Wt Err ffff             ffff
ffff              0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff              0182
      Hrdw Errs  0000             0000
ffff              0182
      Abt Cmd Fl 0000             0000
ffff              0182
      Spn Up Fl  0000             0000
ffff              0182
      Bd Tgt Cnt 0000             0000
ffff              0182
      Pred Fails 00000000         00000000
00000000          2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x03
            Total Errors Logged = 0x00000067
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     00a92f40(0)
00042b98   28   0000
00    0e    00     00      00     00ae1540(0)
00043014   28   0000
```

```
00    0e    00     00      00     007c1d40(0)
00043552   28   0000
00    0e    00     00      00     008de940(0)
0003de2b   28   0000
00    0e    00     00      00     00ae8840(0)
0003de6a   28   0000
00    0e    00     00      00     00a344c0(0)
0003df67   28   0000
00    0e    00     00      00     00860f40(0)
0003e35f   28   0000
00    0e    00     00      00     008decc0(0)
0003e47d   28   0000
00    0e    00     00      00     00a5a2c0(0)
0003ef12   28   0000
00    0e    00     00      00     00a79ec0(0)
00040647   28   0000
00    0e    00     00      00     008df340(0)
00040abc   28   0000
00    0e    00     00      00     00810ec0(0)
00040fe6   28   0000
00    0e    00     00      00     008df640(0)
000410de   28   0000
00    0e    00     00      00     00d9f840(0)
00041515   28   0000
00    0e    00     00      00     0111a540(0)
000415ef   28   0000
00    0e    00     00      00     00860e40(0)
000426fd   28   0000
00    0e    00     00      00     008d01c0(0)
0004273a   28   0000
00    0e    00     00      00     00ae1740(0)
00042866   28   0000
00    0e    00     00      00     008d83c0(0)
00042abe   28   0000
00    0e    00     00      00     00dd39c0(0)
00042b3b   28   0000

   SCSI Port 1, Drive ID 9
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 42 41 5a 47 30 30 30 30 37 33 33
38      3JY0BAZG00007338
         39 31 59 4a 48 50 42 33 00 00 00 00 43 4f 4d
50      91YJHPB3....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 42 41 5a 47 30 30 30 30 37 33 33
38      3JY0BAZG00007338
         39 31 59 4a 48 50 42 36 00 00 00 00 43 4f 4d
50      91YJHPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                  Factory          Since Power
Threshold         Control
      Serv. Time  00043554         00000003
ffffffff          8184
      Read Blks   00000032dd3c9da2 00000000003dda19
8108
      Hrd Read    00000000         00000000
ffffffff          8184
      Rtry Read   00000000         00000000
ffffffff          8184
      ECC Read    0000000000000000 0000000000000000
ffffffffffffffff  8188
      Write Blks  00000000a44d04b7 0000000000000036
8108
      Hrd Write   00000000         00000000
ffffffff          8184
      Rtry Write  00000000         00000000
ffffffff          8184
      Seeks       0000000000000000 0000000000000000
8108
      Seek Errs   0000000000000000 0000000000000000
ffffffffffffffff  8188
      Spin Cyls   00000000         00000000
ffffffff          8184
      Spin Time   ffff             ffff
ffff              8a82
      Test 1      ffff             ffff
ffff              0a82
      Test 2      ffff             ffff
ffff              8a82
      Test 3      ffff             ffff
ffff              8a82
      Test 4      ffff             ffff
ffff              8a82
      Spare Blks  ffffffff         ffffffff
0a04
      Re-mapped   ffffffff         ffffffff
ffffffff          8d84
      DRQ Tmots   ffff             ffff
ffff              0982
      Timeouts    006a             0000
ffff              0182
      Rebuilds    0000             0000
ffff              0182
      Spn Retrs   ffff             ffff
ffff              0982
      Fl Rd Recv  0000             0000
ffff              8182
      Fl Wt Recv  0000             0000
ffff              0182
      Format Err  0000             0000
ffff              0182
      POST Err    ffff             ffff
ffff              0982
      Drv Nt Ry   00000000         00000000
ffffffff          0184
      Reallc Abt  ffffffff         ffffffff
ffffffff          0984
      IRQ Gltchs  ffffffff         ffffffff
ffffffff          0984
      Bus Flts    00000000         00000000
ffffffff          8184
      Hot Plgs    00000000         00000000
ffffffff          0184
      Tk Rwt Err  ffff             ffff
ffff              0982
      Rmp Wt Err  ffff             ffff
ffff              0982
      Bg Fw Rev   0000000000000000 0000000000000000
0a48
      Med Flrs    0000             0000
ffff              0182
      Hrdw Errs   0000             0000
ffff              0182
      Abt Cmd Fl  0000             0000
ffff              0182
      Spn Up Fl   0000             0000
ffff              0182
      Bd Tgt Cnt  0000             0000
ffff              0182
      Pred Fails  00000000         00000000
00000000          2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x12
            Total Errors Logged = 0x00000062
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     00ae8840(0)
0003de6a   28   0000
00    0e    00     00      00     00a344c0(0)
0003df67   28   0000
00    0e    00     00      00     00860f40(0)
0003e35f   28   0000
00    0e    00     00      00     008decc0(0)
0003e47d   28   0000
00    0e    00     00      00     00a5a2c0(0)
0003ef12   28   0000
00    0e    00     00      00     00a79ec0(0)
00040647   28   0000
00    0e    00     00      00     008df340(0)
00040abc   28   0000
00    0e    00     00      00     00810ec0(0)
00040fe6   28   0000
00    0e    00     00      00     008df640(0)
000410de   28   0000
00    0e    00     00      00     00d9f840(0)
00041515   28   0000
00    0e    00     00      00     0111a540(0)
000415ef   28   0000
00    0e    00     00      00     00860e40(0)
000426fd   28   0000
```

```
00    0e    00     00      00     008d01c0(0)
0004273a   28   0000
00    0e    00     00      00     00ae1740(0)
00042866   28   0000
00    0e    00     00      00     00dd39c0(0)
00042b3b   28   0000
00    0e    00     00      00     00a92f40(0)
00042b98   28   0000
00    0e    00     00      00     00ae1540(0)
00043014   28   0000
00    0e    00     00      00     007c1d40(0)
00043552   28   0000
00    0e    00     00      00     008d8240(0)
0003d8a7   28   0000
00    0e    00     00      00     008de940(0)
0003de2b   28   0000

   SCSI Port 1, Drive ID 10
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 58 36 37 30 30 30 30 37 33 32
31      3JY02X6700007321
         43 44 52 4b 48 50 42 32 00 00 00 00 43 4f 4d
50      CDRKHPB2....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 58 36 37 30 30 30 30 37 33 32
31      3JY02X6700007321
         43 44 52 4b 48 50 42 36 00 00 00 00 43 4f 4d
50      CDRKHPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 0008a096        00000003
ffffffff        8184
      Read Blks  0000003218ffdbf4 00000000003dda19
8108
      Hrd Read   00000000        00000000
ffffffff        8184
      Rtry Read  00000000        00000000
ffffffff        8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000016c969f47 0000000000000036
8108
      Hrd Write  00000000        00000000
ffffffff        8184
      Rtry Write 00000000        00000000
ffffffff        8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000        00000000
ffffffff        8184
      Spin Time  ffff            ffff
ffff            8a82
      Test 1     ffff            ffff
ffff            0a82
      Test 2     ffff            ffff
ffff            8a82
      Test 3     ffff            ffff
ffff            8a82
      Test 4     ffff            ffff
ffff            8a82
      Spare Blks ffffffff        ffffffff
0a04
      Re-mapped  ffffffff        ffffffff
ffffffff        8d84
      DRQ Tmots  ffff            ffff
ffff            0982
      Timeouts   000a            0000
ffff            0182
      Rebuilds   0001            0000
ffff            0182
      Spn Retrs  ffff            ffff
ffff            0982
      Fl Rd Recv 0000            0000
ffff            8182
      Fl Wt Recv 0000            0000
ffff            0182
      Format Err 0000            0000
ffff            0182
      POST Err   ffff            ffff
ffff            0982
      Drv Nt Ry  00000000        00000000
ffffffff        0184
      Reallc Abt ffffffff        ffffffff
ffffffff        0984
      IRQ Gltchs ffffffff        ffffffff
ffffffff        0984
      Bus Flts   00000000        00000000
ffffffff        8184
      Hot Plgs   00000001        00000000
ffffffff        0184
      Tk Rwt Err ffff            ffff
ffff            0982
      Rmp Wt Err ffff            ffff
ffff            0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000            0000
ffff            0182
      Hrdw Errs  0000            0000
ffff            0182
      Abt Cmd Fl 0000            0000
ffff            0182
      Spn Up Fl  0000            0000
ffff            0182
      Bd Tgt Cnt 0000            0000
ffff            0182
      Pred Fails 00000000        00000000
00000000        2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x01
            Total Errors Logged = 0x00000065
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     007c1d40(0)
0008a094   28   0000
00    0e    00     00      00     008d8240(0)
000843e9   28   0000
00    0e    00     00      00     008de940(0)
0008496d   28   0000
00    0e    00     00      00     00ae8840(0)
000849ac   28   0000
00    0e    00     00      00     00a344c0(0)
00084aa9   28   0000
00    0e    00     00      00     00860f40(0)
00084ea1   28   0000
00    0e    00     00      00     008decc0(0)
00084fbf   28   0000
00    0e    00     00      00     00a5a2c0(0)
00085a54   28   0000
00    0e    00     00      00     00a79ec0(0)
00087189   28   0000
00    0e    00     00      00     008df340(0)
000875fe   28   0000
00    0e    00     00      00     00810ec0(0)
00087b28   28   0000
00    0e    00     00      00     008df640(0)
00087c20   28   0000
00    0e    00     00      00     00d9f840(0)
00088057   28   0000
00    0e    00     00      00     0111a540(0)
00088131   28   0000
00    0e    00     00      00     00860e40(0)
0008923f   28   0000
00    0e    00     00      00     008d01c0(0)
0008927c   28   0000
00    0e    00     00      00     00ae1740(0)
000893a8   28   0000
00    0e    00     00      00     00dd39c0(0)
0008967d   28   0000
00    0e    00     00      00     00a92f40(0)
000896da   28   0000
00    0e    00     00      00     00ae1540(0)
00089b56   28   0000

   SCSI Port 1, Drive ID 11
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
```

```
        33 4a 59 30 32 59 35 38 30 30 30 30 37 33 32
30      3JY02Y5800007320
        30 58 51 38 48 50 42 32 00 00 00 00 43 4f 4d
50      0XQ8HPB2....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 32 59 35 38 30 30 30 30 37 33 32
30      3JY02Y5800007320
        30 58 51 38 48 50 42 36 00 00 00 00 43 4f 4d
50      0XQ8HPB6....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 0008a153         00000003
ffffffff        8184
      Read Blks  000000331e431645 00000000003dda19
8108
      Hrd Read   00000000         00000000
ffffffff        8184
      Rtry Read  00000000         00000000
ffffffff        8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000017287281c 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff        8184
      Rtry Write 00000000         00000000
ffffffff        8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff        8184
      Spin Time  ffff             ffff
ffff            8a82
      Test 1     ffff             ffff
ffff            0a82
      Test 2     ffff             ffff
ffff            8a82
      Test 3     ffff             ffff
ffff            8a82
      Test 4     ffff             ffff
ffff            8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff        8d84
      DRQ Tmots  ffff             ffff
ffff            0982
      Timeouts   000a             0000
ffff            0182
      Rebuilds   0000             0000
ffff            0182
      Spn Retrs  ffff             ffff
ffff            0982
      Fl Rd Recv 0000             0000
ffff            8182
      Fl Wt Recv 0000             0000
ffff            0182
      Format Err 0000             0000
ffff            0182
      POST Err   ffff             ffff
ffff            0982
      Drv Nt Ry  00000000         00000000
ffffffff        0184
      Reallc Abt ffffffff         ffffffff
ffffffff        0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff        0984
      Bus Flts   00000000         00000000
ffffffff        8184
      Hot Plgs   00000000         00000000
ffffffff        0184
      Tk Rwt Err ffff             ffff
ffff            0982
      Rmp Wt Err ffff             ffff
ffff            0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff            0182
      Hrdw Errs  0000             0000
ffff            0182
      Abt Cmd Fl 0000             0000
ffff            0182
      Spn Up Fl  0000             0000
ffff            0182
      Bd Tgt Cnt 0000             0000
ffff            0182
      Pred Fails 00000000         00000000
00000000        2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x0a
            Total Errors Logged = 0x0000005a
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     008df340(0)
000876bb   28   0000
00    0e    00     00      00     00810ec0(0)
00087be5   28   0000
00    0e    00     00      00     008df640(0)
00087cdd   28   0000
00    0e    00     00      00     00d9f840(0)
00088114   28   0000
00    0e    00     00      00     0111a540(0)
000881ee   28   0000
00    0e    00     00      00     00860e40(0)
000892fc   28   0000
00    0e    00     00      00     008d01c0(0)
00089339   28   0000
00    0e    00     00      00     00dd39c0(0)
0008973a   28   0000
00    0e    00     00      00     00a92f40(0)
00089797   28   0000
00    0e    00     00      00     007c1d40(0)
0008a151   28   0000
00    0e    00     00      00     00a59140(0)
00082fa7   28   0000
00    0e    00     00      00     00842340(0)
00083424   28   0000
00    0e    00     00      00     008d84c0(0)
000835a5   28   0000
00    0e    00     00      00     008d8240(0)
000844a6   28   0000
00    0e    00     00      00     008de940(0)
00084a2a   28   0000
00    0e    00     00      00     00a344c0(0)
00084b66   28   0000
00    0e    00     00      00     00860f40(0)
00084f5e   28   0000
00    0e    00     00      00     008decc0(0)
0008507c   28   0000
00    0e    00     00      00     00a5a2c0(0)
00085b11   28   0000
00    0e    00     00      00     00a79ec0(0)
00087246   28   0000

   SCSI Port 1, Drive ID 12
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 32 57 57 50 30 30 30 30 37 33 32
32      3JY02WWP00007322
        34 34 43 42 48 50 42 32 00 00 00 00 43 4f 4d
50      44CBHPB2....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 32 57 57 50 30 30 30 30 37 33 32
32      3JY02WWP00007322
        34 34 43 42 48 50 42 36 00 00 00 00 43 4f 4d
50      44CBHPB6....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
```

```
        00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 0008a099        00000003
ffffffff        8184
      Read Blks  000000321ab0fbda 00000000003dda19
8108
      Hrd Read   00000000        00000000
ffffffff        8184
      Rtry Read  00000000        00000000
ffffffff        8184
      ECC Read   0000000000000002 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000016cafbd34 0000000000000036
8108
      Hrd Write  00000000        00000000
ffffffff        8184
      Rtry Write 00000000        00000000
ffffffff        8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000        00000000
ffffffff        8184
      Spin Time  ffff            ffff
ffff            8a82
      Test 1     ffff            ffff
ffff            0a82
      Test 2     ffff            ffff
ffff            8a82
      Test 3     ffff            ffff
ffff            8a82
      Test 4     ffff            ffff
ffff            8a82
      Spare Blks ffffffff        ffffffff
0a04
      Re-mapped  ffffffff        ffffffff
ffffffff        8d84
      DRQ Tmots  ffff            ffff
ffff            0982
      Timeouts   000a            0000
ffff            0182
      Rebuilds   0000            0000
ffff            0182
      Spn Retrs  ffff            ffff
ffff            0982
      Fl Rd Recv 0000            0000
ffff            8182
      Fl Wt Recv 0000            0000
ffff            0182
      Format Err 0000            0000
ffff            0182
      POST Err   ffff            ffff
ffff            0982
      Drv Nt Ry  00000000        00000000
ffffffff        0184
      Reallc Abt ffffffff        ffffffff
ffffffff        0984
      IRQ Gltchs ffffffff        ffffffff
ffffffff        0984
      Bus Flts   00000000        00000000
ffffffff        8184
      Hot Plgs   00000000        00000000
ffffffff        0184
      Tk Rwt Err ffff            ffff
ffff            0982
      Rmp Wt Err ffff            ffff
ffff            0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000            0000
ffff            0182
      Hrdw Errs  0000            0000
ffff            0182
      Abt Cmd Fl 0000            0000
ffff            0182
      Spn Up Fl  0000            0000
ffff            0182
      Bd Tgt Cnt 0000            0000
ffff            0182
      Pred Fails 00000000        00000000
00000000        2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x06
            Total Errors Logged = 0x00000056
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     0111a540(0)
00088134   28   0000
00    0e    00     00      00     00860e40(0)
00089242   28   0000
00    0e    00     00      00     008d01c0(0)
0008927f   28   0000
00    0e    00     00      00     00dd39c0(0)
00089680   28   0000
00    0e    00     00      00     00a92f40(0)
000896dd   28   0000
00    0e    00     00      00     007c1d40(0)
0008a097   28   0000
00    0e    00     00      00     008df6c0(0)
00082e45   28   0000
00    0e    00     00      00     00a59140(0)
00082eed   28   0000
00    0e    00     00      00     00842340(0)
0008336a   28   0000
00    0e    00     00      00     008d84c0(0)
000834eb   28   0000
00    0e    00     00      00     008d8240(0)
000843ec   28   0000
00    0e    00     00      00     008de940(0)
00084970   28   0000
00    0e    00     00      00     00a344c0(0)
00084aac   28   0000
00    0e    00     00      00     00860f40(0)
00084ea4   28   0000
00    0e    00     00      00     008decc0(0)
00084fc2   28   0000
00    0e    00     00      00     00a5a2c0(0)
00085a57   28   0000
00    0e    00     00      00     00a79ec0(0)
0008718c   28   0000
00    0e    00     00      00     008df340(0)
00087601   28   0000
00    0e    00     00      00     008df640(0)
00087c23   28   0000
00    0e    00     00      00     00d9f840(0)
0008805a   28   0000

   SCSI Port 1, Drive ID 13
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 45 48 59 30 30 30 30 37 33 31
39      3JY02EHY00007319
         47 4c 52 31 48 50 42 32 00 00 00 00 43 4f 4d
50      GLR1HPB2....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 45 48 59 30 30 30 30 37 33 31
39      3JY02EHY00007319
         47 4c 52 31 48 50 42 36 00 00 00 00 43 4f 4d
50      GLR1HPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 0008a153        00000003
ffffffff        8184
      Read Blks  00000033200507c2 00000000003dda19
8108
      Hrd Read   00000000        00000000
ffffffff        8184
      Rtry Read  00000000        00000000
ffffffff        8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000017275a2a8 0000000000000036
8108
```

```
      Hrd Write  00000000         00000000
ffffffff         8184
      Rtry Write 00000000         00000000
ffffffff         8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff         8184
      Spin Time  ffff             ffff
ffff             8a82
      Test 1     ffff             ffff
ffff             0a82
      Test 2     ffff             ffff
ffff             8a82
      Test 3     ffff             ffff
ffff             8a82
      Test 4     ffff             ffff
ffff             8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff         8d84
      DRQ Tmots  ffff             ffff
ffff             0982
      Timeouts   000a             0000
ffff             0182
      Rebuilds   0000             0000
ffff             0182
      Spn Retrs  ffff             ffff
ffff             0982
      Fl Rd Recv 0000             0000
ffff             8182
      Fl Wt Recv 0000             0000
ffff             0182
      Format Err 0000             0000
ffff             0182
      POST Err   ffff             ffff
ffff             0982
      Drv Nt Ry  00000000         00000000
ffffffff         0184
      Reallc Abt ffffffff         ffffffff
ffffffff         0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff         0984
      Bus Flts   00000000         00000000
ffffffff         8184
      Hot Plgs   00000000         00000000
ffffffff         0184
      Tk Rwt Err ffff             ffff
ffff             0982
      Rmp Wt Err ffff             ffff
ffff             0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff             0182
      Hrdw Errs  0000             0000
ffff             0182
      Abt Cmd Fl 0000             0000
ffff             0182
```

```
      Spn Up Fl  0000             0000
ffff             0182
      Bd Tgt Cnt 0000             0000
ffff             0182
      Pred Fails 00000000         00000000
00000000         2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x01
            Total Errors Logged = 0x00000051
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     007c1d40(0)
0008a151   28   0000
00    0e    00     00      00     00ae9b40(0)
00082ad2   28   0000
00    0e    00     00      00     008df6c0(0)
00082eff   28   0000
00    0e    00     00      00     00842340(0)
00083424   28   0000
00    0e    00     00      00     008d84c0(0)
000835a5   28   0000
00    0e    00     00      00     008d8240(0)
000844a6   28   0000
00    0e    00     00      00     008de940(0)
00084a2a   28   0000
00    0e    00     00      00     00a344c0(0)
00084b66   28   0000
00    0e    00     00      00     00860f40(0)
00084f5e   28   0000
00    0e    00     00      00     008decc0(0)
0008507c   28   0000
00    0e    00     00      00     00a5a2c0(0)
00085b11   28   0000
00    0e    00     00      00     00a79ec0(0)
00087246   28   0000
00    0e    00     00      00     008df340(0)
000876bb   28   0000
00    0e    00     00      00     008df640(0)
00087cdd   28   0000
00    0e    00     00      00     00d9f840(0)
00088114   28   0000
00    0e    00     00      00     0111a540(0)
000881ee   28   0000
00    0e    00     00      00     00860e40(0)
000892fc   28   0000
00    0e    00     00      00     008d01c0(0)
00089339   28   0000
00    0e    00     00      00     00dd39c0(0)
0008973a   28   0000
00    0e    00     00      00     00a92f40(0)
00089797   28   0000

   SCSI Port 1, Drive ID 14
```

```
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 33 48 4c 43 30 30 30 30 37 33 32
32      3JY03HLC00007322
         36 45 38 34 48 50 42 32 00 00 00 00 43 4f 4d
50      6E84HPB2....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 33 48 4c 43 30 30 30 30 37 33 32
32      3JY03HLC00007322
         36 45 38 34 48 50 42 36 00 00 00 00 43 4f 4d
50      6E84HPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 00084ffe         00000003
ffffffff         8184
      Read Blks  0000003143bba511 00000000003dda19
8108
      Hrd Read   00000000         00000000
ffffffff         8184
      Rtry Read  00000000         00000000
ffffffff         8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000015f445039 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff         8184
      Rtry Write 00000000         00000000
ffffffff         8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff         8184
      Spin Time  ffff             ffff
ffff             8a82
      Test 1     ffff             ffff
ffff             0a82
      Test 2     ffff             ffff
ffff             8a82
      Test 3     ffff             ffff
ffff             8a82
      Test 4     ffff             ffff
ffff             8a82
```

```
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff         8d84
      DRQ Tmots  ffff             ffff
ffff             0982
      Timeouts   0005             0000
ffff             0182
      Rebuilds   0000             0000
ffff             0182
      Spn Retrs  ffff             ffff
ffff             0982
      Fl Rd Recv 0000             0000
ffff             8182
      Fl Wt Recv 0000             0000
ffff             0182
      Format Err 0000             0000
ffff             0182
      POST Err   ffff             ffff
ffff             0982
      Drv Nt Ry  00000000         00000000
ffffffff         0184
      Reallc Abt ffffffff         ffffffff
ffffffff         0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff         0984
      Bus Flts   00000000         00000000
ffffffff         8184
      Hot Plgs   00000000         00000000
ffffffff         0184
      Tk Rwt Err ffff             ffff
ffff             0982
      Rmp Wt Err ffff             ffff
ffff             0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff             0182
      Hrdw Errs  0000             0000
ffff             0182
      Abt Cmd Fl 0000             0000
ffff             0182
      Spn Up Fl  0000             0000
ffff             0182
      Bd Tgt Cnt 0000             0000
ffff             0182
      Pred Fails 00000000         00000000
00000000         2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x04
            Total Errors Logged = 0x00000040
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
```

```
00    0e    00     00      00     00860e40(0)
000841a7   28   0000
00    0e    00     00      00     00dd39c0(0)
000845e5   28   0000
00    0e    00     00      00     00a92f40(0)
00084642   28   0000
00    0e    00     00      00     007c1d40(0)
00084ffc   28   0000
00    0e    00     00      00     008d7dc0(0)
0007cb2e   28   0000
00    0e    00     00      00     008d7ec0(0)
0007cf20   28   0000
00    0e    00     00      00     00a4a240(0)
0007d357   28   0000
00    0e    00     00      00     008d8cc0(0)
0007d48a   28   0000
00    0e    00     00      00     00ae9b40(0)
0007d97d   28   0000
00    0e    00     00      00     008df6c0(0)
0007ddaa   28   0000
00    0e    00     00      00     008d84c0(0)
0007e450   28   0000
00    0e    00     00      00     008d8240(0)
0007f351   28   0000
00    0e    00     00      00     00a344c0(0)
0007fa11   28   0000
00    0e    00     00      00     00860f40(0)
0007fe09   28   0000
00    0e    00     00      00     008decc0(0)
0007ff27   28   0000
00    0e    00     00      00     00a5a2c0(0)
000809bc   28   0000
00    0e    00     00      00     00a79ec0(0)
000820f1   28   0000
00    0e    00     00      00     008df640(0)
00082b88   28   0000
00    0e    00     00      00     00d9f840(0)
00082fbf   28   0000
00    0e    00     00      00     0111a540(0)
00083099   28   0000

   SCSI Port 1, Drive ID 15
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 58 33 48 30 30 30 30 37 33 32
32      3JY02X3H00007322
         35 41 48 59 48 50 42 32 00 00 00 00 43 4f 4d
50      5AHYHPB2....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00           ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 58 33 48 30 30 30 30 37 33 32
32      3JY02X3H00007322
         35 41 48 59 48 50 42 36 00 00 00 00 43 4f 4d
50      5AHYHPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
```

```
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00           ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                  Factory          Since Power
Threshold         Control
      Serv. Time 0008a153         00000003
ffffffff         8184
      Read Blks  0000003321277e1d 00000000003dda19
8108
      Hrd Read   00000000         00000000
ffffffff         8184
      Rtry Read  00000000         00000000
ffffffff         8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 0000000172a9377f 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff         8184
      Rtry Write 00000000         00000000
ffffffff         8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff         8184
      Spin Time  ffff             ffff
ffff             8a82
      Test 1     ffff             ffff
ffff             0a82
      Test 2     ffff             ffff
ffff             8a82
      Test 3     ffff             ffff
ffff             8a82
      Test 4     ffff             ffff
ffff             8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff         8d84
      DRQ Tmots  ffff             ffff
ffff             0982
      Timeouts   0004             0000
ffff             0182
      Rebuilds   0000             0000
ffff             0182
      Spn Retrs  ffff             ffff
ffff             0982
      Fl Rd Recv 0000             0000
ffff             8182
      Fl Wt Recv 0000             0000
ffff             0182
      Format Err 0000             0000
ffff             0182
      POST Err   ffff             ffff
ffff             0982
```

```
      Drv Nt Ry  00000000         00000000
ffffffff         0184
      Reallc Abt ffffffff         ffffffff
ffffffff         0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff         0984
      Bus Flts   00000000         00000000
ffffffff         8184
      Hot Plgs   00000000         00000000
ffffffff         0184
      Tk Rwt Err ffff             ffff
ffff             0982
      Rmp Wt Err ffff             ffff
ffff             0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff             0182
      Hrdw Errs  0000             0000
ffff             0182
      Abt Cmd Fl 0000             0000
ffff             0182
      Spn Up Fl  0000             0000
ffff             0182
      Bd Tgt Cnt 0000             0000
ffff             0182
      Pred Fails 00000000         00000000
00000000         2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x10
            Total Errors Logged = 0x00000038
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     00a4a240(0)
000824ac   28   0000
00    0e    00     00      00     008d8cc0(0)
000825df   28   0000
00    0e    00     00      00     00ae9b40(0)
00082ad2   28   0000
00    0e    00     00      00     008df6c0(0)
00082eff   28   0000
00    0e    00     00      00     008d84c0(0)
000835a5   28   0000
00    0e    00     00      00     008d8240(0)
000844a6   28   0000
00    0e    00     00      00     00a344c0(0)
00084b66   28   0000
00    0e    00     00      00     00860f40(0)
00084f5e   28   0000
00    0e    00     00      00     008decc0(0)
0008507c   28   0000
00    0e    00     00      00     00a79ec0(0)
00087246   28   0000
00    0e    00     00      00     008df640(0)
00087cdd   28   0000
00    0e    00     00      00     00d9f840(0)
00088114   28   0000
00    0e    00     00      00     0111a540(0)
000881ee   28   0000
00    0e    00     00      00     00860e40(0)
000892fc   28   0000
00    0e    00     00      00     00a92f40(0)
00089797   28   0000
00    0e    00     00      00     007c1d40(0)
0008a151   28   0000
00    0e    00     00      00     008d1240(0)
000804fa   28   0000
00    0e    00     00      00     00ae3240(0)
00080536   28   0000
00    0e    00     00      00     008d7dc0(0)
00081c83   28   0000
00    0e    00     00      00     008d7ec0(0)
00082075   28   0000

   SCSI Port 2, Drive ID 0
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 1
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 2
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 3
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 4
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 5
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 6
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 7
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 8
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 9
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 10
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 11
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 12
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 13
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 14
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 15
      Not Available

      DRIVE ERROR LOG:
         Not Available

SURFACE ANALYSIS STATUS:

   Time remaining to start: 0 secs.
   Surface analysis delay:  30 secs.

   SCSI Port 1:
                Big
      Drive ID  Current Block
      --------  -------------
```

```
         00      0x00aac9c0
         01      0x00aac9c0
         02      0x00aac9c0
         03      0x00aac9c0
         04      0x00aac9c0
         05      0x00aac9c0
         06      0x00000000
         07      0x00000000
         08      0x00aac9c0
         09      0x00aac9c0
         10      0x00aac9c0
         11      0x00aac9c0
         12      0x00aac9c0
         13      0x00aac9c0
         14      0x00aac9c0
         15      0x00aac9c0

   SCSI Port 2:
                 Big
      Drive ID   Current Block
      --------   -------------
         00      0x00000000
         01      0x00000000
         02      0x00000000
         03      0x00000000
         04      0x00000000
         05      0x00000000
         06      0x00000000
         07      0x00000000
         08      0x00000000
         09      0x00000000
         10      0x00000000
         11      0x00000000
         12      0x00000000
         13      0x00000000
         14      0x00000000
         15      0x00000000

                    Big
Surface     Surface
   Logical  Big     Inconsistent  Blocks
Controller  Analysis    Analysis
   Drive    Status  Block         Reassigned  Resets
Passes      Pass Time
   -------  ------  ------------  ----------  -------
---  ----------  ----------
         1   0x00   0x00000000             0      6
0           0
         2   0x00   0x00000000             0      6
0           0
         3   0x00   0x00000000             0      1
0           0
         4   0x09   0x00000000             0      0
3747        1723
         5   0x00   0x00000000             0      0
0           0
         6   0x00   0x00000000             0      0
0           0
         7   0x00   0x00000000             0      0
0           0
         8   0x00   0x00000000             0      0
0           0
         9   0x00   0x00000000             0      0
0           0
        10   0x00   0x00000000             0      0
0           0
        11   0x00   0x00000000             0      0
0           0
        12   0x00   0x00000000             0      0
0           0
        13   0x00   0x00000000             0      0
0           0
        14   0x00   0x00000000             0      0
0           0
        15   0x00   0x00000000             0      0
0           0
        16   0x00   0x00000000             0      0
0           0
        17   0x00   0x00000000             0      0
0           0
        18   0x00   0x00000000             0      0
0           0
        19   0x00   0x00000000             0      0
0           0
        20   0x00   0x00000000             0      0
0           0
        21   0x00   0x00000000             0      0
0           0
        22   0x00   0x00000000             0      0
0           0
        23   0x00   0x00000000             0      0
0           0
        24   0x00   0x00000000             0      0
0           0
        25   0x00   0x00000000             0      0
0           0
        26   0x00   0x00000000             0      0
0           0
        27   0x00   0x00000000             0      0
0           0
        28   0x00   0x00000000             0      0
0           0
        29   0x00   0x00000000             0      0
0           0
        30   0x00   0x00000000             0      0
0           0
        31   0x00   0x00000000             0      0
0           0
        32   0x00   0x00000000             0      0
0           0

ACCELERATOR STATUS:
   Logical Drive Disable Map: 0xfffffff0
   Read Cache Size:           32 MBytes
   Posted Write Size:         0 MBytes
   Disable Flag:              0x00
   Status:                    0x00000001
   Disable Code:              0x0000
   Total Memory Size:         32 MBytes
   Battery Count:             0
   Battery Status:            0x0000
   Parity Read Errors:        0000
   Parity Write Errors:       0000
   Error Log:                 N/A
   Failed Batteries:          0x0000
   Board Present:             Yes
   Accelerator Failure Map:   0x00000000
   Max Error Log Entries:     16
   NVRAM Load Status:         0x00
   Memory Size Shift Factor:  0x0a
   Non Battery Backed Memory: 32 MBytes
   Memory State:              0x00

PHYSICAL DRIVE IDENTIFICATION:

   SCSI Port 1, Drive ID 0
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY0CD55
      Serial Number:       3JY0CD5500007342BGEM
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 1 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
```

```
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 1
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY0CYMK
      Serial Number:       3JY0CYMK000073419Q5D
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 2 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 2
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY0MWMR
      Serial Number:       3JY0MWMR000074038KVL
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 3 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 3
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY0G5Z8
      Serial Number:       3JY0G5Z800007347UTPN
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
```

```
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 4 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 4
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY09WT0
      Serial Number:       3JY09WT000007339FBA7
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 5 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 5
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY0CHPB
      Serial Number:       3JY0CHPB00007326STG5
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 6 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
```

```
                  00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                  00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                  00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 6  ---> Not available
   SCSI Port 1, Drive ID 7  ---> Not available
   SCSI Port 1, Drive ID 8
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY0ASKC
      Serial Number:       3JY0ASKC000073389H9P
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 7 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 9
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY0BAZG
      Serial Number:       3JY0BAZG0000733891YJ
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 8 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 10
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY02X67
      Serial Number:       3JY02X6700007321CDRK
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
```

```
      Last Failure Reason: 0x14 (Drive removed from
hot plug)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 9 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 11
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY02Y58
      Serial Number:       3JY02Y58000073200XQ8
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 10 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 12
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY02WWP
      Serial Number:       3JY02WWP0000732244CB
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 11 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
```

```
                  00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                  00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                  00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 13
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY02EHY
      Serial Number:       3JY02EHY00007319GLR1
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 12 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 14
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY03HLC
      Serial Number:       3JY03HLC000073226E84
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 13 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 15
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY02X3H
      Serial Number:       3JY02X3H000073225AHY
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
```

```
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 14 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 2, Drive ID 0  ---> Not available
   SCSI Port 2, Drive ID 1  ---> Not available
   SCSI Port 2, Drive ID 2  ---> Not available
   SCSI Port 2, Drive ID 3  ---> Not available
   SCSI Port 2, Drive ID 4  ---> Not available
   SCSI Port 2, Drive ID 5  ---> Not available
   SCSI Port 2, Drive ID 6  ---> Not available
   SCSI Port 2, Drive ID 7  ---> Not available
   SCSI Port 2, Drive ID 8  ---> Not available
   SCSI Port 2, Drive ID 9  ---> Not available
   SCSI Port 2, Drive ID 10 ---> Not available
   SCSI Port 2, Drive ID 11 ---> Not available
   SCSI Port 2, Drive ID 12 ---> Not available
   SCSI Port 2, Drive ID 13 ---> Not available
   SCSI Port 2, Drive ID 14 ---> Not available
   SCSI Port 2, Drive ID 15 ---> Not available

CONTROLLER PARAMETERS:

   LED Control:               0x00
   Command List Verification: On
   Backed-out Write drives:   0
   Stripes for Parity:        0
   Distribution Mode:         0x00
   Maximum Driver Requests:   0xffff
   Elevator Trend Count:      0x0032
   Disable Elevator:          0x00
   Force Scan Complete:       0x00
   Synch/Asynch Mode:         Auto Detect
   Force Narrow:              No
   Rebuild Priority:          0
   Expand Priority:           0
   SDB ASIC Fix:              0x00
   PDIP Burst Disable:        0x00
   Software Name:
   Hardware Name:

SCSI BUS 1 PARAMETERS:
   Inquiry Data Valid:    Yes
   Inquiry Header:        03 00 02 02 21 00 00 00
   Vendor Id:             COMPAQ
   Product Id:            PROLIANT 4LEE
   Product Rev:           CP20
   Hot Plug Counts:
      All counts are zero
   Fan Alert Count:       0x0000
   Alarm Status:          0x00 (No Alarms)
   Temperature Status:    0x00
   Valid Alarm Bits:      0x0b
   Alarm Count:           0000
   Specific Counts:       00000 00000 00000 00000
00000 00000 00000 00000
   Connection Info:       0x0809
   SCSI Device Rev:       0x01
   Fan Status:            0x0000
   More Inquiry Data:
        03 20 00 00 00 00 00 00 00 00 00 00 00 00 00
00       . ..............
        00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ..............
        00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ..............
        00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ..............
   SCSI Device Type:      0x00460e11 (unknown)
   Interrupt Count:       00000000
   Ultra Bus Faults:      0x00000000
   SCSI Initiator ID:     7
   SCSI Target ID:        7
   Chassis Serial Number: 9J41LMPXDR84
   Physical Connector:    J4 (controller connector
attached to drive)
   Big Inst Drive Map:    0xff3f 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000
   Big Bus Map:           0xffff 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000
   More Connection Info:  0x15 (LVD SCSI bus enabled)

SCSI BUS 2 PARAMETERS:
   Inquiry Data Valid:    No
   Hot Plug Counts:
      All counts are zero
   Fan Alert Count:       0x0000
   Alarm Status:          0x00 (No Alarms)
   Temperature Status:    0x00
   Valid Alarm Bits:      0x00
   Alarm Count:           0000
   Specific Counts:       00000 00000 00000 00000
00000 00000 00000 00000
   Connection Info:       0x0000
   SCSI Device Rev:       0x01
   Fan Status:            0x0000
   More Inquiry Data:
        00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ..............
        00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ..............
        00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ..............
        00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ..............
   SCSI Device Type:      0x00460e11 (unknown)
   Interrupt Count:       00000000
   Ultra Bus Faults:      0x00000000
   SCSI Initiator ID:     7
   SCSI Target ID:        7
   Chassis Serial Number: Not Available
   Physical Connector:    ?? (controller connector
attached to drive)
   Big Inst Drive Map:    0x0000 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000
   Big Bus Map:           0x0000 0xffff 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000
   More Connection Info:  0x11 (LVD SCSI bus enabled)

MASTER BOOT RECORD (LOGICAL DRIVE 1)

      Logical Drive 1 (SCSI Port 1, Drive ID 0):
         Master Boot Record hex dump:
            33 c0 8e d0 bc 00 7c fb 50 07 50 1f fc be
1b 7c
            bf 1b 06 50 57 b9 e5 01 f3 a4 cb bd be 07
b1 04
            38 6e 00 7c 09 75 13 83 c5 10 e2 f4 cd 18
8b f5
            83 c6 10 49 74 19 38 2c 74 f6 a0 b5 07 b4
07 8b
            f0 ac 3c 00 74 fc bb 07 00 b4 0e cd 10 eb
f2 88
            4e 10 e8 46 00 73 2a fe 46 10 80 7e 04 0b
74 0b
```

```
            80 7e 04 0c 74 05 a0 b6 07 75 d2 80 46 02
06 83
            46 08 06 83 56 0a 00 e8 21 00 73 05 a0 b6
07 eb
            bc 81 3e fe 7d 55 aa 74 0b 80 7e 10 00 74
c8 a0
            b7 07 eb a9 8b fc 1e 57 8b f5 cb bf 05 00
8a 56
            00 b4 08 cd 13 72 23 8a c1 24 3f 98 8a de
8a fc
            43 f7 e3 8b d1 86 d6 b1 06 d2 ee 42 f7 e2
39 56
            0a 77 23 72 05 39 46 08 73 1c b8 01 02 bb
00 7c
            8b 4e 02 8b 56 00 cd 13 73 51 4f 74 4e 32
e4 8a
            56 00 cd 13 eb e4 8a 56 00 60 bb aa 55 b4
41 cd
            13 72 36 81 fb 55 aa 75 30 f6 c1 01 74 2b
61 60
            6a 00 6a 00 ff 76 0a ff 76 08 6a 00 68 00
7c 6a
            01 6a 10 b4 42 8b f4 cd 13 61 61 73 0e 4f
74 0b
            32 e4 8a 56 00 cd 13 eb d6 61 f9 c3 49 6e
76 61
            6c 69 64 20 70 61 72 74 69 74 69 6f 6e 20
74 61
            62 6c 65 00 45 72 72 6f 72 20 6c 6f 61 64
69 6e
            67 20 6f 70 65 72 61 74 69 6e 67 20 73 79
73 74
            65 6d 00 4d 69 73 73 69 6e 67 20 6f 70 65
72 61
            74 69 6e 67 20 73 79 73 74 65 6d 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 2c 44 63 23 f7 0c 33 71 ff
00 01
            01 00 06 fe ff ff 3f 00 00 00 19 5f 45 03
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
55 aa

PARTITION TABLES:

      SCSI Port 1, Drive ID 0:
            00 01 01 00 06 fe ff ff 3f 00 00 00 19 5f
45 03
               (Start C/H/S 0000/001/01, End
1023/254/63)
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
      SCSI Port 1, Drive ID 1:
            00 01 01 00 06 fe ff ff 3f 00 00 00 7c 2a
19 01
               (Start C/H/S 0000/001/01, End
1023/254/63)
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00

RIS DATA AREA:

   SCSI Port 1, Drive ID 0:
      RIS drive: 0x0
      RIS Copy 0:
         Drive id:          0
         RIS signature:     ASTROS
         Physical Drives:   14
         Logical Drives:    4
         Physical Drive State: (00=OK, 01=bad or not
present, 02=replacement)
            00 00 00 00 00 00 01 01 00 00 00 00 00 00
00 00
            01 01 01 01 01 01 01 01 01 01 01 01 01 01
01 01
            01 01 01 01 01 01 01 01 01 01 01 01 01 01
01 01
            01 01 01 01 01 01 01 01 01 01 01 01 01 01
01 01
         Signature:         0xa9ef836c
         RIS version:       1501
         Logical Drive State:  (00=OK, 01=failed,
02=unused)
            00 00 00 16 00 00 00 0E 02 00 00 00 10 14
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
         RIS updates:       1458
         Remap interrupted: 0
         Surface delay:     300
         Overheat delay:    0
         M&P delay:         60
         RIS hex dump:
            00 41 53 54 52 4f 53 20 a9 ef 83 6c 00 00
05 b2
            05 dd 0e 04 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 01
            01 00 00 00 00 00 00 00 00 01 01 01 01 01
01 01
            01 01 01 01 01 01 01 01 01 01 01 01 01 01
01 01
            01 01 01 01 01 01 01 01 01 01 01 01 01 01
01 01
            01 01 01 01 01 01 01 01 01 01 00 00 00 00
00 00
            ff ff 00 32 00 00 00 3c 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
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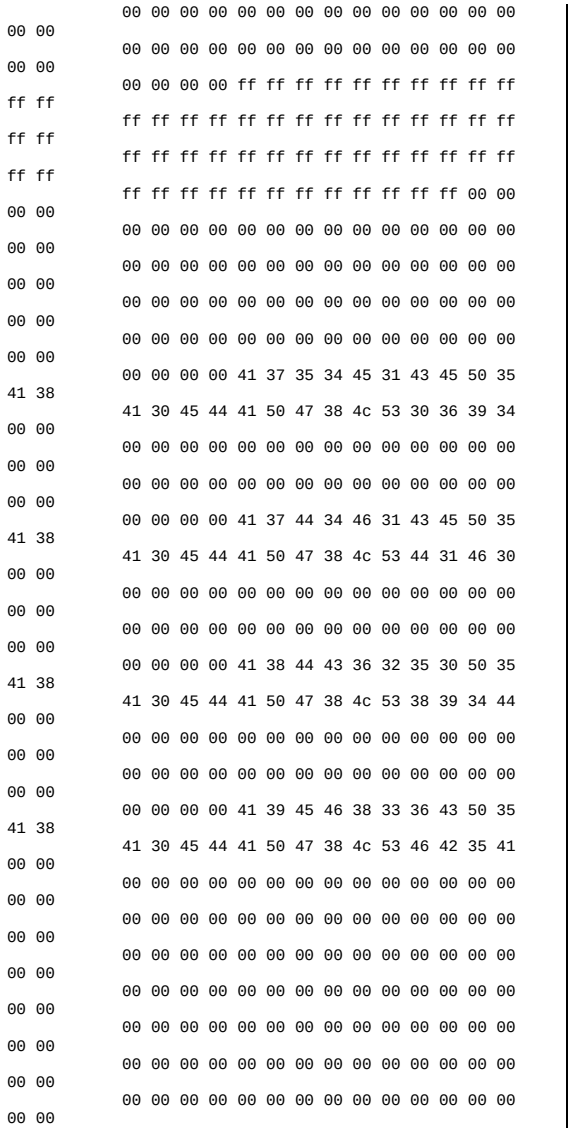

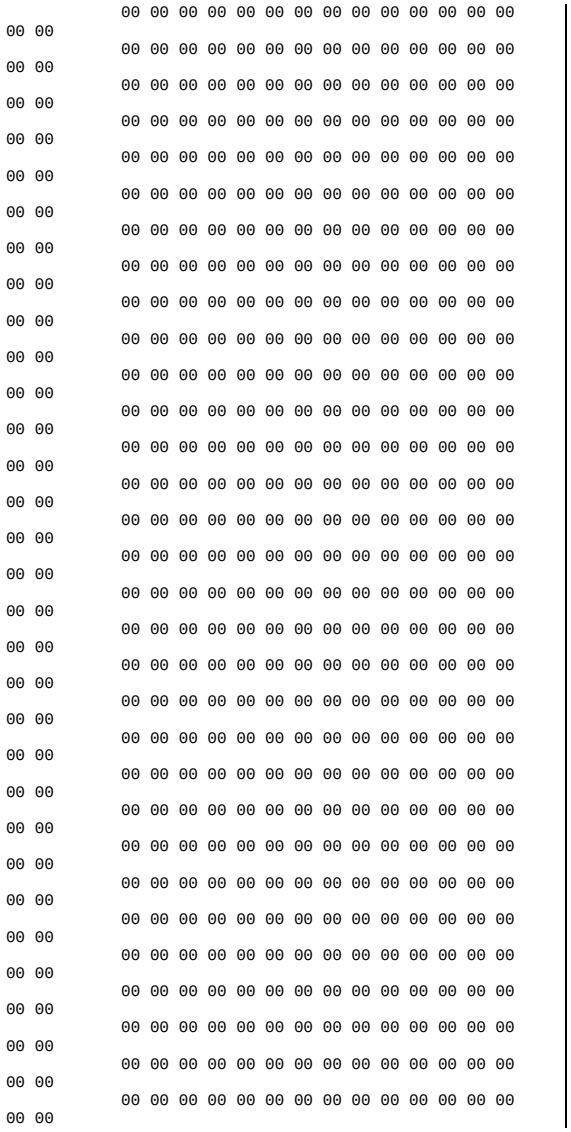

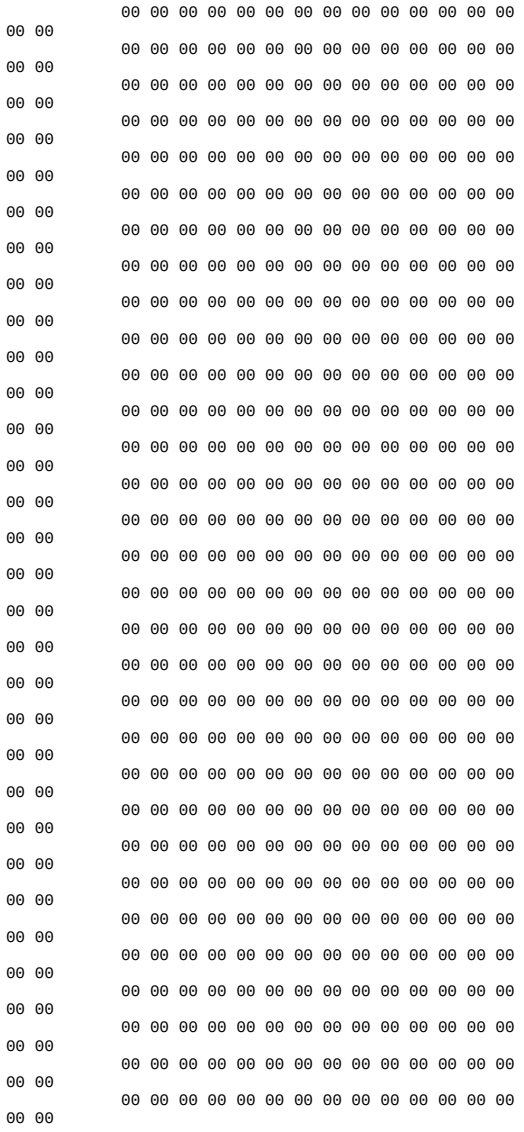

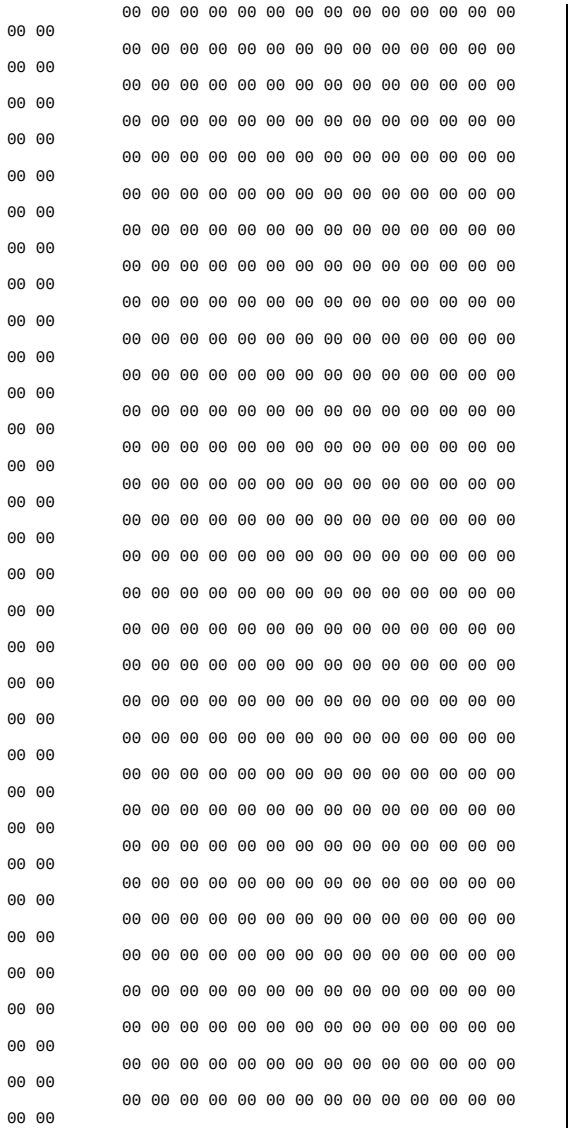

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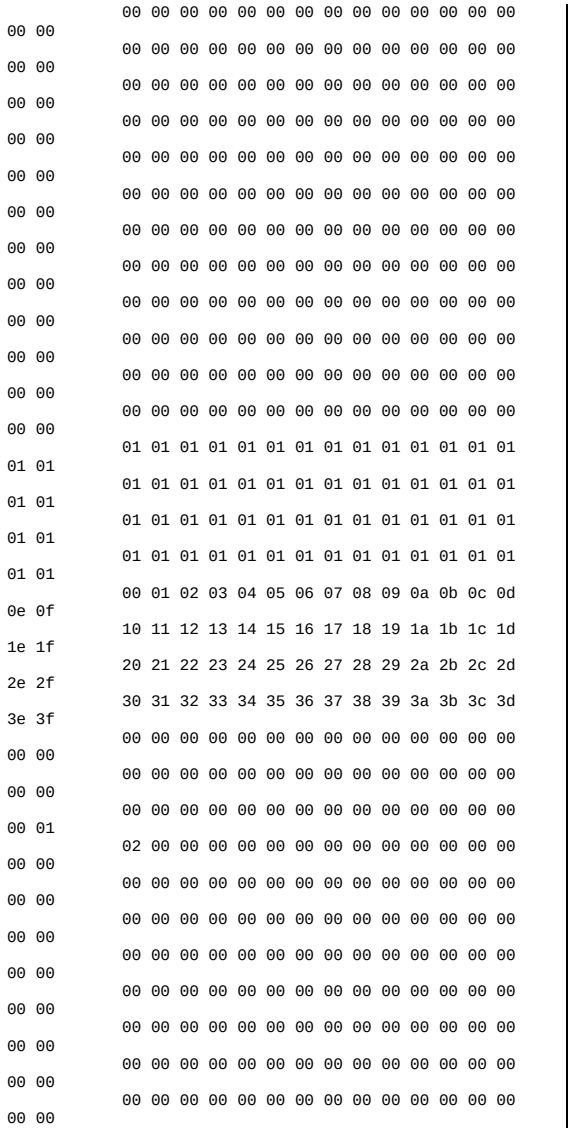

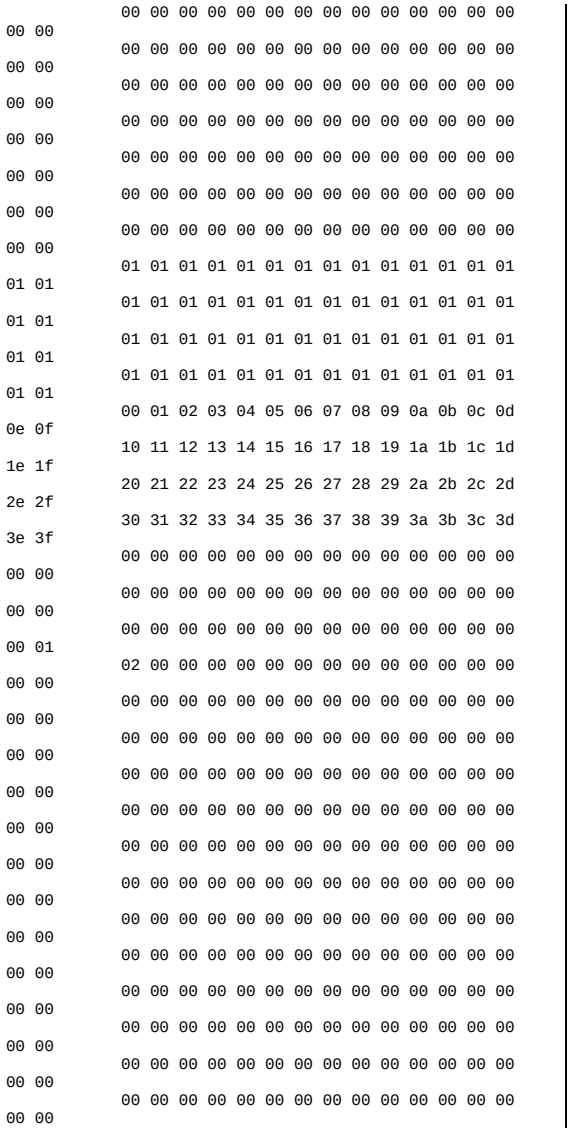

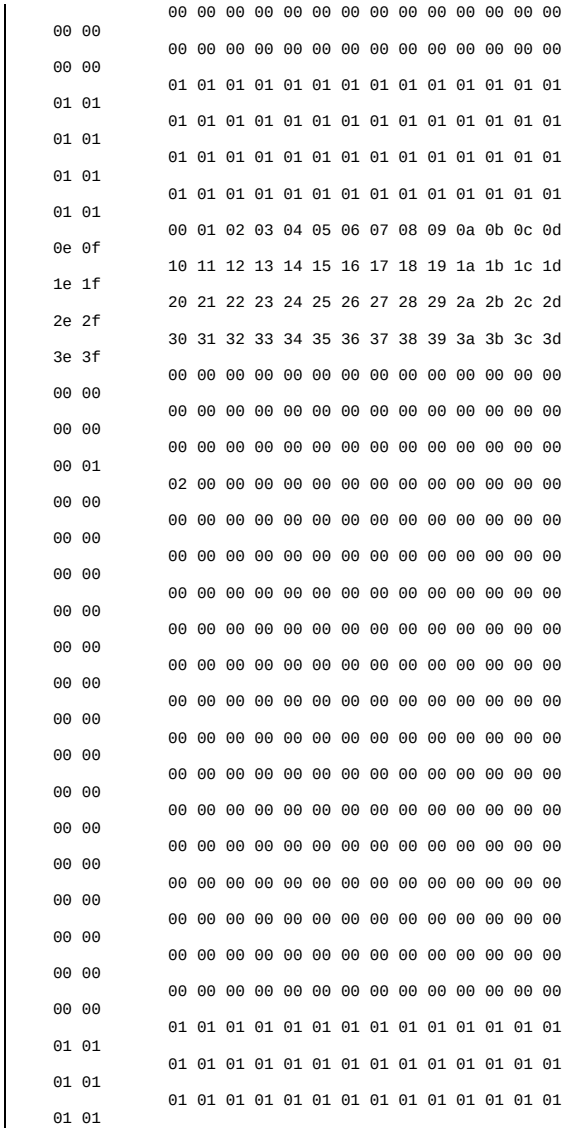

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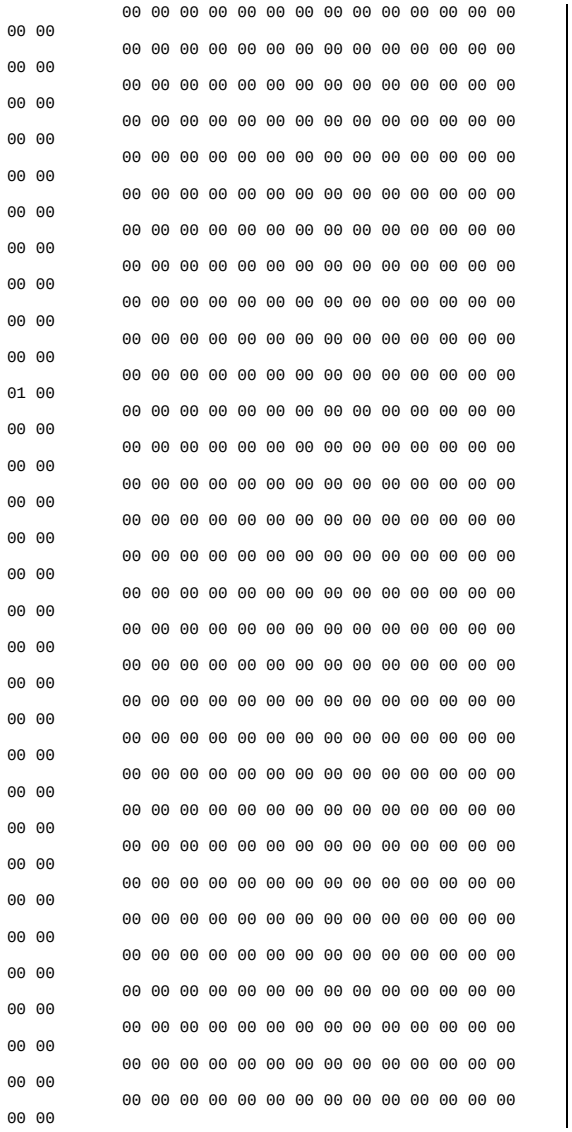

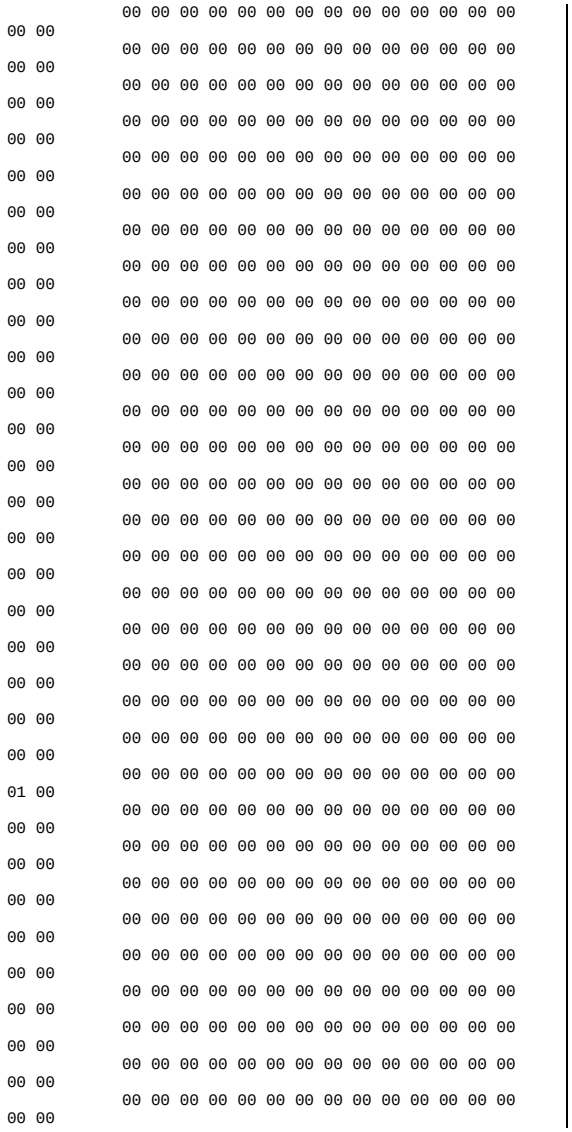

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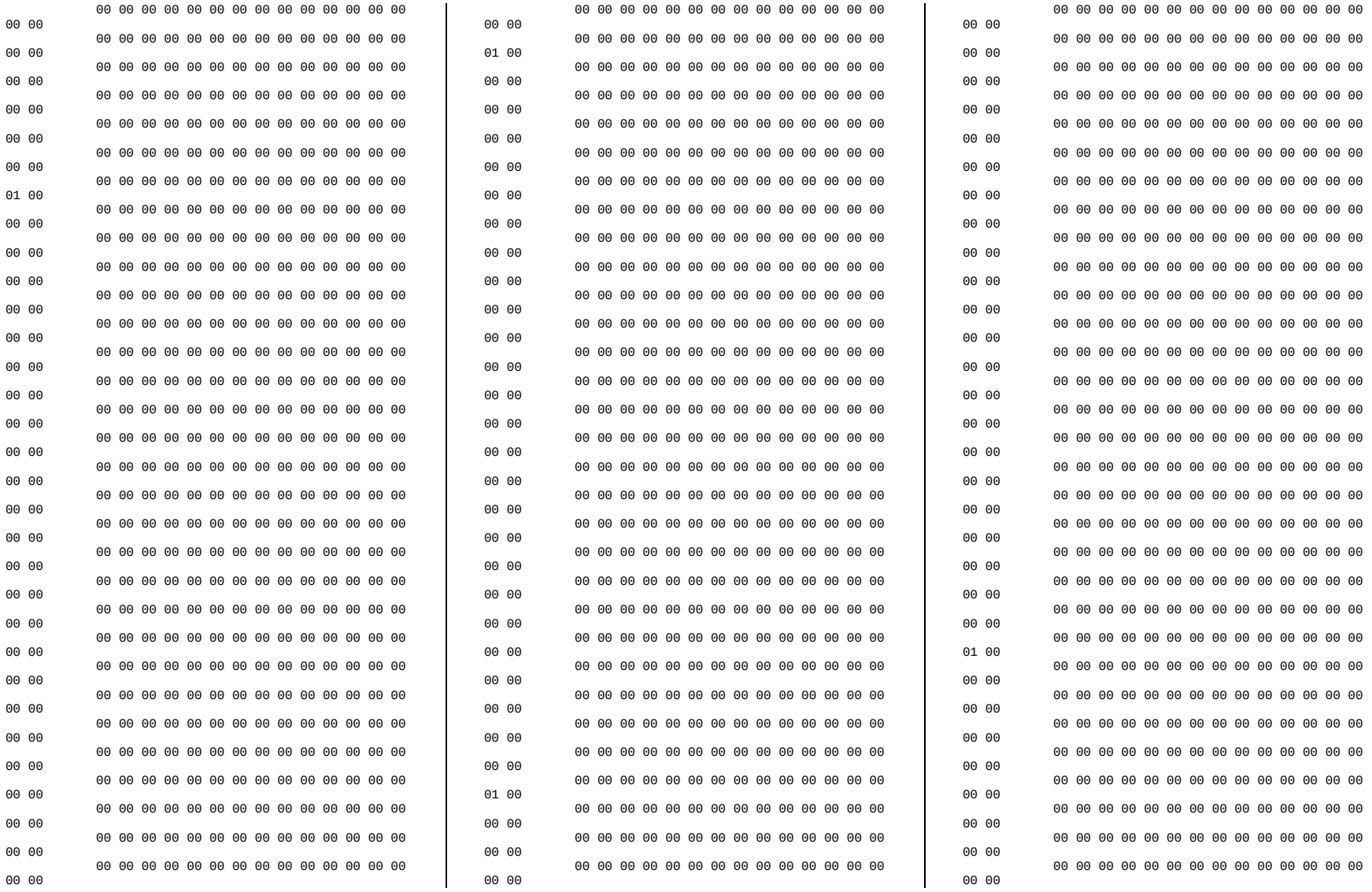

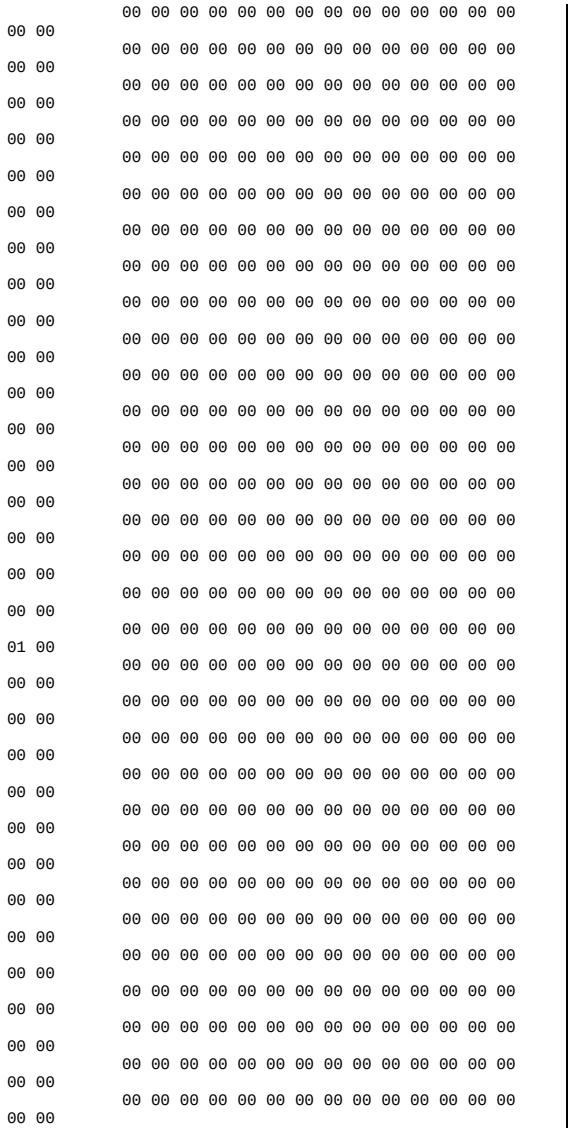

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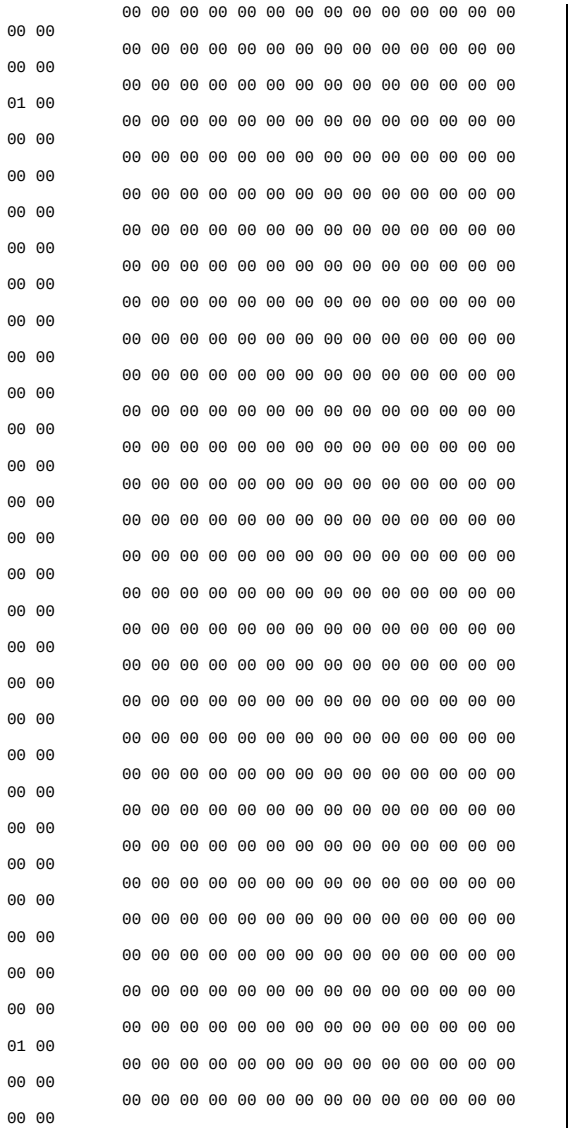

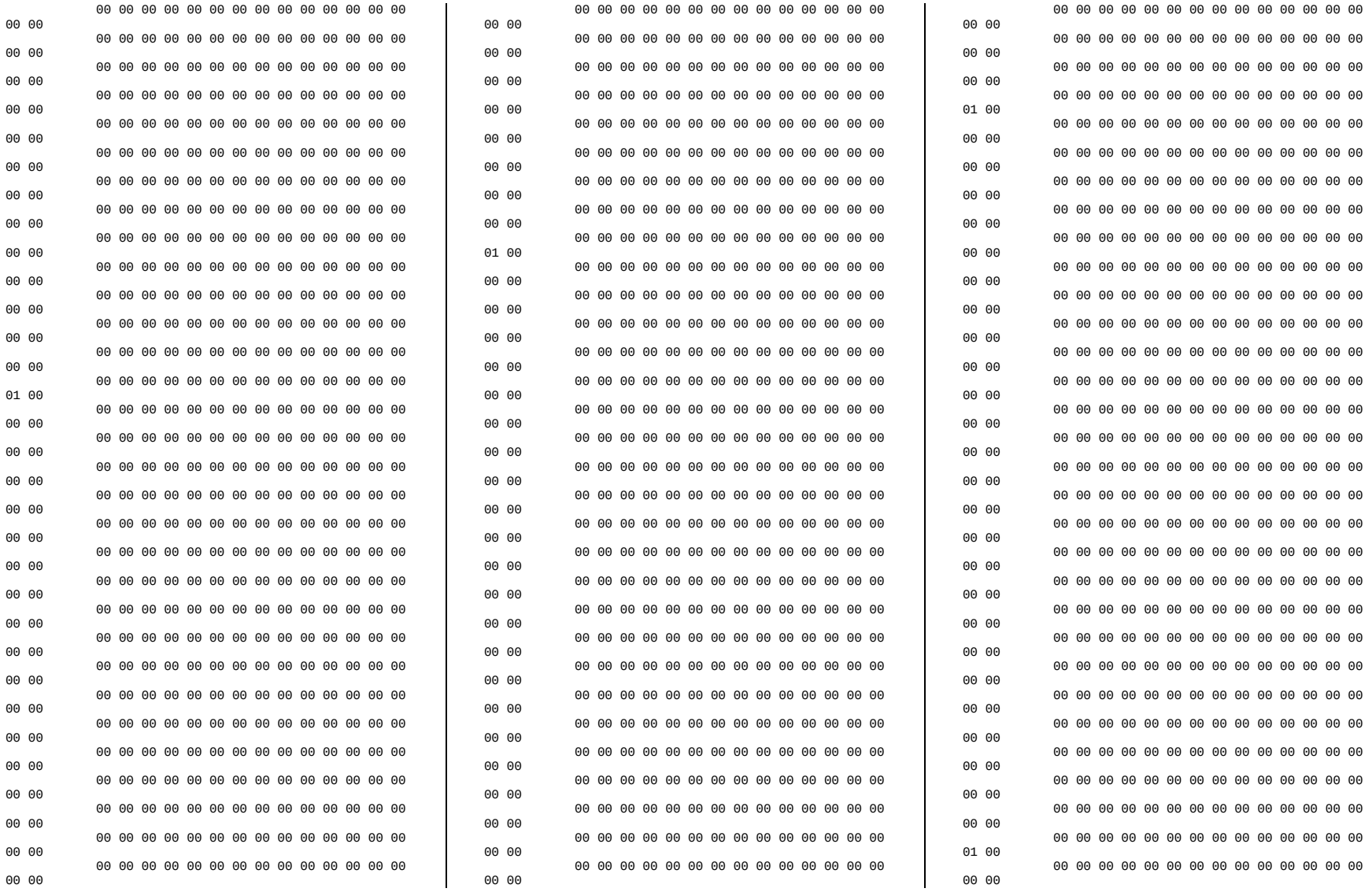

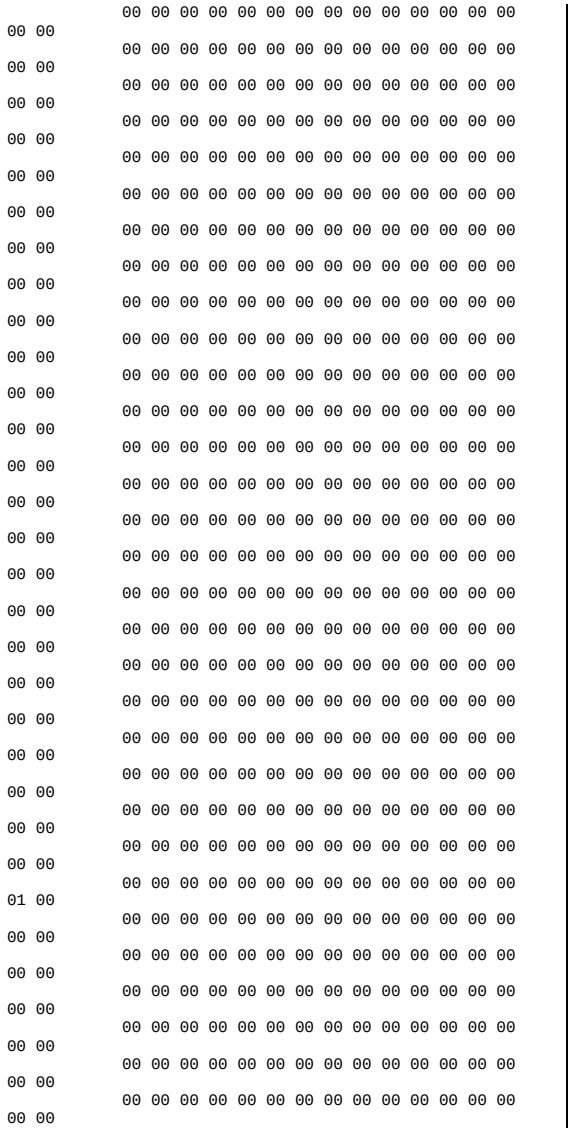

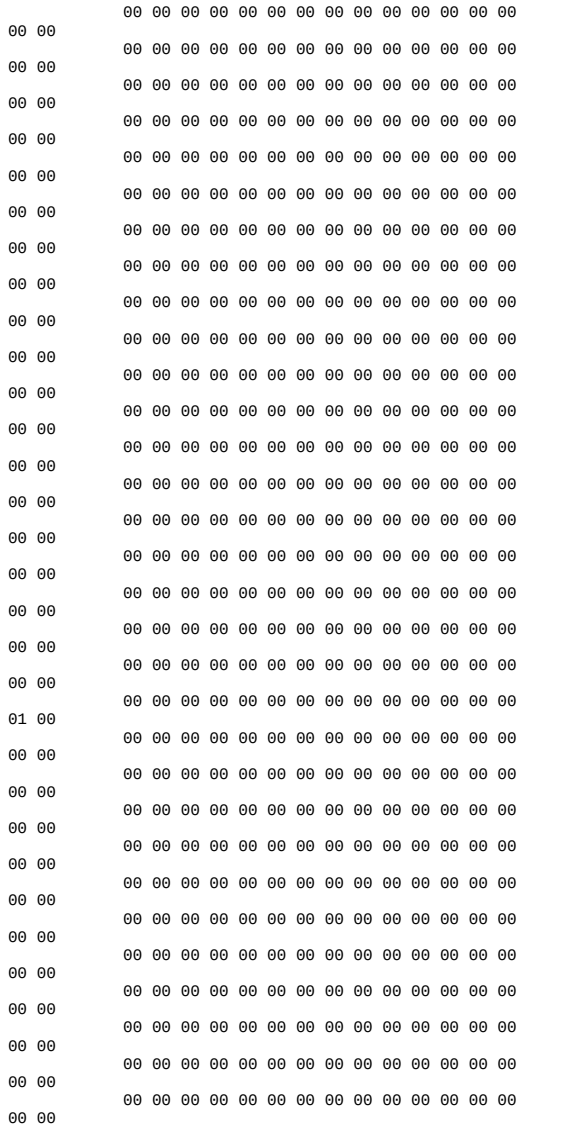

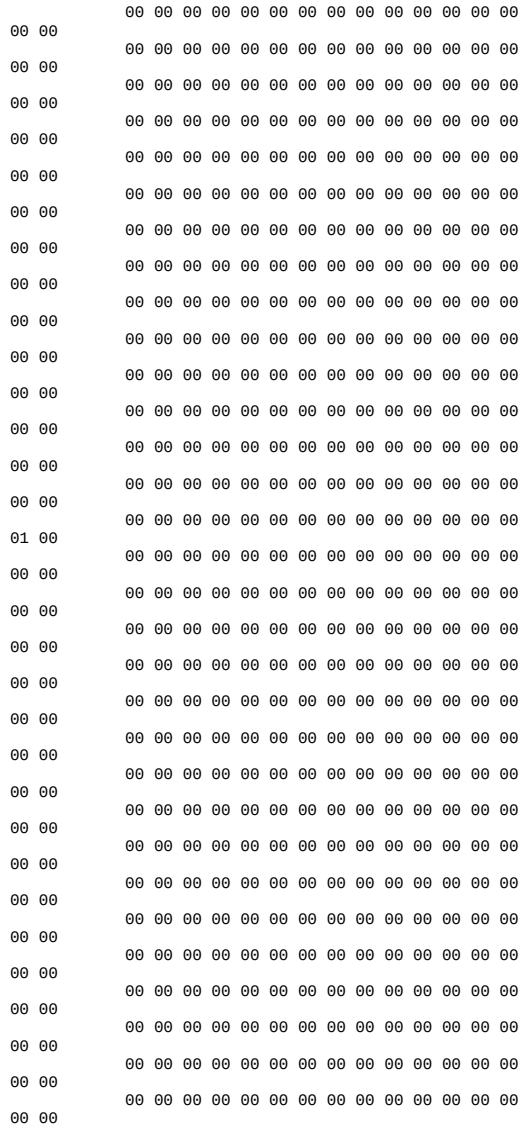

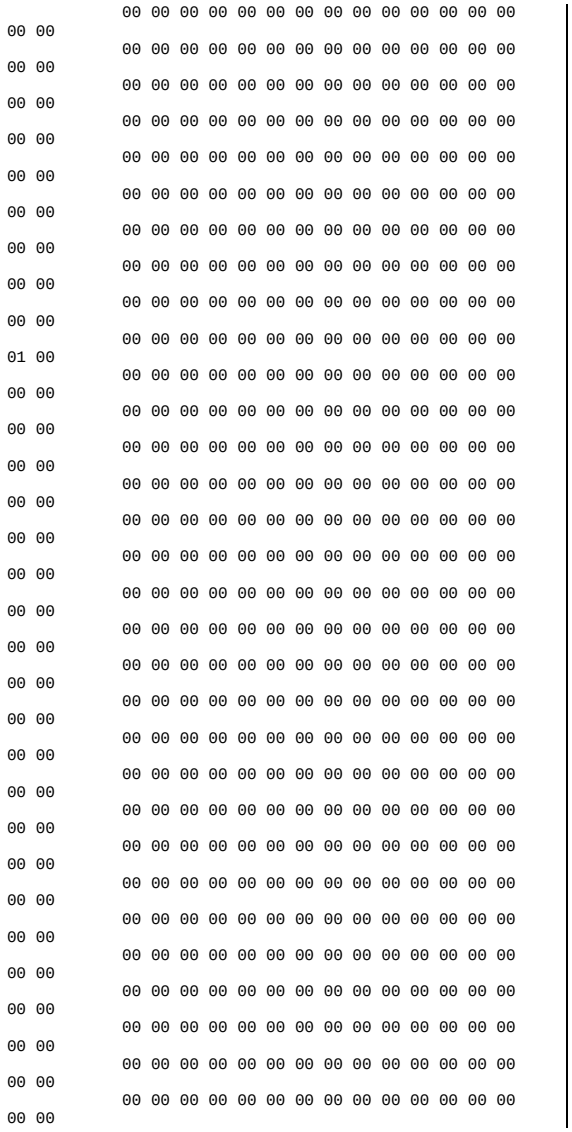

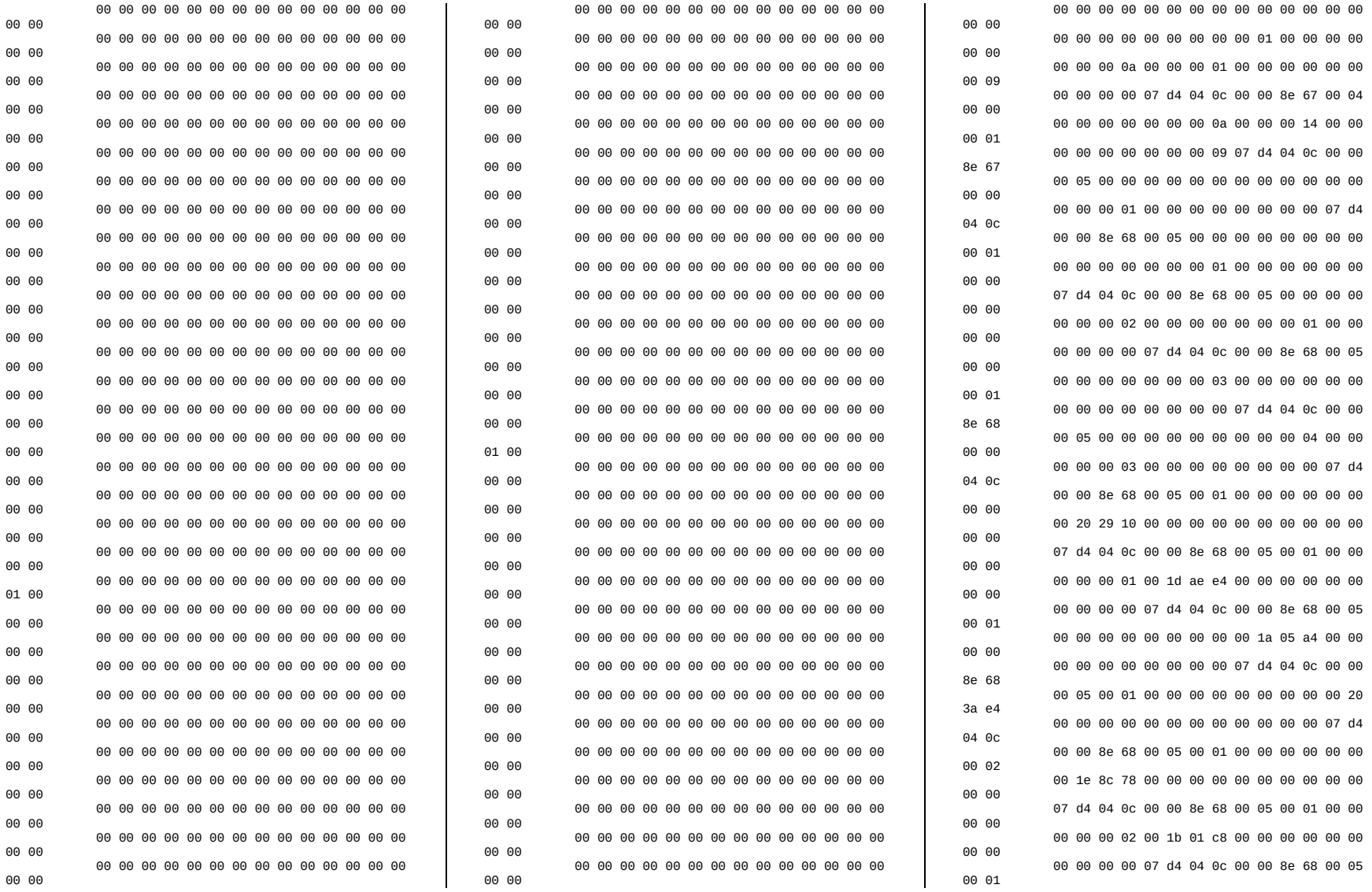

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        00 00 00 00 07 d4 04 0c 00 00 8e 68 00 05
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96 6b
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 1:
      RIS drive: 0x1
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 2:
      RIS drive: 0x2
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 3:
      RIS drive: 0x3
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 4:
      RIS drive: 0x4
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      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 5:
      RIS drive: 0x5
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 6:  Physical drive not
connected.
   SCSI Port 1, Drive ID 7:  Physical drive not
connected.
   SCSI Port 1, Drive ID 8:
      RIS drive: 0x8
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 9:
      RIS drive: 0x9
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 10:
      RIS drive: 0xa
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 11:
      RIS drive: 0xb
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 12:
      RIS drive: 0xc
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 13:
      RIS drive: 0xd
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 14:
      RIS drive: 0xe
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 15:
      RIS drive: 0xf
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 2, Drive ID 0:  Physical drive not
connected.
   SCSI Port 2, Drive ID 1:  Physical drive not
connected.
   SCSI Port 2, Drive ID 2:  Physical drive not
connected.
   SCSI Port 2, Drive ID 3:  Physical drive not
connected.
   SCSI Port 2, Drive ID 4:  Physical drive not
connected.
   SCSI Port 2, Drive ID 5:  Physical drive not
connected.
   SCSI Port 2, Drive ID 6:  Physical drive not
connected.
   SCSI Port 2, Drive ID 7:  Physical drive not
connected.
   SCSI Port 2, Drive ID 8:  Physical drive not
connected.
   SCSI Port 2, Drive ID 9:  Physical drive not
connected.
   SCSI Port 2, Drive ID 10:  Physical drive not
connected.
   SCSI Port 2, Drive ID 11:  Physical drive not
connected.
   SCSI Port 2, Drive ID 12:  Physical drive not
connected.
   SCSI Port 2, Drive ID 13:  Physical drive not
connected.
   SCSI Port 2, Drive ID 14:  Physical drive not
connected.
   SCSI Port 2, Drive ID 15:  Physical drive not
connected.

SLOT 3 Smart Array 642 Controller ERROR REPORT:

   No problems detected

SUBSYSTEM INFORMATION:

   Chassis Serial Num:              6J38LK8DG00G
   This Controller
      Array Serial Number:          P5A8A0DDAON7QY
      Cache Serial Number:          Not Available
   Other Controller
      Array Serial Number:          Not Available
      Cache Serial Number:          Not Available

CONTROLLER IDENTIFICATION:
   Configured Logical Drives: 5
   Configuration Signature:   0xa715a909
   Controller Firmware Rev:   1.92
   Controller ROM Revision:   1.92
   Controller Hardware Rev:   0x01
   Boot Block Version:        3.86
   Board ID:                  0x409b0e11
   Cable or Config Error:     0x00 (No)
   Invalid Host RAM Address:  No
   CPU Revision:              0x50
   CPU to PCI ASIC Rev:       0x00
   Cache Controller ASIC Rev: 0x00
   PCI to Host ASIC Rev:      0x00
   Marketing Revision:        0x42 (Rev B)
   Expand Disable Code:       0x01
   SCSI Chip Count:           2
   Max SCSI IDs per Bus:      16
   Big Drive Map:             0xff3f 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
   Big Ext Drive Map:         0xff3f 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
   Big Non-Disk Drive Map:    0x0080 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
   Fibre Chip Count:          0
   LKS:                       0x00
   AMS:                       0x00
   FS:                        0x00 0x00 0x00 0x00
0x00 0x00 0x2e32 0x3231 0x00 0x00 0x00 0x00
   Recovery ROM Inactive
   Image Revision:            2.12
   Recovery ROM Active Image
   Flags Status:              0x00
   Percent Write Cache:       0
   Daughterboard Size(MB):    0
   Cache Battery Count:       0
   Total Ctlr Memory Size:    64
   More Controller Flags:     0x00
   X-Board Host I2C Autorev:  0x00
   Battery PIC Rev:           0x00

LOGICAL DRIVE IDENTIFICATION:

   Logical Drive 1:
      Sector Size:              512
      Sectors Available:        54884160
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=6726 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

   Logical Drive 2:
      Sector Size:              512
      Sectors Available:        39935040
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=4894 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

   Logical Drive 3:
      Sector Size:              512
      Sectors Available:        4504320
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=552 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

   Logical Drive 4:
      Sector Size:              512
      Sectors Available:        5320320
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=652 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

   Logical Drive 5:
      Sector Size:              512
      Sectors Available:        365037600
      Fault Tolerance Mode:     Distributed Data
Guard (RAID 5)
      Logical Param Table:      cyl=44735 heads=255
sec/track=32 xlate sig=0x0
      BIOS Disabled:            No

LOGICAL DRIVE CONFIGURATION:

   Logical Drive 1:
      Configuration Signature:  0xa284e173
      Mapping Scheme:           Multiple Block
      Physical Drives:          14 (number not valid
after drive movement)
         This Logical Drive:    14 (excluding spare
drives)
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=6726 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
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      Additional Information:   0
      Offset to Data:           0
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        54884160
      Sectors per Drive:        3920384
      Big Drive Assignment Map: 0xff3f 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

   Logical Drive 2:
      Configuration Signature:  0xa304f173
      Mapping Scheme:           Multiple Block
      Physical Drives:          14 (number not valid
after drive movement)
         This Logical Drive:    14 (excluding spare
drives)
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=4894 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           3920384
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        39935040
      Sectors per Drive:        2852864
      Big Drive Assignment Map: 0xff3f 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

   Logical Drive 3:
      Configuration Signature:  0xa93f939d
      Mapping Scheme:           Multiple Block
      Physical Drives:          14 (number not valid
after drive movement)
         This Logical Drive:    14 (excluding spare
drives)
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=552 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           6773248
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        4504320
      Sectors per Drive:        322048
      Big Drive Assignment Map: 0xff3f 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

   Logical Drive 4:
      Configuration Signature:  0xa6858cb2
      Mapping Scheme:           Multiple Block
      Physical Drives:          14 (number not valid
after drive movement)
         This Logical Drive:    14 (excluding spare
drives)
      Fault Tolerance Mode:     None
      Logical Param Table:      cyl=652 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      512
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           7095296
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        5320320
      Sectors per Drive:        380416
      Big Drive Assignment Map: 0xff3f 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

   Logical Drive 5:
      Configuration Signature:  0xa715a909
      Mapping Scheme:           Multiple Block
      Physical Drives:          14 (number not valid
after drive movement)
         This Logical Drive:    14 (excluding spare
drives)
      Fault Tolerance Mode:     Distributed Data
Guard (RAID 5)
      Logical Param Table:      cyl=44735 heads=255
sec/track=32 xlate sig=0x0
      Distribution Factor:      128
      Operating System:         64768
      Controller Order:         0
      Additional Information:   0
      Offset to Data:           7475712
      Backed-out Write drives:  0
      Stripes for Parity:       16
      Distribution Mode:        0x00
      Int 13h Support Enabled:  Yes
      Sectors on Volume:        365037600
      Sectors per Drive:        28079872
      Big Drive Assignment Map: 0xff3f 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare Assignment Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Array Accelerator is enabled for this logical
drive.

LOGICAL DRIVE STATUS:

   Logical Drive 1:
      Drive Status:             OK
      Blocks to Rebuild:        0
      Blocks Re-mapped:
      Spare Status Flags:       0x00
      Spare to Replaced Map:    See Big Spare to
Replace Map:
      Media Was Exchanged:      No
      Cache Failure:            No
      Expand Failure:           0x00
      Unit Flags:               0x00
      Big Remap Count:          All Counts Zero
      Big Drive Failure Map:    0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:  0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

   Logical Drive 2:
      Drive Status:             OK
      Blocks to Rebuild:        0
      Blocks Re-mapped:
      Spare Status Flags:       0x00
      Spare to Replaced Map:    See Big Spare to
Replace Map:
      Media Was Exchanged:      No
      Cache Failure:            No
      Expand Failure:           0x00
      Unit Flags:               0x00
      Big Remap Count:          All Counts Zero
      Big Drive Failure Map:    0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:  0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

   Logical Drive 3:
      Drive Status:             OK
      Blocks to Rebuild:        0
      Blocks Re-mapped:
      Spare Status Flags:       0x00
      Spare to Replaced Map:    See Big Spare to
Replace Map:
      Media Was Exchanged:      No
      Cache Failure:            No
      Expand Failure:           0x00
      Unit Flags:               0x00
      Big Remap Count:          All Counts Zero
      Big Drive Failure Map:    0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:  0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

   Logical Drive 4:
      Drive Status:             OK
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      Blocks to Rebuild:      0
      Blocks Re-mapped:
      Spare Status Flags:     0x00
      Spare to Replaced Map:  See Big Spare to
Replace Map:
      Media Was Exchanged:    No
      Cache Failure:          No
      Expand Failure:         0x00
      Unit Flags:             0x00
      Big Remap Count:        All Counts Zero
      Big Drive Failure Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:      0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:   0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

   Logical Drive 5:
      Drive Status:           OK
      Blocks to Rebuild:      0
      Blocks Re-mapped:
      Spare Status Flags:     0x00
      Spare to Replaced Map:  See Big Spare to
Replace Map:
      Media Was Exchanged:    No
      Cache Failure:          No
      Expand Failure:         0x00
      Unit Flags:             0x00
      Big Remap Count:        All Counts Zero
      Big Drive Failure Map:     0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Replacement Drive Map: 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Active Spare Map:      0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000
      Big Spare to Replace Map:  No spares have
replaced any drives
      Big Spare Marked OK Map:   0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000

MONITOR AND PERFORMANCE DATA:

   SCSI Port 1, Drive ID 0
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 59 4b 4d 30 30 30 30 37 33 32
32      3JY02YKM00007322
         34 35 51 33 48 50 42 32 00 00 00 00 43 4f 4d
50      45Q3HPB2....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 59 4b 4d 30 30 30 30 37 33 32
32      3JY02YKM00007322
         34 35 51 33 48 50 42 36 00 00 00 00 43 4f 4d
50      45Q3HPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                  Factory          Since Power
Threshold         Control
      Serv. Time  0008a07c         00000003
ffffffff          8184
      Read Blks   00000023a27c61c9 00000000003cf2c2
8108
      Hrd Read    00000000         00000000
ffffffff          8184
      Rtry Read   00000000         00000000
ffffffff          8184
      ECC Read    0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks  000000016d8443c1 0000000000000036
8108
      Hrd Write   00000000         00000000
ffffffff          8184
      Rtry Write  00000000         00000000
ffffffff          8184
      Seeks       0000000000000000 0000000000000000
8108
      Seek Errs   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls   00000000         00000000
ffffffff          8184
      Spin Time   ffff             ffff
ffff              8a82
      Test 1      ffff             ffff
ffff              0a82
      Test 2      ffff             ffff
ffff              8a82
      Test 3      ffff             ffff
ffff              8a82
      Test 4      ffff             ffff
ffff              8a82
      Spare Blks  ffffffff         ffffffff
0a04
      Re-mapped   ffffffff         ffffffff
ffffffff          8d84
      DRQ Tmots   ffff             ffff
ffff              0982
      Timeouts    0005             0000
ffff              0182
      Rebuilds    0000             0000
ffff              0182
      Spn Retrs   ffff             ffff
ffff              0982
      Fl Rd Recv  0000             0000
ffff              8182
      Fl Wt Recv  0000             0000
ffff              0182
      Format Err  0000             0000
ffff              0182
      POST Err    ffff             ffff
ffff              0982
      Drv Nt Ry   00000000         00000000
ffffffff          0184
      Reallc Abt  ffffffff         ffffffff
ffffffff          0984
      IRQ Gltchs  ffffffff         ffffffff
ffffffff          0984
      Bus Flts    00000000         00000000
ffffffff          8184
      Hot Plgs    00000000         00000000
ffffffff          0184
      Tk Rwt Err  ffff             ffff
ffff              0982
      Rmp Wt Err  ffff             ffff
ffff              0982
      Bg Fw Rev   0000000000000000 0000000000000000
0a48
      Med Flrs    0000             0000
ffff              0182
      Hrdw Errs   0000             0000
ffff              0182
      Abt Cmd Fl  0000             0000
ffff              0182
      Spn Up Fl   0000             0000
ffff              0182
      Bd Tgt Cnt  0000             0000
ffff              0182
      Pred Fails  00000000         00000000
00000000          2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x0f
            Total Errors Logged = 0x0000000f
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0b    00     00      00     00603a40(0)
00067fda   28   0000
00    0b    00     00      00     00603aaf(0)
00067fda   28   0000
00    0b    00     00      00     00603b2f(0)
00067fda   28   0000
00    0b    00     00      00     00603baf(0)
00067fda   28   0000
00    0b    00     00      00     00603c2f(0)
00067fda   28   0000
00    0e    00     00      00     00a929c0(0)
00082efb   28   0000
00    0e    00     00      00     00915ac0(0)
000843f1   28   0000
00    0e    00     00      00     0091d440(0)
00084960   28   0000
```

```
00    0e    00     00      00     00a9fec0(0)
00084a9c   28   0000
00    0e    00     00      00     008a00c0(0)
00084e94   28   0000
00    0e    00     00      00     0091b5c0(0)
00084fb2   28   0000
00    0e    00     00      00     0091b540(0)
00087c13   28   0000
00    0e    00     00      00     00dd6fc0(0)
0008804a   28   0000
00    0e    00     00      00     0090bcc0(0)
00089263   28   0000
00    0e    00     00      00     00ab6b40(0)
000896c1   28   0000

   SCSI Port 1, Drive ID 1
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 46 56 34 30 30 30 30 37 33 31
39      3JY02FV400007319
         41 41 50 39 48 50 42 32 00 00 00 00 43 4f 4d
50      AAP9HPB2....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 46 56 34 30 30 30 30 37 33 31
39      3JY02FV400007319
         41 41 50 39 48 50 42 36 00 00 00 00 43 4f 4d
50      AAP9HPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 0008a136         00000003
ffffffff        8184
      Read Blks  000000239d7b4bea 00000000003cf319
8108
      Hrd Read   00000000         00000000
ffffffff        8184
      Rtry Read  00000000         00000000
ffffffff        8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000016e15c52e 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff        8184
      Rtry Write 00000000         00000000
ffffffff        8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff        8184
      Spin Time  ffff             ffff
ffff            8a82
      Test 1     ffff             ffff
ffff            0a82
      Test 2     ffff             ffff
ffff            8a82
      Test 3     ffff             ffff
ffff            8a82
      Test 4     ffff             ffff
ffff            8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff        8d84
      DRQ Tmots  ffff             ffff
ffff            0982
      Timeouts   0005             0000
ffff            0182
      Rebuilds   0000             0000
ffff            0182
      Spn Retrs  ffff             ffff
ffff            0982
      Fl Rd Recv 0000             0000
ffff            8182
      Fl Wt Recv 0000             0000
ffff            0182
      Format Err 0000             0000
ffff            0182
      POST Err   ffff             ffff
ffff            0982
      Drv Nt Ry  00000000         00000000
ffffffff        0184
      Reallc Abt ffffffff         ffffffff
ffffffff        0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff        0984
      Bus Flts   00000000         00000000
ffffffff        8184
      Hot Plgs   00000000         00000000
ffffffff        0184
      Tk Rwt Err ffff             ffff
ffff            0982
      Rmp Wt Err ffff             ffff
ffff            0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff            0182
      Hrdw Errs  0000             0000
ffff            0182
      Abt Cmd Fl 0000             0000
ffff            0182
      Spn Up Fl  0000             0000
ffff            0182
      Bd Tgt Cnt 0000             0000
ffff            0182
      Pred Fails 00000000         00000000
00000000        2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x02
            Total Errors Logged = 0x00000016
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     00ab6b40(0)
0008977b   28   0000
00    0e    00     00      00     0081ce40(0)
0008a134   28   0000
00    0b    00     00      00     00603b2f(0)
00068094   28   0000
00    0b    00     00      00     00603baf(0)
00068094   28   0000
00    0b    00     00      00     00603c2f(0)
00068094   28   0000
00    0e    00     00      00     00881a40(0)
000725cb   28   0000
02    04    09     80      00     00189eb0(1)
0007fbe2   28   0000
00    0e    00     00      00     00913f40(0)
00081c8c   28   0000
00    0e    00     00      00     009159c0(0)
000820fb   28   0000
00    0e    00     00      00     00913ec0(0)
000825ed   28   0000
00    0e    00     00      00     00ae34c0(0)
000829e9   28   0000
00    0e    00     00      00     0091d640(0)
00082f0d   28   0000
00    0e    00     00      00     00a929c0(0)
00082fb5   28   0000
00    0e    00     00      00     00b0ff40(0)
00084a59   28   0000
00    0e    00     00      00     008a00c0(0)
00084f4e   28   0000
00    0e    00     00      00     0091b5c0(0)
0008506c   28   0000
00    0e    00     00      00     00aa3340(0)
00087236   28   0000
00    0e    00     00      00     00dd6fc0(0)
00088104   28   0000
00    0e    00     00      00     0090bcc0(0)
0008931d   28   0000
00    0e    00     00      00     00914040(0)
000896a1   28   0000

   SCSI Port 1, Drive ID 2
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 58 44 4d 30 30 30 30 37 33 32
30      3JY02XDM00007320
```

```
        46 4c 4e 52 48 50 42 32 00 00 00 00 43 4f 4d
50      FLNRHPB2....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 32 58 44 4d 30 30 30 30 37 33 32
30      3JY02XDM00007320
        46 4c 4e 52 48 50 42 36 00 00 00 00 43 4f 4d
50      FLNRHPB6....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 0008a07c         00000003
ffffffff        8184
      Read Blks  000000239fd730a7 00000000003cf319
8108
      Hrd Read   00000000         00000000
ffffffff        8184
      Rtry Read  00000000         00000000
ffffffff        8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000016d89da45 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff        8184
      Rtry Write 00000000         00000000
ffffffff        8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff        8184
      Spin Time  ffff             ffff
ffff            8a82
      Test 1     ffff             ffff
ffff            0a82
      Test 2     ffff             ffff
ffff            8a82
      Test 3     ffff             ffff
ffff            8a82
      Test 4     ffff             ffff
ffff            8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff        8d84
      DRQ Tmots  ffff             ffff
ffff            0982
      Timeouts   0005             0000
ffff            0182
      Rebuilds   0000             0000
ffff            0182
      Spn Retrs  ffff             ffff
ffff            0982
      Fl Rd Recv 0000             0000
ffff            8182
      Fl Wt Recv 0000             0000
ffff            0182
      Format Err 0000             0000
ffff            0182
      POST Err   ffff             ffff
ffff            0982
      Drv Nt Ry  00000000         00000000
ffffffff        0184
      Reallc Abt ffffffff         ffffffff
ffffffff        0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff        0984
      Bus Flts   00000000         00000000
ffffffff        8184
      Hot Plgs   00000000         00000000
ffffffff        0184
      Tk Rwt Err ffff             ffff
ffff            0982
      Rmp Wt Err ffff             ffff
ffff            0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff            0182
      Hrdw Errs  0000             0000
ffff            0182
      Abt Cmd Fl 0000             0000
ffff            0182
      Spn Up Fl  0000             0000
ffff            0182
      Bd Tgt Cnt 0000             0000
ffff            0182
      Pred Fails 00000000         00000000
00000000        2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x02
            Total Errors Logged = 0x00000016
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     00ab6b40(0)
000896c1   28   0000
00    0e    00     00      00     0081ce40(0)
0008a07a   28   0000
00    0b    00     00      00     00603b2f(0)
00067fda   28   0000
00    0b    00     00      00     00603baf(0)
00067fda   28   0000
00    0b    00     00      00     00603c2f(0)
00067fda   28   0000
00    0e    00     00      00     00881a40(0)
00072511   28   0000
00    0e    00     00      00     009159c0(0)
00082041   28   0000
00    0e    00     00      00     00913ec0(0)
00082533   28   0000
00    0e    00     00      00     00ae34c0(0)
0008292f   28   0000
00    0e    00     00      00     0091d640(0)
00082e53   28   0000
00    0e    00     00      00     00a929c0(0)
00082efb   28   0000
00    0e    00     00      00     00915ac0(0)
000843f1   28   0000
00    0e    00     00      00     00b0ff40(0)
0008499f   28   0000
00    0e    00     00      00     00a9fec0(0)
00084a9c   28   0000
00    0e    00     00      00     008a00c0(0)
00084e94   28   0000
00    0e    00     00      00     0091b5c0(0)
00084fb2   28   0000
00    0e    00     00      00     0091b540(0)
00087c13   28   0000
00    0e    00     00      00     00dd6fc0(0)
0008804a   28   0000
00    0e    00     00      00     0090bcc0(0)
00089263   28   0000
00    0e    00     00      00     00914040(0)
000895e7   28   0000

   SCSI Port 1, Drive ID 3
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 33 32 56 35 30 30 30 30 37 33 32
30      3JY032V500007320
        30 59 36 52 48 50 42 32 00 00 00 00 43 4f 4d
50      0Y6RHPB2....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 33 32 56 35 30 30 30 30 37 33 32
30      3JY032V500007320
        30 59 36 52 48 50 42 36 00 00 00 00 43 4f 4d
50      0Y6RHPB6....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Threshold Flags:           0x0001
```

```
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 0008a136         00000003
ffffffff        8184
      Read Blks  000000239e115a21 00000000003cf319
8108
      Hrd Read   00000000         00000000
ffffffff        8184
      Rtry Read  00000000         00000000
ffffffff        8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000016e25d598 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff        8184
      Rtry Write 00000000         00000000
ffffffff        8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff        8184
      Spin Time  ffff             ffff
ffff            8a82
      Test 1     ffff             ffff
ffff            0a82
      Test 2     ffff             ffff
ffff            8a82
      Test 3     ffff             ffff
ffff            8a82
      Test 4     ffff             ffff
ffff            8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff        8d84
      DRQ Tmots  ffff             ffff
ffff            0982
      Timeouts   0005             0000
ffff            0182
      Rebuilds   0000             0000
ffff            0182
      Spn Retrs  ffff             ffff
ffff            0982
      Fl Rd Recv 0000             0000
ffff            8182
      Fl Wt Recv 0000             0000
ffff            0182
      Format Err 0000             0000
ffff            0182
      POST Err   ffff             ffff
ffff            0982
      Drv Nt Ry  00000000         00000000
ffffffff        0184
      Reallc Abt ffffffff         ffffffff
ffffffff        0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff        0984
      Bus Flts   00000000         00000000
ffffffff        8184
      Hot Plgs   00000000         00000000
ffffffff        0184
      Tk Rwt Err ffff             ffff
ffff            0982
      Rmp Wt Err ffff             ffff
ffff            0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff            0182
      Hrdw Errs  0000             0000
ffff            0182
      Abt Cmd Fl 0000             0000
ffff            0182
      Spn Up Fl  0000             0000
ffff            0182
      Bd Tgt Cnt 0000             0000
ffff            0182
      Pred Fails 00000000         00000000
00000000        2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x12
            Total Errors Logged = 0x00000012
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0b    00     00      00     00603a40(0)
00068094   28   0000
00    0b    00     00      00     00603aaf(0)
00068094   28   0000
00    0b    00     00      00     00603b2f(0)
00068094   28   0000
00    0b    00     00      00     00603baf(0)
00068094   28   0000
00    0b    00     00      00     00603c2f(0)
00068094   28   0000
00    0e    00     00      00     009159c0(0)
000820fb   28   0000
00    0e    00     00      00     00913ec0(0)
000825ed   28   0000
00    0e    00     00      00     00ae34c0(0)
000829e9   28   0000
00    0e    00     00      00     00a929c0(0)
00082fb5   28   0000
00    0e    00     00      00     00b0ff40(0)
00084a59   28   0000
00    0e    00     00      00     00a9fec0(0)
00084b56   28   0000
00    0e    00     00      00     008a00c0(0)
00084f4e   28   0000
00    0e    00     00      00     0091b5c0(0)
0008506c   28   0000
00    0e    00     00      00     00dd6fc0(0)
00088104   28   0000
00    0e    00     00      00     0090bcc0(0)
0008931d   28   0000
00    0e    00     00      00     00914040(0)
000896a1   28   0000
00    0e    00     00      00     00ab6b40(0)
0008977b   28   0000
00    0e    00     00      00     0081ce40(0)
0008a134   28   0000

   SCSI Port 1, Drive ID 4
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 52 37 4d 30 30 30 30 37 33 32
32      3JY02R7M00007322
         30 39 52 32 48 50 42 32 00 00 00 00 43 4f 4d
50      09R2HPB2....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 52 37 4d 30 30 30 30 37 33 32
32      3JY02R7M00007322
         30 39 52 32 48 50 42 36 00 00 00 00 43 4f 4d
50      09R2HPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 0008a040         00000003
ffffffff        8184
      Read Blks  000000221953c215 00000000003cf319
8108
      Hrd Read   00000000         00000000
ffffffff        8184
      Rtry Read  00000000         00000000
ffffffff        8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000017d0e6d9b 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff        8184
      Rtry Write 00000000         00000000
ffffffff        8184
      Seeks      0000000000000000 0000000000000000
8108
```

```
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff         8184
      Spin Time  ffff             ffff
ffff             8a82
      Test 1     ffff             ffff
ffff             0a82
      Test 2     ffff             ffff
ffff             8a82
      Test 3     ffff             ffff
ffff             8a82
      Test 4     ffff             ffff
ffff             8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff         8d84
      DRQ Tmots  ffff             ffff
ffff             0982
      Timeouts   000a             0000
ffff             0182
      Rebuilds   0000             0000
ffff             0182
      Spn Retrs  ffff             ffff
ffff             0982
      Fl Rd Recv 0000             0000
ffff             8182
      Fl Wt Recv 0000             0000
ffff             0182
      Format Err 0000             0000
ffff             0182
      POST Err   ffff             ffff
ffff             0982
      Drv Nt Ry  00000000         00000000
ffffffff         0184
      Reallc Abt ffffffff         ffffffff
ffffffff         0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff         0984
      Bus Flts   00000000         00000000
ffffffff         8184
      Hot Plgs   00000000         00000000
ffffffff         0184
      Tk Rwt Err ffff             ffff
ffff             0982
      Rmp Wt Err ffff             ffff
ffff             0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff             0182
      Hrdw Errs  0000             0000
ffff             0182
      Abt Cmd Fl 0000             0000
ffff             0182
      Spn Up Fl  0000             0000
ffff             0182
      Bd Tgt Cnt 0000             0000
ffff             0182
      Pred Fails 00000000         00000000
00000000         2184
```

```
        DRIVE ERROR LOG:
           Error Log Header:
              Parameter Length    = 0x14
              Entry Size          = 0x0014
              Current Entry       = 0x12
              Total Errors Logged = 0x00000012
           Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0b    00     00      00     00603a40(0)
00067f9e   28   0000
00    0b    00     00      00     00603aaf(0)
00067f9e   28   0000
00    0b    00     00      00     00603b2f(0)
00067f9e   28   0000
00    0b    00     00      00     00603baf(0)
00067f9e   28   0000
00    0b    00     00      00     00603c2f(0)
00067f9e   28   0000
00    0b    00     00      00     0099047f(0)
00067f9e   28   0000
00    0b    00     00      00     009904ff(0)
00067f9e   28   0000
00    0b    00     00      00     0099057f(0)
00067f9e   28   0000
00    0b    00     00      00     009905ff(0)
00067f9e   28   0000
00    0e    00     00      00     00ae34c0(0)
000828f3   28   0000
00    0e    00     00      00     00a929c0(0)
00082ebf   28   0000
00    0e    00     00      00     008a00c0(0)
00084e58   28   0000
00    0e    00     00      00     0091b5c0(0)
00084f76   28   0000
00    0e    00     00      00     00dd6fc0(0)
0008800e   28   0000
00    0e    00     00      00     0090bcc0(0)
00089227   28   0000
00    0e    00     00      00     00914040(0)
000895ab   28   0000
00    0e    00     00      00     00ab6b40(0)
00089685   28   0000
00    0e    00     00      00     0081ce40(0)
0008a03e   28   0000

   SCSI Port 1, Drive ID 5
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 32 56 56 56 30 30 30 30 37 33 32
32      3JY02VVV00007322
        30 39 54 45 48 50 42 32 00 00 00 00 43 4f 4d
50      09TEHPB2....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
```

```
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 32 56 56 56 30 30 30 30 37 33 32
32      3JY02VVV00007322
        30 39 54 45 48 50 42 36 00 00 00 00 43 4f 4d
50      09TEHPB6....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                 Factory          Since Power
Threshold        Control
      Serv. Time 0008a07a         00000003
ffffffff         8184
      Read Blks  000000239ecd98d0 00000000003cf319
8108
      Hrd Read   00000000         00000000
ffffffff         8184
      Rtry Read  00000000         00000000
ffffffff         8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000016d1951b6 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff         8184
      Rtry Write 00000000         00000000
ffffffff         8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000002         00000000
ffffffff         8184
      Spin Time  ffff             ffff
ffff             8a82
      Test 1     ffff             ffff
ffff             0a82
      Test 2     ffff             ffff
ffff             8a82
      Test 3     ffff             ffff
ffff             8a82
      Test 4     ffff             ffff
ffff             8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff         8d84
      DRQ Tmots  ffff             ffff
ffff             0982
      Timeouts   000a             0000
ffff             0182
      Rebuilds   0000             0000
ffff             0182
      Spn Retrs  ffff             ffff
ffff             0982
```

```
      Fl Rd Recv 0000             0000
ffff             8182
      Fl Wt Recv 0000             0000
ffff             0182
      Format Err 0000             0000
ffff             0182
      POST Err   ffff             ffff
ffff             0982
      Drv Nt Ry  00000000         00000000
ffffffff         0184
      Reallc Abt ffffffff         ffffffff
ffffffff         0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff         0984
      Bus Flts   00000000         00000000
ffffffff         8184
      Hot Plgs   00000001         00000000
ffffffff         0184
      Tk Rwt Err ffff             ffff
ffff             0982
      Rmp Wt Err ffff             ffff
ffff             0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff             0182
      Hrdw Errs  0000             0000
ffff             0182
      Abt Cmd Fl 0000             0000
ffff             0182
      Spn Up Fl  0000             0000
ffff             0182
      Bd Tgt Cnt 0000             0000
ffff             0182
      Pred Fails 00000000         00000000
00000000         2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x13
            Total Errors Logged = 0x00000013
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0b    00     00      00     00603a40(0)
00067fd8   28   0000
00    0b    00     00      00     00603aaf(0)
00067fd8   28   0000
00    0b    00     00      00     00603b2f(0)
00067fd8   28   0000
00    0b    00     00      00     00603baf(0)
00067fd8   28   0000
00    0b    00     00      00     00603c2f(0)
00067fd8   28   0000
00    0b    00     00      00     00990440(0)
00067fd8   28   0000
00    0b    00     00      00     0099047f(0)
00067fd8   28   0000
00    0b    00     00      00     009904ff(0)
00067fd8   28   0000
00    0b    00     00      00     0099057f(0)
00067fd8   28   0000
00    0b    00     00      00     009905ff(0)
00067fd8   28   0000
00    0e    00     00      00     00ae34c0(0)
0008292d   28   0000
00    0e    00     00      00     00a929c0(0)
00082ef9   28   0000
00    0e    00     00      00     008a00c0(0)
00084e92   28   0000
00    0e    00     00      00     0091b5c0(0)
00084fb0   28   0000
00    0e    00     00      00     00dd6fc0(0)
00088048   28   0000
00    0e    00     00      00     0090bcc0(0)
00089261   28   0000
00    0e    00     00      00     00914040(0)
000895e5   28   0000
00    0e    00     00      00     00ab6b40(0)
000896bf   28   0000
00    0e    00     00      00     0081ce40(0)
0008a078   28   0000

   SCSI Port 1, Drive ID 6
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 1, Drive ID 7
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 1, Drive ID 8
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 56 56 46 30 30 30 30 37 33 32
30      3JY02VVF00007320
         30 35 5a 5a 48 50 42 32 00 00 00 00 43 4f 4d
50      05ZZHPB2....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 56 56 46 30 30 30 30 37 33 32
30      3JY02VVF00007320
         30 35 5a 5a 48 50 42 36 00 00 00 00 43 4f 4d
50      05ZZHPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                 Factory          Since Power
Threshold        Control
      Serv. Time 0008a041         00000003
ffffffff         8184
      Read Blks  0000002297d5372c 00000000003cf319
8108
      Hrd Read   00000000         00000000
ffffffff         8184
      Rtry Read  00000000         00000000
ffffffff         8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 00000001692864c4 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff         8184
      Rtry Write 00000000         00000000
ffffffff         8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff         8184
      Spin Time  ffff             ffff
ffff             8a82
      Test 1     ffff             ffff
ffff             0a82
      Test 2     ffff             ffff
ffff             8a82
      Test 3     ffff             ffff
ffff             8a82
      Test 4     ffff             ffff
ffff             8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff         8d84
      DRQ Tmots  ffff             ffff
ffff             0982
      Timeouts   0006             0000
ffff             0182
      Rebuilds   0000             0000
ffff             0182
      Spn Retrs  ffff             ffff
ffff             0982
      Fl Rd Recv 0000             0000
ffff             8182
      Fl Wt Recv 0000             0000
ffff             0182
      Format Err 0000             0000
ffff             0182
      POST Err   ffff             ffff
ffff             0982
      Drv Nt Ry  00000000         00000000
ffffffff         0184
```

```
      Reallc Abt ffffffff         ffffffff
ffffffff         0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff         0984
      Bus Flts   00000000         00000000
ffffffff         8184
      Hot Plgs   00000000         00000000
ffffffff         0184
      Tk Rwt Err ffff             ffff
ffff             0982
      Rmp Wt Err ffff             ffff
ffff             0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff             0182
      Hrdw Errs  0000             0000
ffff             0182
      Abt Cmd Fl 0000             0000
ffff             0182
      Spn Up Fl  0000             0000
ffff             0182
      Bd Tgt Cnt 0000             0000
ffff             0182
      Pred Fails 00000000         00000000
00000000         2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x02
            Total Errors Logged = 0x0000002a
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     00b07040(0)
00089b01   28   0000
00    0e    00     00      00     0081ce40(0)
0008a03f   28   0000
00    0e    00     00      00     0091d440(0)
00084925   28   0000
00    0e    00     00      00     00b0ff40(0)
00084964   28   0000
00    0e    00     00      00     00a9fec0(0)
00084a61   28   0000
00    0e    00     00      00     008a00c0(0)
00084e59   28   0000
00    0e    00     00      00     0091b5c0(0)
00084f77   28   0000
00    0e    00     00      00     00a9acc0(0)
00085a0c   28   0000
00    0e    00     00      00     00aa3340(0)
00087141   28   0000
00    0e    00     00      00     0091ccc0(0)
000875b6   28   0000
00    0e    00     00      00     0086a6c0(0)
00087ae0   28   0000
00    0e    00     00      00     0091b540(0)
00087bd8   28   0000
00    0e    00     00      00     00dd6fc0(0)
0008800f   28   0000
00    0e    00     00      00     01144f40(0)
000880e9   28   0000
00    0e    00     00      00     0089d3c0(0)
000891eb   28   0000
00    0e    00     00      00     0090bcc0(0)
00089228   28   0000
00    0e    00     00      00     00b08040(0)
00089354   28   0000
00    0e    00     00      00     00914040(0)
000895ac   28   0000
00    0e    00     00      00     00def440(0)
00089629   28   0000
00    0e    00     00      00     00ab6b40(0)
00089686   28   0000

   SCSI Port 1, Drive ID 9
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 44 56 35 30 30 30 30 37 33 31
39      3JY02DV500007319
         41 42 4d 51 48 50 42 32 00 00 00 00 43 4f 4d
50      ABMQHPB2....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 44 56 35 30 30 30 30 37 33 31
39      3JY02DV500007319
         41 42 4d 51 48 50 42 36 00 00 00 00 43 4f 4d
50      ABMQHPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                  Factory          Since Power
Threshold         Control
      Serv. Time 0008a07c         00000003
ffffffff          8184
      Read Blks  000000239e0acefa 00000000003cf319
8108
      Hrd Read   00000000         00000000
ffffffff          8184
      Rtry Read  00000000         00000000
ffffffff          8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000016cf424a8 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff          8184
      Rtry Write 00000000         00000000
ffffffff          8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff          8184
      Spin Time  ffff             ffff
ffff              8a82
      Test 1     ffff             ffff
ffff              0a82
      Test 2     ffff             ffff
ffff              8a82
      Test 3     ffff             ffff
ffff              8a82
      Test 4     ffff             ffff
ffff              8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff          8d84
      DRQ Tmots  ffff             ffff
ffff              0982
      Timeouts   0005             0000
ffff              0182
      Rebuilds   0000             0000
ffff              0182
      Spn Retrs  ffff             ffff
ffff              0982
      Fl Rd Recv 0000             0000
ffff              8182
      Fl Wt Recv 0000             0000
ffff              0182
      Format Err 0000             0000
ffff              0182
      POST Err   ffff             ffff
ffff              0982
      Drv Nt Ry  00000000         00000000
ffffffff          0184
      Reallc Abt ffffffff         ffffffff
ffffffff          0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff          0984
      Bus Flts   00000000         00000000
ffffffff          8184
      Hot Plgs   00000000         00000000
ffffffff          0184
      Tk Rwt Err ffff             ffff
ffff              0982
      Rmp Wt Err ffff             ffff
ffff              0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff              0182
      Hrdw Errs  0000             0000
ffff              0182
      Abt Cmd Fl 0000             0000
ffff              0182
```

```
      Spn Up Fl  0000             0000
ffff             0182
      Bd Tgt Cnt 0000             0000
ffff             0182
      Pred Fails 00000000         00000000
00000000         2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x13
            Total Errors Logged = 0x00000027
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     0091d440(0)
00084960   28   0000
00    0e    00     00      00     00b0ff40(0)
0008499f   28   0000
00    0e    00     00      00     00a9fec0(0)
00084a9c   28   0000
00    0e    00     00      00     008a00c0(0)
00084e94   28   0000
00    0e    00     00      00     0091b5c0(0)
00084fb2   28   0000
00    0e    00     00      00     00a9acc0(0)
00085a47   28   0000
00    0e    00     00      00     00aa3340(0)
0008717c   28   0000
00    0e    00     00      00     0091ccc0(0)
000875f1   28   0000
00    0e    00     00      00     0086a6c0(0)
00087b1b   28   0000
00    0e    00     00      00     0091b540(0)
00087c13   28   0000
00    0e    00     00      00     00dd6fc0(0)
0008804a   28   0000
00    0e    00     00      00     0089d3c0(0)
00089226   28   0000
00    0e    00     00      00     0090bcc0(0)
00089263   28   0000
00    0e    00     00      00     00b08040(0)
0008938f   28   0000
00    0e    00     00      00     00914040(0)
000895e7   28   0000
00    0e    00     00      00     00def440(0)
00089664   28   0000
00    0e    00     00      00     00ab6b40(0)
000896c1   28   0000
00    0e    00     00      00     00b07040(0)
00089b3c   28   0000
00    0e    00     00      00     0081ce40(0)
0008a07a   28   0000
00    0e    00     00      00     00915ac0(0)
000843f1   28   0000

   SCSI Port 1, Drive ID 10
```

```
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 43 33 44 30 30 30 30 37 33 32
30      3JY02C3D00007320
         30 36 53 41 48 50 42 32 00 00 00 00 43 4f 4d
50      06SAHPB2....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 43 33 44 30 30 30 30 37 33 32
30      3JY02C3D00007320
         30 36 53 41 48 50 42 36 00 00 00 00 43 4f 4d
50      06SAHPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                  Factory          Since Power
Threshold         Control
      Serv. Time  0008a041         00000003
ffffffff          8184
      Read Blks   000000229638b43d 00000000003cf319
8108
      Hrd Read    00000000         00000000
ffffffff          8184
      Rtry Read   00000000         00000000
ffffffff          8184
      ECC Read    0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks  0000000169172d2b 0000000000000036
8108
      Hrd Write   00000000         00000000
ffffffff          8184
      Rtry Write  00000000         00000000
ffffffff          8184
      Seeks       0000000000000000 0000000000000000
8108
      Seek Errs   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls   00000000         00000000
ffffffff          8184
      Spin Time   ffff             ffff
ffff              8a82
      Test 1      ffff             ffff
ffff              0a82
      Test 2      ffff             ffff
ffff              8a82
      Test 3      ffff             ffff
ffff              8a82
      Test 4      ffff             ffff
ffff              8a82
```

```
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff          8d84
      DRQ Tmots  ffff             ffff
ffff              0982
      Timeouts   0006             0000
ffff              0182
      Rebuilds   0000             0000
ffff              0182
      Spn Retrs  ffff             ffff
ffff              0982
      Fl Rd Recv 0000             0000
ffff              8182
      Fl Wt Recv 0000             0000
ffff              0182
      Format Err 0000             0000
ffff              0182
      POST Err   ffff             ffff
ffff              0982
      Drv Nt Ry  00000000         00000000
ffffffff          0184
      Reallc Abt ffffffff         ffffffff
ffffffff          0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff          0984
      Bus Flts   00000000         00000000
ffffffff          8184
      Hot Plgs   00000000         00000000
ffffffff          0184
      Tk Rwt Err ffff             ffff
ffff              0982
      Rmp Wt Err ffff             ffff
ffff              0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff              0182
      Hrdw Errs  0000             0000
ffff              0182
      Abt Cmd Fl 0000             0000
ffff              0182
      Spn Up Fl  0000             0000
ffff              0182
      Bd Tgt Cnt 0000             0000
ffff              0182
      Pred Fails 00000000         00000000
00000000          2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x00
            Total Errors Logged = 0x00000028
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
```

```
00    0e    00     00      00     00915ac0(0)
000843b6   28   0000
00    0e    00     00      00     0091d440(0)
00084925   28   0000
00    0e    00     00      00     00b0ff40(0)
00084964   28   0000
00    0e    00     00      00     00a9fec0(0)
00084a61   28   0000
00    0e    00     00      00     008a00c0(0)
00084e59   28   0000
00    0e    00     00      00     0091b5c0(0)
00084f77   28   0000
00    0e    00     00      00     00a9acc0(0)
00085a0c   28   0000
00    0e    00     00      00     00aa3340(0)
00087141   28   0000
00    0e    00     00      00     0091ccc0(0)
000875b6   28   0000
00    0e    00     00      00     0086a6c0(0)
00087ae0   28   0000
00    0e    00     00      00     0091b540(0)
00087bd8   28   0000
00    0e    00     00      00     00dd6fc0(0)
0008800f   28   0000
00    0e    00     00      00     0089d3c0(0)
000891eb   28   0000
00    0e    00     00      00     0090bcc0(0)
00089228   28   0000
00    0e    00     00      00     00b08040(0)
00089354   28   0000
00    0e    00     00      00     00914040(0)
000895ac   28   0000
00    0e    00     00      00     00def440(0)
00089629   28   0000
00    0e    00     00      00     00ab6b40(0)
00089686   28   0000
00    0e    00     00      00     00b07040(0)
00089b01   28   0000
00    0e    00     00      00     0081ce40(0)
0008a03f   28   0000

   SCSI Port 1, Drive ID 11
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 56 57 36 30 30 30 30 37 33 32
30      3JY02VW600007320
         30 58 58 4d 48 50 42 32 00 00 00 00 43 4f 4d
50      0XXMHPB2....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00           ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 56 57 36 30 30 30 30 37 33 32
30      3JY02VW600007320
         30 58 58 4d 48 50 42 36 00 00 00 00 43 4f 4d
50      0XXMHPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
```

```
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00           ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                  Factory          Since Power
Threshold         Control
      Serv. Time  0008a07c         00000003
ffffffff          8184
      Read Blks   00000023a111c531 00000000003cf319
8108
      Hrd Read    00000000         00000000
ffffffff          8184
      Rtry Read   00000000         00000000
ffffffff          8184
      ECC Read    0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks  000000016d1dedb6 0000000000000036
8108
      Hrd Write   00000000         00000000
ffffffff          8184
      Rtry Write  00000000         00000000
ffffffff          8184
      Seeks       0000000000000000 0000000000000000
8108
      Seek Errs   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls   00000000         00000000
ffffffff          8184
      Spin Time   ffff             ffff
ffff              8a82
      Test 1      ffff             ffff
ffff              0a82
      Test 2      ffff             ffff
ffff              8a82
      Test 3      ffff             ffff
ffff              8a82
      Test 4      ffff             ffff
ffff              8a82
      Spare Blks  ffffffff         ffffffff
0a04
      Re-mapped   ffffffff         ffffffff
ffffffff          8d84
      DRQ Tmots   ffff             ffff
ffff              0982
      Timeouts    0005             0000
ffff              0182
      Rebuilds    0000             0000
ffff              0182
      Spn Retrs   ffff             ffff
ffff              0982
      Fl Rd Recv  0000             0000
ffff              8182
      Fl Wt Recv  0000             0000
ffff              0182
      Format Err  0000             0000
ffff              0182
      POST Err    ffff             ffff
ffff              0982
```

```
      Drv Nt Ry   00000000         00000000
ffffffff          0184
      Reallc Abt  ffffffff         ffffffff
ffffffff          0984
      IRQ Gltchs  ffffffff         ffffffff
ffffffff          0984
      Bus Flts    00000000         00000000
ffffffff          8184
      Hot Plgs    00000000         00000000
ffffffff          0184
      Tk Rwt Err  ffff             ffff
ffff              0982
      Rmp Wt Err  ffff             ffff
ffff              0982
      Bg Fw Rev   0000000000000000 0000000000000000
0a48
      Med Flrs    0000             0000
ffff              0182
      Hrdw Errs   0000             0000
ffff              0182
      Abt Cmd Fl  0000             0000
ffff              0182
      Spn Up Fl   0000             0000
ffff              0182
      Bd Tgt Cnt  0000             0000
ffff              0182
      Pred Fails  00000000         00000000
00000000          2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x10
            Total Errors Logged = 0x00000024
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     00a9fec0(0)
00084a9c   28   0000
00    0e    00     00      00     008a00c0(0)
00084e94   28   0000
00    0e    00     00      00     0091b5c0(0)
00084fb2   28   0000
00    0e    00     00      00     00a9acc0(0)
00085a47   28   0000
00    0e    00     00      00     00aa3340(0)
0008717c   28   0000
00    0e    00     00      00     0091ccc0(0)
000875f1   28   0000
00    0e    00     00      00     0086a6c0(0)
00087b1b   28   0000
00    0e    00     00      00     0091b540(0)
00087c13   28   0000
00    0e    00     00      00     00dd6fc0(0)
0008804a   28   0000
00    0e    00     00      00     0089d3c0(0)
00089226   28   0000
```

```
00    0e    00     00      00     0090bcc0(0)
00089263   28   0000
00    0e    00     00      00     00b08040(0)
0008938f   28   0000
00    0e    00     00      00     00914040(0)
000895e7   28   0000
00    0e    00     00      00     00def440(0)
00089664   28   0000
00    0e    00     00      00     00ab6b40(0)
000896c1   28   0000
00    0e    00     00      00     0081ce40(0)
0008a07a   28   0000
00    0e    00     00      00     00914ec0(0)
000834f0   28   0000
00    0e    00     00      00     00915ac0(0)
000843f1   28   0000
00    0e    00     00      00     0091d440(0)
00084960   28   0000
00    0e    00     00      00     00b0ff40(0)
0008499f   28   0000

   SCSI Port 1, Drive ID 12
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 32 57 50 56 30 30 30 30 37 33 32
30      3JY02WPV00007320
        30 36 53 50 48 50 42 32 00 00 00 00 43 4f 4d
50      06SPHPB2....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 32 57 50 56 30 30 30 30 37 33 32
30      3JY02WPV00007320
        30 36 53 50 48 50 42 36 00 00 00 00 43 4f 4d
50      06SPHPB6....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 0008a041         00000003
ffffffff        8184
      Read Blks  0000002297474912 00000000003cf319
8108
      Hrd Read   00000000         00000000
ffffffff        8184
      Rtry Read  00000000         00000000
ffffffff        8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 0000000169414cf8 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff        8184
      Rtry Write 00000000         00000000
ffffffff        8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff        8184
      Spin Time  ffff             ffff
ffff            8a82
      Test 1     ffff             ffff
ffff            0a82
      Test 2     ffff             ffff
ffff            8a82
      Test 3     ffff             ffff
ffff            8a82
      Test 4     ffff             ffff
ffff            8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff        8d84
      DRQ Tmots  ffff             ffff
ffff            0982
      Timeouts   0005             0000
ffff            0182
      Rebuilds   0000             0000
ffff            0182
      Spn Retrs  ffff             ffff
ffff            0982
      Fl Rd Recv 0000             0000
ffff            8182
      Fl Wt Recv 0000             0000
ffff            0182
      Format Err 0000             0000
ffff            0182
      POST Err   ffff             ffff
ffff            0982
      Drv Nt Ry  00000000         00000000
ffffffff        0184
      Reallc Abt ffffffff         ffffffff
ffffffff        0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff        0984
      Bus Flts   00000000         00000000
ffffffff        8184
      Hot Plgs   00000000         00000000
ffffffff        0184
      Tk Rwt Err ffff             ffff
ffff            0982
      Rmp Wt Err ffff             ffff
ffff            0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff            0182
      Hrdw Errs  0000             0000
ffff            0182
      Abt Cmd Fl 0000             0000
ffff            0182
      Spn Up Fl  0000             0000
ffff            0182
      Bd Tgt Cnt 0000             0000
ffff            0182
      Pred Fails 00000000         00000000
00000000        2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x0e
            Total Errors Logged = 0x00000022
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time       Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     008a00c0(0)
00084e59   28   0000
00    0e    00     00      00     0091b5c0(0)
00084f77   28   0000
00    0e    00     00      00     00a9acc0(0)
00085a0c   28   0000
00    0e    00     00      00     00aa3340(0)
00087141   28   0000
00    0e    00     00      00     0091ccc0(0)
000875b6   28   0000
00    0e    00     00      00     0091b540(0)
00087bd8   28   0000
00    0e    00     00      00     00dd6fc0(0)
0008800f   28   0000
00    0e    00     00      00     0089d3c0(0)
000891eb   28   0000
00    0e    00     00      00     0090bcc0(0)
00089228   28   0000
00    0e    00     00      00     00b08040(0)
00089354   28   0000
00    0e    00     00      00     00914040(0)
000895ac   28   0000
00    0e    00     00      00     00def440(0)
00089629   28   0000
00    0e    00     00      00     00ab6b40(0)
00089686   28   0000
00    0e    00     00      00     0081ce40(0)
0008a03f   28   0000
00    0e    00     00      00     00899f40(0)
00083334   28   0000
00    0e    00     00      00     00914ec0(0)
000834b5   28   0000
00    0e    00     00      00     00915ac0(0)
000843b6   28   0000
00    0e    00     00      00     0091d440(0)
00084925   28   0000
00    0e    00     00      00     00b0ff40(0)
00084964   28   0000
00    0e    00     00      00     00a9fec0(0)
00084a61   28   0000
```

```
   SCSI Port 1, Drive ID 13
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 31 30 59 46 30 30 30 30 37 33 31
36       3JY010YF00007316
         45 52 50 38 48 50 42 32 00 00 00 00 43 4f 4d
50       ERP8HPB2....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20       AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 31 30 59 46 30 30 30 30 37 33 31
36       3JY010YF00007316
         45 52 50 38 48 50 42 36 00 00 00 00 43 4f 4d
50       ERP8HPB6....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20       AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                 Factory          Since Power
Threshold        Control
      Serv. Time 0008a07c         00000003
ffffffff         8184
      Read Blks  00000023a236e8f5 00000000003cf319
8108
      Hrd Read   00000000         00000000
ffffffff         8184
      Rtry Read  00000000         00000000
ffffffff         8184
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000016d0a62ca 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff         8184
      Rtry Write 00000000         00000000
ffffffff         8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff         8184
      Spin Time  ffff             ffff
ffff             8a82
      Test 1     ffff             ffff
ffff             0a82
      Test 2     ffff             ffff
ffff             8a82
      Test 3     ffff             ffff
ffff             8a82
      Test 4     ffff             ffff
ffff             8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff         8d84
      DRQ Tmots  ffff             ffff
ffff             0982
      Timeouts   0005             0000
ffff             0182
      Rebuilds   0000             0000
ffff             0182
      Spn Retrs  ffff             ffff
ffff             0982
      Fl Rd Recv 0000             0000
ffff             8182
      Fl Wt Recv 0000             0000
ffff             0182
      Format Err 0000             0000
ffff             0182
      POST Err   ffff             ffff
ffff             0982
      Drv Nt Ry  00000000         00000000
ffffffff         0184
      Reallc Abt ffffffff         ffffffff
ffffffff         0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff         0984
      Bus Flts   00000000         00000000
ffffffff         8184
      Hot Plgs   00000000         00000000
ffffffff         0184
      Tk Rwt Err ffff             ffff
ffff             0982
      Rmp Wt Err ffff             ffff
ffff             0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff             0182
      Hrdw Errs  0000             0000
ffff             0182
      Abt Cmd Fl 0000             0000
ffff             0182
      Spn Up Fl  0000             0000
ffff             0182
      Bd Tgt Cnt 0000             0000
ffff             0182
      Pred Fails 00000000         00000000
00000000         2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x0e
            Total Errors Logged = 0x00000022
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info

----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     008a00c0(0)
00084e94   28   0000
00    0e    00     00      00     0091b5c0(0)
00084fb2   28   0000
00    0e    00     00      00     00a9acc0(0)
00085a47   28   0000
00    0e    00     00      00     00aa3340(0)
0008717c   28   0000
00    0e    00     00      00     0091ccc0(0)
000875f1   28   0000
00    0e    00     00      00     0091b540(0)
00087c13   28   0000
00    0e    00     00      00     00dd6fc0(0)
0008804a   28   0000
00    0e    00     00      00     0089d3c0(0)
00089226   28   0000
00    0e    00     00      00     0090bcc0(0)
00089263   28   0000
00    0e    00     00      00     00b08040(0)
0008938f   28   0000
00    0e    00     00      00     00914040(0)
000895e7   28   0000
00    0e    00     00      00     00def440(0)
00089664   28   0000
00    0e    00     00      00     00ab6b40(0)
000896c1   28   0000
00    0e    00     00      00     0081ce40(0)
0008a07a   28   0000
00    0e    00     00      00     00899f40(0)
0008336f   28   0000
00    0e    00     00      00     00914ec0(0)
000834f0   28   0000
00    0e    00     00      00     00915ac0(0)
000843f1   28   0000
00    0e    00     00      00     0091d440(0)
00084960   28   0000
00    0e    00     00      00     00b0ff40(0)
0008499f   28   0000
00    0e    00     00      00     00a9fec0(0)
00084a9c   28   0000

   SCSI Port 1, Drive ID 14
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 38 41 37 30 30 30 30 37 33 31
39       3JY028A700007319
         39 32 58 37 48 50 42 32 00 00 00 00 43 4f 4d
50       92X7HPB2....COMP
         41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20       AQ  BF01885A34
         20 20 20 20 00 00 00 00 00 00 00 00 00 00 00
00          ............
         00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
         33 4a 59 30 32 38 41 37 30 30 30 30 37 33 31
39       3JY028A700007319
         39 32 58 37 48 50 42 36 00 00 00 00 43 4f 4d
50       92X7HPB6....COMP
```

```
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 0008a07d         00000003
ffffffff        8184
      Read Blks  00000022978752d0 00000000003cf319
8108
      Hrd Read   00000000         00000000
ffffffff        8184
      Rtry Read  00000000         00000000
ffffffff        8184
      ECC Read   0000000000000002 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000016947f2c1 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff        8184
      Rtry Write 00000000         00000000
ffffffff        8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff        8184
      Spin Time  ffff             ffff
ffff            8a82
      Test 1     ffff             ffff
ffff            0a82
      Test 2     ffff             ffff
ffff            8a82
      Test 3     ffff             ffff
ffff            8a82
      Test 4     ffff             ffff
ffff            8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff        8d84
      DRQ Tmots  ffff             ffff
ffff            0982
      Timeouts   0003             0000
ffff            0182
      Rebuilds   0000             0000
ffff            0182
      Spn Retrs  ffff             ffff
ffff            0982
      Fl Rd Recv 0000             0000
ffff            8182
      Fl Wt Recv 0000             0000
ffff            0182
      Format Err 0000             0000
ffff            0182
      POST Err   ffff             ffff
ffff            0982
      Drv Nt Ry  00000000         00000000
ffffffff        0184
      Reallc Abt ffffffff         ffffffff
ffffffff        0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff        0984
      Bus Flts   00000000         00000000
ffffffff        8184
      Hot Plgs   00000000         00000000
ffffffff        0184
      Tk Rwt Err ffff             ffff
ffff            0982
      Rmp Wt Err ffff             ffff
ffff            0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff            0182
      Hrdw Errs  0000             0000
ffff            0182
      Abt Cmd Fl 0000             0000
ffff            0182
      Spn Up Fl  0000             0000
ffff            0182
      Bd Tgt Cnt 0000             0000
ffff            0182
      Pred Fails 00000000         00000000
00000000        2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x09
            Total Errors Logged = 0x0000001d
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     0091ccc0(0)
000875f2   28   0000
00    0e    00     00      00     0091b540(0)
00087c14   28   0000
00    0e    00     00      00     00dd6fc0(0)
0008804b   28   0000
00    0e    00     00      00     0089d3c0(0)
00089227   28   0000
00    0e    00     00      00     0090bcc0(0)
00089264   28   0000
00    0e    00     00      00     00914040(0)
000895e8   28   0000
00    0e    00     00      00     00def440(0)
00089665   28   0000
00    0e    00     00      00     00ab6b40(0)
000896c2   28   0000
00    0e    00     00      00     0081ce40(0)
0008a07b   28   0000
00    0e    00     00      00     0091d640(0)
00082e54   28   0000
00    0e    00     00      00     00a929c0(0)
00082efc   28   0000
00    0e    00     00      00     00899f40(0)
00083370   28   0000
00    0e    00     00      00     00915ac0(0)
000843f2   28   0000
00    0e    00     00      00     0091d440(0)
00084961   28   0000
00    0e    00     00      00     00b0ff40(0)
000849a0   28   0000
00    0e    00     00      00     00a9fec0(0)
00084a9d   28   0000
00    0e    00     00      00     008a00c0(0)
00084e95   28   0000
00    0e    00     00      00     0091b5c0(0)
00084fb3   28   0000
00    0e    00     00      00     00a9acc0(0)
00085a48   28   0000
00    0e    00     00      00     00aa3340(0)
0008717d   28   0000

   SCSI Port 1, Drive ID 15
      Factory:     Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 32 37 56 50 30 30 30 30 37 33 31
39      3JY027VP00007319
        41 33 35 4c 48 50 42 32 00 00 00 00 43 4f 4d
50      A35LHPB2....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Since Power: Serial #, Firmware Rev, and
Mfg/Model #:
        33 4a 59 30 32 37 56 50 30 30 30 30 37 33 31
39      3JY027VP00007319
        41 33 35 4c 48 50 42 36 00 00 00 00 43 4f 4d
50      A35LHPB6....COMP
        41 51 20 20 42 46 30 31 38 38 35 41 33 34 20
20      AQ  BF01885A34
        20 20 20 20 00 00 00 00 00 00 00 00 00 00 00 00
00          ............
        00 00 00 00
....
      Threshold Flags:           0x0001
      Serial Number Control:     0x8054
      Firmware Revision Control: 0x8248
      Mfg/Model Number Control:  0x8268

                Factory          Since Power
Threshold       Control
      Serv. Time 0008a137         00000003
ffffffff        8184
      Read Blks  000000239feb6cb5 00000000003cf319
8108
      Hrd Read   00000000         00000000
ffffffff        8184
      Rtry Read  00000000         00000000
ffffffff        8184
```

```
      ECC Read   0000000000000000 0000000000000000
ffffffffffffffff 8188
      Write Blks 000000016e427072 0000000000000036
8108
      Hrd Write  00000000         00000000
ffffffff         8184
      Rtry Write 00000000         00000000
ffffffff         8184
      Seeks      0000000000000000 0000000000000000
8108
      Seek Errs  0000000000000000 0000000000000000
ffffffffffffffff 8188
      Spin Cyls  00000000         00000000
ffffffff         8184
      Spin Time  ffff             ffff
ffff             8a82
      Test 1     ffff             ffff
ffff             0a82
      Test 2     ffff             ffff
ffff             8a82
      Test 3     ffff             ffff
ffff             8a82
      Test 4     ffff             ffff
ffff             8a82
      Spare Blks ffffffff         ffffffff
0a04
      Re-mapped  ffffffff         ffffffff
ffffffff         8d84
      DRQ Tmots  ffff             ffff
ffff             0982
      Timeouts   0004             0000
ffff             0182
      Rebuilds   0000             0000
ffff             0182
      Spn Retrs  ffff             ffff
ffff             0982
      Fl Rd Recv 0000             0000
ffff             8182
      Fl Wt Recv 0000             0000
ffff             0182
      Format Err 0000             0000
ffff             0182
      POST Err   ffff             ffff
ffff             0982
      Drv Nt Ry  00000000         00000000
ffffffff         0184
      Reallc Abt ffffffff         ffffffff
ffffffff         0984
      IRQ Gltchs ffffffff         ffffffff
ffffffff         0984
      Bus Flts   00000000         00000000
ffffffff         8184
      Hot Plgs   00000000         00000000
ffffffff         0184
      Tk Rwt Err ffff             ffff
ffff             0982
      Rmp Wt Err ffff             ffff
ffff             0982
      Bg Fw Rev  0000000000000000 0000000000000000
0a48
      Med Flrs   0000             0000
ffff             0182
      Hrdw Errs  0000             0000
ffff             0182
      Abt Cmd Fl 0000             0000
ffff             0182
      Spn Up Fl  0000             0000
ffff             0182
      Bd Tgt Cnt 0000             0000
ffff             0182
      Pred Fails 00000000         00000000
00000000         2184

      DRIVE ERROR LOG:
         Error Log Header:
            Parameter Length    = 0x14
            Entry Size          = 0x0014
            Current Entry       = 0x08
            Total Errors Logged = 0x0000001c
         Error Log Data:

SCSI  CAM   Sense  Sense
Stat  Stat  Key    Code    Qual   Block(Vl)
Time        Op   Info
----  ----  -----  -----   ----   ---------       ---
-       --   ----
00    0e    00     00      00     00aa3340(0)
00087237   28   0000
00    0e    00     00      00     0091b540(0)
00087cce   28   0000
00    0e    00     00      00     00dd6fc0(0)
00088105   28   0000
00    0e    00     00      00     0090bcc0(0)
0008931e   28   0000
00    0e    00     00      00     00914040(0)
000896a2   28   0000
00    0e    00     00      00     00def440(0)
0008971f   28   0000
00    0e    00     00      00     00ab6b40(0)
0008977c   28   0000
00    0e    00     00      00     0081ce40(0)
0008a135   28   0000
00    0e    00     00      00     00913ec0(0)
000825ee   28   0000
00    0e    00     00      00     00b0fc40(0)
00082ae1   28   0000
00    0e    00     00      00     0091d640(0)
00082f0e   28   0000
00    0e    00     00      00     00a929c0(0)
00082fb6   28   0000
00    0e    00     00      00     00899f40(0)
0008342a   28   0000
00    0e    00     00      00     00915ac0(0)
000844ac   28   0000
00    0e    00     00      00     0091d440(0)
00084a1b   28   0000
00    0e    00     00      00     00b0ff40(0)
00084a5a   28   0000
00    0e    00     00      00     00a9fec0(0)
00084b57   28   0000
00    0e    00     00      00     008a00c0(0)
00084f4f   28   0000
00    0e    00     00      00     0091b5c0(0)
0008506d   28   0000
00    0e    00     00      00     00a9acc0(0)
00085b02   28   0000

   SCSI Port 2, Drive ID 0
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 1
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 2
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 3
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 4
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 5
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 6
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 7
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 8
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 9
      Not Available

      DRIVE ERROR LOG:
         Not Available
```

```
   SCSI Port 2, Drive ID 10
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 11
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 12
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 13
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 14
      Not Available

      DRIVE ERROR LOG:
         Not Available

   SCSI Port 2, Drive ID 15
      Not Available

      DRIVE ERROR LOG:
         Not Available

SURFACE ANALYSIS STATUS:

   Time remaining to start: 29 secs.
   Surface analysis delay:  30 secs.

   SCSI Port 1:
                  Big
      Drive ID    Current Block
      --------    -------------
         00       0x00af06c0
         01       0x00af06c0
         02       0x00af06c0
         03       0x00af06c0
         04       0x00af06c0
         05       0x00af06c0
         06       0x00000000
         07       0x00000000
         08       0x00af06c0
         09       0x00af06c0
         10       0x00af06c0
         11       0x00af06c0
         12       0x00af06c0
         13       0x00af06c0
         14       0x00af06c0
         15       0x00af06c0

   SCSI Port 2:
                  Big
         Drive ID    Current Block
         --------    -------------
            00       0x00000000
            01       0x00000000
            02       0x00000000
            03       0x00000000
            04       0x00000000
            05       0x00000000
            06       0x00000000
            07       0x00000000
            08       0x00000000
            09       0x00000000
            10       0x00000000
            11       0x00000000
            12       0x00000000
            13       0x00000000
            14       0x00000000
            15       0x00000000

                        Big
   Surface     Surface
      Logical  Big     Inconsistent  Blocks
   Controller  Analysis    Analysis
      Drive    Status  Block         Reassigned  Resets
   Passes      Pass Time
      -------  ------  ------------  ----------  -------
   ---  ----------  ----------
            1   0x00   0x00000000             0     23
   0           0
            2   0x00   0x00000000             0     37
   0           0
            3   0x00   0x00000000             0      6
   0           0
            4   0x00   0x00000000             0      0
   0           0
            5   0x09   0x00000000             0      0
   1489        1710
            6   0x00   0x00000000             0      0
   0           0
            7   0x00   0x00000000             0      0
   0           0
            8   0x00   0x00000000             0      0
   0           0
            9   0x00   0x00000000             0      0
   0           0
           10   0x00   0x00000000             0      0
   0           0
           11   0x00   0x00000000             0      0
   0           0
           12   0x00   0x00000000             0      0
   0           0
           13   0x00   0x00000000             0      0
   0           0
           14   0x00   0x00000000             0      0
   0           0
           15   0x00   0x00000000             0      0
   0           0
           16   0x00   0x00000000             0      0
   0           0
           17   0x00   0x00000000             0      0
   0           0
           18   0x00   0x00000000             0      0
   0           0
           19   0x00   0x00000000             0      0
   0           0
           20   0x00   0x00000000             0      0
   0           0
           21   0x00   0x00000000             0      0
   0           0
           22   0x00   0x00000000             0      0
   0           0
           23   0x00   0x00000000             0      0
   0           0
           24   0x00   0x00000000             0      0
   0           0
           25   0x00   0x00000000             0      0
   0           0
           26   0x00   0x00000000             0      0
   0           0
           27   0x00   0x00000000             0      0
   0           0
           28   0x00   0x00000000             0      0
   0           0
           29   0x00   0x00000000             0      0
   0           0
           30   0x00   0x00000000             0      0
   0           0
           31   0x00   0x00000000             0      0
   0           0
           32   0x00   0x00000000             0      0
   0           0

ACCELERATOR STATUS:
   Logical Drive Disable Map: 0xfffffe0
   Read Cache Size:           32 MBytes
   Posted Write Size:         0 MBytes
   Disable Flag:              0x00
   Status:                    0x00000001
   Disable Code:              0x0000
   Total Memory Size:         32 MBytes
   Battery Count:             0
   Battery Status:            0x0000
   Parity Read Errors:        0000
   Parity Write Errors:       0000
   Error Log:                 N/A
   Failed Batteries:          0x0000
   Board Present:             Yes
   Accelerator Failure Map:   0x00000000
   Max Error Log Entries:     16
   NVRAM Load Status:         0x00
   Memory Size Shift Factor:  0x0a
   Non Battery Backed Memory: 32 MBytes
   Memory State:              0x00

PHYSICAL DRIVE IDENTIFICATION:

   SCSI Port 1, Drive ID 0
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY02YKM
      Serial Number:       3JY02YKM0000732245Q3
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
```

```
                        Linked Commands
                        Synchronous Data Transfer
                        16-bit Wide Data Transfer
      Block Size:       512 bytes/sector
      Total Blocks:     35556888 sectors/disk
      Reserved Blocks:  1088 reserved sectors/disk
      SCSI Inquiry Bits: 0x3E
      Stamped for M&P:  yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags: 0xcd 0x35 0x9d 0x07
                        Drive present and
operational
                        Wide SCSI transfers
Enabled
                        Ultra320 SCSI Enabled
                        S.M.A.R.T. Supported
                        S.M.A.R.T. Enabled
                        Quick Arbitration and
Selection Capable
                        Quick Arbitration and
Selection enabled
                        Drive attached to external
SCSI connector
                        Configured as part of
Logical Drive
                        Drive write cache setting
is changeable and safe
      SCSI LUN:         0
      Spi Speed Rules:  0x14de0800
      Physical Connector: J4 (controller connector
attached to drive)
      Physical Bay in Box: 1 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00


   SCSI Port 1, Drive ID 1
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY02FV4
      Serial Number:       3JY02FV400007319AAP9
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 2 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00


   SCSI Port 1, Drive ID 2
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY02XDM
      Serial Number:       3JY02XDM00007320FLNR
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 3 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
```

```
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 3
      Vendor Id:            COMPAQ
      Product Id:           BF01885A34
      Product Rev:          HPB6
      Vendor Specific:      3JY032V5
      Serial Number:        3JY032V5000073200Y6R
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:      Tagged Command Queueing
                            Linked Commands
                            Synchronous Data Transfer
                            16-bit Wide Data Transfer
      Block Size:           512 bytes/sector
      Total Blocks:         35556888 sectors/disk
      Reserved Blocks:      1088 reserved sectors/disk
      SCSI Inquiry Bits:    0x3E
      Stamped for M&P:      yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:     0xcd 0x35 0x9d 0x07
                            Drive present and
operational
                            Wide SCSI transfers
Enabled
                            Ultra320 SCSI Enabled
                            S.M.A.R.T. Supported
                            S.M.A.R.T. Enabled
                            Quick Arbitration and
Selection Capable
                            Quick Arbitration and
Selection enabled
                            Drive attached to external
SCSI connector
                            Configured as part of
Logical Drive
                            Drive write cache setting
is changeable and safe
      SCSI LUN:             0
      Spi Speed Rules:      0x14de0800
      Physical Connector:   J4 (controller connector
attached to drive)
      Physical Bay in Box: 4 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 4
      Vendor Id:            COMPAQ
      Product Id:           BF01885A34
      Product Rev:          HPB6
      Vendor Specific:      3JY02R7M
      Serial Number:        3JY02R7M0000732209R2
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:      Tagged Command Queueing
                            Linked Commands
                            Synchronous Data Transfer
                            16-bit Wide Data Transfer
      Block Size:           512 bytes/sector
      Total Blocks:         35556888 sectors/disk
      Reserved Blocks:      1088 reserved sectors/disk
      SCSI Inquiry Bits:    0x3E
      Stamped for M&P:      yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:     0xcd 0x35 0x9d 0x07
                            Drive present and
operational
                            Wide SCSI transfers
Enabled
                            Ultra320 SCSI Enabled
                            S.M.A.R.T. Supported
                            S.M.A.R.T. Enabled
                            Quick Arbitration and
Selection Capable
                            Quick Arbitration and
Selection enabled
                            Drive attached to external
SCSI connector
                            Configured as part of
Logical Drive
                            Drive write cache setting
is changeable and safe
      SCSI LUN:             0
      Spi Speed Rules:      0x14de0800
      Physical Connector:   J4 (controller connector
attached to drive)
      Physical Bay in Box: 5 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 5
      Vendor Id:            COMPAQ
      Product Id:           BF01885A34
      Product Rev:          HPB6
      Vendor Specific:      3JY02VVV
      Serial Number:        3JY02VVV0000732209TE
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:      Tagged Command Queueing
                            Linked Commands
```

```
                        Synchronous Data Transfer
                        16-bit Wide Data Transfer
      Block Size:       512 bytes/sector
      Total Blocks:     35556888 sectors/disk
      Reserved Blocks:  1088 reserved sectors/disk
      SCSI Inquiry Bits:  0x3E
      Stamped for M&P:  yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:   0xcd 0x35 0x9d 0x07
                        Drive present and
operational
                        Wide SCSI transfers
Enabled
                        Ultra320 SCSI Enabled
                        S.M.A.R.T. Supported
                        S.M.A.R.T. Enabled
                        Quick Arbitration and
Selection Capable
                        Quick Arbitration and
Selection enabled
                        Drive attached to external
SCSI connector
                        Configured as part of
Logical Drive
                        Drive write cache setting
is changeable and safe
      SCSI LUN:         0
      Spi Speed Rules:  0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 6 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 6  ---> Not available
   SCSI Port 1, Drive ID 7  ---> Not available
   SCSI Port 1, Drive ID 8
      Vendor Id:          COMPAQ
      Product Id:         BF01885A34
      Product Rev:        HPB6
      Vendor Specific:    3JY02VVF
      Serial Number:      3JY02VVF0000732005ZZ
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:    Tagged Command Queueing
                          Linked Commands
                          Synchronous Data Transfer
                          16-bit Wide Data Transfer
      Block Size:         512 bytes/sector
      Total Blocks:       35556888 sectors/disk
      Reserved Blocks:    1088 reserved sectors/disk
      SCSI Inquiry Bits:  0x3E
      Stamped for M&P:    yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:   0xcd 0x35 0x9d 0x07
                          Drive present and
operational
                          Wide SCSI transfers
Enabled
                          Ultra320 SCSI Enabled
                          S.M.A.R.T. Supported
                          S.M.A.R.T. Enabled
                          Quick Arbitration and
Selection Capable
                          Quick Arbitration and
Selection enabled
                          Drive attached to external
SCSI connector
                          Configured as part of
Logical Drive
                          Drive write cache setting
is changeable and safe
      SCSI LUN:           0
      Spi Speed Rules:    0x14de0800
      Physical Connector: J4 (controller connector
attached to drive)
      Physical Bay in Box: 7 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 01

   SCSI Port 1, Drive ID 9
      Vendor Id:          COMPAQ
      Product Id:         BF01885A34
      Product Rev:        HPB6
      Vendor Specific:    3JY02DV5
      Serial Number:      3JY02DV500007319ABMQ
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:    Tagged Command Queueing
                          Linked Commands
                          Synchronous Data Transfer
                          16-bit Wide Data Transfer
      Block Size:         512 bytes/sector
      Total Blocks:       35556888 sectors/disk
      Reserved Blocks:    1088 reserved sectors/disk
      SCSI Inquiry Bits:  0x3E
      Stamped for M&P:    yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:   0xcd 0x35 0x9d 0x07
                          Drive present and
operational
                          Wide SCSI transfers
Enabled
                          Ultra320 SCSI Enabled
                          S.M.A.R.T. Supported
                          S.M.A.R.T. Enabled
                          Quick Arbitration and
Selection Capable
                          Quick Arbitration and
Selection enabled
                          Drive attached to external
SCSI connector
                          Configured as part of
Logical Drive
                          Drive write cache setting
is changeable and safe
      SCSI LUN:           0
      Spi Speed Rules:    0x14de0800
      Physical Connector: J4 (controller connector
attached to drive)
      Physical Bay in Box: 8 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
```

```
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 10
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY02C3D
      Serial Number:       3JY02C3D0000732006SA
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 9 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 01

   SCSI Port 1, Drive ID 11
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY02VW6
      Serial Number:       3JY02VW6000073200XXM
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 10 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 12
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY02WPV
      Serial Number:       3JY02WPV0000732006SP
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
```

```
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 11 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 17

   SCSI Port 1, Drive ID 13
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY010YF
      Serial Number:       3JY010YF00007316ERP8
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 12 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 1, Drive ID 14
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY028A7
      Serial Number:       3JY028A70000731992X7
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 13 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
```

```
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 37

   SCSI Port 1, Drive ID 15
      Vendor Id:           COMPAQ
      Product Id:          BF01885A34
      Product Rev:         HPB6
      Vendor Specific:     3JY027VP
      Serial Number:       3JY027VP00007319A35L
      SCSI Inquiry Header: 00 00 03 12 8b 00 01 3e
      Device Supports:     Tagged Command Queueing
                           Linked Commands
                           Synchronous Data Transfer
                           16-bit Wide Data Transfer
      Block Size:          512 bytes/sector
      Total Blocks:        35556888 sectors/disk
      Reserved Blocks:     1088 reserved sectors/disk
      SCSI Inquiry Bits:   0x3E
      Stamped for M&P:     yes
      Last Failure Reason: 0x00 (Drive has not
failed)
      Phys Drive Flags:    0xcd 0x35 0x9d 0x07
                           Drive present and
operational
                           Wide SCSI transfers
Enabled
                           Ultra320 SCSI Enabled
                           S.M.A.R.T. Supported
                           S.M.A.R.T. Enabled
                           Quick Arbitration and
Selection Capable
                           Quick Arbitration and
Selection enabled
                           Drive attached to external
SCSI connector
                           Configured as part of
Logical Drive
                           Drive write cache setting
is changeable and safe
      SCSI LUN:            0
      Spi Speed Rules:     0x14de0800
      Physical Connector:  J4 (controller connector
attached to drive)
      Physical Bay in Box: 14 (number of the physical
drive bay in the enclosure)

      MODE SENSE:
         Header:   00 d6 00 10 00 00 00 08 00 00 00
00 00 00 02 00
         Page 01:  81 0a e4 0b ff 00 00 00 05 00 ff
ff
         Page 02:  82 0e 80 80 00 0a 00 00 00 00 00
00 10 00 00 00
         Page 03:  83 16 12 2a 00 00 00 0a 00 00 02
3d 02 00 00 01
                   00 78 00 60 40 00 00 00
         Page 04:  84 16 00 7a 4e 02 00 00 00 00 00
00 00 00 00 00
                   00 00 00 00 3a a7 00 00
         Page 07:  87 0a 04 0b ff 00 00 00 00 00 ff
ff
         Page 08:  88 12 10 00 ff ff 00 00 ff ff ff
ff 00 1c 00 00
                   00 00 00 00
         Page 09:  89 0e 00 00 00 00 00 00 00 00 00
00 00 00 04 00
         Page 0a:  8a 0a 00 10 00 00 00 00 00 00 01
60
         Page 0c:  8c 16 80 00 00 0b 00 00 00 00 00
00 00 7a 4d 01
                   00 00 00 00 00 00 10 08
         Page 19:  19 06 01 00 ff ff 00 00
         Page 1a:  9a 0a 00 00 ff ff ff ff ff ff ff
ff
         Page 1c:  9c 0a 11 04 00 00 0b b8 00 00 00
02
         Page 00:  80 06 40 00 0f 00 00 00

   SCSI Port 2, Drive ID 0  ---> Not available
   SCSI Port 2, Drive ID 1  ---> Not available
   SCSI Port 2, Drive ID 2  ---> Not available
   SCSI Port 2, Drive ID 3  ---> Not available
   SCSI Port 2, Drive ID 4  ---> Not available
   SCSI Port 2, Drive ID 5  ---> Not available
   SCSI Port 2, Drive ID 6  ---> Not available
   SCSI Port 2, Drive ID 7  ---> Not available
   SCSI Port 2, Drive ID 8  ---> Not available
   SCSI Port 2, Drive ID 9  ---> Not available
   SCSI Port 2, Drive ID 10 ---> Not available
   SCSI Port 2, Drive ID 11 ---> Not available
   SCSI Port 2, Drive ID 12 ---> Not available
   SCSI Port 2, Drive ID 13 ---> Not available
   SCSI Port 2, Drive ID 14 ---> Not available
   SCSI Port 2, Drive ID 15 ---> Not available

CONTROLLER PARAMETERS:

   LED Control:              0x00
   Command List Verification: On
   Backed-out Write drives:   0
   Stripes for Parity:        0
   Distribution Mode:         0x00
   Maximum Driver Requests:   0xffff
   Elevator Trend Count:      0x0032
   Disable Elevator:          0x00
   Force Scan Complete:       0x00
   Synch/Asynch Mode:         Auto Detect
   Force Narrow:              No
   Rebuild Priority:          0
   Expand Priority:           0
   SDB ASIC Fix:              0x00
   PDIP Burst Disable:        0x00
   Software Name:
   Hardware Name:

SCSI BUS 1 PARAMETERS:
   Inquiry Data Valid:    Yes
   Inquiry Header:        03 00 02 02 21 00 00 00
   Vendor Id:             COMPAQ
   Product Id:            PROLIANT 4LEE
   Product Rev:           CP20
   Hot Plug Counts:
      All counts are zero
   Fan Alert Count:       0x0000
   Alarm Status:          0x00 (No Alarms)
   Temperature Status:    0x00
   Valid Alarm Bits:      0x0b
   Alarm Count:           0000
   Specific Counts:       00000 00000 00000 00000
00000 00000 00000 00000
   Connection Info:       0x0809
   SCSI Device Rev:       0x01
   Fan Status:            0x0000
   More Inquiry Data:
        03 20 00 00 00 00 00 00 00 00 00 00 00 00 00
00       . ..............
        00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ...............
        00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ...............
        00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ...............
   SCSI Device Type:      0x00460e11 (unknown)
   Interrupt Count:       00000000
   Ultra Bus Faults:      0x00000000
   SCSI Initiator ID:     7
   SCSI Target ID:        7
   Chassis Serial Number: 9J41LMPXFRG1
   Physical Connector:    J4 (controller connector
attached to drive)
   Big Inst Drive Map:    0xff3f 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000
   Big Bus Map:           0xffff 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000
   More Connection Info:  0x15 (LVD SCSI bus enabled)

SCSI BUS 2 PARAMETERS:
   Inquiry Data Valid:    No
   Hot Plug Counts:
      All counts are zero
   Fan Alert Count:       0x0000
```

```
   Alarm Status:          0x00 (No Alarms)
   Temperature Status:    0x00
   Valid Alarm Bits:      0x00
   Alarm Count:           0000
   Specific Counts:       00000 00000 00000 00000
00000 00000 00000 00000
   Connection Info:       0x0000
   SCSI Device Rev:       0x01
   Fan Status:            0x0000
   More Inquiry Data:
        00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ..............
        00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ..............
        00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ..............
        00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00       ..............
   SCSI Device Type:      0x00460e11 (unknown)
   Interrupt Count:       00000000
   Ultra Bus Faults:      0x00000000
   SCSI Initiator ID:     7
   SCSI Target ID:        7
   Chassis Serial Number: Not Available
   Physical Connector:    ?? (controller connector
attached to drive)
   Big Inst Drive Map:    0x0000 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000
   Big Bus Map:           0x0000 0xffff 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000
   More Connection Info:  0x11 (LVD SCSI bus enabled)

MASTER BOOT RECORD (LOGICAL DRIVE 1)

      Logical Drive 1 (SCSI Port 1, Drive ID 0):
         Master Boot Record hex dump:
            33 c0 8e d0 bc 00 7c fb 50 07 50 1f fc be
1b 7c
            bf 1b 06 50 57 b9 e5 01 f3 a4 cb bd be 07
b1 04
            38 6e 00 7c 09 75 13 83 c5 10 e2 f4 cd 18
8b f5
            83 c6 10 49 74 19 38 2c 74 f6 a0 b5 07 b4
07 8b
            f0 ac 3c 00 74 fc bb 07 00 b4 0e cd 10 eb
f2 88
            4e 10 e8 46 00 73 2a fe 46 10 80 7e 04 0b
74 0b
            80 7e 04 0c 74 05 a0 b6 07 75 d2 80 46 02
06 83
            46 08 06 83 56 0a 00 e8 21 00 73 05 a0 b6
07 eb
            bc 81 3e fe 7d 55 aa 74 0b 80 7e 10 00 74
c8 a0
            b7 07 eb a9 8b fc 1e 57 8b f5 cb bf 05 00
8a 56
            00 b4 08 cd 13 72 23 8a c1 24 3f 98 8a de
8a fc
            43 f7 e3 8b d1 86 d6 b1 06 d2 ee 42 f7 e2
39 56
            0a 77 23 72 05 39 46 08 73 1c b8 01 02 bb
00 7c
            8b 4e 02 8b 56 00 cd 13 73 51 4f 74 4e 32
e4 8a
            56 00 cd 13 eb e4 8a 56 00 60 bb aa 55 b4
41 cd
            13 72 36 81 fb 55 aa 75 30 f6 c1 01 74 2b
61 60
            6a 00 6a 00 ff 76 0a ff 76 08 6a 00 68 00
7c 6a
            01 6a 10 b4 42 8b f4 cd 13 61 61 73 0e 4f
74 0b
            32 e4 8a 56 00 cd 13 eb d6 61 f9 c3 49 6e
76 61
            6c 69 64 20 70 61 72 74 69 74 69 6f 6e 20
74 61
            62 6c 65 00 45 72 72 6f 72 20 6c 6f 61 64
69 6e
            67 20 6f 70 65 72 61 74 69 6e 67 20 73 79
73 74
            65 6d 00 4d 69 73 73 69 6e 67 20 6f 70 65
72 61
            74 69 6e 67 20 73 79 73 74 65 6d 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 2c 44 63 b7 93 7d fe 73 74
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PARTITION TABLES:

      SCSI Port 1, Drive ID 0:
            00 01 01 00 06 fe ff ff 3f 00 00 00 19 5f
45 03
               (Start C/H/S 0000/001/01, End
1023/254/63)
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
      SCSI Port 1, Drive ID 3:
            00 01 01 00 06 fe ff ff 3f 00 00 00 52 67
fc 0a
               (Start C/H/S 0000/001/01, End
1023/254/63)
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RIS DATA AREA:

   SCSI Port 1, Drive ID 0:
      RIS drive: 0x0
      RIS Copy 0:
         Drive id:          0
         RIS signature:     ASTROS
         Physical Drives:   14
         Logical Drives:    5
         Physical Drive State: (00=OK, 01=bad or not
present, 02=replacement)
            00 00 00 00 00 00 01 01 00 00 00 00 00 00
00 00
            01 01 01 01 01 01 01 01 01 01 01 01 01 01
01 01
            01 01 01 01 01 01 01 01 01 01 01 01 01 01
01 01
            01 01 01 01 01 01 01 01 01 01 01 01 01 01
01 01
         Signature:         0xa715a909
         RIS version:       1501
         Logical Drive State:  (00=OK, 01=failed,
02=unused)
            00 00 00 00 00 00 00 0E 02 00 00 00 00 04
00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
         RIS updates:       466
         Remap interrupted: 0
         Surface delay:     300
         Overheat delay:    0
         M&P delay:         60
         RIS hex dump:
            00 41 53 54 52 4f 53 20 a7 15 a9 09 00 00
01 d2
            05 dd 0e 05 00 00 00 00 00 00 00 00 00 00
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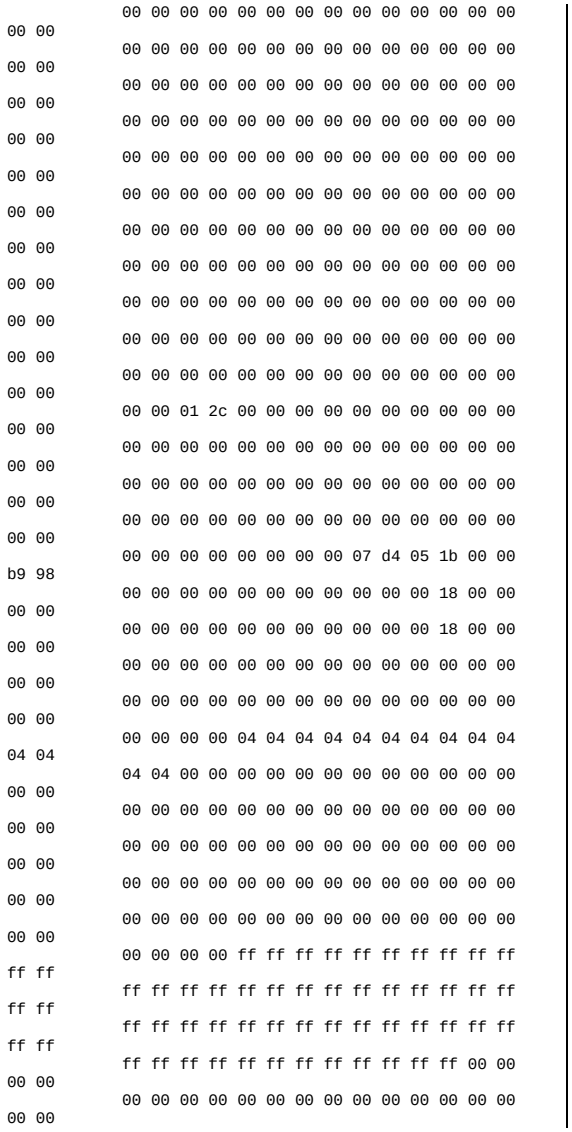

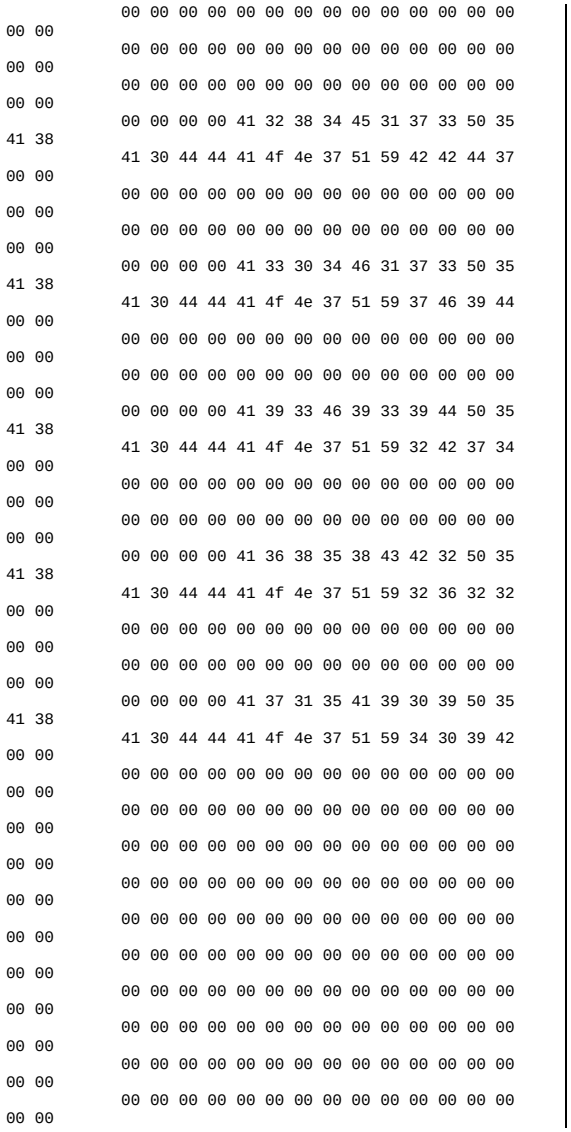

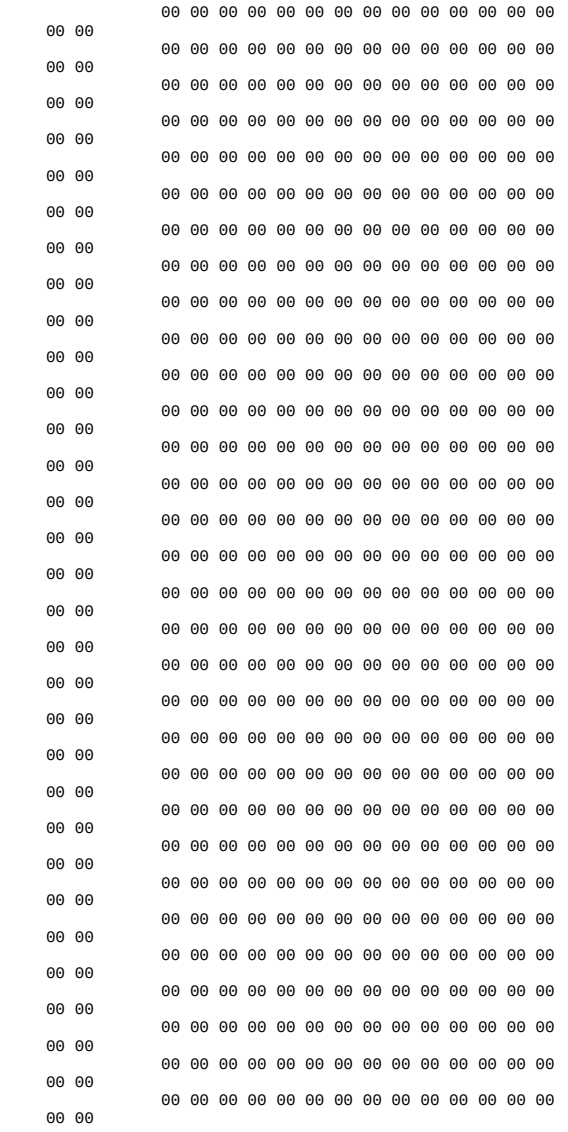

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02 00 1c 00 00 67 5e 40 00 04 ea 00 00 34
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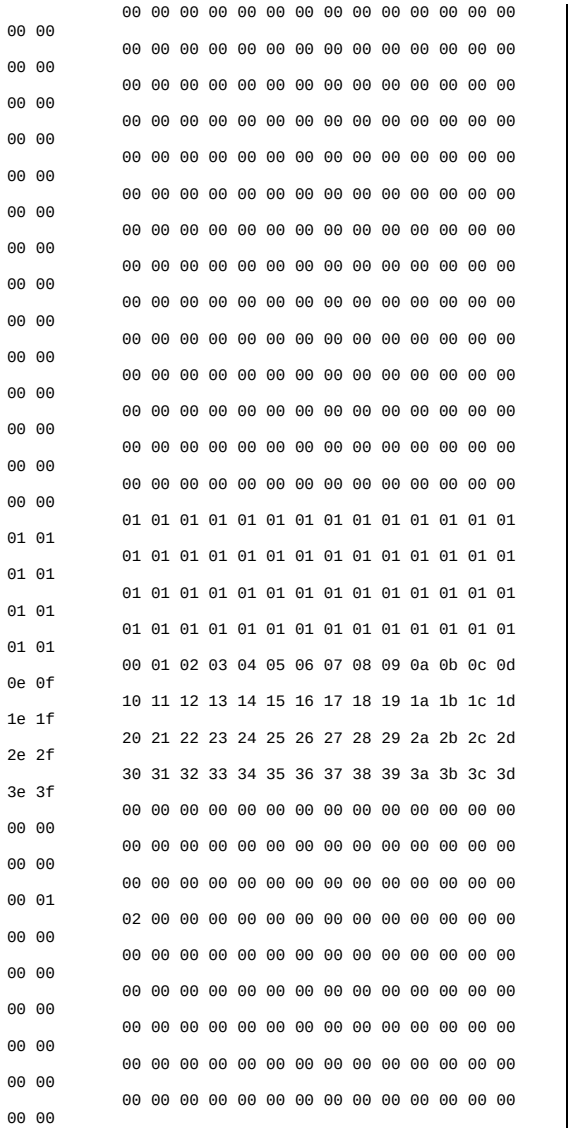

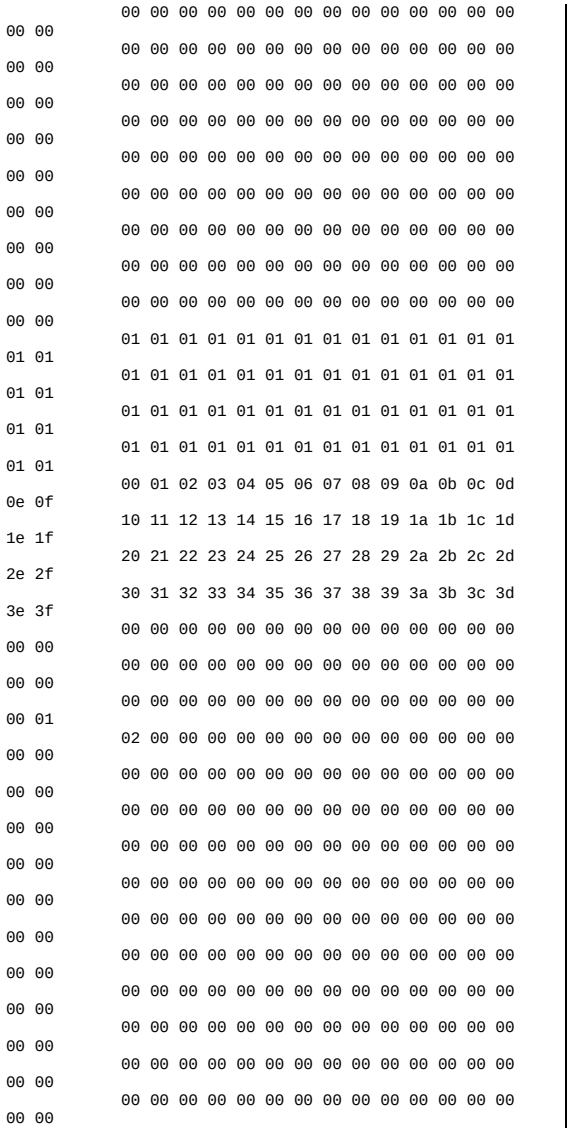

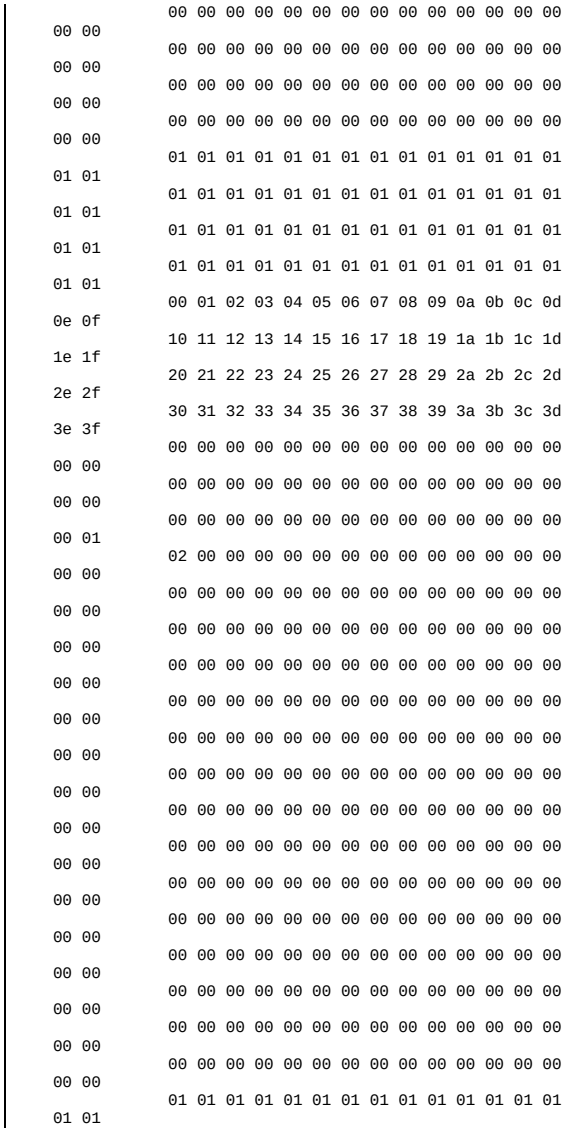

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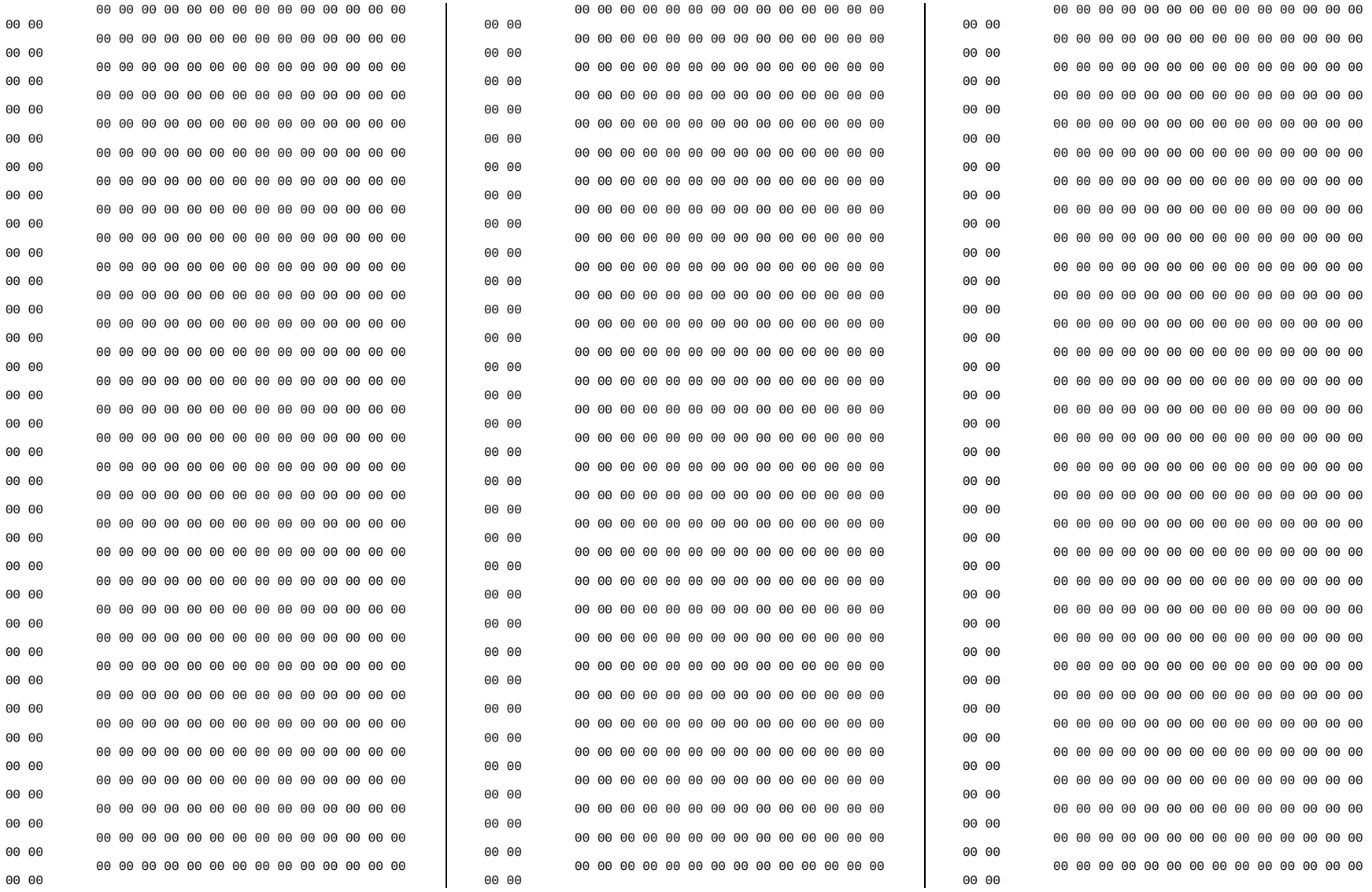

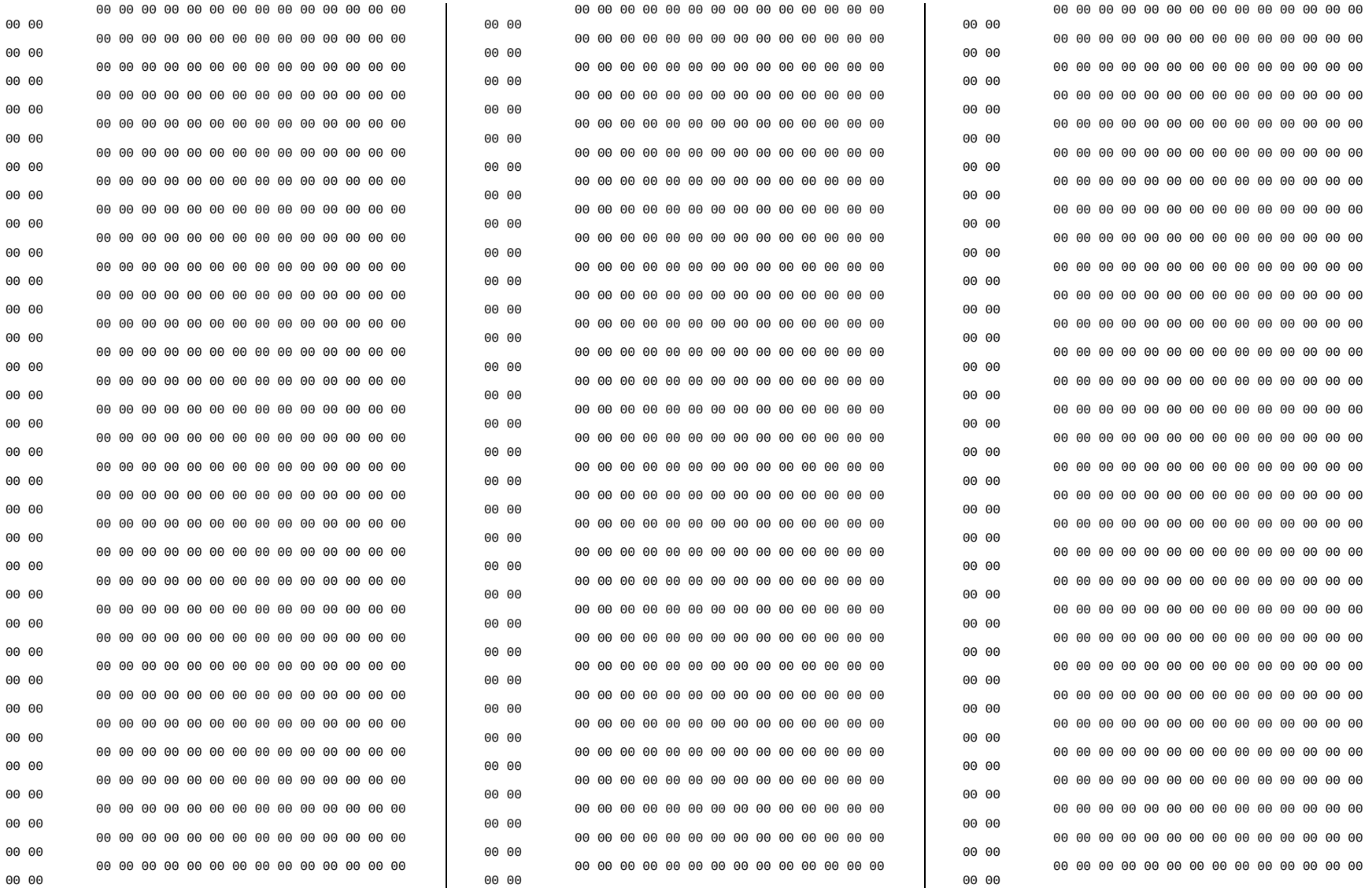

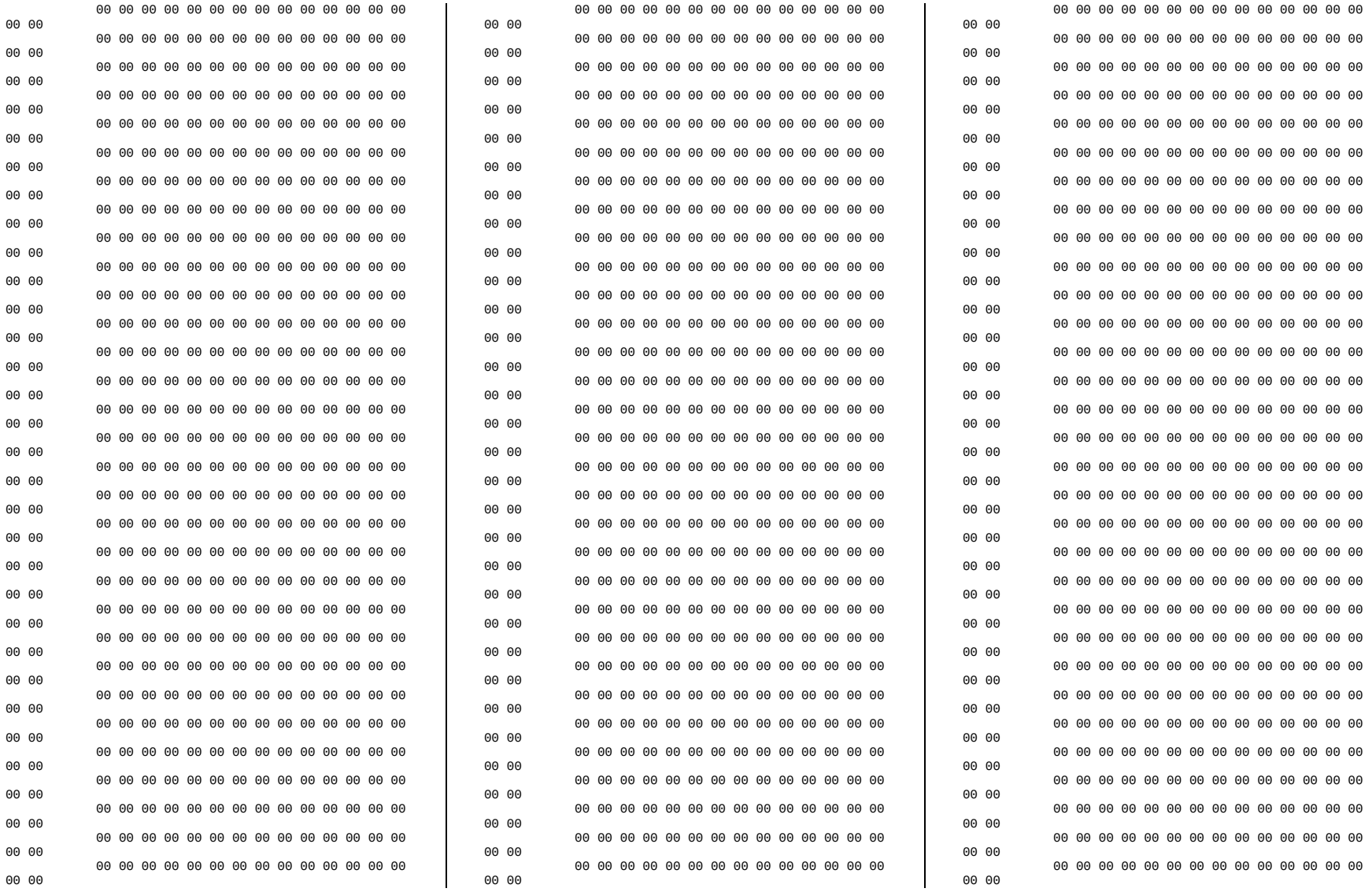

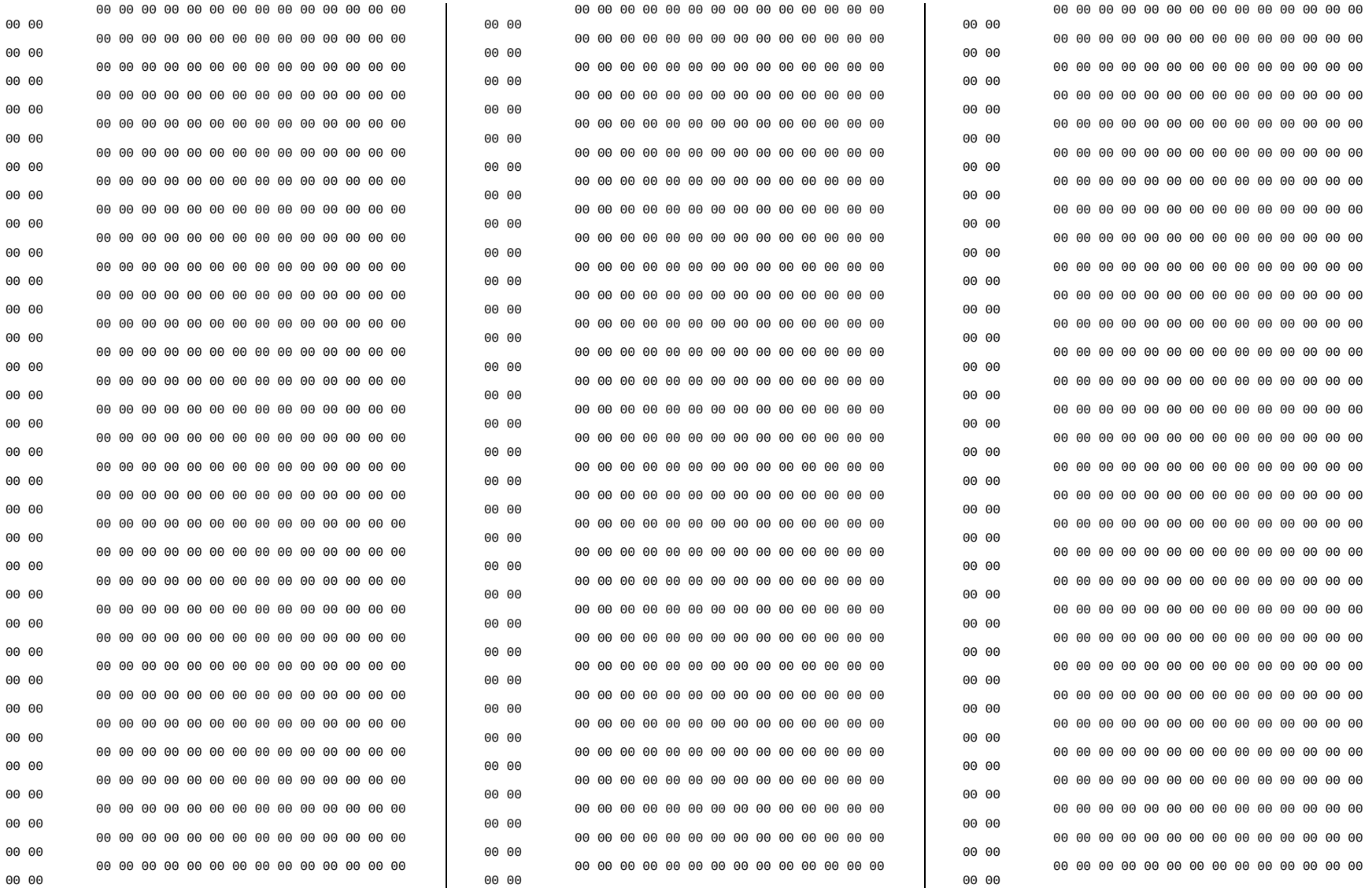

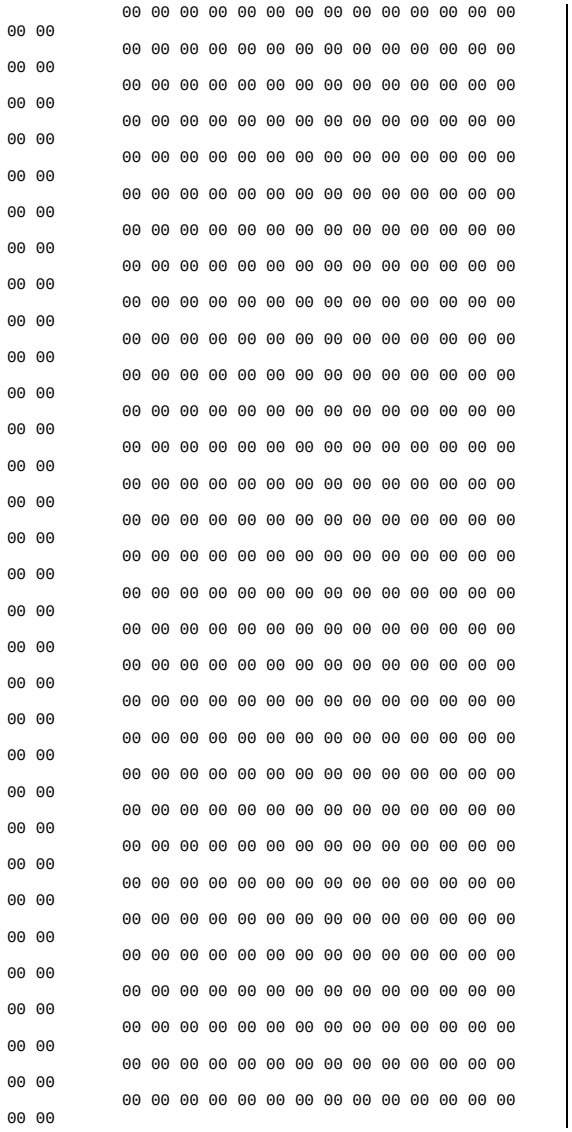

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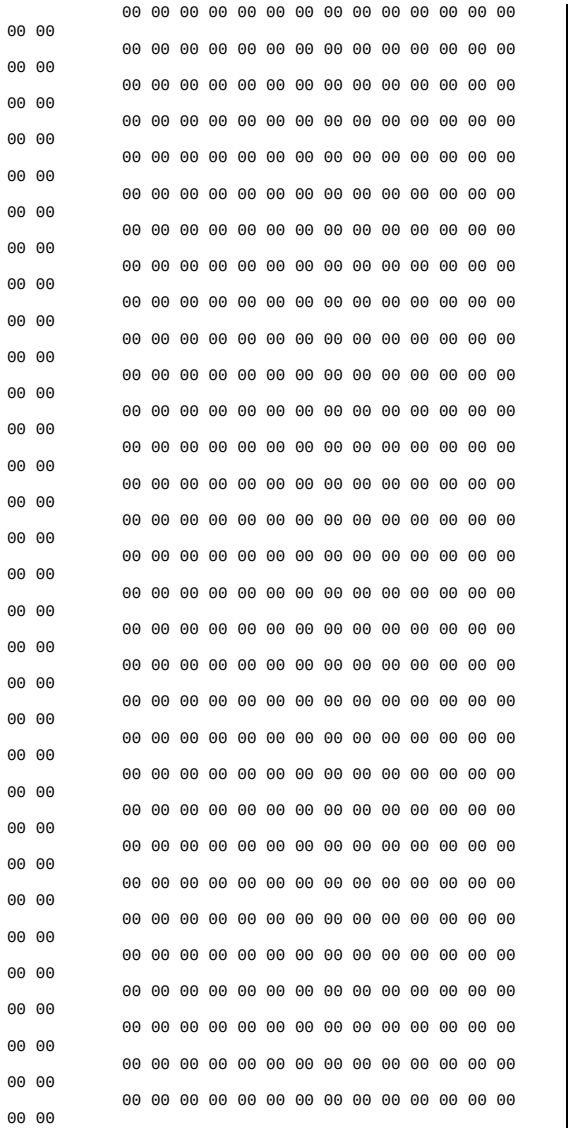

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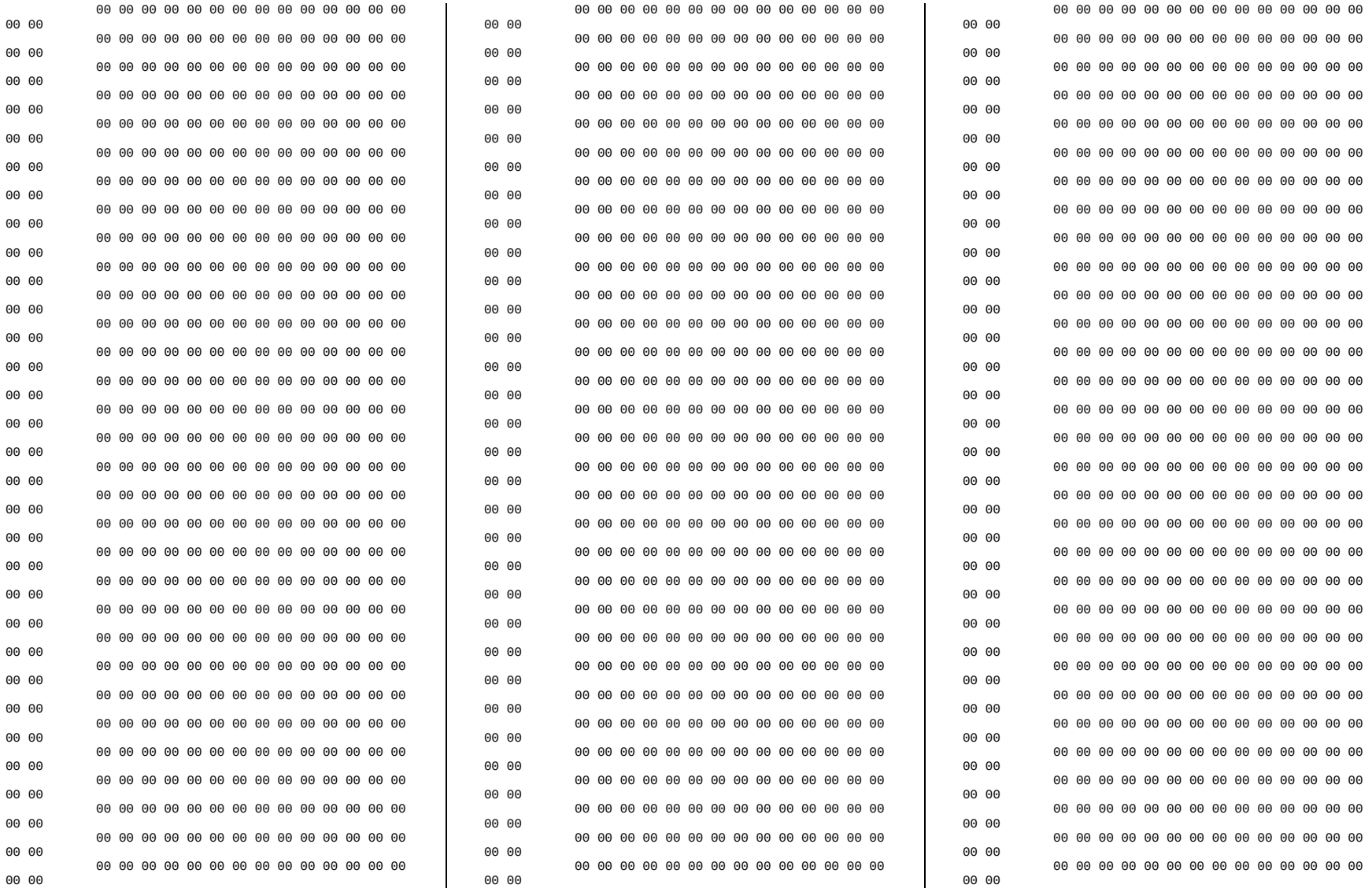

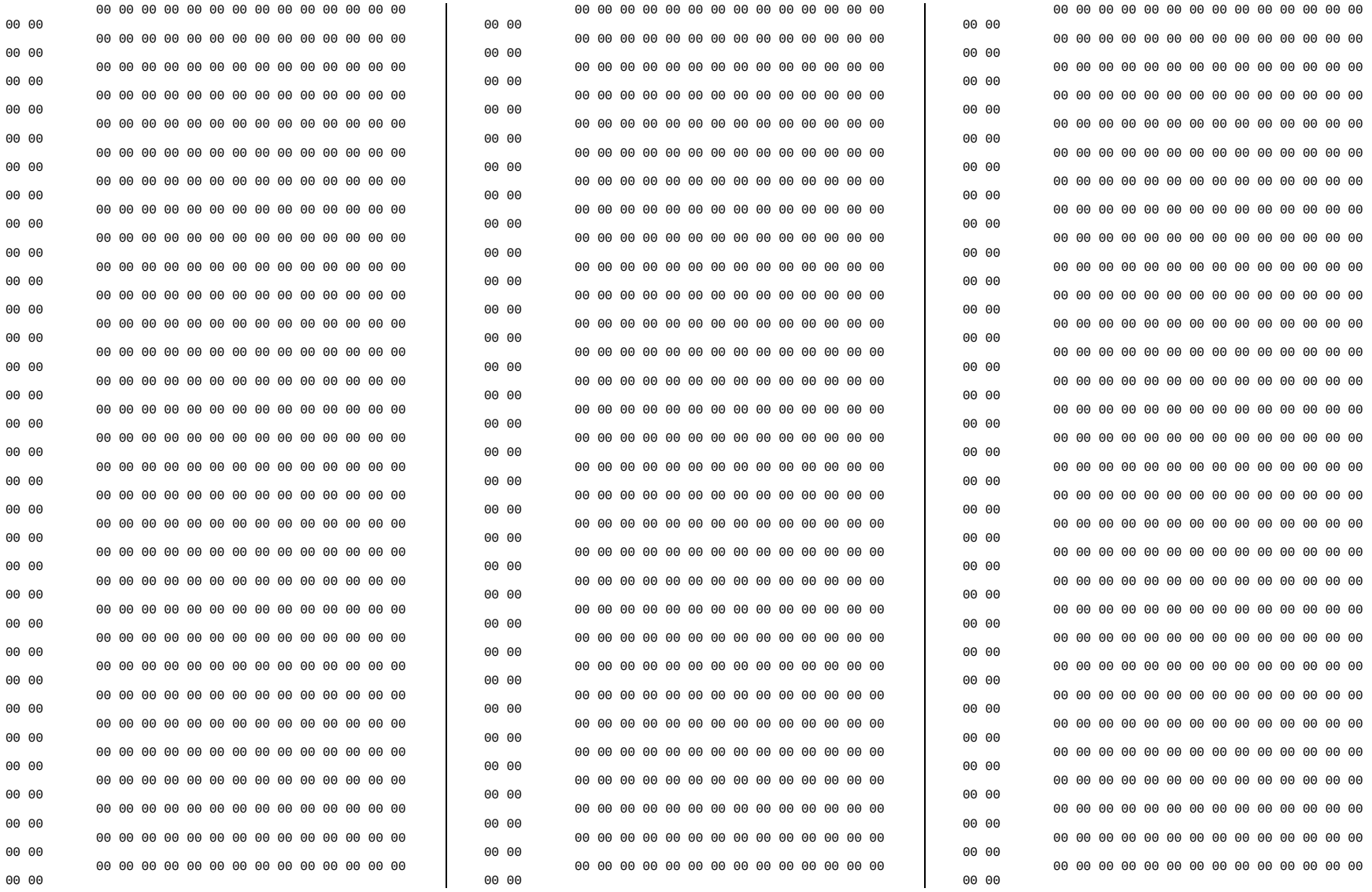

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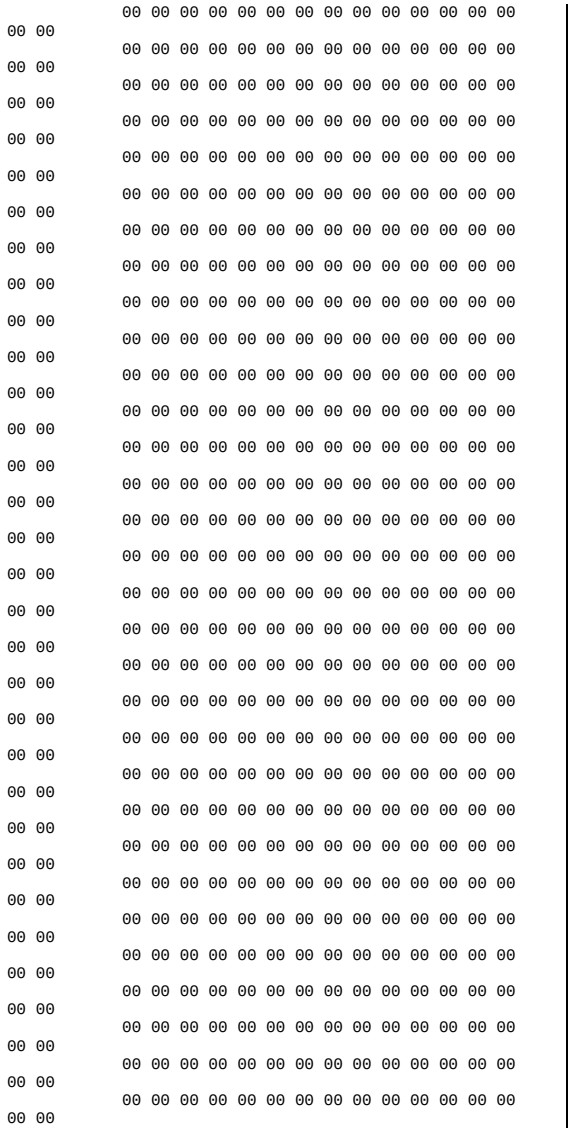

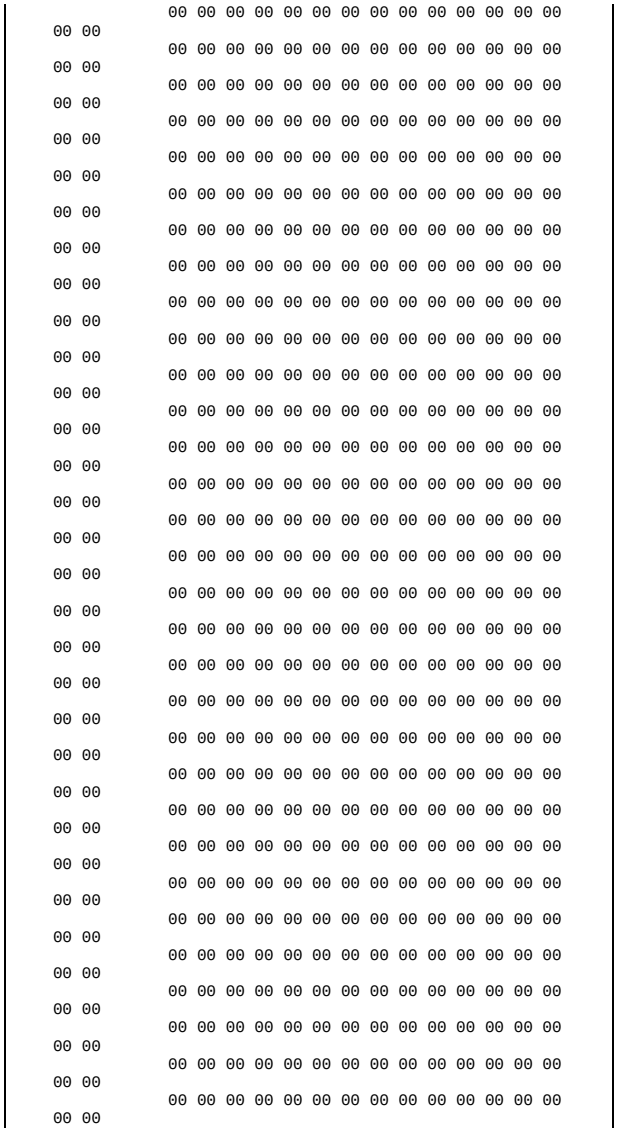

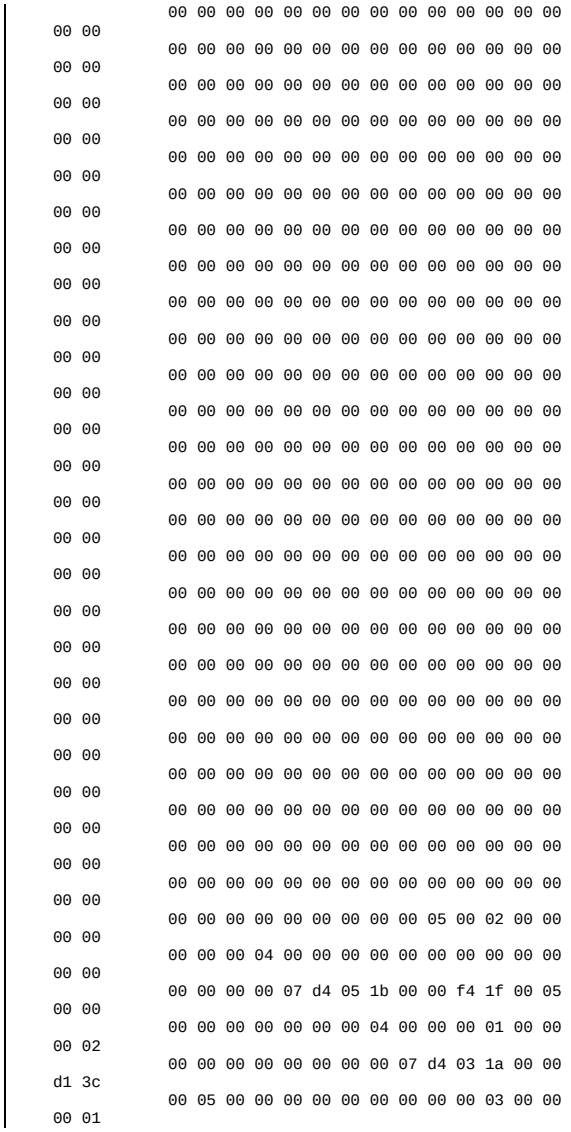

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      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 2:
      RIS drive: 0x2
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 3:
      RIS drive: 0x3
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 4:
      RIS drive: 0x4
      RIS Copy 0:  Same as above.
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   SCSI Port 1, Drive ID 5:
      RIS drive: 0x5
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      RIS Copy 1:  Same as above.
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connected.
   SCSI Port 1, Drive ID 7:  Physical drive not
connected.
   SCSI Port 1, Drive ID 8:
      RIS drive: 0x8
      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
   SCSI Port 1, Drive ID 9:
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      RIS Copy 0:  Same as above.
      RIS Copy 1:  Same as above.
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   SCSI Port 1, Drive ID 11:
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      RIS Copy 1:  Same as above.
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Processor information

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processor : 0
vendor_id : GenuineIntel
cpu family          : 15
model               : 2
model name          : Intel(R) Xeon(TM) CPU 3.06GHz
stepping  : 7
cpu MHz             : 3057.294
cache size          : 512 KB
physical id         : 3
siblings  : 2
fdiv_bug  : no
hlt_bug             : no
f00f_bug  : no
coma_bug  : no
fpu                 : yes
fpu_exception       : yes
cpuid level         : 2
wp                  : yes
flags               : fpu vme de pse tsc msr pae mce
cx8 apic sep mtrr pge mca cmov pat pse36 clflush dts
acpi mmx fxsr sse sse2 ss ht tm pbe cid
bogomips  : 6062.08

processor : 1
vendor_id : GenuineIntel
cpu family          : 15
model               : 2
model name          : Intel(R) Xeon(TM) CPU 3.06GHz
stepping  : 7
cpu MHz             : 3057.294
cache size          : 512 KB
physical id         : 3
siblings  : 2
fdiv_bug  : no
hlt_bug             : no
f00f_bug  : no
coma_bug  : no
fpu                 : yes
fpu_exception       : yes
cpuid level         : 2
wp                  : yes
flags               : fpu vme de pse tsc msr pae mce
cx8 apic sep mtrr pge mca cmov pat pse36 clflush dts
acpi mmx fxsr sse sse2 ss ht tm pbe cid
bogomips  : 6111.23
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Memory information

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MemTotal:      3978240 kB
MemFree:       1188332 kB
Buffers:          5108 kB
Cached:          17944 kB
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SwapCached:          0 kB
Active:          16860 kB
Inactive:        10684 kB
HighTotal:     3096552 kB
HighFree:       344896 kB
LowTotal:       881688 kB
LowFree:        843436 kB
SwapTotal:     1052248 kB
SwapFree:      1052248 kB
Dirty:               8 kB
Writeback:           0 kB
Mapped:           8368 kB
Slab:            23052 kB
Committed_AS:     8032 kB
PageTables:        220 kB
VmallocTotal:   114680 kB
VmallocUsed:     12904 kB
VmallocChunk:   101368 kB
HugePages_Total:   665
HugePages_Free:    665
Hugepagesize:     4096 kB
```

Boot configuration

```
#! /bin/sh
#
# Copyright (c) 2002 SuSE Linux AG Nuernberg,
Germany.  All rights reserved.
#
# Author: Werner Fink <werner@suse.de>, 1996
#         Burchard Steinbild, 1996
#
# /etc/init.d/boot.local
#
# script with local commands to be executed from init
on system startup
#
# Here you should add things, that should happen
directly after booting
# before we're going to the first run level.
#
/dev/db2/raw_dev.sh
/dev/db2/flat.sh
#smpppd
#pppd ttyS0 192.168.1.1:192.168.1.2 persist &
sysctl -w vm.nr_hugepages=665
/root/bin/netcfg.sh
insmod /lib/modules/`uname -
r`/kernel/drivers/net/tg3.ko
```

Priority settings

```
setsched -p 60 $1
```

Network settings

```
#!/bin/bash

echo 0 > /proc/sys/net/ipv4/tcp_sack
echo 0 > /proc/sys/net/ipv4/tcp_timestamps
#echo "32768 65536 174760" >
/proc/sys/net/ipv4/tcp_rmem
#echo "32768 65536 131072" >
/proc/sys/net/ipv4/tcp_wmem

#Affinitize IRQs

# cciss2
echo 2 > /proc/irq/24/smp_affinity

# cciss0
echo 2 > /proc/irq/26/smp_affinity
```

Raw device mapping

```
raw /dev/raw/raw1 /dev/cciss/c0d0
raw /dev/raw/raw2 /dev/cciss/c0d1
raw /dev/raw/raw3 /dev/cciss/c0d2
raw /dev/raw/raw4 /dev/cciss/c0d3
raw /dev/raw/raw5 /dev/cciss/c0d4
raw /dev/raw/raw6 /dev/cciss/c0d5
raw /dev/raw/raw7 /dev/cciss/c0d6
raw /dev/raw/raw8 /dev/cciss/c0d7
raw /dev/raw/raw9 /dev/cciss/c0d8
raw /dev/raw/raw10 /dev/cciss/c1d0
raw /dev/raw/raw11 /dev/cciss/c1d1
raw /dev/raw/raw12 /dev/cciss/c2d3
raw /dev/raw/raw13 /dev/cciss/c2d0
raw /dev/raw/raw14 /dev/cciss/c2d1
raw /dev/raw/raw15 /dev/cciss/c2d2
```

Backup mounts

```
mount /dev/cciss/c1d3p1 /flat
mount /dev/cciss/c2d4p1 /flat1
```

Client Summary

```
System Information report written at: 06/24/2004
09:21:23 AM

[System Information]

[ Following are sub-categories of this main category
]

[System Summary]

Item      Value
OS Name   Microsoft Windows 2000 Server
Version   5.0.2195  Build 2195
OS Manufacturer     Microsoft Corporation
System Name         DANI1
System Manufacturer Hewlett-Packard
System Model        HP ProLiant
System Type         X86-based PC
Processor x86 Family 15 Model 2 Stepping 9
GenuineIntel ~38027 Mhz
Processor x86 Family 15 Model 2 Stepping 9
GenuineIntel ~38027 Mhz
BIOS Version        PhoenixBIOS 4.0 Release 6.0
Windows Directory   C:\WINNT
System Directory    C:\WINNT\System32
Boot Device         \Device\Harddisk0\Partition1
Locale    United States
User Name DANI1\db2admin
Time Zone Central Daylight Time
Total Physical Memory         785,388 KB
Available Physical Memory     696,252 KB
Total Virtual Memory          2,313,108 KB
Available Virtual Memory      2,170,804 KB
Page File Space     1,527,720 KB
Page File C:\pagefile.sys

[Hardware Resources]

[ Following are sub-categories of this main category
]

[Conflicts/Sharing]

Resource  Device
IRQ 16    Standard Universal PCI to USB Host
Controller
IRQ 16    ATI Technologies Inc. RAGE XL PCI

[DMA]

Channel   Device    Status
4         Direct memory access controller         OK
2         Standard floppy disk controller         OK
1         ECP Printer Port (LPT1)       OK

[Forced Hardware]

Device    PNP Device ID
No Forced Hardware

[I/O]

Address Range       Device    Status
0x0000-0x0CF7       PCI bus   OK
0x0000-0x0CF7       Direct memory access controller
          OK
```

```
0x0D00-0xFFFF       PCI bus   OK
0x1400-0x141F       Standard Universal PCI to USB
Host Controller     OK
0x1420-0x143F       Standard Universal PCI to USB
Host Controller     OK
0x2000-0x20FF       ATI Technologies Inc. RAGE XL PCI
          OK
0x03B0-0x03BB       ATI Technologies Inc. RAGE XL PCI
          OK
0x03C0-0x03DF       ATI Technologies Inc. RAGE XL PCI
          OK
0x0A79-0x0A79       ISAPNP Read Data Port         OK
0x0279-0x0279       ISAPNP Read Data Port         OK
0x0274-0x0277       ISAPNP Read Data Port         OK
0x0010-0x001F       Motherboard resources         OK
0x0024-0x0025       Motherboard resources         OK
0x0028-0x0029       Motherboard resources         OK
0x002C-0x002D       Motherboard resources         OK
0x0030-0x0031       Motherboard resources         OK
0x0034-0x0035       Motherboard resources         OK
0x0038-0x0039       Motherboard resources         OK
0x003C-0x003D       Motherboard resources         OK
0x0050-0x0053       Motherboard resources         OK
0x0050-0x0053       System timer        OK
0x0072-0x0077       Motherboard resources         OK
0x0080-0x0080       Motherboard resources         OK
0x0090-0x009F       Motherboard resources         OK
0x00A4-0x00A5       Motherboard resources         OK
0x00A8-0x00A9       Motherboard resources         OK
0x00AC-0x00AD       Motherboard resources         OK
0x00B0-0x00B5       Motherboard resources         OK
0x00B8-0x00B9       Motherboard resources         OK
0x00BC-0x00BD       Motherboard resources         OK
0x1000-0x107F       Motherboard resources         OK
0x1180-0x11BF       Motherboard resources         OK
0x002E-0x002F       Motherboard resources         OK
0x004E-0x004F       Motherboard resources         OK
0x04D0-0x04D1       Motherboard resources         OK
0x0500-0x057F       Motherboard resources         OK
0xFE00-0xFE00       Motherboard resources         OK
0x0081-0x008F       Direct memory access controller
          OK
0x00C0-0x00DF       Direct memory access controller
          OK
0x00F0-0x00FE       Numeric data processor        OK
0x0020-0x0021       Programmable interrupt controller
          OK
0x00A0-0x00A1       Programmable interrupt controller
          OK
0x0070-0x0071       System CMOS/real time clock   OK
0x0061-0x0061       System speaker      OK
0x0040-0x0043       System timer        OK
0x0060-0x0060       Standard 101/102-Key or Microsoft
Natural PS/2 Keyboard         OK
0x0064-0x0064       Standard 101/102-Key or Microsoft
Natural PS/2 Keyboard         OK
0x03F0-0x03F5       Standard floppy disk controller
          OK
0x03F7-0x03F7       Standard floppy disk controller
          OK
0x03F8-0x03FF       Communications Port (COM1)    OK
0x0378-0x037F       ECP Printer Port (LPT1)       OK
0x0778-0x077F       ECP Printer Port (LPT1)       OK
0x1460-0x146F       Standard Dual Channel PCI IDE
Controller          OK
0x01F0-0x01F7       Primary IDE Channel OK
0x03F6-0x03F6       Primary IDE Channel OK
0x0170-0x0177       Secondary IDE Channel         OK
0x0376-0x0376       Secondary IDE Channel         OK
0x1440-0x145F       PCI Device          OK

[IRQs]

IRQ Number          Device
9         Microsoft ACPI-Compliant System
26        HP NC1020 ProLiant Gigabit Server Adapter
32 PCI #2
16        Standard Universal PCI to USB Host
Controller
16        ATI Technologies Inc. RAGE XL PCI
19        Standard Universal PCI to USB Host
Controller
17        Broadcom NetXtreme Gigabit Ethernet
13        Numeric data processor
8         System CMOS/real time clock
1         Standard 101/102-Key or Microsoft Natural
PS/2 Keyboard
12        PS/2 Compatible Mouse
6         Standard floppy disk controller
4         Communications Port (COM1)
14        Primary IDE Channel
15        Secondary IDE Channel
10        PCI Device

[Memory]

Range     Device    Status
0xA0000-0xBFFFF     PCI bus   OK
0xA0000-0xBFFFF     ATI Technologies Inc. RAGE XL PCI
          OK
0xCC000-0xCFFFF     PCI bus   OK
0xD0000-0xD3FFF     PCI bus   OK
0xD4000-0xD7FFF     PCI bus   OK
0x2FF80000-0xFEBFFFFF         PCI bus   OK
0xFED20000-0xFED8FFFF         PCI bus   OK
0xE8100000-0xE81FFFFF         PCI standard PCI-to-PCI
bridge    OK
0xE8100000-0xE81FFFFF         HP NC1020 ProLiant
Gigabit Server Adapter 32 PCI #2        OK
0xE8000000-0xE800000F         Base System Device  OK
0xE9000000-0xE9FFFFFF         ATI Technologies Inc.
RAGE XL PCI         OK
0xE8210000-0xE8210FFF         ATI Technologies Inc.
RAGE XL PCI         OK
0xE8200000-0xE820FFFF         Broadcom NetXtreme
Gigabit Ethernet    OK
0xFECF0000-0xFECFFFFF         Motherboard resources
          OK
0xFF800000-0xFFFFFFFF         Intel(r) 82802 Firmware
Hub Device          OK
0xFED8FC00-0xFED8FFFF         Standard Dual Channel
PCI IDE Controller  OK

[Components]

[ Following are sub-categories of this main category
]

[Multimedia]

[ Following are sub-categories of this main category
]

[Audio Codecs]

Codec     Manufacturer        Description
          Status    File      Version   Size
          Creation Date
c:\winnt\system32\iac25_32.ax Intel Corporation
          Indeo® audio software         OK
          C:\WINNT\System32\IAC25_32.AX 2.05.53
          195.00 KB (199,680 bytes)     12/7/1999
7:00:00 AM
c:\winnt\system32\msg723.acm  Microsoft Corporation
                    OK
          C:\WINNT\System32\MSG723.ACM  4.4.3385
          106.77 KB (109,328 bytes)     11/4/2003
3:52:22 PM
c:\winnt\system32\lhacm.acm   Microsoft Corporation
                    OK
          C:\WINNT\System32\LHACM.ACM   4.4.3385
          33.27 KB (34,064 bytes)       11/4/2003
3:52:22 PM
c:\winnt\system32\msg711.acm  Microsoft Corporation
                    OK
          C:\WINNT\System32\MSG711.ACM  5.00.2134.1
          10.27 KB (10,512 bytes)       12/7/1999
7:00:00 AM
c:\winnt\system32\tssoft32.acm          DSP GROUP,
INC.                OK
          C:\WINNT\System32\TSSOFT32.ACM
          1.01      9.27 KB (9,488 bytes)
          12/7/1999 7:00:00 AM
c:\winnt\system32\msgsm32.acm Microsoft Corporation
                    OK
          C:\WINNT\System32\MSGSM32.ACM 5.00.2134.1
          22.27 KB (22,800 bytes)       12/7/1999
7:00:00 AM
c:\winnt\system32\msadp32.acm Microsoft Corporation
                    OK
          C:\WINNT\System32\MSADP32.ACM 5.00.2134.1
          14.77 KB (15,120 bytes)       12/7/1999
7:00:00 AM
c:\winnt\system32\imaadp32.acm          Microsoft
Corporation               OK
          C:\WINNT\System32\IMAADP32.ACM
          5.00.2134.1         16.27 KB (16,656 bytes)
          12/7/1999 7:00:00 AM

[Video Codecs]

Codec     Manufacturer        Description
          Status    File      Version   Size
          Creation Date
c:\winnt\system32\ir50_32.dll Intel Corporation
          Indeo® video 5.10   OK
          C:\WINNT\System32\IR50_32.DLL
```

```
         R.5.10.15.2.55      737.50 KB (755,200
bytes)    12/7/1999 7:00:00 AM
c:\winnt\system32\msh261.drv  Microsoft Corporation
                  OK
         C:\WINNT\System32\MSH261.DRV  4.4.3385
         163.77 KB (167,696 bytes)     11/4/2003
3:52:22 PM
c:\winnt\system32\msh263.drv  Microsoft Corporation
                  OK
         C:\WINNT\System32\MSH263.DRV  4.4.3385
         252.27 KB (258,320 bytes)     11/4/2003
3:51:55 PM
c:\winnt\system32\iccvid.dll  Radius Inc.
         OK        C:\WINNT\System32\ICCVID.DLL
         1.10.0.6  108.00 KB (110,592 bytes)
         12/7/1999 7:00:00 AM
c:\winnt\system32\msvidc32.dll          Microsoft
Corporation                  OK
         C:\WINNT\System32\MSVIDC32.DLL
         5.00.2134.1         27.27 KB (27,920 bytes)
         12/7/1999 7:00:00 AM
c:\winnt\system32\ir32_32.dll Intel(R) Corporation
                  OK
         C:\WINNT\System32\IR32_32.DLL Not Available
         194.50 KB (199,168 bytes)     12/7/1999
7:00:00 AM
c:\winnt\system32\msrle32.dll Microsoft Corporation
                  OK
         C:\WINNT\System32\MSRLE32.DLL 5.00.2134.1
         10.77 KB (11,024 bytes)       12/7/1999
7:00:00 AM

[CD-ROM]

Item      Value
Drive     D:
Description         CD-ROM Drive
Media Loaded        False
Media Type          CD-ROM
Name      HL-DT-ST CD-ROM GCR-8482B
Manufacturer        (Standard CD-ROM drives)
Status    OK
Transfer Rate       Not Available
SCSI Target ID      0
PNP Device ID       IDE\CDROMHL-DT-ST_CD-ROM_GCR-
8482B_____________2.05____\5&3E93CC1&0&0.0.0


[Sound Device]

Item      Value
No sound devices

[Display]

Item      Value
Name      ATI Technologies Inc. RAGE XL PCI
PNP Device ID
         PCI\VEN_1002&DEV_4752&SUBSYS_8008103C&REV_2
7\4&4272479&0&18F0
Adapter Type        ATI RAGE XL PCI, ATI Technologies
Inc. compatible
Adapter Description ATI Technologies Inc. RAGE XL PCI
Adapter RAM         8.00 MB (8,388,608 bytes)
Installed Drivers   atidrab.dll
Driver Version      5.00.2179.1
INF File  display.inf (atirage3 section)
Color Planes        1
Color Table Entries 256
Resolution          800 x 600 x 60 hertz
Bits/Pixel          8


[Infrared]

Item      Value
No infrared devices

[Input]

[ Following are sub-categories of this main category
]

[Keyboard]

Item      Value
Description         Standard 101/102-Key or Microsoft
Natural PS/2 Keyboard
Name      Enhanced (101- or 102-key)
Layout    00000409
PNP Device ID       ACPI\PNP0303\4&5DA9E87&0
NumberOfFunctionKeys          12


[Pointing Device]

Item      Value
Hardware Type       PS/2 Compatible Mouse
Number of Buttons   5
Status    OK
PNP Device ID       ACPI\PNP0F13\4&5DA9E87&0
Power Management Supported    False
Double Click Threshold        6
Handedness          Right Handed Operation


[Modem]

Item      Value
No modems

[Network]

[ Following are sub-categories of this main category
]

[Adapter]

Item      Value
Name      [00000000] RAS Async Adapter
Adapter Type        Not Available
Product Name        RAS Async Adapter
Installed True
PNP Device ID       Not Available
Last Reset          6/23/2004 9:37:29 AM
Index     0
Service Name        AsyncMac
IP Address          Not Available
IP Subnet Not Available
Default IP Gateway  Not Available
DHCP Enabled        False
DHCP Server         Not Available
DHCP Lease Expires  Not Available
DHCP Lease Obtained Not Available
MAC Address         Not Available
Service Name        Not Available

Name      [00000001] WAN Miniport (L2TP)
Adapter Type        Not Available
Product Name        WAN Miniport (L2TP)
Installed True
PNP Device ID       ROOT\MS_L2TPMINIPORT\0000
Last Reset          6/23/2004 9:37:29 AM
Index     1
Service Name        Rasl2tp
IP Address          Not Available
IP Subnet Not Available
Default IP Gateway  Not Available
DHCP Enabled        False
DHCP Server         Not Available
DHCP Lease Expires  Not Available
DHCP Lease Obtained Not Available
MAC Address         Not Available
Service Name        Rasl2tp
Driver    c:\winnt\system32\drivers\rasl2tp.sys
(50800, 5.00.2179.1)

Name      [00000002] WAN Miniport (PPTP)
Adapter Type        Wide Area Network (WAN)
Product Name        WAN Miniport (PPTP)
Installed True
PNP Device ID       ROOT\MS_PPTPMINIPORT\0000
Last Reset          6/23/2004 9:37:29 AM
Index     2
Service Name        PptpMiniport
IP Address          Not Available
IP Subnet Not Available
Default IP Gateway  Not Available
DHCP Enabled        False
DHCP Server         Not Available
DHCP Lease Expires  Not Available
DHCP Lease Obtained Not Available
MAC Address         50:50:54:50:30:30
Service Name        PptpMiniport
Driver    c:\winnt\system32\drivers\raspptp.sys
(47856, 5.00.2160.1)

Name      [00000003] Direct Parallel
Adapter Type        Not Available
Product Name        Direct Parallel
Installed True
PNP Device ID       ROOT\MS_PTIMINIPORT\0000
Last Reset          6/23/2004 9:37:29 AM
Index     3
Service Name        Raspti
IP Address          Not Available
IP Subnet Not Available
Default IP Gateway  Not Available
DHCP Enabled        False
```

```
DHCP Server         Not Available
DHCP Lease Expires  Not Available
DHCP Lease Obtained Not Available
MAC Address         Not Available
Service Name        Raspti
Driver    c:\winnt\system32\drivers\raspti.sys
(16880, 5.00.2146.1)

Name      [00000004] WAN Miniport (IP)
Adapter Type        Not Available
Product Name        WAN Miniport (IP)
Installed True
PNP Device ID       ROOT\MS_NDISWANIP\0000
Last Reset          6/23/2004 9:37:29 AM
Index     4
Service Name        NdisWan
IP Address          Not Available
IP Subnet Not Available
Default IP Gateway  Not Available
DHCP Enabled        False
DHCP Server         Not Available
DHCP Lease Expires  Not Available
DHCP Lease Obtained Not Available
MAC Address         Not Available
Service Name        NdisWan
Driver    c:\winnt\system32\drivers\ndiswan.sys
(90768, 5.00.2184.1)

Name      [00000005] HP NC7760 Gigabit Server Adapter
Adapter Type        Not Available
Product Name        HP NC7760 Gigabit Server Adapter
Installed True
PNP Device ID       Not Available
Last Reset          6/23/2004 9:37:29 AM
Index     5
Service Name        q57w2k
IP Address          130.168.211.51
IP Subnet 255.255.0.0
Default IP Gateway  Not Available
DHCP Enabled        False
DHCP Server         Not Available
DHCP Lease Expires  Not Available
DHCP Lease Obtained Not Available
MAC Address         00:0D:9D:FE:1B:4B
Service Name        Not Available

Name      [00000006] HP NC7770 Gigabit Server Adapter
Adapter Type        Not Available
Product Name        HP NC7770 Gigabit Server Adapter
Installed True
PNP Device ID       Not Available
Last Reset          6/23/2004 9:37:29 AM
Index     6
Service Name        q57w2k
IP Address          130.172.211.51
IP Subnet 255.255.0.0
Default IP Gateway  Not Available
DHCP Enabled        False
DHCP Server         Not Available
DHCP Lease Expires  Not Available
DHCP Lease Obtained Not Available
MAC Address         00:0B:CD:E7:00:97
Service Name        Not Available

Name      [00000007] HP NC1020 ProLiant Gigabit
Server Adapter 32 PCI
Adapter Type        Not Available
Product Name        HP NC1020 ProLiant Gigabit Server
Adapter 32 PCI
Installed True
PNP Device ID       Not Available
Last Reset          6/23/2004 9:37:29 AM
Index     7
Service Name        q57w2k
IP Address          130.172.211.51
IP Subnet 255.255.0.0
Default IP Gateway  Not Available
DHCP Enabled        False
DHCP Server         Not Available
DHCP Lease Expires  Not Available
DHCP Lease Obtained Not Available
MAC Address         00:0B:CD:E7:00:97
Service Name        Not Available

Name      [00000008] HP NC1020 ProLiant Gigabit
Server Adapter 32 PCI
Adapter Type        Ethernet 802.3
Product Name        HP NC1020 ProLiant Gigabit Server
Adapter 32 PCI
Installed True
PNP Device ID
          PCI\VEN_14E4&DEV_1654&SUBSYS_3100103C&REV_0
3\4&EAD376F&0&08E0
Last Reset          6/23/2004 9:37:29 AM
Index     8
Service Name        q57w2k
IP Address          130.168.211.51
IP Subnet 255.255.0.0
Default IP Gateway  Not Available
DHCP Enabled        False
DHCP Server         Not Available
DHCP Lease Expires  Not Available
DHCP Lease Obtained Not Available
MAC Address         00:0D:9D:FE:1B:4B
Service Name        q57w2k
IRQ Number          26
Driver    c:\winnt\system32\drivers\q57w2k.sys
(113988, 7.35.0.0)

Name      [00000009] Broadcom NetXtreme Gigabit
Ethernet
Adapter Type        Ethernet 802.3
Product Name        Broadcom NetXtreme Gigabit
Ethernet
Installed True
PNP Device ID
          PCI\VEN_14E4&DEV_1654&SUBSYS_1654103C&REV_0
3\4&4272479&0&20F0
Last Reset          6/23/2004 9:37:29 AM
Index     9
Service Name        b57w2k
IP Address          130.172.211.51
IP Subnet 255.255.0.0
Default IP Gateway  Not Available
DHCP Enabled        False
DHCP Server         Not Available
DHCP Lease Expires  Not Available
DHCP Lease Obtained Not Available
MAC Address         00:0B:CD:E7:00:97
Service Name        b57w2k
IRQ Number          17
Driver    c:\winnt\system32\drivers\b57w2k.sys
(114002, 7.33.0.0)


[Protocol]

Item      Value
Name      MSAFD Tcpip [TCP/IP]
ConnectionlessService          False
GuaranteesDelivery  True
GuaranteesSequencing           True
MaximumAddressSize  16 bytes
MaximumMessageSize  0 bytes
MessageOriented     False
MinimumAddressSize  16 bytes
PseudoStreamOriented           False
SupportsBroadcasting           False
SupportsConnectData False
SupportsDisconnectData         False
SupportsEncryption  False
SupportsExpeditedData          True
SupportsGracefulClosing        True
SupportsGuaranteedBandwidth    False
SupportsMulticasting           False

Name      MSAFD Tcpip [UDP/IP]
ConnectionlessService          True
GuaranteesDelivery  False
GuaranteesSequencing           False
MaximumAddressSize  16 bytes
MaximumMessageSize  65467 bytes
MessageOriented     True
MinimumAddressSize  16 bytes
PseudoStreamOriented           False
SupportsBroadcasting           True
SupportsConnectData False
SupportsDisconnectData         False
SupportsEncryption  False
SupportsExpeditedData          False
SupportsGracefulClosing        False
SupportsGuaranteedBandwidth    False
SupportsMulticasting           True

Name      RSVP UDP Service Provider
ConnectionlessService          True
GuaranteesDelivery  False
GuaranteesSequencing           False
MaximumAddressSize  16 bytes
MaximumMessageSize  65467 bytes
MessageOriented     True
MinimumAddressSize  16 bytes
PseudoStreamOriented           False
SupportsBroadcasting           True
SupportsConnectData False
SupportsDisconnectData         False
SupportsEncryption  True
SupportsExpeditedData          False
SupportsGracefulClosing        False
```

```
SupportsGuaranteedBandwidth   False
SupportsMulticasting          True

Name      RSVP TCP Service Provider
ConnectionlessService         False
GuaranteesDelivery  True
GuaranteesSequencing          True
MaximumAddressSize  16 bytes
MaximumMessageSize  0 bytes
MessageOriented     False
MinimumAddressSize  16 bytes
PseudoStreamOriented          False
SupportsBroadcasting          False
SupportsConnectData False
SupportsDisconnectData        False
SupportsEncryption  True
SupportsExpeditedData         True
SupportsGracefulClosing       True
SupportsGuaranteedBandwidth   False
SupportsMulticasting          False

Name      MSAFD NetBIOS
[\Device\NetBT_Tcpip_{AD227800-8A32-40D0-AD80-
2248D649EF5A}] SEQPACKET 6
ConnectionlessService         False
GuaranteesDelivery  True
GuaranteesSequencing          True
MaximumAddressSize  20 bytes
MaximumMessageSize  64000 bytes
MessageOriented     True
MinimumAddressSize  20 bytes
PseudoStreamOriented          False
SupportsBroadcasting          False
SupportsConnectData False
SupportsDisconnectData        False
SupportsEncryption  False
SupportsExpeditedData         False
SupportsGracefulClosing       False
SupportsGuaranteedBandwidth   False
SupportsMulticasting          False

Name      MSAFD NetBIOS
[\Device\NetBT_Tcpip_{AD227800-8A32-40D0-AD80-
2248D649EF5A}] DATAGRAM 6
ConnectionlessService         True
GuaranteesDelivery  False
GuaranteesSequencing          False
MaximumAddressSize  20 bytes
MaximumMessageSize  64000 bytes
MessageOriented     True
MinimumAddressSize  20 bytes
PseudoStreamOriented          False
SupportsBroadcasting          True
SupportsConnectData False
SupportsDisconnectData        False
SupportsEncryption  False
SupportsExpeditedData         False
SupportsGracefulClosing       False
SupportsGuaranteedBandwidth   False
SupportsMulticasting          False
```

```
Name      MSAFD NetBIOS
[\Device\NetBT_Tcpip_{6BA029D4-7A0F-476A-9B84-
B5290634DF2B}] SEQPACKET 5
ConnectionlessService         False
GuaranteesDelivery  True
GuaranteesSequencing          True
MaximumAddressSize  20 bytes
MaximumMessageSize  64000 bytes
MessageOriented     True
MinimumAddressSize  20 bytes
PseudoStreamOriented          False
SupportsBroadcasting          False
SupportsConnectData False
SupportsDisconnectData        False
SupportsEncryption  False
SupportsExpeditedData         False
SupportsGracefulClosing       False
SupportsGuaranteedBandwidth   False
SupportsMulticasting          False

Name      MSAFD NetBIOS
[\Device\NetBT_Tcpip_{6BA029D4-7A0F-476A-9B84-
B5290634DF2B}] DATAGRAM 5
ConnectionlessService         True
GuaranteesDelivery  False
GuaranteesSequencing          False
MaximumAddressSize  20 bytes
MaximumMessageSize  64000 bytes
MessageOriented     True
MinimumAddressSize  20 bytes
PseudoStreamOriented          False
SupportsBroadcasting          True
SupportsConnectData False
SupportsDisconnectData        False
SupportsEncryption  False
SupportsExpeditedData         False
SupportsGracefulClosing       False
SupportsGuaranteedBandwidth   False
SupportsMulticasting          False

Name      MSAFD NetBIOS
[\Device\NetBT_Tcpip_{840AB487-AC33-4DDC-B8D2-
99FA04167681}] SEQPACKET 4
ConnectionlessService         False
GuaranteesDelivery  True
GuaranteesSequencing          True
MaximumAddressSize  20 bytes
MaximumMessageSize  64000 bytes
MessageOriented     True
MinimumAddressSize  20 bytes
PseudoStreamOriented          False
SupportsBroadcasting          False
SupportsConnectData False
SupportsDisconnectData        False
SupportsEncryption  False
SupportsExpeditedData         False
SupportsGracefulClosing       False
SupportsGuaranteedBandwidth   False
SupportsMulticasting          False

Name      MSAFD NetBIOS
[\Device\NetBT_Tcpip_{840AB487-AC33-4DDC-B8D2-
99FA04167681}] DATAGRAM 4
```

```
ConnectionlessService         True
GuaranteesDelivery  False
GuaranteesSequencing          False
MaximumAddressSize  20 bytes
MaximumMessageSize  64000 bytes
MessageOriented     True
MinimumAddressSize  20 bytes
PseudoStreamOriented          False
SupportsBroadcasting          True
SupportsConnectData False
SupportsDisconnectData        False
SupportsEncryption  False
SupportsExpeditedData         False
SupportsGracefulClosing       False
SupportsGuaranteedBandwidth   False
SupportsMulticasting          False

Name      MSAFD NetBIOS
[\Device\NetBT_Tcpip_{7539192D-A8F8-41BC-801A-
CD456BACD8A6}] SEQPACKET 3
ConnectionlessService         False
GuaranteesDelivery  True
GuaranteesSequencing          True
MaximumAddressSize  20 bytes
MaximumMessageSize  64000 bytes
MessageOriented     True
MinimumAddressSize  20 bytes
PseudoStreamOriented          False
SupportsBroadcasting          False
SupportsConnectData False
SupportsDisconnectData        False
SupportsEncryption  False
SupportsExpeditedData         False
SupportsGracefulClosing       False
SupportsGuaranteedBandwidth   False
SupportsMulticasting          False

Name      MSAFD NetBIOS
[\Device\NetBT_Tcpip_{7539192D-A8F8-41BC-801A-
CD456BACD8A6}] DATAGRAM 3
ConnectionlessService         True
GuaranteesDelivery  False
GuaranteesSequencing          False
MaximumAddressSize  20 bytes
MaximumMessageSize  64000 bytes
MessageOriented     True
MinimumAddressSize  20 bytes
PseudoStreamOriented          False
SupportsBroadcasting          True
SupportsConnectData False
SupportsDisconnectData        False
SupportsEncryption  False
SupportsExpeditedData         False
SupportsGracefulClosing       False
SupportsGuaranteedBandwidth   False
SupportsMulticasting          False

Name      MSAFD NetBIOS
[\Device\NetBT_Tcpip_{DA510AFB-85A5-43A9-96B3-
AE71EE2D5DD7}] SEQPACKET 0
ConnectionlessService         False
GuaranteesDelivery  True
GuaranteesSequencing          True
```

```
MaximumAddressSize  20 bytes
MaximumMessageSize  64000 bytes
MessageOriented     True
MinimumAddressSize  20 bytes
PseudoStreamOriented          False
SupportsBroadcasting          False
SupportsConnectData False
SupportsDisconnectData        False
SupportsEncryption  False
SupportsExpeditedData         False
SupportsGracefulClosing       False
SupportsGuaranteedBandwidth   False
SupportsMulticasting          False

Name      MSAFD NetBIOS
[\Device\NetBT_Tcpip_{DA510AFB-85A5-43A9-96B3-
AE71EE2D5DD7}] DATAGRAM 0
ConnectionlessService         True
GuaranteesDelivery  False
GuaranteesSequencing          False
MaximumAddressSize  20 bytes
MaximumMessageSize  64000 bytes
MessageOriented     True
MinimumAddressSize  20 bytes
PseudoStreamOriented          False
SupportsBroadcasting          True
SupportsConnectData False
SupportsDisconnectData        False
SupportsEncryption  False
SupportsExpeditedData         False
SupportsGracefulClosing       False
SupportsGuaranteedBandwidth   False
SupportsMulticasting          False

Name      MSAFD NetBIOS
[\Device\NetBT_Tcpip_{2582FFC3-246D-4D92-AF7C-
6C54FFF10317}] SEQPACKET 1
ConnectionlessService         False
GuaranteesDelivery  True
GuaranteesSequencing          True
MaximumAddressSize  20 bytes
MaximumMessageSize  64000 bytes
MessageOriented     True
MinimumAddressSize  20 bytes
PseudoStreamOriented          False
SupportsBroadcasting          False
SupportsConnectData False
SupportsDisconnectData        False
SupportsEncryption  False
SupportsExpeditedData         False
SupportsGracefulClosing       False
SupportsGuaranteedBandwidth   False
SupportsMulticasting          False

Name      MSAFD NetBIOS
[\Device\NetBT_Tcpip_{2582FFC3-246D-4D92-AF7C-
6C54FFF10317}] DATAGRAM 1
ConnectionlessService         True
GuaranteesDelivery  False
GuaranteesSequencing          False
MaximumAddressSize  20 bytes
MaximumMessageSize  64000 bytes
MessageOriented     True
MinimumAddressSize  20 bytes
PseudoStreamOriented          False
SupportsBroadcasting          True
SupportsConnectData False
SupportsDisconnectData        False
SupportsEncryption  False
SupportsExpeditedData         False
SupportsGracefulClosing       False
SupportsGuaranteedBandwidth   False
SupportsMulticasting          False

Name      MSAFD NetBIOS
[\Device\NetBT_Tcpip_{583DAA3C-0218-4DE2-8D1E-
1DC474F8F57B}] SEQPACKET 2
ConnectionlessService         False
GuaranteesDelivery  True
GuaranteesSequencing          True
MaximumAddressSize  20 bytes
MaximumMessageSize  64000 bytes
MessageOriented     True
MinimumAddressSize  20 bytes
PseudoStreamOriented          False
SupportsBroadcasting          False
SupportsConnectData False
SupportsDisconnectData        False
SupportsEncryption  False
SupportsExpeditedData         False
SupportsGracefulClosing       False
SupportsGuaranteedBandwidth   False
SupportsMulticasting          False

Name      MSAFD NetBIOS
[\Device\NetBT_Tcpip_{583DAA3C-0218-4DE2-8D1E-
1DC474F8F57B}] DATAGRAM 2
ConnectionlessService         True
GuaranteesDelivery  False
GuaranteesSequencing          False
MaximumAddressSize  20 bytes
MaximumMessageSize  64000 bytes
MessageOriented     True
MinimumAddressSize  20 bytes
PseudoStreamOriented          False
SupportsBroadcasting          True
SupportsConnectData False
SupportsDisconnectData        False
SupportsEncryption  False
SupportsExpeditedData         False
SupportsGracefulClosing       False
SupportsGuaranteedBandwidth   False
SupportsMulticasting          False


[WinSock]

Item      Value
File      c:\winnt\system32\winsock.dll
Version   3.10
Size      2.80 KB (2,864 bytes)

File      c:\winnt\system32\wsock32.dll
Version   5.00.2152.1
Size      21.27 KB (21,776 bytes)


[Ports]

[ Following are sub-categories of this main category
]

[Serial]

Item      Value
Name      COM1
Status    OK
PNP Device ID       ACPI\PNP0501\1
Maximum Input Buffer Size     0
Maximum Output Buffer Size    False
Settable Baud Rate  True
Settable Data Bits  True
Settable Flow Control         True
Settable Parity     True
Settable Parity Check         True
Settable Stop Bits  True
Settable RLSD       True
Supports RLSD       True
Supports 16 Bit Mode          False
Supports Special Characters   False
Baud Rate 9600
Bits/Byte 8
Stop Bits 1
Parity    None
Busy      0
Abort Read/Write on Error     0
Binary Mode Enabled -1
Continue XMit on XOff         0
CTS Outflow Control 0
Discard NULL Bytes  0
DSR Outflow Control 0
DSR Sensitivity     0
DTR Flow Control Type         Enable
EOF Character       0
Error Replace Character       0
Error Replacement Enabled     0
Event Character     0
Parity Check Enabled          0
RTS Flow Control Type         Enable
XOff Character      19
XOffXMit Threshold  512
XOn Character       17
XOnXMit Threshold   2048
XOnXOff InFlow Control        0
XOnXOff OutFlow Control       0
IRQ Number          4
I/O Port  0x03F8-0x03FF
Driver    c:\winnt\system32\drivers\serial.sys
(62448, 5.00.2134.1)


[Parallel]

Item      Value
Name      LPT1
PNP Device ID       ACPI\PNP0401\1


[Storage]
```

```
[ Following are sub-categories of this main category
]

[Drives]

Item      Value
Drive     A:
Description         3 1/2 Inch Floppy Drive

Drive     C:
Description         Local Fixed Disk
Compressed          False
File System         NTFS
Size      37.26 GB (40,007,729,152 bytes)
Free Space          32.84 GB (35,258,847,232 bytes)
Volume Name
Volume Serial Number          08294328
Partition Disk #0, Partition #0
Partition Size      37.26 GB (40,007,729,664 bytes)
Starting Offset     32256 bytes
Drive Description   Disk drive
Drive Manufacturer  (Standard disk drives)
Drive Model         Maxtor 6E040L0
Drive BytesPerSector          512
Drive MediaLoaded   True
Drive MediaType     Fixed hard disk media
Drive Partitions    1
Drive SCSIBus       0
Drive SCSILogicalUnit         0
Drive SCSIPort      0
Drive SCSITargetId  0
Drive SectorsPerTrack         63
Drive Size          40015987200 bytes
Drive TotalCylinders          4865
Drive TotalSectors  78156225
Drive TotalTracks   1240575
Drive TracksPerCylinder       255


[SCSI]

Item      Value
No SCSI information

[Printing]

Name      Port Name Server Name
No printing information

[Problem Devices]

Device    PNP Device ID       Error Code
Base System Device
          PCI\VEN_8086&DEV_25AB&SUBSYS_00000000&REV_0
1\3&61AAA01&0&EC    28
System Interrupt Controller
          PCI\VEN_8086&DEV_25AC&SUBSYS_00000000&REV_0
1\3&61AAA01&0&ED    28
PCI Device
          PCI\VEN_8086&DEV_25A4&SUBSYS_24C08086&REV_0
1\3&61AAA01&0&FB    28

[USB]

Device    PNP Device ID
Standard Universal PCI to USB Host Controller
          PCI\VEN_8086&DEV_25A9&SUBSYS_24C08086&REV_0
1\3&61AAA01&0&E8
USB Root Hub        USB\ROOT_HUB\4&1DEDB89D&0
Standard Universal PCI to USB Host Controller
          PCI\VEN_8086&DEV_25AA&SUBSYS_24C08086&REV_0
1\3&61AAA01&0&E9
USB Root Hub        USB\ROOT_HUB\4&3A92BB1&0

[Software Environment]

[ Following are sub-categories of this main category
]

[Drivers]

Name      Description         File      Type
          Started   Start Mode          State
          Status    Error Control       Accept Pause
          Accept Stop
abiosdsk  Abiosdsk  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Ignore    False     False
abp480n5  abp480n5  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
acpi      Microsoft ACPI Driver
          c:\winnt\system32\drivers\acpi.sys
          Kernel Driver       True      Boot
          Running   OK        Normal    False
          True
acpiec    ACPIEC
          c:\winnt\system32\drivers\acpiec.sys
          Kernel Driver       False     Disabled
          Stopped   OK        Normal    False
          False
adpu160m  adpu160m  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
afd       AFD Networking Support Environment
          c:\winnt\system32\drivers\afd.sys
          Kernel Driver       True      Auto
          Running   OK        Normal    False
          True
aha154x   Aha154x   Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
aic116x   aic116x   Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
aic78u2   aic78u2   Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
aic78xx   aic78xx   Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
ami0nt    ami0nt    Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
amsint    amsint    Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
asc       asc       Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
asc3350p  asc3350p  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
asc3550   asc3550   Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
asyncmac  RAS Asynchronous Media Driver
          c:\winnt\system32\drivers\asyncmac.sys
          Kernel Driver       False     Manual
          Stopped   OK        Normal    False
          False
atapi     Standard IDE/ESDI Hard Disk Controller
          c:\winnt\system32\drivers\atapi.sys
          Kernel Driver       True      Boot
          Running   OK        Normal    False
          True
atdisk    Atdisk    Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Ignore    False     False
atirage3  atirage3
          c:\winnt\system32\drivers\atimpab.sys
          Kernel Driver       True      Manual
          Running   OK        Ignore    False
          True
atmarpc   ATM ARP Client Protocol
          c:\winnt\system32\drivers\atmarpc.sys
          Kernel Driver       False     Manual
          Stopped   OK        Normal    False
          False
audstub   Audio Stub Driver
          c:\winnt\system32\drivers\audstub.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
b57w2k    Broadcom NetXtreme Gigabit Ethernet
          c:\winnt\system32\drivers\b57w2k.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
beep      Beep
          c:\winnt\system32\drivers\beep.sys
          Kernel Driver       True      System
          Running   OK        Normal    False
          True
buslogic  BusLogic  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
cd20xrnt  cd20xrnt  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
cdaudio   Cdaudio
          c:\winnt\system32\drivers\cdaudio.sys
          Kernel Driver       False     System
          Stopped   OK        Ignore    False
          False
cdfs      Cdfs
          c:\winnt\system32\drivers\cdfs.sys
```

```
          File System Driver  True      Disabled
          Running   OK        Normal    False
          True
cdrom     CD-ROM Driver
          c:\winnt\system32\drivers\cdrom.sys
          Kernel Driver       True      System
          Running   OK        Normal    False
          True
changer   Changer   Not Available       Kernel Driver
          False     System    Stopped   OK
          Ignore    False     False
cpqarray  Cpqarray  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
cpqarry2  cpqarry2  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
cpqfcalm  cpqfcalm  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
cpqfws2e  cpqfws2e  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
cqdetect  Compaq Hardware Detection Service
          c:\winnt\system32\drivers\cqdetect.sys
          Kernel Driver       False     Manual
          Stopped   OK        Normal    False
          False
dac960nt  dac960nt  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
deckzpsx  deckzpsx  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
dfsdriver DfsDriver c:\winnt\system32\drivers\dfs.sys
          File System Driver  True      Boot
          Running   OK        Normal    False
          True
disk      Disk Driver
          c:\winnt\system32\drivers\disk.sys
          Kernel Driver       True      Boot
          Running   OK        Normal    False
          True
diskperf  Diskperf
          c:\winnt\system32\drivers\diskperf.sys
          Kernel Driver       True      Boot
          Running   OK        Normal    False
          True
dmboot    dmboot
          c:\winnt\system32\drivers\dmboot.sys
          Kernel Driver       False     Disabled
          Stopped   OK        Normal    False
          False
dmio      Logical Disk Manager Driver
          c:\winnt\system32\drivers\dmio.sys
          Kernel Driver       True      Boot
          Running   OK        Normal    False
          True
dmload    dmload
          c:\winnt\system32\drivers\dmload.sys
          Kernel Driver       True      Boot
          Running   OK        Normal    False
          True
efs       EFS       c:\winnt\system32\drivers\efs.sys
          File System Driver  True      Disabled
          Running   OK        Normal    False
          True
fastfat   Fastfat
          c:\winnt\system32\drivers\fastfat.sys
          File System Driver  True      Disabled
          Running   OK        Normal    False
          True
fd16_700  Fd16_700  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
fdc       Floppy Disk Controller Driver
          c:\winnt\system32\drivers\fdc.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
fireport  fireport  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
flashpnt  flashpnt  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
flpydisk  Floppy Disk Driver
          c:\winnt\system32\drivers\flpydisk.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
ftdisk    Volume Manager Driver
          c:\winnt\system32\drivers\ftdisk.sys
          Kernel Driver       True      Boot
          Running   OK        Normal    False
          True
gpc       Generic Packet Classifier
          c:\winnt\system32\drivers\msgpc.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
i8042prt  i8042 Keyboard and PS/2 Mouse Port Driver
          c:\winnt\system32\drivers\i8042prt.sys
          Kernel Driver       True      System
          Running   OK        Normal    False
          True
ini910u   ini910u   Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
intelide  IntelIde  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
ipfilterdriver      IP Traffic Filter Driver
          c:\winnt\system32\drivers\ipfltdrv.sys
          Kernel Driver       False     Manual
          Stopped   OK        Normal    False
          False
ipinip    IP in IP Tunnel Driver
          c:\winnt\system32\drivers\ipinip.sys
          Kernel Driver       False     Manual
          Stopped   OK        Normal    False
          False
ipnat     IP Network Address Translator
          c:\winnt\system32\drivers\ipnat.sys
          Kernel Driver       False     Manual
          Stopped   OK        Normal    False
          False
ipsec     IPSEC driver
          c:\winnt\system32\drivers\ipsec.sys
          Kernel Driver       False     Manual
          Stopped   OK        Normal    False
          False
ipsraidn  ipsraidn  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
isapnp    PnP ISA/EISA Bus Driver
          c:\winnt\system32\drivers\isapnp.sys
          Kernel Driver       True      Boot
          Running   OK        Critical  False
          True
kbdclass  Keyboard Class Driver
          c:\winnt\system32\drivers\kbdclass.sys
          Kernel Driver       True      System
          Running   OK        Normal    False
          True
ksecdd    KSecDD
          c:\winnt\system32\drivers\ksecdd.sys
          Kernel Driver       True      Boot
          Running   OK        Normal    False
          True
lbrtfdc   lbrtfdc   Not Available       Kernel Driver
          False     System    Stopped   OK
          Ignore    False     False
lp6nds35  lp6nds35  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
mnmdd     mnmdd
          c:\winnt\system32\drivers\mnmdd.sys
          Kernel Driver       True      System
          Running   OK        Ignore    False
          True
modem     Modem
          c:\winnt\system32\drivers\modem.sys
          Kernel Driver       False     Manual
          Stopped   OK        Ignore    False
          False
mouclass  Mouse Class Driver
          c:\winnt\system32\drivers\mouclass.sys
          Kernel Driver       True      System
          Running   OK        Normal    False
          True
mountmgr  MountMgr
          c:\winnt\system32\drivers\mountmgr.sys
          Kernel Driver       True      Boot
          Running   OK        Normal    False
          True
mraid35x  mraid35x  Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
mrxsmb    MRXSMB
          c:\winnt\system32\drivers\mrxsmb.sys
          File System Driver  True      System
          Running   OK        Normal    False
          True
msfs      Msfs
          c:\winnt\system32\drivers\msfs.sys
          File System Driver  True      System
```

```
          Running   OK        Normal    False
          True
mskssrv   Microsoft Streaming Service Proxy
          c:\winnt\system32\drivers\mskssrv.sys
          Kernel Driver       False     Manual
          Stopped   OK        Normal    False
          False
mspclock  Microsoft Streaming Clock Proxy
          c:\winnt\system32\drivers\mspclock.sys
          Kernel Driver       False     Manual
          Stopped   OK        Normal    False
          False
mspqm     Microsoft Streaming Quality Manager Proxy
          c:\winnt\system32\drivers\mspqm.sys
          Kernel Driver       False     Manual
          Stopped   OK        Normal    False
          False
mup       Mup       c:\winnt\system32\drivers\mup.sys
          File System Driver  True      Boot
          Running   OK        Normal    False
          True
ncrc710   Ncrc710   Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
ndis      NDIS System Driver
          c:\winnt\system32\drivers\ndis.sys
          Kernel Driver       True      Boot
          Running   OK        Normal    False
          True
ndistapi  Remote Access NDIS TAPI Driver
          c:\winnt\system32\drivers\ndistapi.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
ndiswan   Remote Access NDIS WAN Driver
          c:\winnt\system32\drivers\ndiswan.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
ndproxy   NDIS Proxy
          c:\winnt\system32\drivers\ndproxy.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
netbios   NetBIOS Interface
          c:\winnt\system32\drivers\netbios.sys
          File System Driver  True      System
          Running   OK        Normal    False
          True
netbt     NetBios over Tcpip
          c:\winnt\system32\drivers\netbt.sys
          Kernel Driver       True      System
          Running   OK        Normal    False
          True
netdetect NetDetect
          c:\winnt\system32\drivers\netdtect.sys
          Kernel Driver       False     Manual
          Stopped   OK        Normal    False
          False
npfs      Npfs
          c:\winnt\system32\drivers\npfs.sys
          File System Driver  True      System
          Running   OK        Normal    False
          True
ntfs      Ntfs
          c:\winnt\system32\drivers\ntfs.sys
          File System Driver  True      Disabled
          Running   OK        Normal    False
          True
null      Null
          c:\winnt\system32\drivers\null.sys
          Kernel Driver       True      System
          Running   OK        Normal    False
          True
nwlnkflt  IPX Traffic Filter Driver
          c:\winnt\system32\drivers\nwlnkflt.sys
          Kernel Driver       False     Manual
          Stopped   OK        Normal    False
          False
nwlnkfwd  IPX Traffic Forwarder Driver
          c:\winnt\system32\drivers\nwlnkfwd.sys
          Kernel Driver       False     Manual
          Stopped   OK        Normal    False
          False
openhci   Microsoft USB Open Host Controller Driver
          c:\winnt\system32\drivers\openhci.sys
          Kernel Driver       False     Manual
          Stopped   OK        Normal    False
          False
parallel  Parallel class driver
          c:\winnt\system32\drivers\parallel.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
parport   Parallel port driver
          c:\winnt\system32\drivers\parport.sys
          Kernel Driver       True      System
          Running   OK        Ignore    False
          True
partmgr   PartMgr
          c:\winnt\system32\drivers\partmgr.sys
          Kernel Driver       True      Boot
          Running   OK        Normal    False
          True
parvdm    ParVdm
          c:\winnt\system32\drivers\parvdm.sys
          Kernel Driver       True      Auto
          Running   OK        Ignore    False
          True
pci       PCI Bus Driver
          c:\winnt\system32\drivers\pci.sys
          Kernel Driver       True      Boot
          Running   OK        Critical  False
          True
pcidump   PCIDump   Not Available       Kernel Driver
          False     System    Stopped   OK
          Ignore    False     False
pciide    PCIIde
          c:\winnt\system32\drivers\pciide.sys
          Kernel Driver       True      Boot
          Running   OK        Normal    False
          True
pcmcia    Pcmcia
          c:\winnt\system32\drivers\pcmcia.sys
          Kernel Driver       False     Disabled
          Stopped   OK        Normal    False
          False
pdcomp    PDCOMP    Not Available       Kernel Driver
          False     Manual    Stopped   OK
          Ignore    False     False
pdframe   PDFRAME   Not Available       Kernel Driver
          False     Manual    Stopped   OK
          Ignore    False     False
pdreli    PDRELI    Not Available       Kernel Driver
          False     Manual    Stopped   OK
          Ignore    False     False
pdrframe  PDRFRAME  Not Available       Kernel Driver
          False     Manual    Stopped   OK
          Ignore    False     False
pptpminiport        WAN Miniport (PPTP)
          c:\winnt\system32\drivers\raspptp.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
ptilink   Direct Parallel Link Driver
          c:\winnt\system32\drivers\ptilink.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
q57w2k    HP NC7761 Gigabit Server Adapter
          c:\winnt\system32\drivers\q57w2k.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
ql1080    ql1080    Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
ql10wnt   Ql10wnt   Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
ql1240    ql1240    Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
ql2100    ql2100    Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
rasacd    Remote Access Auto Connection Driver
          c:\winnt\system32\drivers\rasacd.sys
          Kernel Driver       True      System
          Running   OK        Normal    False
          True
rasl2tp   WAN Miniport (L2TP)
          c:\winnt\system32\drivers\rasl2tp.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
raspti    Direct Parallel
          c:\winnt\system32\drivers\raspti.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
rca       Microsoft Streaming Network Raw Channel
Access    c:\winnt\system32\drivers\rca.sys
          Kernel Driver       False     Manual
          Stopped   OK        Normal    False
          False
rdbss     Rdbss
          c:\winnt\system32\drivers\rdbss.sys
```

```
          File System Driver  True      System
          Running   OK        Normal    False
          True
rdpdr     Terminal Server Device Redirector Driver
          c:\winnt\system32\drivers\rdpdr.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
rdpwd     RDPWD
          c:\winnt\system32\drivers\rdpwd.sys
          Kernel Driver       True      Manual
          Running   OK        Ignore    False
          True
redbook   Digital CD Audio Playback Filter Driver
          c:\winnt\system32\drivers\redbook.sys
          Kernel Driver       False     System
          Stopped   OK        Normal    False
          False
serenum   Serenum Filter Driver
          c:\winnt\system32\drivers\serenum.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
serial    Serial port driver
          c:\winnt\system32\drivers\serial.sys
          Kernel Driver       True      System
          Running   OK        Ignore    False
          True
sfloppy   Sfloppy
          c:\winnt\system32\drivers\sfloppy.sys
          Kernel Driver       False     System
          Stopped   OK        Ignore    False
          False
sglfb     sglfb     Not Available       Kernel Driver
          False     System    Stopped   OK
          Normal    False     False
simbad    Simbad    Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
sparrow   Sparrow   Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
spud      Special Purpose Utility Driver
          c:\winnt\system32\drivers\spud.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
srv       Srv       c:\winnt\system32\drivers\srv.sys
          File System Driver  True      Manual
          Running   OK        Normal    False
          True
swenum    Software Bus Driver
          c:\winnt\system32\drivers\swenum.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
symc810   symc810   Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
symc8xx   symc8xx   Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
sym_hi    sym_hi    Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
tcpip     TCP/IP Protocol Driver
          c:\winnt\system32\drivers\tcpip.sys
          Kernel Driver       True      System
          Running   OK        Normal    False
          True
tdasync   TDASYNC
          c:\winnt\system32\drivers\tdasync.sys
          Kernel Driver       False     Manual
          Stopped   OK        Ignore    False
          False
tdipx     TDIPX
          c:\winnt\system32\drivers\tdipx.sys
          Kernel Driver       False     Manual
          Stopped   OK        Ignore    False
          False
tdnetb    TDNETB
          c:\winnt\system32\drivers\tdnetb.sys
          Kernel Driver       False     Manual
          Stopped   OK        Ignore    False
          False
tdpipe    TDPIPE
          c:\winnt\system32\drivers\tdpipe.sys
          Kernel Driver       False     Manual
          Stopped   OK        Ignore    False
          False
tdspx     TDSPX
          c:\winnt\system32\drivers\tdspx.sys
          Kernel Driver       False     Manual
          Stopped   OK        Ignore    False
          False
tdtcp     TDTCP
          c:\winnt\system32\drivers\tdtcp.sys
          Kernel Driver       True      Manual
          Running   OK        Ignore    False
          True
termdd    Terminal Device Driver
          c:\winnt\system32\drivers\termdd.sys
          Kernel Driver       True      Auto
          Running   OK        Normal    False
          True
tga       tga       Not Available       Kernel Driver
          False     System    Stopped   OK
          Ignore    False     False
udfs      Udfs
          c:\winnt\system32\drivers\udfs.sys
          File System Driver  False     Disabled
          Stopped   OK        Normal    False
          False
uhcd      Microsoft USB Universal Host Controller
Driver    c:\winnt\system32\drivers\uhcd.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
ultra66   ultra66   Not Available       Kernel Driver
          False     Disabled  Stopped   OK
          Normal    False     False
update    Microcode Update Driver
          c:\winnt\system32\drivers\update.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
usbhub    Microsoft USB Standard Hub Driver
          c:\winnt\system32\drivers\usbhub.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
vgasave   VgaSave   c:\winnt\system32\drivers\vga.sys
          Kernel Driver       True      System
          Running   OK        Ignore    False
          True
wanarp    Remote Access IP ARP Driver
          c:\winnt\system32\drivers\wanarp.sys
          Kernel Driver       True      Manual
          Running   OK        Normal    False
          True
wdica     WDICA     Not Available       Kernel Driver
          False     Manual    Stopped   OK
          Ignore    False     False

[Environment Variables]

Variable  Value     User Name
ComSpec   %SystemRoot%\system32\cmd.exe <SYSTEM>
Os2LibPath          %SystemRoot%\system32\os2\dll;
          <SYSTEM>
Path
          %SystemRoot%\system32;%SystemRoot%;%SystemR
oot%\System32\Wbem;C:\Program Files\Microsoft SQL
Server\80\Tools\BINN;C:\PROGRA~1\IBM\SQLLIB\BIN;C:\PR
OGRA~1\IBM\SQLLIB\FUNCTION    <SYSTEM>
windir    %SystemRoot%        <SYSTEM>
OS        Windows_NT          <SYSTEM>
PROCESSOR_ARCHITECTURE        x86       <SYSTEM>
PROCESSOR_LEVEL     15        <SYSTEM>
PROCESSOR_IDENTIFIER          x86 Family 15 Model 2
Stepping 9, GenuineIntel      <SYSTEM>
PROCESSOR_REVISION  0209      <SYSTEM>
NUMBER_OF_PROCESSORS          2         <SYSTEM>
PATHEXT
          .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF
;.WSH     <SYSTEM>
TEMP      %SystemRoot%\TEMP   <SYSTEM>
TMP       %SystemRoot%\TEMP   <SYSTEM>
CLASSPATH
          .;C:\PROGRA~1\IBM\SQLLIB\java\db2java.zip;C
:\PROGRA~1\IBM\SQLLIB\java\db2jcc.jar;C:\PROGRA~1\IBM
\SQLLIB\bin;C:\PROGRA~1\IBM\SQLLIB\java\db2jcc_licens
e_cu.jar  <SYSTEM>
DB2INSTANCE         DB2       <SYSTEM>
DB2TEMPDIR          C:\PROGRA~1\IBM\SQLLIB\
          <SYSTEM>
TEMP      %USERPROFILE%\Local Settings\Temp
          DANI1\db2admin
TMP       %USERPROFILE%\Local Settings\Temp
          DANI1\db2admin
TEMP      %USERPROFILE%\Local Settings\Temp
          DANI1\Administrator
TMP       %USERPROFILE%\Local Settings\Temp
          DANI1\Administrator

[Jobs]
```

```
[ Following are sub-categories of this main category
]

[Print]

Document  Size      Owner     Notify    Status
          Time Submitted      Start Time
          Until Time          Elapsed Time
          Pages Printed       Job ID    Priority
          Parameters          Driver Name
          Print Processor     Host Print Queue
          Data Type Name
Unknown   Unknown   Unknown   Unknown   Unknown
          Unknown   Unknown   Unknown   Unknown
          Unknown   Unknown   Unknown   Unknown
          Unknown   Unknown   Unknown   Unknown
          Unknown

[Network Connections]

Local Name          Remote Name         Type
          Status    User Name
Not Available       \\inforb\dpol       Disk
          Degraded  DANI1\dpol

[Running Tasks]

Name      Path      Process ID          Priority  Min
Working Set         Max Working Set     Start Time
          Version   Size      File Date
system idle process Not Available       0         0
          Not Available       Not Available       Not
Available Unknown   Unknown   Unknown
system    Not Available       8         8         0
          1413120   Not Available       Unknown
          Unknown   Unknown
smss.exe  c:\winnt\system32\smss.exe    180       11
          204800    1413120   6/23/2004 2:37:46 PM
          5.00.2170.1         44.27 KB (45,328 bytes)
          12/7/1999 7:00:00 AM
csrss.exe Not Available       204       13        Not
Available Not Available       6/23/2004 2:37:54 PM
          Unknown   Unknown   Unknown
winlogon.exe        c:\winnt\system32\winlogon.exe
          200       13        204800    1413120
          6/23/2004 2:37:55 PM          5.00.2182.1
          173.27 KB (177,424 bytes)     12/7/1999
7:00:00 AM
services.exe        c:\winnt\system32\services.exe
          256       9         204800    1413120
          6/23/2004 2:37:56 PM          5.00.2134.1
          86.77 KB (88,848 bytes)       12/7/1999
7:00:00 AM
lsass.exe c:\winnt\system32\lsass.exe   268       13
          204800    1413120   6/23/2004 2:37:57 PM
          5.00.2184.1         32.77 KB (33,552 bytes)
          12/7/1999 7:00:00 AM
svchost.exe         c:\winnt\system32\svchost.exe 404
          8         204800    1413120   6/23/2004
2:38:00 PM          5.00.2134.1         7.77 KB
(7,952 bytes)       12/7/1999 7:00:00 AM
msdtc.exe c:\winnt\system32\msdtc.exe   432       8
          204800    1413120   6/23/2004 2:38:01 PM
          1999.9.3421.3       6.77 KB (6,928 bytes)
          1/1/2002 9:41:35 AM
svchost.exe         c:\winnt\system32\svchost.exe 560
          8         204800    1413120   6/23/2004
2:38:03 PM          5.00.2134.1         7.77 KB
(7,952 bytes)       12/7/1999 7:00:00 AM
termsrv.exe         c:\winnt\system32\termsrv.exe 588
          10        204800    1413120   6/23/2004
2:38:03 PM          5.00.2182.1         136.77 KB
(140,048 bytes)     1/1/2002 9:41:38 AM
winmgmt.exe
          c:\winnt\system32\wbem\winmgmt.exe      612
          8         204800    1413120   6/23/2004
2:38:04 PM          1.50.1085.0001      188.05 KB
(192,567 bytes)     12/7/1999 7:00:00 AM
inetinfo.exe
          c:\winnt\system32\inetsrv\inetinfo.exe  156
          8         204800    1413120   6/23/2004
2:38:11 PM          5.00.0984 14.27 KB (14,608 bytes)
          1/1/2002 9:41:58 AM
explorer.exe        c:\winnt\explorer.exe         908
          8         204800    1413120   6/23/2004
2:42:26 PM          5.00.2920.0000      232.77 KB
(238,352 bytes)     12/7/1999 7:00:00 AM
cmd.exe   c:\winnt\system32\cmd.exe     904       8
          204800    1413120   6/23/2004 2:42:31 PM
          5.00.2144.1         230.77 KB (236,304
bytes)    12/7/1999 7:00:00 AM
msinfo32.exe        c:\program files\common
files\microsoft shared\msinfo\msinfo32.exe        700
          8         204800    1413120   6/24/2004
9:20:56 AM          5.00.2134.1         15.77 KB
(16,144 bytes)      11/4/2003 3:52:18 PM
taskmgr.exe         c:\winnt\system32\taskmgr.exe
          1008      13        204800    1413120
          6/24/2004 9:21:05 AM          5.00.2137.1
          85.77 KB (87,824 bytes)       12/7/1999
7:00:00 AM
rsvp.exe  c:\winnt\system32\rsvp.exe    1028      8
          204800    1413120   6/24/2004 9:21:09 AM
          5.00.2167.1         172.77 KB (176,912
bytes)    12/7/1999 7:00:00 AM

[Loaded Modules]

Name      Version   Size      File Date Manufacturer
          Path
traffic.dll         5.00.2139.1         30.77 KB
(31,504 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\traffic.dll
rsvp.exe  5.00.2167.1         172.77 KB (176,912
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\rsvp.exe
utildll.dll         5.00.2153.1         25.77 KB
(26,384 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\utildll.dll
vdmdbg.dll          5.00.2134.1         29.27 KB
(29,968 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\vdmdbg.dll
taskmgr.exe         5.00.2137.1         85.77 KB
(87,824 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\taskmgr.exe
wbemprox.dll        1.50.1085.0001      40.05 KB
(41,016 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wbem\wbemprox.dll
cabinet.dll         5.00.2147.1         54.77 KB
(56,080 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\cabinet.dll
msinfo32.dll        5.00.2177.1         312.27 KB
(319,760 bytes)     11/4/2003 3:52:18 PM
          Microsoft Corporation         c:\program
files\common files\microsoft
shared\msinfo\msinfo32.dll
msinfo32.exe        5.00.2134.1         15.77 KB
(16,144 bytes)      11/4/2003 3:52:18 PM
          Microsoft Corporation         c:\program
files\common files\microsoft
shared\msinfo\msinfo32.exe
cmd.exe   5.00.2144.1         230.77 KB (236,304
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\cmd.exe
hhsetup.dll         4.74.8702 66.27 KB (67,856 bytes)
          12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\hhsetup.dll
mfc42u.dll          6.00.8665.0         972.05 KB
(995,384 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\mfc42u.dll
mmcshext.dll        5.00.2153.1         24.27 KB
(24,848 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\mmcshext.dll
actxprxy.dll        5.00.2920.0000      70.77 KB
(72,464 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\actxprxy.dll
imm32.dll 5.00.2180.1         93.77 KB (96,016 bytes)
          12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\imm32.dll
mlang.dll 5.00.2920.0000      510.77 KB (523,024
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\mlang.dll
urlmon.dll          5.00.2920.0000      426.77 KB
(437,008 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\urlmon.dll
linkinfo.dll        5.00.2134.1         15.77 KB
(16,144 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\linkinfo.dll
wininet.dll         5.00.2920.0000      456.77 KB
(467,728 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wininet.dll
browselc.dll        5.00.2920.0000      34.50 KB
(35,328 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\browselc.dll
```

```
msi.dll   2.0.2600.0         1.90 MB (1,991,168
bytes)    12/7/1999 7:00:00 AM         Microsoft
Corporation         c:\winnt\system32\msi.dll
powrprof.dll        5.00.2920.0000      13.27 KB
(13,584 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\powrprof.dll
batmeter.dll        5.00.2920.0000      20.27 KB
(20,752 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\batmeter.dll
stobject.dll        5.00.2144.1         81.77 KB
(83,728 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\stobject.dll
webcheck.dll        5.00.2920.0000      251.77 KB
(257,808 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\webcheck.dll
netshell.dll        5.00.2176.1         456.77 KB
(467,728 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\netshell.dll
ntshrui.dll         5.00.2134.1         46.77 KB
(47,888 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\ntshrui.dll
mydocs.dll          5.00.2920.0000      55.77 KB
(57,104 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\mydocs.dll
browseui.dll        5.00.2920.0000      793.27 KB
(812,304 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\browseui.dll
shdocvw.dll         5.00.2920.0000      1.05 MB
(1,104,144 bytes)   12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\shdocvw.dll
explorer.exe        5.00.2920.0000      232.77 KB
(238,352 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\explorer.exe
iislog.dll          5.00.0984 76.27 KB (78,096 bytes)
          1/1/2002 9:41:58 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\iislog.dll
httpext.dll         0.9.3939.9          418.27 KB
(428,304 bytes)     1/1/2002 9:41:58 AM Microsoft
Corporation
          c:\winnt\system32\inetsrv\httpext.dll
md5filt.dll         5.00.0984 32.77 KB (33,552 bytes)
          1/1/2002 9:42:03 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\md5filt.dll
gzip.dll  5.00.0984 30.27 KB (30,992 bytes)
          1/1/2002 9:42:03 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\gzip.dll
compfilt.dll        5.00.0984 22.27 KB (22,800 bytes)
          1/1/2002 9:42:02 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\compfilt.dll
sspifilt.dll        5.00.0984 43.27 KB (44,304 bytes)
          1/1/2002 9:42:03 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\sspifilt.dll
iscomlog.dll        5.00.0984 24.77 KB (25,360 bytes)
          1/1/2002 9:41:58 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\iscomlog.dll
lonsint.dll         5.00.0984 11.77 KB (12,048 bytes)
          1/1/2002 9:41:58 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\lonsint.dll
inetsloc.dll        5.00.0984 20.27 KB (20,752 bytes)
          1/1/2002 9:41:59 AM Microsoft Corporation
          c:\winnt\system32\inetsloc.dll
iisfecnv.dll        5.00.0984 7.27 KB (7,440 bytes)
          1/1/2002 9:41:58 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\iisfecnv.dll
isatq.dll 5.00.0984 61.27 KB (62,736 bytes)
          1/1/2002 9:42:00 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\isatq.dll
infocomm.dll        5.00.0984 234.27 KB (239,888
bytes)    1/1/2002 9:41:58 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\infocomm.dll
w3svc.dll 5.00.0984 347.27 KB (355,600 bytes)
          1/1/2002 9:42:04 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\w3svc.dll
security.dll        5.00.2154.1         5.77 KB
(5,904 bytes)       12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\security.dll
svcext.dll          5.00.0984 39.77 KB (40,720 bytes)
          1/1/2002 9:41:59 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\svcext.dll
admexs.dll          5.00.0984 27.77 KB (28,432 bytes)
          1/1/2002 9:41:58 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\admexs.dll
wamreg.dll          5.00.0984 46.27 KB (47,376 bytes)
          1/1/2002 9:42:04 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\wamreg.dll
metadata.dll        5.00.0984 70.77 KB (72,464 bytes)
          1/1/2002 9:41:58 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\metadata.dll
iismap.dll          5.00.0984 56.27 KB (57,616 bytes)
          1/1/2002 9:41:59 AM Microsoft Corporation
          c:\winnt\system32\iismap.dll
nsepm.dll 5.00.0984 43.27 KB (44,304 bytes)
          1/1/2002 9:41:58 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\nsepm.dll
admwprox.dll        5.00.0984 31.77 KB (32,528 bytes)
          1/1/2002 9:41:59 AM Microsoft Corporation
          c:\winnt\system32\admwprox.dll
coadmin.dll         5.00.0984 39.77 KB (40,720 bytes)
          1/1/2002 9:42:00 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\coadmin.dll
iisadmin.dll        5.00.0984 14.77 KB (15,120 bytes)
          1/1/2002 9:41:58 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\iisadmin.dll
rpcref.dll          5.00.0984 4.27 KB (4,368 bytes)
          1/1/2002 9:41:58 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\rpcref.dll
iisrtl.dll          5.00.0984 120.77 KB (123,664
bytes)    1/1/2002 9:41:59 AM Microsoft Corporation
          c:\winnt\system32\iisrtl.dll
inetinfo.exe        5.00.0984 14.27 KB (14,608 bytes)
          1/1/2002 9:41:58 AM Microsoft Corporation
          c:\winnt\system32\inetsrv\inetinfo.exe
netui1.dll          5.00.2134.1         210.27 KB
(215,312 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\netui1.dll
netui0.dll          5.00.2134.1         70.27 KB
(71,952 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\netui0.dll
ntlanman.dll        5.00.2157.1         35.27 KB
(36,112 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\ntlanman.dll
rapilib.dll         5.00.2167.1         25.27 KB
(25,872 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\rapilib.dll
rsvpsp.dll          5.00.2167.1         74.77 KB
(76,560 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\rsvpsp.dll
ntmarta.dll         5.00.2158.1         98.77 KB
(101,136 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\ntmarta.dll
provthrd.dll        1.50.1085.0000      68.07 KB
(69,708 bytes)      11/4/2003 3:52:11 PM
          Microsoft Corporation
          c:\winnt\system32\wbem\provthrd.dll
ntevt.dll 1.50.1085.0000      192.06 KB (196,669
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\wbem\ntevt.dll
perfos.dll          5.00.2155.1         21.27 KB
(21,776 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\perfos.dll
wmi.dll   5.00.2191.1         6.27 KB (6,416 bytes)
          12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\wmi.dll
cfgmgr32.dll        5.00.2134.1         16.77 KB
(17,168 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\cfgmgr32.dll
psapi.dll 5.00.2134.1         28.27 KB (28,944 bytes)
          12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\psapi.dll
framedyn.dll        1.50.1085.0000      164.05 KB
(167,992 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wbem\framedyn.dll
cimwin32.dll        1.50.1085.0000      1.03 MB
(1,077,306 bytes)   12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wbem\cimwin32.dll
wbemsvc.dll         1.50.1085.0000      140.07 KB
(143,430 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wbem\wbemsvc.dll
wbemess.dll         1.50.1085.0001      352.05 KB
(360,503 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wbem\wbemess.dll
fastprox.dll        1.50.1085.0001      144.08 KB
(147,534 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wbem\fastprox.dll
```

```
wbemcore.dll        1.50.1085.0001      632.05 KB
(647,224 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wbem\wbemcore.dll
wbemcomn.dll        1.50.1085.0001      684.05 KB
(700,472 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wbem\wbemcomn.dll
winmgmt.exe         1.50.1085.0001      188.05 KB
(192,567 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wbem\winmgmt.exe
rdpwsx.dll          5.00.2180.1         94.40 KB
(96,664 bytes)      1/1/2002 9:41:38 AM Microsoft
Corporation         c:\winnt\system32\rdpwsx.dll
ntlsapi.dll         5.00.2134.1         6.77 KB
(6,928 bytes)       12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\ntlsapi.dll
mstlsapi.dll        5.00.2181.1         24.77 KB
(25,360 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\mstlsapi.dll
icaapi.dll          5.00.2134.1         118.77 KB
(121,616 bytes)     1/1/2002 9:41:38 AM Microsoft
Corporation         c:\winnt\system32\icaapi.dll
regapi.dll          5.00.2155.1         35.27 KB
(36,112 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\regapi.dll
termsrv.exe         5.00.2182.1         136.77 KB
(140,048 bytes)     1/1/2002 9:41:38 AM Microsoft
Corporation         c:\winnt\system32\termsrv.exe
sens.dll  5.00.2163.1         36.77 KB (37,648 bytes)
          12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\sens.dll
es.dll    1999.9.3422.21      231.77 KB (237,328
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\es.dll
mtxoci.dll          1999.9.3421.3       109.27 KB
(111,888 bytes)     1/1/2002 9:41:36 AM Microsoft
Corporation         c:\winnt\system32\mtxoci.dll
resutils.dll        5.00.2191.1         39.77 KB
(40,720 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\resutils.dll
clusapi.dll         5.00.2179.1         50.27 KB
(51,472 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\clusapi.dll
msvcp50.dll         5.00.7051 552.50 KB (565,760
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\msvcp50.dll
xolehlp.dll         1999.9.3421.3       17.27 KB
(17,680 bytes)      1/1/2002 9:41:36 AM Microsoft
Corporation         c:\winnt\system32\xolehlp.dll
msdtclog.dll        1999.9.3421.3       89.77 KB
(91,920 bytes)      1/1/2002 9:41:35 AM Microsoft
Corporation         c:\winnt\system32\msdtclog.dll
mtxclu.dll          1999.9.3421.3       50.27 KB
(51,472 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\mtxclu.dll
```

```
msdtcprx.dll        1999.9.3422.10      619.27 KB
(634,128 bytes)     1/1/2002 9:41:36 AM Microsoft
Corporation         c:\winnt\system32\msdtcprx.dll
txfaux.dll          1999.9.3422.24      341.27 KB
(349,456 bytes)     1/1/2002 9:41:35 AM Microsoft
Corporation         c:\winnt\system32\txfaux.dll
msdtctm.dll         1999.9.3422.12      1.02 MB
(1,070,864 bytes)   1/1/2002 9:41:36 AM Microsoft
Corporation         c:\winnt\system32\msdtctm.dll
msdtc.exe 1999.9.3421.3       6.77 KB (6,928 bytes)
          1/1/2002 9:41:35 AM Microsoft Corporation
          c:\winnt\system32\msdtc.exe
rpcss.dll 5.00.2181.1         229.27 KB (234,768
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\rpcss.dll
svchost.exe         5.00.2134.1         7.77 KB
(7,952 bytes)       12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\svchost.exe
scecli.dll          5.00.2191.1         105.27 KB
(107,792 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\scecli.dll
atl.dll   3.00.8449 57.56 KB (58,938 bytes)
          12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\atl.dll
certcli.dll         5.00.2175.1         132.27 KB
(135,440 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\certcli.dll
esent.dll 6.0.3939.6          1.07 MB (1,120,016
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\esent.dll
ntdsatq.dll         5.00.2181.1         31.27 KB
(32,016 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\ntdsatq.dll
ntdsa.dll 5.00.2195.1         993.27 KB (1,017,104
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\ntdsa.dll
kdcsvc.dll          5.00.2181.1         133.77 KB
(136,976 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\kdcsvc.dll
sfmapi.dll          5.00.2134.1         38.77 KB
(39,696 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\sfmapi.dll
rassfm.dll          5.00.2168.1         21.27 KB
(21,776 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\rassfm.dll
mpr.dll   5.00.2146.1         53.27 KB (54,544 bytes)
          12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\mpr.dll
schannel.dll        5.00.2170.1         139.77 KB
(143,120 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\schannel.dll
netlogon.dll        5.00.2182.1         347.77 KB
(356,112 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\netlogon.dll
```

```
msv1_0.dll          5.00.2164.1         94.77 KB
(97,040 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\msv1_0.dll
kerberos.dll        5.00.2181.1         196.77 KB
(201,488 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\kerberos.dll
msprivs.dll         5.00.2154.1         41.50 KB
(42,496 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\msprivs.dll
samsrv.dll          5.00.2192.1         357.77 KB
(366,352 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\samsrv.dll
lsasrv.dll          5.00.2184.1         487.77 KB
(499,472 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\lsasrv.dll
lsass.exe 5.00.2184.1         32.77 KB (33,552 bytes)
          12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\lsass.exe
xactsrv.dll         5.00.2134.1         90.27 KB
(92,432 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\xactsrv.dll
wmicore.dll         5.00.2178.1         70.77 KB
(72,464 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wmicore.dll
browser.dll         5.00.2142.1         48.27 KB
(49,424 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\browser.dll
w32time.dll         5.00.2181.1         48.77 KB
(49,936 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\w32time.dll
psbase.dll          5.00.2146.1         111.77 KB
(114,448 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\psbase.dll
cryptsvc.dll        5.00.2181.1         61.77 KB
(63,248 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\cryptsvc.dll
cryptdll.dll        5.00.2135.1         41.27 KB
(42,256 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\cryptdll.dll
wkssvc.dll          5.00.2181.1         95.27 KB
(97,552 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wkssvc.dll
srvsvc.dll          5.00.2178.1         79.27 KB
(81,168 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\srvsvc.dll
lmhsvc.dll          5.00.2134.1         9.27 KB
(9,488 bytes)       12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\lmhsvc.dll
```

```
eventlog.dll        5.00.2178.1         43.77 KB
(44,816 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\eventlog.dll
ntdsapi.dll         5.00.2160.1         56.27 KB
(57,616 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\ntdsapi.dll
scesrv.dll          5.00.2188.1         225.77 KB
(231,184 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\scesrv.dll
umpnpmgr.dll        5.00.2182.1         86.27 KB
(88,336 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\umpnpmgr.dll
services.exe        5.00.2134.1         86.77 KB
(88,848 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\services.exe
cscui.dll 5.00.2172.1         227.27 KB (232,720
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\cscui.dll
rasadhlp.dll        5.00.2168.1         7.27 KB
(7,440 bytes)       12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\rasadhlp.dll
wshnetbs.dll        5.00.2134.1         7.77 KB
(7,952 bytes)       12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wshnetbs.dll
winrnr.dll          5.00.2160.1         18.77 KB
(19,216 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\winrnr.dll
clbcatq.dll         1999.9.3422.14      479.27 KB
(490,768 bytes)     1/1/2002 9:41:30 AM Microsoft
Corporation         c:\winnt\system32\clbcatq.dll
dhcpcsvc.dll        5.00.2153.1         88.77 KB
(90,896 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\dhcpcsvc.dll
tapi32.dll          5.00.2182.1         123.27 KB
(126,224 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\tapi32.dll
rasman.dll          5.00.2188.1         54.77 KB
(56,080 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\rasman.dll
rasapi32.dll        5.00.2188.1         189.77 KB
(194,320 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\rasapi32.dll
rtutils.dll         5.00.2168.1         43.77 KB
(44,816 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\rtutils.dll
adsldpc.dll         5.00.2172.1         127.77 KB
(130,832 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\adsldpc.dll
activeds.dll        5.00.2172.1         172.77 KB
(176,912 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\activeds.dll
oleaut32.dll        2.40.4512 600.27 KB (614,672
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\oleaut32.dll
mprapi.dll          5.00.2181.1         79.27 KB
(81,168 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\mprapi.dll
icmp.dll  5.00.2134.1         7.27 KB (7,440 bytes)
          12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\icmp.dll
iphlpapi.dll        5.00.2173.2         67.77 KB
(69,392 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\iphlpapi.dll
rnr20.dll 5.00.2152.1         35.77 KB (36,624 bytes)
          12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\rnr20.dll
wshtcpip.dll        5.00.2134.1         17.27 KB
(17,680 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wshtcpip.dll
msafd.dll 5.00.2153.1         54.27 KB (55,568 bytes)
          12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\msafd.dll
mswsock.dll         5.00.2152.1         62.27 KB
(63,760 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\mswsock.dll
winspool.drv        5.00.2167.1         109.77 KB
(112,400 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\winspool.drv
winscard.dll        5.00.2134.1         77.27 KB
(79,120 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\winscard.dll
wlnotify.dll        5.00.2164.1         53.27 KB
(54,544 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wlnotify.dll
cscdll.dll          5.00.2189.1         98.27 KB
(100,624 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\cscdll.dll
lz32.dll  5.00.2134.1         9.77 KB (10,000 bytes)
          12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\lz32.dll
version.dll         5.00.2134.1         15.77 KB
(16,144 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\version.dll
rsabase.dll         5.00.2150.1         128.77 KB
(131,856 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\rsabase.dll
mscat32.dll         5.131.2134.1        7.77 KB
(7,952 bytes)       12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\mscat32.dll
ole32.dll 5.00.2181.1         966.27 KB (989,456
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\ole32.dll
imagehlp.dll        5.00.2195.1         125.27 KB
(128,272 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\imagehlp.dll
msasn1.dll          5.00.2134.1         51.27 KB
(52,496 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\msasn1.dll
crypt32.dll         5.131.2173.1        465.77 KB
(476,944 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\crypt32.dll
wintrust.dll        5.131.2143.1        162.27 KB
(166,160 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wintrust.dll
setupapi.dll        5.00.2183.1         554.27 KB
(567,568 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\setupapi.dll
winmm.dll 5.00.2161.1         184.77 KB (189,200
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\winmm.dll
comctl32.dll        5.81        540.27 KB (553,232
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\comctl32.dll
shlwapi.dll         5.00.2920.0000      282.77 KB
(289,552 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\shlwapi.dll
shell32.dll         5.00.2920.0000      2.24 MB
(2,352,400 bytes)   12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\shell32.dll
msgina.dll          5.00.2191.1         309.77 KB
(317,200 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\msgina.dll
winsta.dll          5.00.2134.1         36.27 KB
(37,136 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\winsta.dll
wsock32.dll         5.00.2152.1         21.27 KB
(21,776 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wsock32.dll
dnsapi.dll          5.00.2181.1         129.77 KB
(132,880 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\dnsapi.dll
wldap32.dll         5.00.2168.1         155.77 KB
(159,504 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\wldap32.dll
ws2help.dll         5.00.2134.1         17.77 KB
(18,192 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\ws2help.dll
ws2_32.dll          5.00.2134.1         69.77 KB
(71,440 bytes)      12/7/1999 7:00:00 AM
```

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          Microsoft Corporation
          c:\winnt\system32\ws2_32.dll
samlib.dll          5.00.2160.1         46.27 KB
(47,376 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\samlib.dll
netrap.dll          5.00.2134.1         11.27 KB
(11,536 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\netrap.dll
netapi32.dll        5.00.2194.1         302.77 KB
(310,032 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\netapi32.dll
profmap.dll         5.00.2181.1         29.27 KB
(29,968 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\profmap.dll
secur32.dll         5.00.2154.1         46.77 KB
(47,888 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\secur32.dll
sfc.dll   5.00.2164.1         84.27 KB (86,288 bytes)
          12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\sfc.dll
nddeapi.dll         5.00.2137.1         15.27 KB
(15,632 bytes)      12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\nddeapi.dll
userenv.dll         5.00.2185.1         361.27 KB
(369,936 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\userenv.dll
user32.dll          5.00.2180.1         393.27 KB
(402,704 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\user32.dll
gdi32.dll 5.00.2180.1         228.77 KB (234,256
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\gdi32.dll
rpcrt4.dll          5.00.2193.1         434.27 KB
(444,688 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\rpcrt4.dll
advapi32.dll        5.00.2191.1         349.27 KB
(357,648 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\advapi32.dll
kernel32.dll        5.00.2191.1         715.27 KB
(732,432 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\kernel32.dll
msvcrt.dll          6.10.8637.0         288.09 KB
(295,000 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\msvcrt.dll
winlogon.exe        5.00.2182.1         173.27 KB
(177,424 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\winlogon.exe
sfcfiles.dll        5.00.2195.1         973.27 KB
(996,624 bytes)     12/7/1999 7:00:00 AM
          Microsoft Corporation
          c:\winnt\system32\sfcfiles.dll
ntdll.dll 5.00.2163.1         469.77 KB (481,040
bytes)    12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\ntdll.dll
smss.exe  5.00.2170.1         44.27 KB (45,328 bytes)
          12/7/1999 7:00:00 AM          Microsoft
Corporation         c:\winnt\system32\smss.exe

[Services]

Display Name        Name      State     Start Mode
          Service Type        Path      Error Control
          Start Name          Tag ID
Alerter   Alerter   Stopped   Disabled  Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
Application Management        AppMgmt   Stopped
          Manual    Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
Computer Browser    Browser   Running   Auto
          Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
Indexing Service    cisvc     Stopped   Manual
          Share Process
          c:\winnt\system32\cisvc.exe   Normal
          LocalSystem         0
ClipBook  ClipSrv   Stopped   Manual    Own Process
          c:\winnt\system32\clipsrv.exe Normal
          LocalSystem         0
DB2 JDBC Applet Server        DB2JDS    Stopped
          Manual    Own Process         "c:\program
files\ibm\sqllib\bin\db2jds.exe"        Normal
          LocalSystem         0
DB2 Security Server DB2NTSECSERVER      Stopped
          Manual    Own Process         c:\program
files\ibm\sqllib\bin\db2sec.exe         Normal
          LocalSystem         0
Distributed File System       Dfs       Stopped
          Disabled  Own Process
          c:\winnt\system32\dfssvc.exe  Normal
          LocalSystem         0
DHCP Client         Dhcp      Stopped   Disabled
          Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
Logical Disk Manager Administrative Service
          dmadmin   Stopped   Manual    Share Process
          c:\winnt\system32\dmadmin.exe /com
          Normal    LocalSystem         0
Logical Disk Manager          dmserver  Stopped
          Disabled  Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
DNS Client          Dnscache  Stopped   Disabled
          Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
Event Log Eventlog  Running   Auto      Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
COM+ Event System   EventSystem         Running
          Manual    Share Process
          c:\winnt\system32\svchost.exe -k netsvcs
          Normal    LocalSystem         0
Fax Service         Fax       Stopped   Manual    Own
Process   c:\winnt\system32\faxsvc.exe  Normal
          LocalSystem         0
IIS Admin Service   IISADMIN  Running   Auto
          Share Process
          c:\winnt\system32\inetsrv\inetinfo.exe
          Normal    LocalSystem         0
Intersite Messaging IsmServ   Stopped   Disabled  Own
Process   c:\winnt\system32\ismserv.exe Normal
          LocalSystem         0
Kerberos Key Distribution Center        kdc
          Stopped   Disabled  Share Process
          c:\winnt\system32\lsass.exe   Normal
          LocalSystem         0
Server    lanmanserver        Running   Auto
          Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
Workstation         lanmanworkstation   Running
          Auto      Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
License Logging Service       LicenseService
          Stopped   Disabled  Own Process
          c:\winnt\system32\llssrv.exe  Normal
          LocalSystem         0
TCP/IP NetBIOS Helper Service LmHosts   Running
          Auto      Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
Messenger Messenger Stopped   Disabled  Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
NetMeeting Remote Desktop Sharing       mnmsrvc
          Stopped   Manual    Own Process
          c:\winnt\system32\mnmsrvc.exe Normal
          LocalSystem         0
Distributed Transaction Coordinator     MSDTC
          Running   Auto      Own Process
          c:\winnt\system32\msdtc.exe   Normal
          LocalSystem         0
Windows Installer   MSIServer Stopped   Manual
          Share Process
          c:\winnt\system32\msiexec.exe /v
          Normal    LocalSystem         0
Network DDE         NetDDE    Stopped   Manual
          Share Process
          c:\winnt\system32\netdde.exe  Normal
          LocalSystem         0
Network DDE DSDM    NetDDEdsdm          Stopped
          Manual    Share Process
          c:\winnt\system32\netdde.exe  Normal
          LocalSystem         0
Net Logon Netlogon  Stopped   Manual    Share Process
          c:\winnt\system32\lsass.exe   Normal
          LocalSystem         0
Network Connections Netman    Stopped   Disabled
          Share Process
```

```
          c:\winnt\system32\svchost.exe -k netsvcs
          Normal    LocalSystem         0
File Replication    NtFrs     Stopped   Manual    Own
Process   c:\winnt\system32\ntfrs.exe   Ignore
          LocalSystem         0
NT LM Security Support Provider         NtLmSsp
          Stopped   Manual    Share Process
          c:\winnt\system32\lsass.exe   Normal
          LocalSystem         0
Removable Storage   NtmsSvc   Stopped   Disabled
          Share Process
          c:\winnt\system32\svchost.exe -k netsvcs
          Normal    LocalSystem         0
Plug and Play       PlugPlay  Running   Auto
          Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
IPSEC Policy Agent  PolicyAgent         Stopped
          Disabled  Share Process
          c:\winnt\system32\lsass.exe   Normal
          LocalSystem         0
Protected Storage   ProtectedStorage    Running
          Auto      Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
Remote Access Auto Connection Manager   RasAuto
          Stopped   Manual    Share Process
          c:\winnt\system32\svchost.exe -k netsvcs
          Normal    LocalSystem         0
Remote Access Connection Manager        RasMan
          Stopped   Manual    Share Process
          c:\winnt\system32\svchost.exe -k netsvcs
          Normal    LocalSystem         0
Routing and Remote Access     RemoteAccess
          Stopped   Disabled  Share Process
          c:\winnt\system32\svchost.exe -k netsvcs
          Normal    LocalSystem         0
Remote Registry Service       RemoteRegistry
          Stopped   Disabled  Own Process
          c:\winnt\system32\regsvc.exe  Normal
          LocalSystem         0
Remote Procedure Call (RPC) Locator     RpcLocator
          Stopped   Manual    Own Process
          c:\winnt\system32\locator.exe Normal
          LocalSystem         0
Remote Procedure Call (RPC)   RpcSs      Running
          Auto      Share Process
          c:\winnt\system32\svchost -k rpcss
          Normal    LocalSystem         0
QoS RSVP  RSVP      Running   Manual    Own Process
          c:\winnt\system32\rsvp.exe -s Normal
          LocalSystem         0
Security Accounts Manager     SamSs     Running
          Auto      Share Process
          c:\winnt\system32\lsass.exe   Normal
          LocalSystem         0
Smart Card Helper   SCardDrv  Stopped   Manual
          Share Process
          c:\winnt\system32\scardsvr.exe
          Ignore    LocalSystem         0
Smart Card          SCardSvr  Stopped   Manual
          Share Process
          c:\winnt\system32\scardsvr.exe
          Ignore    LocalSystem         0
Task Scheduler      Schedule  Stopped   Disabled
          Share Process
          c:\winnt\system32\mstask.exe  Normal
          LocalSystem         0
RunAs Service       seclogon  Stopped   Disabled
          Share Process
          c:\winnt\system32\services.exe
          Ignore    LocalSystem         0
System Event Notification     SENS      Running
          Auto      Share Process
          c:\winnt\system32\svchost.exe -k netsvcs
          Normal    LocalSystem         0
Internet Connection Sharing   SharedAccess
          Stopped   Manual    Share Process
          c:\winnt\system32\svchost.exe -k netsvcs
          Normal    LocalSystem         0
Print Spooler       Spooler   Stopped   Disabled  Own
Process   c:\winnt\system32\spoolsv.exe Normal
          LocalSystem         0
Performance Logs and Alerts   SysmonLog Stopped
          Manual    Own Process
          c:\winnt\system32\smlogsvc.exe
          Normal    LocalSystem         0
Telephony TapiSrv   Stopped   Disabled  Share Process
          c:\winnt\system32\svchost.exe -k tapisrv
          Normal    LocalSystem         0
Terminal Services   TermService         Running
          Auto      Own Process
          c:\winnt\system32\termsrv.exe Normal
          LocalSystem         0
Telnet    TlntSvr   Stopped   Disabled  Own Process
          c:\winnt\system32\tlntsvr.exe Normal
          LocalSystem         0
Distributed Link Tracking Server        TrkSvr
          Stopped   Manual    Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
Distributed Link Tracking Client        TrkWks
          Stopped   Disabled  Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
Uninterruptible Power Supply  UPS       Stopped
          Manual    Own Process
          c:\winnt\system32\ups.exe     Normal
          LocalSystem         0
Utility Manager     UtilMan   Stopped   Manual    Own
Process   c:\winnt\system32\utilman.exe Normal
          LocalSystem         0
Windows Time        W32Time   Running   Auto
          Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0
World Wide Web Publishing Service       W3SVC
          Running   Auto      Share Process
          c:\winnt\system32\inetsrv\inetinfo.exe
          Normal    LocalSystem         0
Windows Management Instrumentation      WinMgmt
          Running   Auto      Own Process
          c:\winnt\system32\wbem\winmgmt.exe
          Ignore    LocalSystem         0
Windows Management Instrumentation Driver Extensions
          Wmi       Running   Manual    Share Process
          c:\winnt\system32\services.exe
          Normal    LocalSystem         0

[Program Groups]

Group Name          Name      User Name
Accessories         Default User:Accessories
          Default User
Accessories\Accessibility     Default
User:Accessories\Accessibility          Default User
Accessories\Entertainment     Default
User:Accessories\Entertainment          Default User
Accessories\System Tools      Default
User:Accessories\System Tools Default User
Startup   Default User:Startup          Default User
Accessories         All Users:Accessories         All
Users
Accessories\Communications    All
Users:Accessories\Communications        All Users
Accessories\Entertainment     All
Users:Accessories\Entertainment         All Users
Accessories\System Tools      All
Users:Accessories\System Tools          All Users
Administrative Tools          All
Users:Administrative Tools    All Users
IBM DB2   All Users:IBM DB2   All Users
IBM DB2\Command Line Tools    All Users:IBM
DB2\Command Line Tools        All Users
Microsoft SQL Server          All Users:Microsoft SQL
Server    All Users
Startup   All Users:Startup   All Users
Terminal Services Client      All Users:Terminal
Services Client     All Users
Accessories         DANI1\db2admin:Accessories
          DANI1\db2admin
Accessories\Accessibility
          DANI1\db2admin:Accessories\Accessibility
          DANI1\db2admin
Accessories\Entertainment
          DANI1\db2admin:Accessories\Entertainment
          DANI1\db2admin
Accessories\System Tools
          DANI1\db2admin:Accessories\System Tools
          DANI1\db2admin
Administrative Tools
          DANI1\db2admin:Administrative Tools
          DANI1\db2admin
Startup   DANI1\db2admin:Startup
          DANI1\db2admin
Accessories         DANI1\Administrator:Accessories
          DANI1\Administrator
Accessories\Accessibility
          DANI1\Administrator:Accessories\Accessibili
ty        DANI1\Administrator
Accessories\Entertainment
          DANI1\Administrator:Accessories\Entertainme
nt        DANI1\Administrator
Accessories\System Tools
          DANI1\Administrator:Accessories\System
Tools     DANI1\Administrator
```

```
Administrative Tools
         DANI1\Administrator:Administrative Tools
         DANI1\Administrator
Startup   DANI1\Administrator:Startup
         DANI1\Administrator

[Startup Programs]

Program   Command   User Name Location
No startup program information


[OLE Registration]

Object    Local Server
Sound (OLE2)        sndrec32.exe
Media Clip          mplay32.exe
Video Clip          mplay32.exe /avi
MIDI Sequence       mplay32.exe /mid
Sound     Not Available
Media Clip          Not Available
Image Document      "C:\Program Files\Windows
NT\Accessories\ImageVue\KodakImg.exe"
WordPad Document    "%ProgramFiles%\Windows
NT\Accessories\WORDPAD.EXE"
Windows Media Services DRM Storage object         Not
Available
Bitmap Image        mspaint.exe

[Internet Explorer 5]

[ Following are sub-categories of this main category
]

[Summary]

Item      Value
Version   5.00.2920.0000
Build     52920
Product ID          51876-270-8989294-05189
Application Path    C:\Program Files\Internet
Explorer
Language  English (United States)
Active Printer      Not Available

Cipher Strength     56-bit
Content Advisor     Disabled
IEAK Install        No

[File Versions]

File      Version   Size      Date      Path
          Company
advapi32.dll        5.0.2191.1          349 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
advpack.dll         5.0.2920.0          87 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
browselc.dll        5.0.2920.0          35 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
browseui.dll        5.0.2920.0          793 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
ckcnv.exe 5.0.2189.1          9 KB      12/7/1999
8:00:00 AM          C:\WINNT\system32   Microsoft
Corporation
comctl32.dll        5.81.2920.0         540 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
crypt32.dll         5.131.2173.1        466 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
enhsig.dll          <File Missing>      Not Available
          Not Available       Not Available       Not
Available
iemigrat.dll        <File Missing>      Not Available
          Not Available       Not Available       Not
Available
iesetup.dll         5.0.2920.0          57 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
iexplore.exe        5.0.2920.0          59 KB
          12/7/1999 8:00:00 AM          C:\Program
Files\Internet Explorer       Microsoft Corporation
imagehlp.dll        5.0.2195.1          125 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
imghelp.dll         <File Missing>      Not Available
          Not Available       Not Available       Not
Available
inseng.dll          5.0.2920.0          72 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
jobexec.dll         5.0.0.1   47 KB     12/7/1999
8:00:00 AM          C:\WINNT\system32   Microsoft
Corporation
jscript.dll         5.1.0.4615          476 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
jsproxy.dll         5.0.2920.0          13 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
msaahtml.dll        <File Missing>      Not Available
          Not Available       Not Available       Not
Available
mshtml.dll          5.0.2920.0          2302 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
msjava.dll          5.0.3234.0          918 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
msoss.dll <File Missing>      Not Available       Not
Available Not Available       Not Available
msxml.dll 5.0.2920.0          521 KB    12/7/1999
8:00:00 AM          C:\WINNT\system32   Microsoft
Corporation
occache.dll         5.0.2920.0          86 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
ole32.dll 5.0.2181.1          966 KB    12/7/1999
8:00:00 AM          C:\WINNT\system32   Microsoft
Corporation
oleaut32.dll        2.40.4512.1         600 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
olepro32.dll        5.0.4512.1          160 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
rsabase.dll         5.0.2150.1          129 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
rsaenh.dll          <File Missing>      Not Available
          Not Available       Not Available       Not
Available
rsapi32.dll         <File Missing>      Not Available
          Not Available       Not Available       Not
Available
rsasig.dll          <File Missing>      Not Available
          Not Available       Not Available       Not
Available
schannel.dll        5.0.2170.0          140 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
shdoc401.dll        <File Missing>      Not Available
          Not Available       Not Available       Not
Available
shdocvw.dll         5.0.2920.0          1078 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
shell32.dll         5.0.2920.0          2297 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
shlwapi.dll         5.0.2920.0          283 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
url.dll   5.0.2920.0          82 KB     12/7/1999
8:00:00 AM          C:\WINNT\system32   Microsoft
Corporation
urlmon.dll          5.0.2920.0          427 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
vbscript.dll        5.1.0.4615          428 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
webcheck.dll        5.0.2920.0          252 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
win.com   5.0.2134.1          24 KB     12/7/1999
8:00:00 AM          C:\WINNT\system32   Microsoft
Corporation
wininet.dll         5.0.2920.0          457 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
winsock.dll         3.10.0.103          3 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
wintrust.dll        5.131.2143.1        162 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
wsock.vxd <File Missing>      Not Available       Not
Available Not Available       Not Available
wsock32.dll         5.0.2152.1          21 KB
          12/7/1999 8:00:00 AM
          C:\WINNT\system32   Microsoft Corporation
```

```
wsock32n.dll        <File Missing>      Not Available
        Not Available       Not Available       Not
Available

[Connectivity]

Item      Value
Connection Preference         Never dial
EnableHttp1.1       1
ProxyHttp1.1        0

LAN Settings

AutoConfigProxy     wininet.dll
AutoProxyDetectMode Disabled
AutoConfigURL
Proxy     Disabled
ProxyServer
ProxyOverride

[Cache]

[ Following are sub-categories of this main category
]

[Summary]

Item      Value
Page Refresh Type   Automatic
Temporary Internet Files Folder         C:\Documents
and Settings\db2admin\Local Settings\Temporary
Internet Files
Total Disk Space    38154 MB
Available Disk Space          33625 MB
Maximum Cache Size  1192 MB
Available Cache Size          1192 MB

[List of Objects]

Program File        Status    CodeBase
No cached object information available

[Content]

[ Following are sub-categories of this main category
]

[Summary]

Item      Value
Content Advisor     Disabled

[Personal Certificates]

Issued To Issued By Validity  Signature Algorithm
No personal certificate information available


[Other People Certificates]

Issued To Issued By Validity  Signature Algorithm
No other people certificate information available

[Publishers]

Name
No publisher information available

[Security]

Zone      Security Level
Local intranet      Medium-low
Trusted sites       Low
Internet  Medium
Restricted sites    High
```

Microsoft COM Component Configuration Parameters

The component services tool in Windows 2000 Server was used to change the queue settings for the TPCC COM+ single queue component. The single queue component was set to enable object pooling, object construction, just in time activation, and component supports events and statistics. The min and max pool size for the single queue component on the client was 180. Delivery threads were set under the TPCC key in the registry at 45. The construction string was Dummy String

Appendix D: 60-Day Space

60 Days Space Computation

All Data sizes are in MB unless otherwise stated

Warehouses	1,530	**tpmC**	18,661.85	**tpmC/W**	12.20

Table	**Rows**	**Data**	**Index**	**5% Space**	**Total Space**
History	45,900,000	2,840	0	0	2,840
Orders	45,900,000	1,691	1,290	0	2,981
Order-line	459,004,838	30,148	0	0	30,148
New-order	94,860,000	1,849	0	92	1,941
Warehouse	1,530	5	0	0	5
District	15,300	6	0	0	6
Item	100,000	18	0	1	19
Customer	45,900,000	35,864	2,216	1,904	39,984
Stock	153,000,000	49,809	0	2,490	52,299
					130,224
Free Space	10,757				
Dynamic Space	34,679				
Static Space	94,255				
Daily Growth	6,768				
Daily Spread	605				
60 Days MB	536,640				
60 Days GB	524				

Log File Storage Requirement:

Log Pages Written	379,435.00	log file storage used in a steady state 30 minute interval
Total N-O Txn	559,855.50	New Order transactions completed during the same 30 minute interval du
Log per N-O txn	2.71	KB of log storage used per New Order transaction (Log page size = 4k)
8 Hour Log (GB)	23.16	8-hour log storage required

Disks Type	**Disk Formatted Capacity (GB)**	**SUT # of Disks**	**SUT Capacity (GB)**	**Priced # of Disks**	**Priced Capacity (GB)**
28 External disks for Data	16.930	28	474	28	474
2 Internal disks for Log	33.860	2	68	2	68
4 Internal disks for Data	16.930	4	68	4	68
1 Internal OS disk	33.860	1	34	1	34
Priced Space (GB)			643		643

Appendix E: Third Party Letters

July 6, 2004

Michael Nikolaiev
Director, Database Engineering
Compaq Computer Corporation
20555 SH-249 MS-150402
Houston TX, 77070 USA

Dear Mr. Nikolaiev,

The table shown below lists the U.S. pricing for the DB2 Universal Database Express Edition product that has been used in TPC-C Benchmark test.

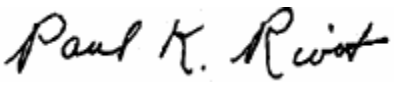
All prices shown are in U.S. Dollars.

Description	**Price**
DB2 UDB Express Edition CPU Option d535pll (processor lic+sw maint 12 mo)	$4,874
DB2 UDB Express Edition CPU Option Support Renewal E013SLL (per processor/per year). 2 years for 1 processors @ $975 each	$1,950

This quote is valid for 90 days.

If I can be of any further assistance, please contact me at 914-766-1325 or privot@us.ibm.com.

Yours Truly,



Paul Rivot
Director of DB2 Servers and OLTP
Route 100
Somers, NY 10589

SUSE LINUX AG
Maxfeldstr. 5
D-90409 Nuernberg
Germany

Holger Dyroff
suse@suse.com
www.suse.com

T: +49 (0) 911 – 740 53 0
F: +49 (0) 911 – 740 53 482

SUSE LINUX AG | Maxfeldstr. 5 | D-90409 Nuernberg

Rav Ahuja.
Worldwide Product Manager - DB2 for Linux
IBM DB2 Information Management Software
905.413.2896 rsahuja@ca.ibm.com

Your sign	Our Sign	Customer No	Offer No	Date
			NBG-IBM-20040614	14. Jun 2004

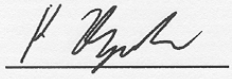
SUSE LINUX Enterprise Server 9 for x86

Per your request for pricing information for SUSE Linux Enterprise Server 9 for x86 to be used in your TPC-C benchmark testing, SUSE is pleased to provide the following quote. All prices are shown in USD excl. VAT.

Partnumber	Description	Units	Unit Price	Extended Price
N/A*	1 Year Maintenance and Support for SUSE LINUX Enterprise Server 9 for x86 Processors	3	$399.00	$1,197.00
			Total	$1,197.00

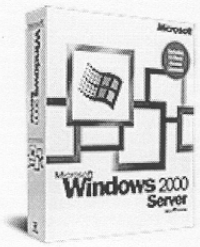
*Please note that these products have not been released yet and will be available for purchase on September 1st, 2004, at which time the part numbers will have been determined. The products above will be available for purchase at *www.suse.com* or US sales at 1-888-875-4689 or contact suse@suse.com

SUSE Linux AG



BuyCheapSoftware.com

Windows 2000 Server, (5-CAL) Full Retail Box



Price:	$ 679.00
SKU:	MSWS05RE
Mfg. Part:	C1100016
Version:	Full 5-CAL Retail Box
Description:	Windows 2000 Server, Full (5-Client) Version Retail Box. This MS software is the US Part number and full Microsoft support.

The network operating system for the next generation of PC computing

The successor to Windows NT Server V4.0, Microsoft Windows 2000 Server delivers new Internet services, plus increased reliability, ease of use, manageability, and support for the newest devices.

Key Benefits

- **Internet-Enable Your Business**
  Today's successful businesses are becoming more and more dependent on the Internet. Windows 2000 Server will enable organizations to readily pursue Internet-based solutions and opportunities. With comprehensive Web, security and communication technologies built-in, and the scalability and performance to handle the demands of Internet traffic, Windows 2000 Server delivers a unique, Internet-enabled platform on which to grow, adapt or transform your business.
  - Platform for building and running rich Web-based solutions
  - Internet scalability and performance
  - Securely extend to employees, partners and customers
- **Increase Reliability**
  Windows 2000 Server will enable you to minimize interruptions to end-users working on the network. With system architecture improvements for higher server uptime, fault tolerant and redundant systems for increased availability, and online configuration and maintenance capabilities, Windows 2000 Server delivers the confidence that your servers will be up and you will be open for business.
  - High System Uptime - less unplanned downtime
  - Increased server and network availability
  - Dynamic System Configuration - less planned downtime
- **Easier to Use and Manage**
  Windows 2000 Server will enable you to increase efficiencies and productivity across your organization. With improvements that make the system easier to deploy, manage and use, powerful centralized administration enabled by Active Directory, and standard based-approach to interoperability with your existing systems, Windows 2000 Server will increase efficiencies of your IT staff, end users and systems.
  - Easy to deploy, configure and use
  - Centralized management for lower TCO

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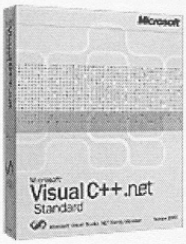
Visual C++ .NET Standard 2003



Price:	$ 94.00
SKU:	MSCN23SR
Mfg. Part:	254-00257
Version:	Full Retail Version
Description:	Visual C++ .NET Standard 2003 Edition, Full Retail Box, for Windows NT-4.0/2000-Pro/XP-Pro and Windows 2000/2003-Server.

Visual C++ .NET 2003

Visual C++ .NET is the powerful toolset for creating best-in-class Windows-based and .NET-connected applications and components using the C++ development language. This robust development environment comprises highly ISO conformant compilers, industry standard STL, ATL and MFC libraries, and powerful IDE features enabling efficient editing and debugging of source code. Developers of all skill levels will enjoy powerful features including the ability to consume and extend the .NET Framework, visual designers for creating Windows Forms and components, a powerful debugger and industry leading compilers, offering advanced options for code generation on 32 and 64 bit platforms.

With Visual C++ .NET 2003, developers can build highly tuned managed applications and components for .NET. Using simple Managed Extensions to the language, code and data-types are compiled for the .NET common language runtime (CLR) as fully optimized Microsoft Intermediate Language instructions (MSIL). Developers can easily incorporate features of the .NET Framework, into C++ applications including full garbage collection, attributes, and threading, into C++ applications. Unique to Visual C++ is the ability to call unmanaged C++ code and ActiveX® components using the highest performing interop technology on .NET (IJW).

Benefits

- Create Highly Tuned .NET-connected Applications and Components
  Use Managed Extensions to C++ and compiler support for optimized Microsoft Intermediate Language (MSIL) code generation. Incorporate Microsoft .NET Framework features including garbage collection, Windows Forms, and threading. Call unmanaged code using high-performance C++ interop technology.
- **Create Highly Tuned Unmanaged Windows-based Applications and Components**
  Write and compile unmanaged x86 code.
- **Move Existing C++ Code to .NET Granularly and at a Self-defined Pace**
  Existing C++ code compiles for .NET without the need to rewrite it in a new language. Visual C++ supports intermixed managed and unmanaged code and data to provide maximum performance and control.
- **Build Modern C++ Code and Library Sources with a Highly ISO C++-Compliant Compiler**

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