



# TPC Benchmark D™ Full Disclosure Report

***Digital AlphaServer 8400 5/625 12 CPUs***  
***Using***  
***Oracle8™,***  
***and***  
***Digital UNIX™***

Company Name	System Name	Database Software	Operating System Software
Digital Equipment Corporation	Digital AlphaServer 8400 5/625 12 CPUs	Oracle8 v8.0.4	Digital UNIX V4.0D
Oracle Corporation			

**Availability Date:** May 27, 1998

Total System Cost	TPC-D Power	TPC-D Throughput	Price/Performance
<b>\$2,649,262</b>	<b>2406.2</b>	<b>986.1</b>	<b>\$1,720</b>
Database Size	QppD@ 300GB	QthD@ 300GB	QphD@ 300GB
<b>300GB</b>			

**First Printing May 1998**

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&  
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**Digital AlphaServer 8400**  
**5/625**  
**12 CPUs using Oracle8**

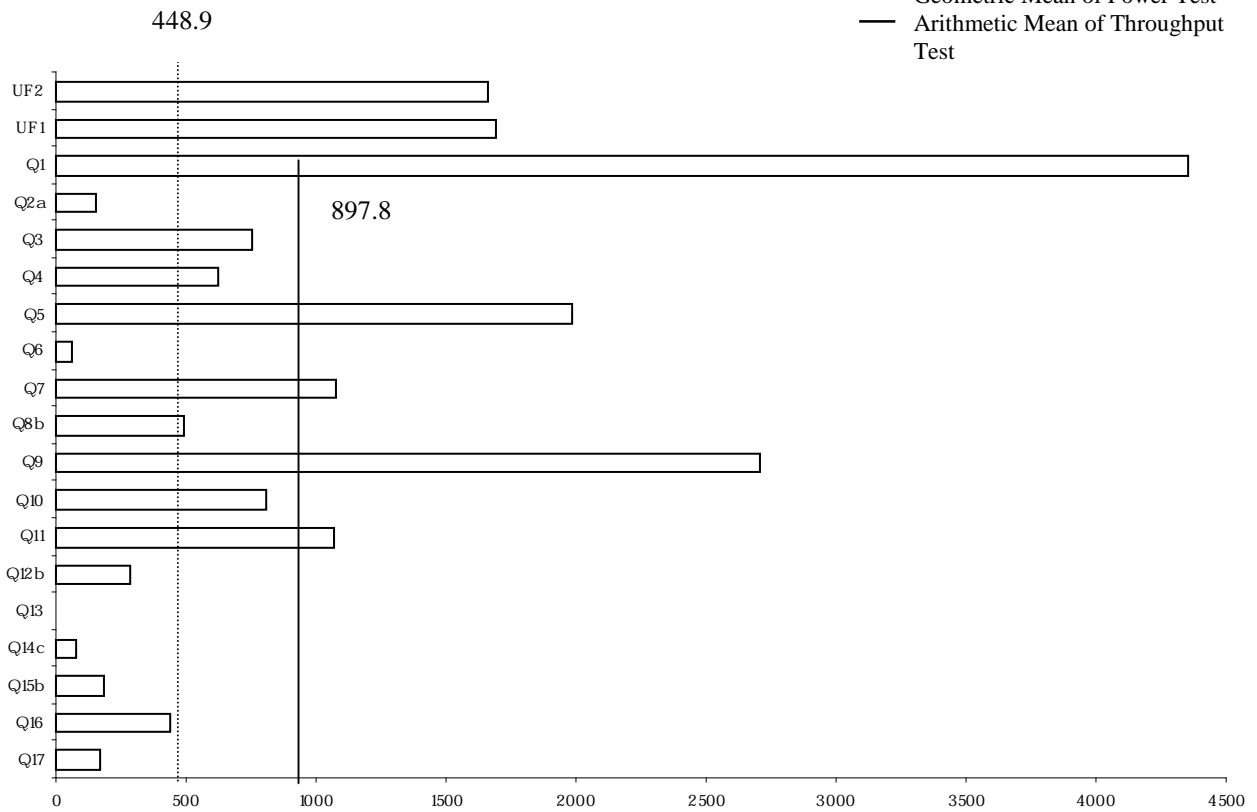
TPC-D Rev. 1.3.1

Report Date:

27 May 98

<b>Total System Cost</b>	<b>TPC-D Power</b>	<b>TPC-D Throughput</b>	<b>Price/Performance</b>	
<b>\$2,649,262</b>	<b>2406.2</b> QppD@ 300GB	<b>986.1</b> QthD@ 300GB	<b>\$1,720</b> QphD@ 300GB	
Database Size	Database Manager	Operating System	Other Software	Availability Date
<b>300GB</b>	<b>Oracle8 v8.0.4</b>	<b>Digital UNIX V4.0D</b>	<b>None</b>	<b>May 27, 1998</b>

Query Time in Seconds



Database Load Time = 22 hours 50 minutes 17 seconds      Disk Size/Database Size=7.47      RAID: No

Components	Qty	Type
Processors	12	612 Mhz DECchip 21164
Cache Memory per Processor		4MB
Memory	2	4 GB
Disk Controllers	29	PCI
Disks	521	4.3 GB Disks
Total Disk Storage		2240.3GB



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Description	Part Number	Third Party	Unit Price	Qty	Extended Price	5 yr. Maint. Price
<b>Server Hardware</b>						
		<b>Brand</b>	<b>Pricing</b>			
AS8400 5/625 EXP SYS 4GB UNIX	DA-292GG-BA	1	318,370	1	318,370	81,740
AS8400/8200 5/625 SMP UNIX	758P2-AX	1	42,250	5	211,250	98,965
4 GB AlphaServer 8xxx Memory	MS7CC-GA	1	93,184	1	93,184	32,047
48Volt PowerRegulator Option	H7263-AA	1	5,968	1	5,968	2,644
PCI PIU for 8400 for System Cab	DWLPA-AA	1	5,850	1	5,850	756
2nd 12 Slot PCI for DWLPB-AA	DWLPA-BA	1	5,850	2	11,700	1,512
PCI-HOST BUS ADAPTER (FWD)	KZPSA-BB	1	712	29	20,648	9,715
10 M Cable, SCSI-3 "P" 1S/1R	BN21K-10	1	138	24	3,312	0
White, North American, No Key	VT510-AA	1	245	1	245	0
LK401-AA KYBD, US/UK	LK401-AA	1	49	1	49	0
4.3GB SCSI Narrow HDD in SBB**	DS-RZ29L-VA	1	688	10	6,880	0
5YR;AS8400 DUAL UNIX BRZ24X7	FM-D84US-60	1	34,603	1		34,603
Dig UNIX Alpha CDRM	QA-MT4AA-H8	1	257	1	257	0
			<b>Subtotal</b>		<b>677,713</b>	<b>261,982</b>
<b>Storage</b>						
cab w/fan tray/7200RPM device	SW800-FA	1	4,562	8	36,496	2,680
7Dev Rackm pwr no I/O Module	BA356-JC	1	789	120	94,680	80,280
I/O Module; 16-bits for BA356	BA35X-MH	1	111	120	13,320	Inc
Active Term; SCSI-2 16-bits	BA35X-ME	1	83	120	9,960	Inc
CRD 5500 Raid Storage Unit	CMD5500	1	22,025	24	528,600	
5YR 7X24/4HR CRD 5500 128/FT	CMD/CRD5500	1	7,708	24		184,992
2.0 M Cable, SCSI-3 "P" 1S/1R	BN21K-02	1	94	240	22,560	
4.3GB 7200RPM UltraSCSI HDD**	DS-RZ1CB-VW	1	753	511	384,783	
			<b>Subtotal</b>		<b>1,090,399</b>	<b>267,952</b>
Oracle License	Oracle	2	150,480	1	150,480	200,736
			<b>Subtotal</b>		<b>150,480</b>	<b>200,736</b>
			<b>Total</b>		<b>\$1,918,592.00</b>	<b>\$730,670.00</b>

Notes:\*\* 10% Spares

1=IC System Solutions, 2=Oracle  
Audited by Information Paradigm, Inc.

**Five-Year Cost of Ownership: \$2,649,262**  
**QphD 1,540.40**  
**\$/QphD \$1,720**

Audited By: Francois Raab of Information Paradigm, Inc.

Notes: 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 Specification. If you find that the stated prices are not available according to these terms, please inform the TPC @ tpc.org. Thank you.



Digital Equipment Corporation  
&  
Oracle Corporation

**Digital AlphaServer 8400**  
**5/625**  
**12 CPUs using Oracle8**

TPC-D Rev. 1.3.1

Report Date:  
27 May, 1998

**Numeric Quantity Summary**

**AlphaServer 8400 5/625 12 CPUs**

**Measurement Results:**

Database Scaling (SF/Size)	300
Total Data Storage/Database Size	7.47
Database Load Time	22 hours, 50 minutes, and 17 seconds
Query Streams for Throughput Test	0
TPC-D Power Metric (QppD@300GB)	2406.2
TPC-D Throughput Metric (QthD@300GB)	986.1
Composite QphD@300GB	1540.4
Total System Price Over 5 Years	2,649,262
TPC-D Price/Performance Metric	\$1,720

**Measurement Intervals:**

Measurement Interval in Throughput Test (Ts)	18,619 seconds
--	----------------

**Duration of Stream Execution:**

Stream ID	Seed	Start Date	Start Time	End Date	End Time
Stream 00	1661279136	Sun, May 24, 1998	8:45:53	Sun, May 24, 1998	13:56:12
UF1		Sun, May 24, 1998	8:45:53	Sun, May 24, 1998	9:14:06
UF2		Sun, May 24, 1998	13:28:30	Sun, May 24, 1998	13:56:12

**TPC-D Timing Intervals (in seconds)**

Q1	Q2a	Q3	Q4	Q5	Q6	Q7	Q8b	Q9	Q10
4357.1	155.5	754.8	625.4	1988.2	63.1	1077.1	491.4	2710.8	810.1

Q11	Q12b	Q13	Q14c	Q15b	Q16	Q17	UF1	UF2
1068.8	288.2	5.9	75.9	186.0	439.7	166.0	1693.7	1661.8





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Ray Glasstone  
 Open Systems Division  
 Oracle Corporation  
 100 Oracle Parkway  
 Redwood Shores, CA 94065

May 29, 1998

I verified the TPC Benchmark™ D performance of the following configuration:

Platform: Digital AlphaServer 8400 5/625 12 CPUs  
 DataBase Manager: Oracle8 Version 8.0.4  
 Operating System: Digital UNIX Version 4.0D

The results were:

CPU's Speed	Memory	Disks	QppD@300GB	QthD@300GB
Digital AlphaServer 8400 5/625				
12 x DECchip 21164 (612 Mhz)	4MB L2/CPU 8GB Main	474 x 4.3 GB	2,406.2	986.1

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

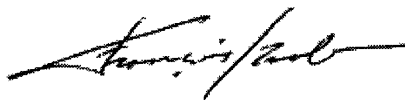
- The TIME table was not used
- The input variables were generated by QGEN
- The database was populated using DBGEN
- The database was maintained by the "Reset" method
- The throughput metric was computed using the results from the power test
- The ratio between the longest and the shortest query was such that no adjustment was necessary
- A compliant implementation specific layer was used

- The query text was produced using compliant variants and minor modifications
- The database records were defined with the proper layout and size
- The database was properly scaled to 300GB and populated accordingly
- The database load time was correctly measured and reported
- The ACID Properties were verified and met
- The reported execution times were correctly measured and reported
- Measurement repeatability was verified
- At least 8 hours of database log was configured
- The system pricing was verified for major components and maintenance
- The major pages from the FDR were verified for accuracy

Additional Audit Notes:

All of the ACID tests, except for the test of durability from system crash, were waived during this audit as these tests had already been executed during a previously audited TPC-D result on a configuration using identical binaries for the OS and the RDBMS.

Respectfully Yours,



François Raab  
President

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# TPC Benchmark D Full Disclosure

The *TPC Benchmark D Standard Specification*<sup>1</sup> requires test sponsors to publish, and make available to the public, a full disclosure report for the results to be considered compliant with the Standard. The required contents of the full disclosure report are specified in Clause 8. This report is intended to satisfy the Standard's requirement for full disclosure. It documents the compliance of the benchmark tests with each item listed in Clause 8 of the *TPC Benchmark D Standard Specification*.

In the *Standard Specification*, the main headings in Clause 8 are keyed to the other clauses. The headings in this report use the same sequence, so that they correspond to the titles or subjects referred to in Clause 8.

Each section in this report begins with the text of the corresponding item from Clause 8 of the *Standard Specification*, printed in italic type. The plain type text that follows explains how the tests comply with the TPC Benchmark C requirement. In sections where Clause 8 requires extensive listings, the section refers to the appropriate appendix at the end of this report.

## 1. General Items

### 1.1 Benchmark Sponsor

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

Digital Equipment Corporation and Oracle Corporation are the sponsors of this TPC-D benchmark.

### 1.2 Summary Statement

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

- *Database Tuning Options*
- *Optimizer/Query execution options*
- *Query processing toll/language configuration parameters*
- *Recovery/commit options*
- *Consistency/locking options*
- *Operating system and configuration parameters*

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

Appendix A contains the Digital UNIX and Oracle parameters used in this benchmark.

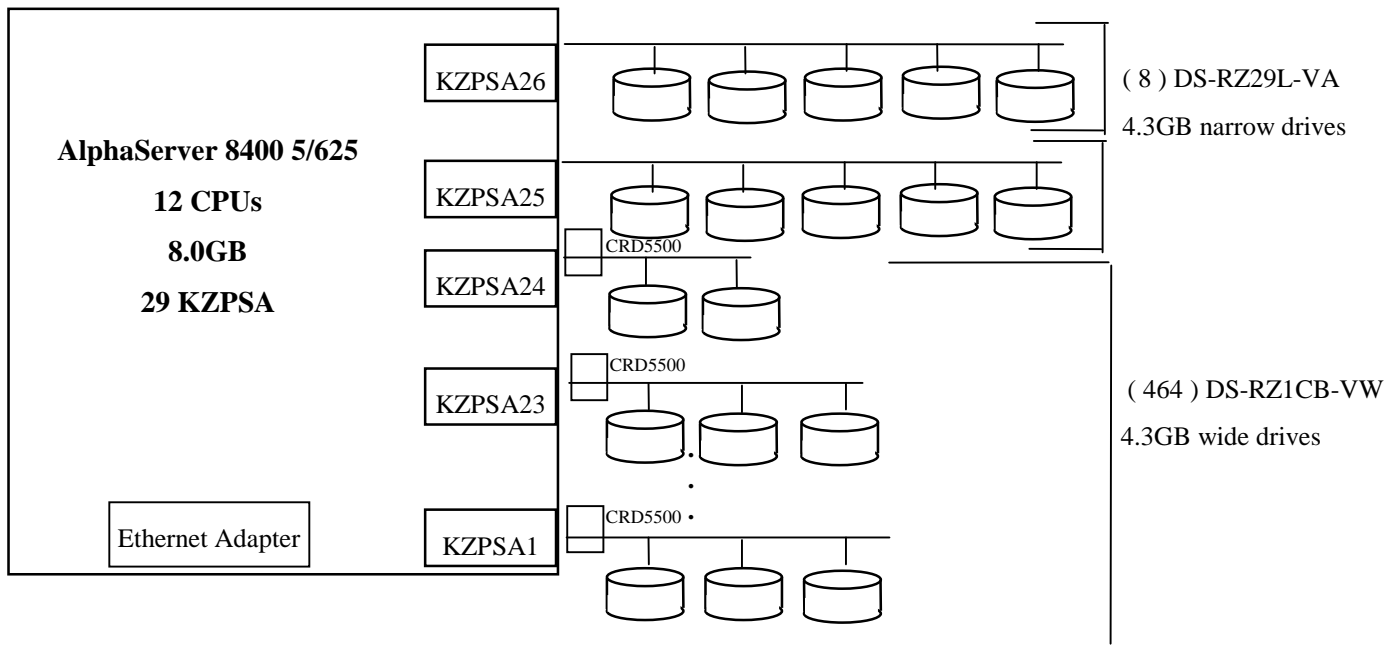
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<sup>1</sup> *TPC Benchmark D Standard Specification*, Transaction Processing Performance Council, Version 1.3.1

### 1.3 Configuration Diagrams

Provide diagrams of both the measured and priced configurations, accompanied by a description of the differences. This includes, but is not limited to:

- Number and type of processors
- Size of allocated memory, and any specific mapping/partitioning or memory unique to the test.
- Number and type of disk drive units (and controllers, if applicable)
- Number of channels or bus connections to disk units, including their protocol type
- Number of LAN (e.g. Ethernet) connections, including routers, workstations, terminals, etc., that were physically used in the test or are incorporated into the pricing structure.
- Type and the run-time execution location of software components (e.g., DBMS, client processes, transaction monitors, software drivers, etc.)



The priced and test configurations are identical except the tested system did not include the spare drives.

## 2. Clause 1 Logical Database Design Related Items

### 2.1 Database Definition Statements

Listings must be provided for all table definition statements and all other statements used to set up the test and qualification databases

Appendix B contains the scripts that create and analyze the tables and indexes for the TPC-D database.

## 2.2 Physical Organization

*The physical organization of tables and indices, within the test and qualification databases, must be disclosed.*

No record clustering or index clustering was used.

## 2.3 Horizontal Partitioning

*Horizontal partitioning of tables and rows in the test and qualification databases (see Clause 1.5.4) must be disclosed*

No horizontal partitioning was used.

## 2.4 Replication

*While there are some restrictions placed upon physical replication of objects in the test and qualification databases (see Clause 1.5.6) any such replication must be disclosed.*

No replication was used.

# 3. Clause 2 Queries and Update Functions

## 3.1 Query language

*The query language used to implement the queries must be identified.*

SQL was the query language used to implement all queries.

## 3.2 Verifying Method for Random Number Generation

*The method of verification for the random number generation must be described unless the supplied DBGEN and QGEN were used.*

The supplied DBGEN version 1.20 and QGEN version 1.20 were used to generate random numbers for this TPC-D benchmark. The random number generator code was changed to allow its proper behavior in the 64-bit system.

## 3.3 Generating Values for Substitution Parameters

*The method used to generate values for substitution parameters must be disclosed. If QGEN is not used for this purpose, then the source code of any non-commercial tool used must be disclosed.*

The supplied QGEN version 1.20 was used to generate the substitution parameters

## 3.4 Query Text and Output Data from Qualification Database

*The executable query text used for query validation must be disclosed along with the corresponding output data generated during the execution of the query text against the qualification database. The output data for the power and throughput tests must be made available electronically upon request.*

Appendix C contains the query text and query output.

### 3.5 Query Substitution Parameters and Seeds Used

*The query substitution parameters used for all performance tests must be disclosed in tabular format, along with the seeds used to generate these parameters.*

Appendix D contains the seed and query substitution parameters.

### 3.6 Query Isolation Level

*The isolation level used to run the queries must be disclosed.*

Level 1 isolation was used to run the queries.

### 3.7 Source Code of Update Functions

*The details of how the update functions were implemented must be disclosed (including source code of any non-commercial program used).*

The updated function is part of the implementation-specific layer/driver code included in Appendix E.

### 3.8 Database Maintenance Option

*The details of the database maintenance option select (i.e., reset or evolve) must be disclosed including source code of any non-commercial program used).*

This implementation uses the reset option. The database was reset to its original data-set by using two functions, **resuf1.sh** and **resuf2.sh**, which use the same implementation of inserts and deletes as **runuf1.sh** and **runf2.sh** but with functionality inverted.

## 4. Clause 3 Database System Properties

### 4.1 Atomicity

*The system under test must guarantee that 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.*

#### 4.1.1 Completed Transaction

*Perform the ACID Transaction for a randomly selected set of input data and verify that the appropriate rows have been changed in the ORDER, LINEITEM, and HISTORY tables.*

1. The total price from the ORDER table and the extended price from the LINEITEM table were retrieved for a randomly selected order key.
2. The ACID Transaction was performed using the order key from step 1.
3. The ACID Transaction was committed.
4. The total price form the ORDER table and the extended price form the LINEITEM table were retrieved for the same order key. It was verified that the appropriate rows had been changed.

### 4.1.2 Aborted Transaction

*Perform the ACID Transaction for a randomly selected set of input data, substituting a ROLLBACK of the transaction for the COMMIT of the transaction. Verify that the appropriate rows have not been changed in the ORDER, LINEITEM, and HISTORY tables.*

1. The total price from the ORDER table and the extended price for the LINEITEM table were retrieved for a randomly selected order key.
2. The ACID Transaction was performed using the order key from step 1. The transaction was stopped prior to the commit.
3. The ACID Transaction was ROLLED BACK.
4. The total price from the ORDER table and the extended price from the LINEITEM table were retrieved for the same order key. It was verified that the appropriate rows had not been changed.

## 4.2 Consistency

*Consistency is the property of the application that requires any execution of transactions to take the database from one consistent state to another.*

### 4.2.1 Consistency Test

*Verify that ORDER and LINEITEM tables are initially consistent, submit the prescribed number of ACID Transactions with randomly selected input parameters, and re-verify the consistency of the ORDER and LINEITEM 4.2.1.*

1. The consistency of the ORDER and LINEITEM tables was verified based on a sample of O\_ORDERKEY's.
2. 100 ACID Transactions were submitted from each of 2 execution streams.
3. The consistency of the ORDER and LINEITEM tables was reverified.

## 4.3 Isolation

*Operations of concurrent transactions must yield results which are indistinguishable from the results which would be obtained by forcing each transaction to be serially executed to completion in some order.*

### 4.3.1 Read-Write Conflict with Commit

*Demonstrate isolation for the read-write transaction and a read-only transaction when the read-write transaction is committed.*

1. An ACID Transaction was started for a randomly selected O\_KEY, L\_KEY, and DELTA. The ACID Transaction was suspended prior to COMMIT.
2. An ACID Query was started for the same O\_KEY used in step 1. The ACID Query completed and did not see the uncommitted changes made by the ACID Transaction.
3. The ACID Transaction COMMITTED.

### 4.3.2 Read-Write Conflict with Rollback

*Demonstrate isolation for the read-write conflict of a read-write transaction and a read-only transaction when the read-write transaction is rolled back.*

1. An ACID Transaction was started for a randomly selected O\_KEY, L\_KEY and DELTA. The ACID Transaction was suspended prior to ROLLBACK.
2. An ACID Query was started for the same O\_KEY used in step1. The ACID Query completed and did not see the uncommitted changes made by the ACID Transaction.
3. The ACID Transaction was ROLLED BACK.

### 4.3.3 Write-Write Conflict with Commit

*Demonstrate isolation for the write-write conflict of two update transactions when the first transaction is committed.*

1. An ACID Transaction, T1, was started for a randomly selected O\_KEY, L\_KEY, and DELTA. The ACID Transaction was suspended prior to COMMIT.
2. Another ACID Transaction, T2, was started using the same O\_KEY and L-KEY and a randomly selected DELTA.
3. T2 waited.
4. T1 was allowed to COMMIT and T2 completed.
5. It was verified that  $T2.L\_EXTENDEDPRICE = T1.L\_EXTENDEDPRICE + (DELTA1 * (T1.L\_EXTENDEDPRICE / T1.L\_QUANTATIIY))$

### 4.3.4 Write-Write Conflict with Rollback

*Demonstrate isolation for the write-write conflict of two update transactions when the first transaction is rolled back.*

1. An ACID Transaction, T1, was started for a randomly selected O\_KEY, l-KEY and DELTA. The ACID Transaction was suspended prior to ROLLBACK.
2. Another ACID Transaction, T2, was started using the same O\_KEY and L\_KEY and a randomly selected DELTA.
3. T2 waited.
4. T1 was allowed to ROLLBACK and T2 completed.
5. It was verified that  $T2.L\_EXTENDEDPRICE = T1.L\_EXTENDEDPRICE$ .

### 4.3.5 Concurrent Progress of Read and Write Transactions

*Demonstrate the ability of read and write transactions affecting different database tables to make progress concurrently.*

1. An ACID Transaction, T1, was started for a randomly selected O\_KEY, L-KEY and DELTA. The ACID Transaction was suspended prior to COMMIT.
2. Another Transaction, T2, was started which did the following :  
For random values of PS\_PARTKEY and PS\_SUPPKEY, all columns of the PARTSUPP table for which PS\_PARTKEY and PS\_SUPPKEY are equal, are returned.
3. T2 completed.
4. T1 was allowed to COMMIT.
5. It was verified that appropriate rows in ORDER, LINEITEM and HISTORY tables were changed.

### 4.3.6 Isolation Test 5

*This test demonstrates the ability of read and write transactions affecting different database tables to make progress concurrently.*

1. An ACID Transaction, T1, was started for a randomly selected O\_KEY, L\_KEY, and DELTA. The ACID Transaction was suspended prior to ROLLBACK.
2. Another ACID Transaction was started using random values for PS\_PARTKEY and PS\_SUPPKEY.
3. ACID Transaction T2 completed.
4. ACID Transaction 1 completes and the appropriate rows in the ORDER, LINEITEM, and HISTORY tables have been changed.

### 4.3.7 Isolation Test 6

*This test demonstrates the continuous submission of arbitrary (read-only) queries against one or more tables of the database does not indefinitely delay update transactions affecting those tables from making progress.*

1. A transaction, T1, executing Q1 against the qualification database, was started using a randomly selected DELTA.
2. Transaction T1 completed Q1.
3. A second transaction, T3, executing Q1 was started using a DELTA random but different for T1s.
4. An ACID Transaction, T2, was started for a randomly selected O\_KEY, L\_KEY AND delta.
5. T2 completed and the appropriate rows in the ORDER, LINEITEM, and HISTORY tables had been changed.
6. T3 completed.

### 4.3.8 Read-Only Query Conflict with Update Transaction

*Demonstrate that the continuous submission of arbitrary (read-only) queries against one or more tables of the database does not indefinitely delay update transactions affecting those tables, from making progress.*

1. A Transaction, T1, was started which executed Q1 (from Clause 2.3) against the qualification database, with DELTA = 0.
2. An ACID Transaction, T2, was started for a randomly selected O\_KEY, L-KEY and DELTA.
3. T2 completed.
4. T1 completed subsequently.
5. It was verified that appropriate rows in the ORDER, LINEITEM and HISTORY tables were changed.

## 4.4 Durability

*The tested system must guarantee durability: the ability to preserve the effects of committed transactions and insure database consistency after recovery from any one of the failures listed in Clause 3.5.2.*

### 4.4.1 Failure of a Durable Medium

*Guarantee the database and committed updates are preserved across a permanent irrecoverable failure of any single durable medium containing TPC-D database tables or recovery log tables.*

1. The disk containing the TPC-D tables of the qualification database was cloned using the UNIX “dd” utility.

2. The current number of rows in the HISTORY table was counted giving HISTORY\_BEFORE.
3. A test was started with 2 concurrent streams of execution.
4. The disk containing the tables was removed. Errors were reported by the database.
5. The backup of the database was restored to a replacement disk.
6. Oracle8 was started again and the transaction log was applied to the database.
7. The current number of rows in the HISTORY tables was counted giving HISTORY\_AFTER.
8. It was verified that HISTORY\_AFTER - HISTORY\_BEFORE was equal to the number of committed transactions which was recorded in a file.

#### 4.4.2 System Crash

*Guarantee the database and committed updates are preserved across an instantaneous interruption (system crash/system hang) in processing which requires the system to reboot to recover.*

The system crash and memory failure tests were combined. Power to the server was turned off during the durability test. When power was restored, the system rebooted and the database was restarted. The durability success file and the HISTORY table were compared and the counts matched.

#### 4.4.3 Memory Failure

*Guarantee the database and committed updates are preserved across failure of all or part of memory (loss of contents)*

See the previous section.

## 5. Clause 4 Scaling and Database Population

### 5.1 Ending Cardinalities of Tables

*The cardinality (e.g. the number of rows) of each table of the test database, as it existed at the completion of the database load (see clause 4.2.5) must be disclosed.*

Table Name	Cardinality
Orders	450,000,000
Lineitem	1,799,989,091
Customer	45,000,000
Parts	60,000,000
Supplier	3,000,000
Parsupp	240,000,000
Nation	25
Region	5

## 5.2 Distribution of Tables and Logs Across Media

*The distribution of tables and logs across all media must be explicitly described.*

- ◆ 24 KZPSA PCI-SCSI adapters which were attached to 24 CRD5500 RAID controllers were used for the database tables. Eight CRD5500s had 20 RZ1CB wide drives connected to them and 16 CRD5500s had 19 drives attached to them. RZ1CB disks were striped to form logical drives.
  - ◆ Each logical drive had:
    - ◆ 2.08% of the TPC-D tables
    - ◆ 2.08% of the TPC-D indexes
    - ◆ 2.08% of the temporary tablespace
- ◆ 1 KZPSA PCI-SCSI adapters was used for the mirrored redo logs.
  - ◆ The KZPSA had 2 RZ1CB wide-drives connected to it.
    - ◆ The disk had 100% of the redo log
- ◆ 1 KZPSA PCI-SCSI adapter with 6 DS-RZ29B narrow drives connected to was used for:
  - ◆ Root - 1 disk
  - ◆ Swap - 4 disks
  - ◆ Oracle - 1 disk

## 5.3 Modifications to the DBGEN

*Any modifications to the DBGEN (see clause 4.2.1) source code must be disclosed. In the event that a program other than DBGEN was used to populate the database, it must be disclosed in its entirety.*

The supplied DBGEN version 1.20 was used for the database population for this benchmark. DBGEN was modified to support partitioning of data. The random number generator code was changed to allow its proper behavior in the 64-bit system.

## 5.4 Database Content of Initial Ten Rows

*The content of the first 10 rows of each table in the test database must be disclosed.*

Appendix F contains the first 10 rows of each table in the test database.

## 5.5 Database Load Time

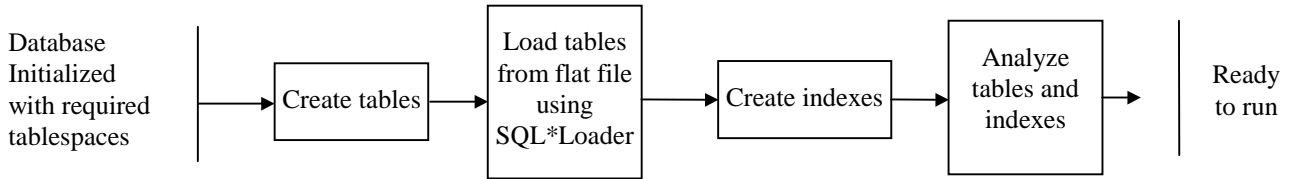
*The database load time for the test database (see clause 4.3) must be disclosed.*

The database load time was 22 hours, 50 minutes and 17 seconds.

## 5.6 Database Load Mechanism Details and Illustration

The details of the database load mechanism must be described and illustrated with a block diagram.

The database was loaded using SQL\*Loader, which read the data from flat files created by the DBGEN program.



## 5.7 Data Storage Ratio

The data storage ratio must be disclosed. It is computed as the ratio between the total amount of priced disk space, and the chosen test database size as defined in Clause 4.1.3.

The data ratio is computer from the following information:

Disk Type	# of Disks	Space per Disk	Sub-total Disk Space	Total Size	Data Storage Ratio
RZ1CB-VW	511	4.3 GB	2197.3 GB		
DS-RZ29L-VA	10	4.3 GB	43 GB		
Total:	521			2240.3 GB	7.47

## 6. Clause 5 Performance Metrics and Execution Rules

### 6.1 Steps in Power Test

The details of the steps followed to implement the power test (e.g., system boot, database restart, etc.) must be disclosed.

The following steps were used to implement the power test:

1. Database Restart
2. UF1 Update Transaction
3. Stream 00 Execution
4. UF2 Update Transaction

### 6.2 Timing Intervals for Each Query and Update Function

The timing intervals for each query of the measured set and for both update functions must be reported for the power test.

The power test timing intervals are contained in the Numerical Quantity Summary in the Preface of this document.

### **6.3 Number of Streams for the Throughput Test**

*The number of execution streams used for the throughput test must be disclosed.*

The throughput test used only one execution stream. Since only one stream was used, the values for the power test are used for the throughput test.

### **6.4 Start and End Date/Times for Each Query Stream**

*The start time and finish time for each query execution stream must be reported for the throughput test.*

The throughput test start time and finish time for each stream are contained in the Numerical Quantity Summary in the Preface of this document.

### **6.5 Total Elapsed Time of the Measurement Interval**

*The total elapsed time of the measurement interval.*

The total elapsed time of the throughput test was 18,619 seconds.

### **6.6 Update Function Start Date/Time and Finish Date/Time**

*Start and finish time for each update function in the update stream must be reported for the throughput test.*

The start and finish time for each update function in the update stream are contained in the Numerical Quantity Summary in the Preface of this document.

### **6.7 Timing Intervals for Each Query and Each Update Function for Each Stream**

*The timing intervals for each query and each update function for each stream must be reported for the throughput test.*

The timing intervals for each query and each update function for the throughput test are contained in the Numerical Quantity Summary in the Preface of this document.

### **6.8 Performance Metrics**

*Verify that the metrics are computed as required.*

The performance metrics and the numbers on which they are based, are contained in the Numerical Quantity Summary in the Preface of this document.

### **6.9 Reproducibility Method**

*A description of the method used to determine the reproducibility of the measurements must be reported. This must include the performance metrics ( $Q_{ppD}$ ,  $Q_{thD}$ , and  $Q_{phD}$ ) from the reproducibility runs.*

Performance results from the first two executions of the TPC-D benchmark indicated that the following percent difference for the metric points:

Run ID	QppD@300GB	QthD@300GB	QphD@300GB
Run 1	2461.6	972.8	1547.5
Run 2	2406.2	986.1	1540.4
Difference	2.3%	1.4%	0.5%

## 7. Clause 6 SUT and Driver Implementation

### 7.1 Driver

*A detailed description of how the driver performs its functions must be supplied, including any related source code or scripts. This description should allow an independent reconstruction of the driver.*

The Power Test is performance by a shell script called runpower1.sh. Qgen is first called with a stream id of 0 to generate the QET for the Power Test. UF1 is then started by executing the runuf1.sh script. Query submission follows, with the qexec.ott ISL program. The execution of the UF2 script runuf2.sh rounds up the Power Test execution. Both wall-clock and high-resolution times are collected for all measurement intervals.

### 7.2 Implementation-Specific Layer

*If any implementation-specific layer is used, then a detailed description of how it performs its functions must be supplied, including any related source code or scripts. This description should allow an independent reconstruction of the implementation-specific layer.*

Query execution text generated by QGEN is picked up by the ISL program which submits the query to the SUT.

The ISL program (qexec.ott) utilizes the Oracle Call Interface (OCI) to communicate with the Oracle database on the SUT. QETs directly generated by QGEN are read and submitted to the SUT via the ISL program (qexec.ott) as dynamic SQL statements. The ISL program then fetches the query execution output and report it to the user. Timings are taken at intervals specified by Clause 5.3.6.2.

Profile-directed optimization subject to the requirements of 5.2.9 and 5.2.10 was not used.

### 7.3 Update Function

The Update Functions are parallelized by partitioning the dataset and utilizing multiple processes to perform the updated. Two Pro\*C programs are written to perform the inserts and deletes as required by UF1 and UF2. Batch array insert is used for UF1 and logical consistency of the database is ensured by limiting the batching of ORDER and LINEITEM rows to ones that have the same order key ranges.

## **8. Clause 7 Pricing**

### **8.1 Hardware and Software Components**

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

A detailed list of hardware and software used in the priced system is included in the pricing sheet in the executive summary.

### **8.2 Total Five Year Price**

*The total 5-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 total 5-year price of the configuration is \$2,649,262

A detailed price sheet of all the hardware and software used in this configuration and the 1-year and 5-year maintenance cost is included in the executive summary at the beginning of this document.

Oracle prices: \$351,216.

Hardware prices are from reseller price quote. The reseller's quote is included in Appendix G.

### **8.3 Availability Date**

*The committed delivery date for general availability of products used in price calculations must be reported. When the priced system includes products with different dates, the reported availability date for the prices system must be the date at which all components become available.*

All hardware and software components are available now.

## **9. Auditor's Information and Attestation Letter**

*The auditor's agency name, address, phone number, and Attestation letter with a brief audit summary report indicating compliance must be included in the full disclosure report. A statement should be included specifying who to contact in order to obtain further information regarding the audit process.*

The auditor's attestation letter is included before the 'Table of Contents' of this report.



# Appendix A

## UNIX PARAMETERS

```
#
# OSF/1 1.2
io:
    dma-sg-map-unload-zero=0

#
# Contiguous Memory Allocation for loadable driver
subsystems
#
cma_dd:

#
# EISA_Option = Board_Id Function_Name Driver_Name
Type
#
eisa:
#
# %%EISA
#
    EISA_Option = Board_Id - ADP0001, Function_Name -
    AHA1740, Driver_Name - aha, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
    EISA_Option = Board_Id - ADP0002, Function_Name -
    AHA1740, Driver_Name - aha, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
    EISA_Option = Board_Id - DEC2500, Function_Name -
    Null, Driver_Name - envram, Type - C, Adpt_Config - N
    EISA_Option = Board_Id - ISA1010, Function_Name -
    'COM,1', Driver_Name - ace, Int_Aft_Attach - 1, Type - C,
    Adpt_Config - N
    EISA_Option = Board_Id - ISA1010, Function_Name -
    'COM,2', Driver_Name - ace, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
    EISA_Option = Board_Id - ISA1010, Function_Name -
    PAR, Driver_Name - lp, Type - C, Adpt_Config - N
    EISA_Option = Board_Id - DEC2A01, Function_Name -
    SYSMEM, Driver_Name - Null, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
    EISA_Option = Board_Id - DEC2A01, Function_Name -
    'ACECOM,1', Driver_Name - ace, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
    EISA_Option = Board_Id - DEC2A01, Function_Name -
    'ACECOM,2', Driver_Name - ace, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
    EISA_Option = Board_Id - DEC2A01, Function_Name -
    PAR, Driver_Name - lp, Type - C, Adpt_Config - N
    EISA_Option = Board_Id - MLX0070, Function_Name -
    Null, Driver_Name - xcr, Int_Aft_Attach - 1, Type - C,
    Adpt_Config - N
    EISA_Option = Board_Id - MLX0075, Function_Name -
    Null, Driver_Name - xcr, Int_Aft_Attach - 1, Type - C,
    Adpt_Config - N
    EISA_Option = Board_Id - MLX0077, Function_Name -
    Null, Driver_Name - xcr, Int_Aft_Attach - 1, Type - C,
    Adpt_Config - N
    EISA_Option = Board_Id - DEC5000, Function_Name -
    SYSMEM, Driver_Name - Null, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
    EISA_Option = Board_Id - DEC5000, Function_Name -
    'ACECOM,1', Driver_Name - ace, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
    EISA_Option = Board_Id - DEC5000, Function_Name -
    'ACECOM,2', Driver_Name - ace, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
    EISA_Option = Board_Id - DEC5000, Function_Name -
    PAR, Driver_Name - lp, Type - C, Adpt_Config - N
    EISA_Option = Board_Id - DEC5100, Function_Name -
    SYSMEM, Driver_Name - Null, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
    EISA_Option = Board_Id - DEC5100, Function_Name -
    'ACECOM,1', Driver_Name - ace, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
```

```
    EISA_Option = Board_Id - DEC5100, Function_Name -
    'ACECOM,2', Driver_Name - ace, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
    EISA_Option = Board_Id - DEC5100, Function_Name -
    PAR, Driver_Name - lp, Type - C, Adpt_Config - N
    EISA_Option = Board_Id - DEC5301, Function_Name -
    SYSMEM, Driver_Name - Null, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
    EISA_Option = Board_Id - DEC5301, Function_Name -
    'ACECOM,1', Driver_Name - ace, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
    EISA_Option = Board_Id - DEC5301, Function_Name -
    'ACECOM,2', Driver_Name - ace, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
    EISA_Option = Board_Id - DEC5301, Function_Name -
    PAR, Driver_Name - lp, Type - C, Adpt_Config - N
    EISA_Option = Board_Id - DEC6000, Function_Name -
    'SYSMEM', Driver_Name - Null, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
```

```
#
# ISA_Option = Board_Id Function_Name Driver_Name Type
#
isa:
#
# %%ISA
#
    ISA_Option = Board_Id - Null, Function_Name -
    'KBD,MOUSE', Driver_Name - gpc, Int_Aft_Attach - 1, Type -
    C, Adpt_Config - N
    ISA_Option = Board_Id - Null, Function_Name - COM,
    Driver_Name - ace, Int_Aft_Attach - 1, Type - C,
    Adpt_Config - N
    ISA_Option = Board_Id - Null, Function_Name - LPT,
    Driver_Name - lp, Type - C, Adpt_Config - N
    ISA_Option = Board_Id - Null, Function_Name - 'ISA--
    SCC', Driver_Name - iscc, Type - C, Adpt_Config - N
```

```
#
# Pciw_Version Vendor_Id Ddevice_Id Rev Base Sub Pif
Sub_Vid Sub_Did Vid_Mo_Flag Did_Mo_Flag
# Rev_Mo_Flag Base_Mo_Flag Sub_Mo_Flag Pif_Mo_Flag
Sub_Vid_Mo_Flag Driver_Name Type
#
pci:
#
# %%PCI
#
    PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1011,
    Device_Id - 0x4, Rev - 0, Base - 0, Sub - 0, Pif - 0,
    Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
    1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
    Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
    0, Driver_Name - tga, Type - C, Adpt_Config - N
    PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1011,
    Device_Id - 0xd, Rev - 0, Base - 0, Sub - 0, Pif - 0,
    Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
    1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
    Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
    0, Driver_Name - tga, Type - C, Adpt_Config - N
    PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1011,
    Device_Id - 0x17, Rev - 0, Base - 0, Sub - 0, Pif - 0,
    Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
    1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
    Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
    0, Driver_Name - pvp, Type - C, Adpt_Config - N
    PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1011,
    Device_Id - 0x4, Rev - 0, Base - 0, Sub - 0, Pif - 0,
    Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
    1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
    Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
    0, Driver_Name - tga, Type - C, Adpt_Config - N
    PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1011,
    Device_Id - 0x8, Rev - 0, Base - 0, Sub - 0, Pif - 0,
    Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
    1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
```

```

Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - pza, Type - A, Adpt_Config - N
  PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1011,
Device_Id - 0x7, Rev - 0, Base - 0, Sub - 0, Pif - 0,
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - pnvram, Type - C, Adpt_Config - N
  PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1000,
Device_Id - 0x1, Rev - 0, Base - 0, Sub - 0, Pif - 0
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - psio, Type - C, Adpt_Config - N
  PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x101A,
Device_Id - 0x1, Rev - 0, Base - 0, Sub - 0, Pif - 0
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - psio, Type - C, Adpt_Config - N
  PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1000,
Device_Id - 0x5, Rev - 0, Base - 0, Sub - 0, Pif - 0
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - psio, Type - C, Adpt_Config - N
  PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1000,
Device_Id - 0x3, Rev - 0, Base - 0, Sub - 0, Pif - 0
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - psio, Type - C, Adpt_Config - N
  PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1000,
Device_Id - 0x6, Rev - 0, Base - 0, Sub - 0, Pif - 0
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - psio, Type - C, Adpt_Config - N
  PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1000,
Device_Id - 0xF, Rev - 0, Base - 0, Sub - 0, Pif - 0
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - psio, Type - C, Adpt_Config - N
  PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1077,
Device_Id - 0x1020, Rev - 0, Base - 0, Sub - 0, Pif - 0
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - isp, Type - A, Adpt_Config - N
  PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1069,
Device_Id - 0x1, Rev - 0, Base - 0, Sub - 0, Pif - 0
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - xcr, Type - C, Adpt_Config - N
  PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1011,
Device_Id - 0x18, Rev - 0, Base - 0, Sub - 0, Pif - 0
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - mchan, Type - C, Adpt_Config - N
  PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0,
Device_Id - 0, Rev - 0, Base - 1, Sub - 1, Pif - 0,
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 0, Did_Mo_Flag -
0, Rev_Mo_Flag - 0, Base_Mo_Flag - 1, Sub_Mo_Flag - 1,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - ata, Type - C, Adpt_Config - N

#
# PCI to something bridge adapters
#
# At present these are not used in system
configuration, but are present in
# this file for informational purposes. In some cases,
the "driver" may
# not exist, and in other cases the driver may exist
but be unprepared to
# parse these entries, so they are all commented out at
this time.

# PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id -
0x1013, Device_Id - 0x1100, Rev - 0, Base - 0, Sub - 0,
Pif - 0 Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1,
Did_Mo_Flag - 1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0,
Sub_Mo_Flag - 0, Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0,
Sub_Did_Mo_Flag - 0, Driver_Name - pcmcia, Type - A,
Adpt_Config - N
# PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id -
0x1011, Device_Id - 0x1, Rev - 0, Base - 6, Sub - 4, Pif -
0 Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1,
Did_Mo_Flag - 1, Rev_Mo_Flag - 0, Base_Mo_Flag - 1,
Sub_Mo_Flag - 1, Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0,
Sub_Did_Mo_Flag - 0, Driver_Name - pci, Type - A,
Adpt_Config - N
# PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id -
0x1011, Device_Id - 0, Rev - 0, Base - 6, Sub - 4, Pif -
0 Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
0, Rev_Mo_Flag - 0, Base_Mo_Flag - 1, Sub_Mo_Flag - 1,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - pci, Type - A, Adpt_Config - N
# PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0,
Device_Id - 0, Rev - 0, Base - 6, Sub - 4, Pif - 0
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 0, Did_Mo_Flag -
0, Rev_Mo_Flag - 0, Base_Mo_Flag - 1, Sub_Mo_Flag - 1,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - pci, Type - A, Adpt_Config - N
# PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id -
0x8086, Device_Id - 0x482, Rev - 0, Base - 0, Sub - 0,
Pif - 0 Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1,
Did_Mo_Flag - 1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0,
Sub_Mo_Flag - 0, Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0,
Sub_Did_Mo_Flag - 0, Driver_Name - eisa, Type - A,
Adpt_Config - N
# PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id -
0x8086, Device_Id - 0x484, Rev - 0, Base - 0, Sub - 0,
Pif - 0 Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1,
Did_Mo_Flag - 1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0,
Sub_Mo_Flag - 0, Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0,
Sub_Did_Mo_Flag - 0, Driver_Name - isa, Type - A,
Adpt_Config - N
# PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id -
0x1011, Device_Id - 0x10, Rev - 0, Base - 0, Sub - 0,
Pif - 0 Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1,
Did_Mo_Flag - 1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0,
Sub_Mo_Flag - 0, Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0,
Sub_Did_Mo_Flag - 0, Driver_Name - vba, Type - A,
Adpt_Config - N

#
# TC_Option = Modname Driver_Name
#
tc:
#
# %%TC
#
  TC_Option = Modname - 'PMTNV-AA', Driver_Name -
nvtc, Int_Aft_Attach - 1, Type - C, Adpt_Config - N
  TC_Option = Modname - 'PMAP-AA', Driver_Name - nvtc,
Int_Aft_Attach - 1, Type - C, Adpt_Config - N
  TC_Option = Modname - 'PMAZ-AA', Driver_Name - asc,
Int_Aft_Attach - 1, Type - A, Adpt_Config - N
  TC_Option = Modname - 'PMAZ-DS', Driver_Name - tcds,
Int_Aft_Attach - 1, Type - A, Adpt_Config - N
  TC_Option = Modname - 'PMAZ-FS', Driver_Name - tcds,
Int_Aft_Attach - 1, Type - A, Adpt_Config - N
  TC_Option = Modname - 'PMAZB-AA', Driver_Name -
tcds, Int_Aft_Attach - 1, Type - A, Adpt_Config - N
  TC_Option = Modname - 'PMAZB-AB', Driver_Name -
tcds, Int_Aft_Attach - 1, Type - A, Adpt_Config - N
  TC_Option = Modname - 'PMAZC-AA', Driver_Name -
tcds, Int_Aft_Attach - 1, Type - A, Adpt_Config - N
  TC_Option = Modname - 'KZTSA-AA', Driver_Name - tza,
Int_Aft_Attach - 1, Type - A, Adpt_Config - N
  TC_Option = Modname - 'PMAGB-BA', Driver_Name - fb,
Int_Aft_Attach - 1, Type - C, Adpt_Config - N
  TC_Option = Modname - 'PMAG-RO', Driver_Name - fb,
Type - C, Adpt_Config - N

```

```

TC_Option = Modname - 'PMAG-JA', Driver_Name - fb,
Type - C, Adpt_Config - N
TC_Option = Modname - PMADC, Driver_Name - pv,
Int_Aft_Attach - 1, Type - C, Adpt_Config - N
TC_Option = Modname - 'PMAGC-AA', Driver_Name - pv,
Int_Aft_Attach - 1, Type - C, Adpt_Config - N
TC_Option = Modname - 'PMAGC-BA', Driver_Name - pv,
Int_Aft_Attach - 1, Type - C, Adpt_Config - N
TC_Option = Modname - 'PMAGC-DA', Driver_Name - pvl,
Int_Aft_Attach - 1, Type - C, Adpt_Config - N
TC_Option = Modname - 'PMAGC-EA', Driver_Name - pvl,
Int_Aft_Attach - 1, Type - C, Adpt_Config - N
TC_Option = Modname - PMAGD, Driver_Name - fb,
Int_Aft_Attach - 1, Type - C, Adpt_Config - N
TC_Option = Modname - 'PMAGD-AA', Driver_Name - fb,
Int_Aft_Attach - 1, Type - C, Adpt_Config - N
TC_Option = Modname - 'PMAGD-BA', Driver_Name - fb,
Int_Aft_Attach - 1, Type - C, Adpt_Config - N
# Disabled due to lack of X support in Platinum, device
driver is being pulled from the release
# TC_Option = Modname - "KWS_TD", Confname - kws_td,
Int_Aft_Attach - 1, Type - C, Adpt_Config - N

#
# fdi: FLOPPY
#
fdi:
ISA_Option = Board_Id - Null, Function_Name -
FLOPPY, Driver_Name - fdi, Type - C, Adpt_Config - N
EISA_Option = Board_Id - ADP0002, Function_Name -
'MSD,FPYCTL', Driver_Name - fdi, Type - C, Adpt_Config -
N
EISA_Option = Board_Id - DEC2400, Function_Name -
'MSD,FPYCTL', Driver_Name - fdi, Type - C, Adpt_Config -
N
EISA_Option = Board_Id - DEC2A01, Function_Name -
'MSD,FPYCTL', Driver_Name - fdi, Type - C, Adpt_Config -
N
EISA_Option = Board_Id - DEC5000, Function_Name -
'MSD,FPYCTL', Driver_Name - fdi, Type - C, Adpt_Config -
N
EISA_Option = Board_Id - DEC5100, Function_Name -
'MSD,FPYCTL', Driver_Name - fdi, Type - C, Adpt_Config -
N
EISA_Option = Board_Id - DEC5301, Function_Name -
'MSD,FPYCTL', Driver_Name - fdi, Type - C, Adpt_Config -
N
EISA_Option = Board_Id - DEC6000, Function_Name -
'MSD,FPYCTL', Driver_Name - fdi, Type - C, Adpt_Config -
N
#
# ln: LANCE Ethernet
#
ln:
TC_Option = Modname - 'PMAD-AA', Driver_Name - ln,
Type - C, Adpt_Config - N
EISA_Option = Board_Id - DEC4220, Function_Name -
'NET,ETH', Driver_Name - ln, Type - C, Adpt_Config - N

#
# le: LeMAC Ethernet
#
le:
ISA_Option = Board_Id - Null, Function_Name -
'DE200-LE', Driver_Name - le, Type - C, Adpt_Config - N

#
# el: 3Com EtherLink III Ethernet
#
el:
PCMCIA_Option = Manufact_Name - '3Com Corporation',
Product_Name - '3C589', Manufact_Id - 0x101, Card_Rev -
0, Func_Code - 6, Driver_Name - el, Loadable_Flag - 0,
Unload_Flag - 0, Intr_Handler_Flag - 0, Type - C,
Adpt_Config - N, Man_Name_Mo_Flag - 1, Prd_Name_Mo_Flag
- 1, Mid_Mo_Flag - 0, Card_Rev_Mo_Flag - 0
PCMCIA_Option = Manufact_Name - '3Com Corporation',
Product_Name - '3C589D', Manufact_Id - 0x101, Card_Rev -
0, Func_Code - 6, Driver_Name - el, Loadable_Flag - 0,
Unload_Flag - 0, Intr_Handler_Flag - 0, Type - C,
Adpt_Config - N, Man_Name_Mo_Flag - 1, Prd_Name_Mo_Flag
- 1, Mid_Mo_Flag - 0, Card_Rev_Mo_Flag - 0
ISA_Option = Board_Id - Null, Function_Name - 3C509,
Driver_Name - el, Type - C, Adpt_Config - N

#
# tu: TULIP Ethernet/Fast Ethernet
#
tu:
EISA_Option = Board_Id - DEC4250, Function_Name -
Null, Driver_Name - tu, Type - C, Adpt_Config - N
PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1011,
Device_Id - 2, Rev - 0, Base - 0, Sub - 0, Pif - 0,
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - tu, Type - C, Adpt_Config - N
PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1011,
Device_Id - 0x14, Rev - 0, Base - 0, Sub - 0, Pif - 0,
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - tu, Type - C, Adpt_Config - N
PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1011,
Device_Id - 0x9, Rev - 0, Base - 0, Sub - 0, Pif - 0,
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - tu, Type - C, Adpt_Config - N

#
# fza: DEFZA FDDI
#
fza:
TC_Option = Modname - 'PMAF-AA', Driver_Name - fza,
Type - C, Adpt_Config - N

#
# fta: PDQ FDDI
#
fta:
TC_Option = Modname - 'PMAF-FA', Driver_Name - fta,
Type - C, Adpt_Config - N
TC_Option = Modname - 'PMAF-FS', Driver_Name - fta,
Type - C, Adpt_Config - N
TC_Option = Modname - 'PMAF-FD', Driver_Name - fta,
Type - C, Adpt_Config - N
TC_Option = Modname - 'PMAF-FU', Driver_Name - fta,
Type - C, Adpt_Config - N
EISA_Option = Board_Id - DEC3001, Function_Name -
Null, Driver_Name - fta, Type - C, Adpt_Config - N
EISA_Option = Board_Id - DEC3002, Function_Name -
Null, Driver_Name - fta, Type - C, Adpt_Config - N
PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1011,
Device_Id - 0xF, Rev - 0, Base - 0, Sub - 0, Pif - 0,
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - fta, Type - C, Adpt_Config - N

#
# tra: Token-Ring
#
tra:
TC_Option = Modname - 'PMAT-AA', Driver_Name - tra,
Type - C, Adpt_Config - N
ISA_Option = Board_Id - Null, Function_Name - DW110,
Driver_Name - tra, Type - C, Adpt_Config - N
ISA_Option = Board_Id - Null, Function_Name - TKRNG,
Driver_Name - tra, Type - C, Adpt_Config - N
EISA_Option = Board_Id - PRO6000, Function_Name -
Null, Driver_Name - tra, Type - C, Adpt_Config - N
EISA_Option = Board_Id - PRO6001, Function_Name -
Null, Driver_Name - tra, Type - C, Adpt_Config - N

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EISA Option = Board_Id - PRO6002, Function_Name -
Null, Driver_Name - tra, Type - C, Adpt_Config - N
PCI Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x104C,
Device_Id - 0x0508, Rev - 0, Base - 0, Sub - 0, Pif - 0,
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - tra, Type - C, Adpt_Config - N
PCI Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x10DA,
Device_Id - 0x0508, Rev - 0, Base - 0, Sub - 0, Pif - 0,
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - tra, Type - C, Adpt_Config - N
PCI Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x10EF,
Device_Id - 0x8154, Rev - 0, Base - 0, Sub - 0, Pif - 0,
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - tra, Type - C, Adpt_Config - N

#
# lta: ATM
#
lta:
    TC Option = Modname - 'DGLTA-FA', Driver_Name - lta,
    Type - C, Adpt_Config - N
    PCI Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1011,
    Device_Id - 0x16, Rev - 0, Base - 0, Sub - 0, Pif - 0,
    Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
    1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
    Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
    0, Driver_Name - lta, Type - C, Adpt_Config - N

#
# PCMCIA Option = Manufact_Name Product_Name Manufact_Id
Card_Rev Func_Code
# Driver_Name Loadable_Flag Unload_Flag
Intr_Handler_Flag Type
# Adpt_Config Man_Name_Mo_Flag
Prd_Name_Mo_Flag Mid_Mo_Flag Card_Rev_Mo_Flag
#
pcmcia:
#
###PCMCIA
#
PCMCIA Option = Manufact_Name - 'AT&T Paradyne',
Product_Name - 'KeepInTouch Card', Manufact_Id - 0,
Card_Rev - 0, Func_Code - 2, Driver_Name - ace,
Loadable_Flag - 0, Unload_Flag - 0, Intr_Handler_Flag -
1, Type - C, Adpt_Config - N, Man_Name_Mo_Flag - 1,
Prd_Name_Mo_Flag - 1, Mid_Mo_Flag - 0, Card_Rev_Mo_Flag -
0
PCMCIA Option = Manufact_Name - 'Digital',
Product_Name - 'PCMCIA V.32bis 14,400 Fax', Manufact_Id -
0, Card_Rev - 0, Func_Code - 2, Driver_Name - ace,
Loadable_Flag - 0, Unload_Flag - 0, Intr_Handler_Flag -
1, Type - C, Adpt_Config - N, Man_Name_Mo_Flag - 1,
Prd_Name_Mo_Flag - 1, Mid_Mo_Flag - 0, Card_Rev_Mo_Flag -
0
PCMCIA Option = Manufact_Name - 'MEGAHERTZ',
Product_Name - 'XJ2288', Manufact_Id - 0, Card_Rev - 0,
Func_Code - 2, Driver_Name - ace, Loadable_Flag - 0,
Unload_Flag - 0, Intr_Handler_Flag - 1, Type - C,
Adpt_Config - N, Man_Name_Mo_Flag - 1, Prd_Name_Mo_Flag -
1, Mid_Mo_Flag - 0, Card_Rev_Mo_Flag - 0
PCMCIA Option = Manufact_Name - 'AD PC-CARD',
Product_Name - 'RC288ACL', Manufact_Id - 0, Card_Rev -
0, Func_Code - 2, Driver_Name - ace, Loadable_Flag - 0,
Unload_Flag - 0, Intr_Handler_Flag - 1, Type - C,
Adpt_Config - N, Man_Name_Mo_Flag - 1, Prd_Name_Mo_Flag -
1, Mid_Mo_Flag - 0, Card_Rev_Mo_Flag - 0
PCMCIA Option = Manufact_Name - 'AD2880WRLD',
Product_Name - 'International V.34 PC-Card Modem',
Manufact_Id - 0, Card_Rev - 0, Func_Code - 2,
Driver_Name - ace, Loadable_Flag - 0, Unload_Flag - 0,
Intr_Handler_Flag - 1, Type - C, Adpt_Config - N,
Man_Name_Mo_Flag - 1, Prd_Name_Mo_Flag - 1, Mid_Mo_Flag -
0, Card_Rev_Mo_Flag - 0
#

# The following is the ONLY ATA card that has been
tested. Others are known
# to violate various parts of the spec and therefore
fail.
#
PCMCIA Option = Manufact_Name - 'INTEGRAL
PERIPHERALS', Product_Name - 'ATA CARD', Manufact_Id -
0, Card_Rev - 0, Func_Code - 4, Driver_Name - ata,
Loadable_Flag - 0, Unload_Flag - 0, Intr_Handler_Flag -
0, Type - C, Adpt_Config - N, Man_Name_Mo_Flag - 1,
Prd_Name_Mo_Flag - 1, Mid_Mo_Flag - 0, Card_Rev_Mo_Flag -
0

#
# qvision: CMPQ Qvision SVGA
#
qvision:
    EISA Option = Board_Id - CPQ3011, Function_Name -
    Null, Driver_Name - qvision, Type - C, Adpt_Config - N
    EISA Option = Board_Id - CPQ3111, Function_Name -
    Null, Driver_Name - qvision, Type - C, Adpt_Config - N
    EISA Option = Board_Id - CPQ3112, Function_Name -
    Null, Driver_Name - qvision, Type - C, Adpt_Config - N
    PCI Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x0e11,
    Device_Id - 0x3032, Rev - 0, Base - 0, Sub - 0, Pif - 0
    Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
    1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
    Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
    0, Driver_Name - qvision, Type - C, Adpt_Config - N

#
# cirrus: Cirrus SVGA
#
cirrus:
    EISA Option = Board_Id - DEC5000, Function_Name -
    VID, Driver_Name - cirrus, Type - C, Adpt_Config - N

#
# ati64: ATI Mach64 SVGA
#
ati64:
    EISA Option = Board_Id - ISA6400, Function_Name -
    Null, Driver_Name - ati, Type - C, Adpt_Config - N
    ISA Option = Board_Id - Null, Function_Name -
    'MACH64', Driver_Name - ati, Type - C, Adpt_Config - N
    PCI Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1002,
    Device_Id - 0x4358, Rev - 0, Base - 0, Sub - 0, Pif - 0
    Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
    1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
    Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
    0, Driver_Name - ati, Type - C, Adpt_Config - N
    PCI Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1002,
    Device_Id - 0x4758, Rev - 0, Base - 0, Sub - 0, Pif - 0
    Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
    1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
    Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
    0, Driver_Name - ati, Type - C, Adpt_Config - N
    PCI Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x1002,
    Device_Id - 0x4354, Rev - 0, Base - 0, Sub - 0, Pif - 0
    Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
    1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
    Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
    0, Driver_Name - ati, Type - C, Adpt_Config - N

#
# s3trio: S3 Trio 32/64 SVGA
#
s3trio:
    PCI Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x5333,
    Device_Id - 0x8811, Rev - 0, Base - 0, Sub - 0, Pif - 0
    Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
    1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,
    Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
    0, Driver_Name - trio, Type - C, Adpt_Config - N
    PCI Option = PCI_SE_Rev - 0x210, Vendor_Id - 0x5333,
    Device_Id - 0x8810, Rev - 0, Base - 0, Sub - 0, Pif - 0
    Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1, Did_Mo_Flag -
    1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0, Sub_Mo_Flag - 0,

```

```

Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - trio, Type - C, Adpt_Config - N

#
# wd: Western Digital WD90C24 SVGA
#
#   ISA_Option = Board_Id - Null, Function_Name -
'WD90', Driver_Name - wd, Type - C, Adpt_Config - N

#
# vga: Standard 640x480 VGA
#
vga:
  EISA_Option = Board_Id - PHI8041, Function_Name -
Null, Driver_Name - vga, Type - C, Adpt_Config - N
  ISA_Option = Board_Id - Null, Function_Name - 'ISA--
VGA', Driver_Name - vga, Type - C, Adpt_Config - N
  PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0,
Device_Id - 0, Rev - 0, Base - 3, Sub - 0, Pif - 0
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 0, Did_Mo_Flag -
0, Rev_Mo_Flag - 0, Base_Mo_Flag - 1, Sub_Mo_Flag - 1,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - vga, Type - C, Adpt_Config - N
  PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id - 0,
Device_Id - 0, Rev - 0, Base - 0, Sub - 1, Pif - 0
Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 0, Did_Mo_Flag -
0, Rev_Mo_Flag - 0, Base_Mo_Flag - 1, Sub_Mo_Flag - 1,
Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0, Sub_Did_Mo_Flag -
0, Driver_Name - vga, Type - C, Adpt_Config - N

#
# other SVGAs
#
#s3v864:
#   PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id -
0x5333, Device_Id - 0x88c0, Rev - 0, Base - 0, Sub - 0,
Pif - 0 Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1,
Did_Mo_Flag - 1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0,
Sub_Mo_Flag - 0, Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0,
Sub_Did_Mo_Flag - 0, Driver_Name - svision, Type - C,
Adpt_Config - N
#
#ati32:
#   PCI_Option = PCI_SE_Rev - 0x210, Vendor_Id -
0x1002, Device_Id - 0x4158, Rev - 0, Base - 0, Sub - 0,
Pif - 0 Sub_Vid - 0, Sub_Did - 0, Vid_Mo_Flag - 1,
Did_Mo_Flag - 1, Rev_Mo_Flag - 0, Base_Mo_Flag - 0,
Sub_Mo_Flag - 0, Pif_Mo_Flag - 0, Sub_Vid_Mo_Flag - 0,
Sub_Did_Mo_Flag - 0, Driver_Name - ati_vga, Type - C,
Adpt_Config - N

#
# VBA_Option = Manufact_Name Product_Name Bus_Instance
Driver_Name
#           Driver_Instance Csr1 Csr2 Vector
Bus_Priority
#           Type Adpt_Config
#
vb:
#
# %%%VB
#
#   VBA_Option = Manufact_Name - 'Digital', Product_Name
- 'VME Backplane Network Driver', Bus_Instance - 0,
Driver_Name - vb, Driver_Instance - 0, Csr1 - 0, Csr2 -
0, Vector - 0x1150, Bus_Priority - 7, Type - C,
Adpt_Config - N
##
## Customizations
##
###===#####
#####
#####

ipc:
  msg-max = 32768
  msg-mnb = 16384
  msg-mni = 256
  msg-tql = 40
  shm-max = 2139095040
  shm-mni = 1024

```

```

shm-seg = 512
sem-mni = 1024
sem-msl = 2000
sem-opm = 2000
sem-ume = 2000
sem-vmx = 320000
sem-aem = 32768
ssm-threshold = 0

rt:
  aio-max-num = 5000
  aio-task-max-num=2048
  aio-max-retry = 2
  aio-max-percent = 8

proc:
  max-proc-per-user = 4096
  maxusers = 4096
  max-threads-per-user = 2048

  per-proc-address-space = 12000000000
  max-per-proc-address-space = 12000000000
  per-proc-data-size = 12000000000
  max-per-proc-data-size = 12000000000

socket:
  sominconn = 65536
  sominconn = 65536

rm:
  rm-no-inheritance=1

net:
  netisrthreads = 2

inet:
  tcbhashsize = 32768

vm:
  vm-mapentries = 20000
  vm-vpagemax = 786432
  vm-maxvas = 12000000000
  gh-chunks = 407
  new-wire-method = 0

tmon:
  Subsystem_Description = Turbolaser perf monitor
  Module_Type = Dynamic
  Module_Path = /subsys/tmon.mod
  Module_Config_name = tmon
  Device_Dir = /dev
  Device_Major_Req = None
  Device_Char_Major = ANY
  Device_Char_Minor = 0
  Device_Char_Files = tmon

generic:
  kmem-debug=0xa
  kmem-audit-count=5000
  kmem-debug-size-mask=0x4000

```

ORACLE PARAMETERS

NAME	TYPE	VALUE
O7_DICTIONARY_ACCESSIBILITY	boolean	TRUE
_db_block_write_batch	integer	2048
_ordered_nested_loop	boolean	TRUE
allow_partial_sn_results	boolean	FALSE
always_anti_join	string	HASH
always_semi_join	string	HASH
aq_tm_processes	integer	0
arch_io_slaves	integer	0
audit_file_dest	string	?
audit_trail	string	FALSE

b_tree_bitmap_plans	boolean	TRUE	lock_sga	boolean	FALSE
background_core_dump	string	full	lock_sga_areas	integer	0
background_dump_dest	string	?/rdbms/log	log_archive_buffer_size	integer	31
backup_disk_io_slaves	integer	0	log_archive_buffers	integer	4
backup_tape_io_slaves	boolean	FALSE	log_archive_dest	string	?/dbs/arch
bitmap_merge_area_size	integer	1048576	log_archive_duplex_dest	string	
blank_trimming	boolean	FALSE	log_archive_format	string	%t_%s.dbf
buffer_pool_keep	string		log_archive_min_succeed_dest	integer	1
buffer_pool_recycle	string		log_archive_start	boolean	FALSE
cache_size_threshold	integer	15000	log_block_checksum	boolean	FALSE
cleanup_rollback_entries	integer	20	log_buffer	integer	35225600
close_cached_open_cursors	boolean	FALSE	log_checkpoint_interval	integer	1000000000
commit_point_strength	integer	1	log_checkpoint_timeout	integer	0
compatible	string	8.0.0	log_checkpoints_to_alert	boolean	TRUE
compatible_no_recovery	string	0.0.0	log_file_name_convert	string	
complex_view_merging	boolean	TRUE	log_files	integer	255
control_file_record_keep_time	integer	7	log_simultaneous_copies	integer	10
control_files	string		log_small_entry_max_size	integer	1024
/oracle8/labell1119/dbs/control			max_commit_propagation_delay	integer	0
core_dump_dest	string	?/dbs	max_dump_file_size	string	5000
cpu_count	integer	12	max_enabled_roles	integer	20
create_bitmap_area_size	integer	8388608	max_rollback_segments	integer	60
cursor_space_for_time	boolean	FALSE	max_transaction_branches	integer	8
db_block_buffers	integer	150000	mts_dispatchers	string	
db_block_checkpoint_batch	integer	128	mts_listener_address	string	
db_block_checksum	boolean	FALSE	mts_max_dispatchers	integer	5
db_block_lru_extended_statistics	integer	0	mts_max_servers	integer	20
db_block_lru_latches	integer	10	mts_multiple_listeners	boolean	FALSE
db_block_lru_statistics	boolean	FALSE	mts_rate_log_size	string	
db_block_max_dirty_target	integer	4294967294	mts_rate_scale	string	
db_block_size	integer	8192	mts_servers	integer	0
db_domain	string	WORLD	mts_service	string	tpcd
db_file_direct_io_count	integer	256	nls_calendar	string	
db_file_multiblock_read_count	integer	128	nls_currency	string	
db_file_name_convert	string		nls_date_format	string	YYYY-MM-DD
db_file_simultaneous_writes	integer	24	nls_date_language	string	
db_files	integer	2048	nls_iso_currency	string	
db_name	string	tpcd	nls_language	string	AMERICAN
db_writer_processes	integer	1	nls_numeric_characters	string	
dblink_encrypt_login	boolean	FALSE	nls_sort	string	
dbwr_io_slaves	integer	0	nls_territory	string	AMERICA
delayed_logging_block_cleanouts	boolean	TRUE	object_cache_max_size_percent	integer	10
discrete_transactions_enabled	boolean	FALSE	object_cache_optimal_size	integer	102400
disk_asynch_io	boolean	TRUE	ogms_home	string	
distributed_lock_timeout	integer	60	open_cursors	integer	1024
distributed_recovery_connection_hol	integer	200	open_links	integer	4
distributed_transactions	integer	0	open_links_per_instance	integer	4
dml_locks	integer	64000	ops_admin_group	string	
enqueue_resources	integer	40000	optimizer_features_enable	string	8.0.4
event	string		optimizer_mode	string	CHOOSE
fast_full_scan_enabled	boolean	TRUE	optimizer_percent_parallel	integer	100
fixed_date	string		optimizer_search_limit	integer	6
freeze_DB_for_fast_instance_recover	boolean	FALSE	oracle_trace_collection_name	string	
gc_defer_time	integer	10	oracle_trace_collection_path	string	
gc_files_to_locks	string		?/otrace/admin/cdf		
gc_latches	integer	24	oracle_trace_collection_size	integer	5242880
gc_lck_procs	integer	1	oracle_trace_enable	boolean	FALSE
gc_releasable_locks	integer	0	oracle_trace_facility_name	string	oracled
gc_rollback_locks	string		oracle_trace_facility_path	string	
global_names	boolean	FALSE	?/otrace/admin/fdf		
hash_area_size	integer	31457280	os_authent_prefix	string	ops\$
hash_join_enabled	boolean	TRUE	os_roles	boolean	FALSE
hash_multiblock_io_count	integer	16	parallel_adaptive_multi_user	boolean	FALSE
hi_shared_memory_address	integer	0	parallel_broadcast_enabled	boolean	TRUE
ifile	file		parallel_default_max_instances	integer	0
instance_groups	string		parallel_execution_message_size	integer	8192
instance_number	integer	0	parallel_instance_group	string	
job_queue_interval	integer	60	parallel_max_servers	integer	96
job_queue_keep_connections	boolean	FALSE	parallel_min_message_pool	integer	4128768
job_queue_processes	integer	0	parallel_min_percent	integer	0
large_pool_min_alloc	string	16K	parallel_min_servers	integer	24
large_pool_size	string	0	parallel_server	boolean	FALSE
lgwr_io_slaves	integer	0	parallel_server_idle_time	integer	5
license_max_sessions	integer	0	parallel_transaction_resource_timeo	integer	300
license_max_users	integer	0	partition_view_enabled	boolean	FALSE
license_sessions_warning	integer	0	plssql_v2_compatibility	boolean	FALSE
lm_locks	integer	12000	pre_page_sga	boolean	FALSE
lm_procs	integer	127	processes	integer	600
lm_ress	integer	6000	push_join_predicate	boolean	TRUE
local_listener	string		read_only_open_delayed	boolean	FALSE
lock_name_space	string		recovery_parallelism	integer	16

remote_dependencies_mode	string	TIMESTAMP
remote_login_passwordfile	string	NONE
remote_os_authent	boolean	FALSE
remote_os_roles	boolean	FALSE
replication_dependency_tracking	boolean	TRUE
resource_limit	boolean	FALSE
rollback_segments	string	r1, r2, r3,
r4, r5, r6, r7, r8		
row_cache_cursors	integer	3300
row_locking	string	always
sequence_cache_entries	integer	10
sequence_cache_hash_buckets	integer	10
serial_reuse	string	DISABLE
serializable	boolean	FALSE
session_cached_cursors	integer	2048
session_max_open_files	integer	0
sessions	integer	600
shadow_core_dump	string	full
shared_memory_address	integer	0
shared_pool_reserved_min_alloc	string	4K
shared_pool_reserved_size	string	10500000
shared_pool_size	string	210000000
snapshot_refresh_interval	integer	60
snapshot_refresh_keep_connections	boolean	FALSE
snapshot_refresh_processes	integer	0
sort_area_retained_size	integer	1638400
sort_area_size	integer	1638400
sort_direct_writes	string	TRUE
sort_read_fac	integer	16
sort_spacemap_size	integer	512
sort_write_buffer_size	integer	1048576
sort_write_buffers	integer	8
spin_count	integer	2048
sql92_security	boolean	FALSE
sql_trace	boolean	FALSE
star_transformation_enabled	boolean	FALSE
tape_asynch_io	boolean	TRUE
temporary_table_locks	integer	600
text_enable	boolean	FALSE
thread	integer	0
timed_os_statistics	integer	0
timed_statistics	boolean	FALSE
transaction_auditing	boolean	FALSE
transactions	integer	450
transactions_per_rollback_segment	integer	49
use_indirect_data_buffers	boolean	FALSE
use_ism	boolean	TRUE
user_dump_dest	string	?/rdbms/log
utl_file_dir	string	



## Appendix B

```
#####
#####
# preprocessing-like directives

%b-preproc

*sql
\echo "{}" > script*getenv(BUMPX_CTR).sql
\svrmgrl <<!
\set echo on;
\set termout on;
\connect internal;
\select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS') now
from dual;
\@script*getenv(BUMPX_CTR).sql;
\select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS') now
from dual;
\exit;
\!
\bin/rm script*getenv(BUMPX_CTR).sql;

#*sql
#\svrmgrl <<!
#\set echo on;
#\set termout on;
#\connect internal;
#\select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS') now
from dual;
#\{}
#\select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS') now
from dual;
#\exit;
#\!

*load
\sqlldr {}

*mknod
\mknod {}

*dbgen
\setenv DSS_PATH {}
\export/oracle/v8/tpcd/bumpx/dbgen/dbgen {}

*check_stop
\export/oracle/v8/tpcd/bumpx/bumpx/check_stop.sh

*time
\echo
\echo {}
\date
\echo

*sh
\{}

%e-preproc
%b-dbcre
*bgon=64
#####
#####
# Database Creation Phase
*sql
{
shutdown abort;
}
*wait
# creating database and initial rollback segment
*sql
{
startup pfile=$ORACLE_HOME/dbs/init_tpcd_build.ora
nomount;
create database
controlfile reuse
```

```
logfile '$ORACLE_HOME/dbs/ddisks/log3' size 1700m
reuse,
'$ORACLE_HOME/dbs/ddisks/log4' size 1700m
reuse
datafile '$ORACLE_HOME/dbs/ddisks/sys' size 1500m
reuse
maxdatafiles 10000
maxinstances 4
;

create public rollback segment t_rsl storage (initial
5m next 5m maxextents unlimited);

alter rollback segment t_rsl online;

shutdown
}
*wait
*sql
{
startup pfile=$ORACLE_HOME/dbs/init1_tpcd.ora;
}
*wait
*sql
{
create tablespace ts_undo datafile
'/oracle8/label1119/dbs/ddisks/undo_1' size 1073741824
reuse;
}
*wait
# creating extra rollback segments
*sql
{
create rollback segment r1 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r9 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r17 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r25 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r33 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r41 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
alter tablespace ts_undo add datafile
'/oracle8/label1119/dbs/ddisks/undo_2' size 1073741824
reuse;
create rollback segment r2 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r10 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r18 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r26 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r34 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r42 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
alter tablespace ts_undo add datafile
'/oracle8/label1119/dbs/ddisks/undo_3' size 1073741824
reuse;
create rollback segment r3 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r11 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
```

```

create rollback segment r19 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r27 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r35 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r43 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
alter tablespace ts_undo add datafile
'/oracle8/labell1119/dbs/ddisks/undo_4' size 1073741824
reuse;
create rollback segment r4 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r12 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r20 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r28 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r36 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r44 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
alter tablespace ts_undo add datafile
'/oracle8/labell1119/dbs/ddisks/undo_5' size 1073741824
reuse;
create rollback segment r5 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r13 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r21 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r29 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r37 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r45 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
alter tablespace ts_undo add datafile
'/oracle8/labell1119/dbs/ddisks/undo_6' size 1073741824
reuse;
create rollback segment r6 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r14 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r22 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r30 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r38 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r46 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
alter tablespace ts_undo add datafile
'/oracle8/labell1119/dbs/ddisks/undo_7' size 1073741824
reuse;
create rollback segment r7 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);

```

```

create rollback segment r15 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r23 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r31 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r39 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r47 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
alter tablespace ts_undo add datafile
'/oracle8/labell1119/dbs/ddisks/undo_8' size 1073741824
reuse;
create rollback segment r8 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r16 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r24 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r32 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r40 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
create rollback segment r48 tablespace ts_undo storage
(initial 125829120 next 10485760 minextents 6 maxextents
unlimited);
}
*wait
# creating extra logfile threads
*sql
{
}
}
*wait
# building data dictionary
*sql
{
set termout off
set echo off
@$ORACLE_HOME/rdbms/admin/catalog.sql;
@$ORACLE_HOME/rdbms/admin/catparr.sql;
@$ORACLE_HOME/rdbms/admin/catproc.sql;
@$ORACLE_HOME/rdbms/admin/utlxplan.sql;
}
}
*wait
*sql
{
shutdown;
}
}
*wait
*sql
{
startup pfile=$ORACLE_HOME/dbs/init1_tpcd.ora;
}
}
*wait
*wait
*bgoff
%e-dbcre
%b-sccre
*bgon=256
#####
#####
# Schema Creation Phase
# creating tpcd user
*sql
{
drop user tpcd cascade;
grant resource,unlimited tablespace,connect
to tpcd identified by tpcd;
}
}
*wait
# creating data tablespaces, datafiles, and tables

```

```

# creating tpcd's table tablespace
*sql
{
#drop tablespace tables1 including contents;
create tablespace tables1
  datafile '$ORACLE_HOME/dbs/ddisks/table1' size 7475m
reuse
  default storage (initial 1m next 4m pctincrease 0)
  nologging
;
}

# creating tpcd's index1 tablespace
*sql
{
#drop tablespace index1 including contents;
create tablespace index1
  datafile '$ORACLE_HOME/dbs/ddisks/index1' size 4250m
reuse
  default storage (initial 50m next 50m maxextents
unlimited pctincrease 0)
;
}

# creating tpcd's temp tablespace
*sql
{
#drop tablespace temp including contents;
create temporary
  datafile '$ORACLE_HOME/dbs/ddisks/temp1' size 4500m
reuse
  default storage (initial 50m next 50m maxextents
unlimited pctincrease 0)
;
}
*wait
# adding tpcd's lineitem datafiles
*sql
{
alter tablespace tables1
  add datafile '$ORACLE_HOME/dbs/ddisks/table2' size
7475m reuse;
}
....
....
*sql
{
alter tablespace tables1
  add datafile '$ORACLE_HOME/dbs/ddisks/table48' size
7475m reuse;
}
*wait
# adding tpcd's index1 datafiles
*wait
*sql
{
alter tablespace index1
  add datafile '$ORACLE_HOME/dbs/ddisks/index2' size
4250m reuse;
}
.....
.....
*sql
{
alter tablespace index1
  add datafile '$ORACLE_HOME/dbs/ddisks/index48' size
4250m reuse;
}

# adding tpcd's temp datafiles
*sql
{
alter tablespace temp
  add datafile '$ORACLE_HOME/dbs/ddisks/temp2' size
4500m reuse;
}
.....
.....
*sql
{
alter tablespace temp
  add datafile '$ORACLE_HOME/dbs/ddisks/temp48' size
4500m reuse;
}
}

alter tablespace temp
  add datafile '$ORACLE_HOME/dbs/ddisks/temp48' size
4500m reuse;
}
*wait
*wait
*wait
*wait
# altering tpcd's temporary tablespace
*sql
{
alter user tpcd temporary tablespace temp;
}
*wait
*wait
*bgoff
%e-sccre
%b-dapop
*bgon=64
#####
# Database Population Phase
#####
# Database Population Phase
*sql
{
connect tpcd/tpcd;
drop index l_ored;
drop index l_pgeds0;
drop index l_rdcdsdsmok;
drop index l_osdqeps;
drop index o_clokod;
drop index o_op;
drop index ps_skey;
drop index ps_pksksc;
drop index ps_spsa;
drop index p_cbp;
drop index p_sptm;
drop index p_tp;
drop index s_skey;
drop index s_sn;
drop table lineitem;
drop table orders;
drop table partsupp;
drop table parts;
drop table customer;
drop table supplier;
drop table nation;
drop table region;
}
*wait
*sql
{
connect system/manager;
alter tablespace tables1 coalesce;
alter tablespace temp coalesce;
alter tablespace index1 coalesce;
}
*wait
*sql
{
connect tpcd/tpcd;
drop table lineitem;
create table lineitem (
  l_shipdate          date ,
  l_orderkey          number NOT NULL,
  l_discount          number ,
  l_extendedprice     number ,
  l_suppkey           number NOT NULL,
  l_quantity         number ,
  l_returnflag       char(1) ,
  l_partkey          number NOT NULL,
  l_linestatus       char(1) ,
  l_tax              number NOT NULL,
  l_commitdate       date ,
  l_receiptdate      date ,
  l_shipmode         varchar(10) ,
  l_linenumber       number NOT NULL,
  l_shipinstruct     varchar(25) ,
  l_comment          varchar(44)
)
}

```

```

)
pctfree 1
pctused 99
intrans 10
tablespace tables1
storage (initial 16k next 55m freelists 32 freelist
groups 5 pctincrease 0)
parallel (degree 24 instances 1)
nologging
partition by range (l_shipdate)
(
partition item1 values less than (to_date('1992-03-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item2 values less than (to_date('1992-03-
24','YYYY-MM-DD'))
tablespace tables1
,
partition item3 values less than (to_date('1992-04-
14','YYYY-MM-DD'))
tablespace tables1
,
partition item4 values less than (to_date('1992-05-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item5 values less than (to_date('1992-05-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item6 values less than (to_date('1992-06-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item7 values less than (to_date('1992-06-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item8 values less than (to_date('1992-07-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item9 values less than (to_date('1992-07-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item10 values less than (to_date('1992-08-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item11 values less than (to_date('1992-08-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item12 values less than (to_date('1992-09-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item13 values less than (to_date('1992-09-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item14 values less than (to_date('1992-10-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item15 values less than (to_date('1992-10-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item16 values less than (to_date('1992-11-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item17 values less than (to_date('1992-11-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item18 values less than (to_date('1992-12-
01','YYYY-MM-DD'))

```

```

tablespace tables1
,
partition item19 values less than (to_date('1992-12-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item20 values less than (to_date('1993-01-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item21 values less than (to_date('1993-01-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item22 values less than (to_date('1993-02-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item23 values less than (to_date('1993-02-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item24 values less than (to_date('1993-03-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item25 values less than (to_date('1993-03-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item26 values less than (to_date('1993-04-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item27 values less than (to_date('1993-04-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item28 values less than (to_date('1993-05-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item29 values less than (to_date('1993-05-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item30 values less than (to_date('1993-06-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item31 values less than (to_date('1993-06-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item32 values less than (to_date('1993-07-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item33 values less than (to_date('1993-07-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item34 values less than (to_date('1993-08-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item35 values less than (to_date('1993-08-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item36 values less than (to_date('1993-09-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item37 values less than (to_date('1993-09-
16','YYYY-MM-DD'))
tablespace tables1
,
partition item38 values less than (to_date('1993-10-
01','YYYY-MM-DD'))
tablespace tables1

```



```

partition item79 values less than (to_date('1995-06-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item80 values less than (to_date('1995-07-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item81 values less than (to_date('1995-07-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item82 values less than (to_date('1995-08-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item83 values less than (to_date('1995-08-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item84 values less than (to_date('1995-09-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item85 values less than (to_date('1995-09-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item86 values less than (to_date('1995-10-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item87 values less than (to_date('1995-10-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item88 values less than (to_date('1995-11-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item89 values less than (to_date('1995-11-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item90 values less than (to_date('1995-12-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item91 values less than (to_date('1995-12-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item92 values less than (to_date('1996-01-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item93 values less than (to_date('1996-01-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item94 values less than (to_date('1996-02-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item95 values less than (to_date('1996-02-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item96 values less than (to_date('1996-03-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item97 values less than (to_date('1996-03-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item98 values less than (to_date('1996-04-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item99 values less than (to_date('1996-04-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item100 values less than (to_date('1996-05-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item101 values less than (to_date('1996-05-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item102 values less than (to_date('1996-06-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item103 values less than (to_date('1996-06-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item104 values less than (to_date('1996-07-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item105 values less than (to_date('1996-07-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item106 values less than (to_date('1996-08-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item107 values less than (to_date('1996-08-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item108 values less than (to_date('1996-09-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item109 values less than (to_date('1996-09-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item110 values less than (to_date('1996-10-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item111 values less than (to_date('1996-10-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item112 values less than (to_date('1996-11-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item113 values less than (to_date('1996-11-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item114 values less than (to_date('1996-12-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item115 values less than (to_date('1996-12-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item116 values less than (to_date('1997-01-
01','YYYY-MM-DD'))
tablespace tables1
'
partition item117 values less than (to_date('1997-01-
16','YYYY-MM-DD'))
tablespace tables1
'
partition item118 values less than (to_date('1997-02-
01','YYYY-MM-DD'))
tablespace tables1
'

```



```

partition item159 values less than (to_date('1998-11-
01','YYYY-MM-DD'))
tablespace tables1
,
partition item160 values less than (MAXVALUE)
tablespace tables1
)
;
drop table orders;
create table orders (
    o_orderdate          date ,
    o_orderkey           number NOT NULL,
    o_custkey            number NOT NULL,
    o_orderpriority      varchar(15) ,
    o_shippriority       number ,
    o_clerk               varchar(15) ,
    o_orderstatus        char(1) ,
    o_totalprice         number ,
    o_comment            varchar(79)
)
pctfree 1
pctused 99
intrans 10
tablespace tables1
storage (initial 16k next 26m freelists 32 freelist
groups 5 pctincrease 0)
parallel (degree 24 instances 1)
nologging
partition by range (o_orderdate)
(
partition ord1 values less than (to_date('1992-01-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord2 values less than (to_date('1992-02-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord3 values less than (to_date('1992-02-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord4 values less than (to_date('1992-03-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord5 values less than (to_date('1992-03-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord6 values less than (to_date('1992-04-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord7 values less than (to_date('1992-04-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord8 values less than (to_date('1992-05-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord9 values less than (to_date('1992-05-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord10 values less than (to_date('1992-06-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord11 values less than (to_date('1992-06-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord12 values less than (to_date('1992-07-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord13 values less than (to_date('1992-07-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord14 values less than (to_date('1992-08-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord15 values less than (to_date('1992-08-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord16 values less than (to_date('1992-09-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord17 values less than (to_date('1992-09-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord18 values less than (to_date('1992-10-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord19 values less than (to_date('1992-10-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord20 values less than (to_date('1992-11-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord21 values less than (to_date('1992-11-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord22 values less than (to_date('1992-12-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord23 values less than (to_date('1992-12-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord24 values less than (to_date('1993-01-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord25 values less than (to_date('1993-01-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord26 values less than (to_date('1993-02-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord27 values less than (to_date('1993-02-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord28 values less than (to_date('1993-03-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord29 values less than (to_date('1993-03-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord30 values less than (to_date('1993-04-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord31 values less than (to_date('1993-04-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord32 values less than (to_date('1993-05-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord33 values less than (to_date('1993-05-
16','YYYY-MM-DD'))
tablespace tables1
,

```

```

partition ord34 values less than (to_date('1993-06-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord35 values less than (to_date('1993-06-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord36 values less than (to_date('1993-07-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord37 values less than (to_date('1993-07-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord38 values less than (to_date('1993-08-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord39 values less than (to_date('1993-08-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord40 values less than (to_date('1993-09-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord41 values less than (to_date('1993-09-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord42 values less than (to_date('1993-10-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord43 values less than (to_date('1993-10-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord44 values less than (to_date('1993-11-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord45 values less than (to_date('1993-11-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord46 values less than (to_date('1993-12-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord47 values less than (to_date('1993-12-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord48 values less than (to_date('1994-01-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord49 values less than (to_date('1994-01-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord50 values less than (to_date('1994-02-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord51 values less than (to_date('1994-02-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord52 values less than (to_date('1994-03-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord53 values less than (to_date('1994-03-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord54 values less than (to_date('1994-04-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord55 values less than (to_date('1994-04-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord56 values less than (to_date('1994-05-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord57 values less than (to_date('1994-05-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord58 values less than (to_date('1994-06-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord59 values less than (to_date('1994-06-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord60 values less than (to_date('1994-07-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord61 values less than (to_date('1994-07-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord62 values less than (to_date('1994-08-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord63 values less than (to_date('1994-08-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord64 values less than (to_date('1994-09-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord65 values less than (to_date('1994-09-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord66 values less than (to_date('1994-10-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord67 values less than (to_date('1994-10-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord68 values less than (to_date('1994-11-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord69 values less than (to_date('1994-11-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord70 values less than (to_date('1994-12-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord71 values less than (to_date('1994-12-16','YYYY-MM-DD'))
tablespace tables1
'
partition ord72 values less than (to_date('1995-01-01','YYYY-MM-DD'))
tablespace tables1
'
partition ord73 values less than (to_date('1995-01-16','YYYY-MM-DD'))
tablespace tables1
'

```

```

partition ord74 values less than (to_date('1995-02-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord75 values less than (to_date('1995-02-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord76 values less than (to_date('1995-03-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord77 values less than (to_date('1995-03-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord78 values less than (to_date('1995-04-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord79 values less than (to_date('1995-04-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord80 values less than (to_date('1995-05-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord81 values less than (to_date('1995-05-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord82 values less than (to_date('1995-06-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord83 values less than (to_date('1995-06-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord84 values less than (to_date('1995-07-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord85 values less than (to_date('1995-07-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord86 values less than (to_date('1995-08-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord87 values less than (to_date('1995-08-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord88 values less than (to_date('1995-09-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord89 values less than (to_date('1995-09-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord90 values less than (to_date('1995-10-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord91 values less than (to_date('1995-10-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord92 values less than (to_date('1995-11-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord93 values less than (to_date('1995-11-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord94 values less than (to_date('1995-12-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord95 values less than (to_date('1995-12-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord96 values less than (to_date('1996-01-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord97 values less than (to_date('1996-01-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord98 values less than (to_date('1996-02-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord99 values less than (to_date('1996-02-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord100 values less than (to_date('1996-03-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord101 values less than (to_date('1996-03-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord102 values less than (to_date('1996-04-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord103 values less than (to_date('1996-04-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord104 values less than (to_date('1996-05-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord105 values less than (to_date('1996-05-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord106 values less than (to_date('1996-06-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord107 values less than (to_date('1996-06-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord108 values less than (to_date('1996-07-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord109 values less than (to_date('1996-07-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord110 values less than (to_date('1996-08-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord111 values less than (to_date('1996-08-16','YYYY-MM-DD'))
tablespace tables1
/
partition ord112 values less than (to_date('1996-09-01','YYYY-MM-DD'))
tablespace tables1
/
partition ord113 values less than (to_date('1996-09-16','YYYY-MM-DD'))
tablespace tables1
/

```



```

partition ord154 values less than (to_date('1998-06-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord155 values less than (to_date('1998-06-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord156 values less than (to_date('1998-07-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord157 values less than (to_date('1998-07-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord158 values less than (to_date('1998-08-
01','YYYY-MM-DD'))
tablespace tables1
,
partition ord159 values less than (to_date('1998-08-
16','YYYY-MM-DD'))
tablespace tables1
,
partition ord160 values less than (MAXVALUE)
tablespace tables1
)
;
drop table partsupp;
create table partsupp (
    ps_partkey          number NOT NULL,
    ps_suppkey          number NOT NULL,
    ps_supplycost       number NOT NULL,
    ps_availqty         number ,
    ps_comment          varchar(199)
)
pctfree 0
pctused 99
tablespace tables1
storage (initial 16k next 517m pctincrease 0)
parallel (degree 24 instances 1)
;
drop table parts;
create table parts (
    p_partkey          number NOT NULL,
    p_type             varchar(25) ,
    p_size             number ,
    p_brand            varchar(10) ,
    p_name             varchar(55) ,
    p_container        varchar(10) ,
    p_mfgr            varchar(25) ,
    p_retailprice      number ,
    p_comment          varchar(23)
)
pctfree 0
pctused 99
tablespace tables1
storage (initial 16k next 15m pctincrease 0)
parallel (degree 24 instances 1)
partition by range (p_size)
(
partition part1 values less than (2)
tablespace tables1
,
partition part2 values less than (3)
tablespace tables1
,
partition part3 values less than (4)
tablespace tables1
,
partition part4 values less than (5)
tablespace tables1
,
partition part5 values less than (6)
tablespace tables1
,
partition part6 values less than (7)
tablespace tables1
,
partition part7 values less than (8)
tablespace tables1
,
partition part8 values less than (9)
tablespace tables1
,
partition part9 values less than (10)
tablespace tables1
,
partition part10 values less than (11)
tablespace tables1
,
partition part11 values less than (12)
tablespace tables1
,
partition part12 values less than (13)
tablespace tables1
,
partition part13 values less than (14)
tablespace tables1
,
partition part14 values less than (15)
tablespace tables1
,
partition part15 values less than (16)
tablespace tables1
,
partition part16 values less than (17)
tablespace tables1
,
partition part17 values less than (18)
tablespace tables1
,
partition part18 values less than (19)
tablespace tables1
,
partition part19 values less than (20)
tablespace tables1
,
partition part20 values less than (21)
tablespace tables1
,
partition part21 values less than (22)
tablespace tables1
,
partition part22 values less than (23)
tablespace tables1
,
partition part23 values less than (24)
tablespace tables1
,
partition part24 values less than (25)
tablespace tables1
,
partition part25 values less than (26)
tablespace tables1
,
partition part26 values less than (27)
tablespace tables1
,
partition part27 values less than (28)
tablespace tables1
,
partition part28 values less than (29)
tablespace tables1
,
partition part29 values less than (30)
tablespace tables1
,
partition part30 values less than (31)
tablespace tables1
,
partition part31 values less than (32)
tablespace tables1
,
partition part32 values less than (33)
tablespace tables1
,
partition part33 values less than (34)
tablespace tables1
,
partition part34 values less than (35)
tablespace tables1
)

```





```

on.ct1
log=/tpcd/tpcd_kit_729/tpcd_out.v8/load/log/region.log
bad=/tpcd/tpcd_kit_729/tpcd_out.v8/load/log/region.bad
data=/tpcd/tpcd_kit_729/tpcd_out.v8/load/flatfiles/regio
n.tbl direct=true
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
PARTSUPP_LOAD_END from dual;
}
*bgoff
%e-dapop
%b-ixcre
*bgon=1
#####
#####
# Index Creation Phase
*sql
{
connect tpcd/tpcd;
drop index l_pqedso;
create index l_pqedso
on lineitem
(l_partkey,l_quantity,l_extendedprice,l_shipdate,l_suppk
ey,l_orderkey,l_discount)
pctfree 2
intrans 10
nologging
tablespace index1
storage (initial 16k next 50m freelists 32 freelist
groups 5 maxextents unlimited pctincrease 0)
global partition by range (l_partkey)
(
partition lpqedso1 values less than (1250001)
,
partition lpqedso2 values less than (2500001)
,
partition lpqedso3 values less than (3750001)
,
partition lpqedso4 values less than (5000001)
,
partition lpqedso5 values less than (6250001)
,
partition lpqedso6 values less than (7500001)
,
partition lpqedso7 values less than (8750001)
,
partition lpqedso8 values less than (1000001)
,
partition lpqedso9 values less than (11250001)
,
partition lpqedso10 values less than (12500001)
,
partition lpqedso11 values less than (13750001)
,
partition lpqedso12 values less than (15000001)
,
partition lpqedso13 values less than (16250001)
,
partition lpqedso14 values less than (17500001)
,
partition lpqedso15 values less than (18750001)
,
partition lpqedso16 values less than (20000001)
,
partition lpqedso17 values less than (21250001)
,
partition lpqedso18 values less than (22500001)
,
partition lpqedso19 values less than (23750001)
,
partition lpqedso20 values less than (25000001)
,
partition lpqedso21 values less than (26250001)
,
partition lpqedso22 values less than (27500001)
,
partition lpqedso23 values less than (28750001)
,
partition lpqedso24 values less than (30000001)
,
partition lpqedso25 values less than (31250001)
,
partition lpqedso26 values less than (32500001)
,
partition lpqedso27 values less than (33750001)
,
partition lpqedso28 values less than (35000001)
,
partition lpqedso29 values less than (36250001)
,
partition lpqedso30 values less than (37500001)
,
partition lpqedso31 values less than (38750001)
,
partition lpqedso32 values less than (40000001)
,
partition lpqedso33 values less than (41250001)
,
partition lpqedso34 values less than (42500001)
,
partition lpqedso35 values less than (43750001)
,
partition lpqedso36 values less than (45000001)
,
partition lpqedso37 values less than (46250001)
,
partition lpqedso38 values less than (47500001)
,
partition lpqedso39 values less than (48750001)
,
partition lpqedso40 values less than (50000001)
,
partition lpqedso41 values less than (51250001)
,
partition lpqedso42 values less than (52500001)
,
partition lpqedso43 values less than (53750001)
,
partition lpqedso44 values less than (55000001)
,
partition lpqedso45 values less than (56250001)
,
partition lpqedso46 values less than (57500001)
,
partition lpqedso47 values less than (58750001)
,
partition lpqedso48 values less than (60000001)
,
partition lpqedso49 values less than (61250001)
,
partition lpqedso50 values less than (62500001)
,
partition lpqedso51 values less than (63750001)
,
partition lpqedso52 values less than (65000001)
,
partition lpqedso53 values less than (66250001)
,
partition lpqedso54 values less than (67500001)
,
partition lpqedso55 values less than (68750001)
,
partition lpqedso56 values less than (70000001)
,
partition lpqedso57 values less than (71250001)
,
partition lpqedso58 values less than (72500001)
,
partition lpqedso59 values less than (73750001)
,
partition lpqedso60 values less than (75000001)
,
partition lpqedso61 values less than (76250001)
,
partition lpqedso62 values less than (77500001)
,
partition lpqedso63 values less than (78750001)
,
partition lpqedso64 values less than (80000001)
,

```

```

partition lpqedso65 values less than (81250001)
,
partition lpqedso66 values less than (82500001)
,
partition lpqedso67 values less than (83750001)
,
partition lpqedso68 values less than (85000001)
,
partition lpqedso69 values less than (86250001)
,
partition lpqedso70 values less than (87500001)
,
partition lpqedso71 values less than (88750001)
,
partition lpqedso72 values less than (90000001)
,
partition lpqedso73 values less than (91250001)
,
partition lpqedso74 values less than (92500001)
,
partition lpqedso75 values less than (93750001)
,
partition lpqedso76 values less than (95000001)
,
partition lpqedso77 values less than (96250001)
,
partition lpqedso78 values less than (97500001)
,
partition lpqedso79 values less than (98750001)
,
partition lpqedso80 values less than (100000001)
,
partition lpqedso81 values less than (101250001)
,
partition lpqedso82 values less than (102500001)
,
partition lpqedso83 values less than (103750001)
,
partition lpqedso84 values less than (105000001)
,
partition lpqedso85 values less than (106250001)
,
partition lpqedso86 values less than (107500001)
,
partition lpqedso87 values less than (108750001)
,
partition lpqedso88 values less than (110000001)
,
partition lpqedso89 values less than (111250001)
,
partition lpqedso90 values less than (112500001)
,
partition lpqedso91 values less than (113750001)
,
partition lpqedso92 values less than (115000001)
,
partition lpqedso93 values less than (116250001)
,
partition lpqedso94 values less than (117500001)
,
partition lpqedso95 values less than (118750001)
,
partition lpqedso96 values less than (120000001)
,
partition lpqedso97 values less than (121250001)
,
partition lpqedso98 values less than (122500001)
,
partition lpqedso99 values less than (123750001)
,
partition lpqedso100 values less than (125000001)
,
partition lpqedso101 values less than (126250001)
,
partition lpqedso102 values less than (127500001)
,
partition lpqedso103 values less than (128750001)
,
partition lpqedso104 values less than (130000001)
,
partition lpqedso105 values less than (131250001)
,
partition lpqedso106 values less than (132500001)
,
partition lpqedso107 values less than (133750001)
,
partition lpqedso108 values less than (135000001)
,
partition lpqedso109 values less than (136250001)
,
partition lpqedso110 values less than (137500001)
,
partition lpqedso111 values less than (138750001)
,
partition lpqedso112 values less than (140000001)
,
partition lpqedso113 values less than (141250001)
,
partition lpqedso114 values less than (142500001)
,
partition lpqedso115 values less than (143750001)
,
partition lpqedso116 values less than (145000001)
,
partition lpqedso117 values less than (146250001)
,
partition lpqedso118 values less than (147500001)
,
partition lpqedso119 values less than (148750001)
,
partition lpqedso120 values less than (150000001)
,
partition lpqedso121 values less than (151250001)
,
partition lpqedso122 values less than (152500001)
,
partition lpqedso123 values less than (153750001)
,
partition lpqedso124 values less than (155000001)
,
partition lpqedso125 values less than (156250001)
,
partition lpqedso126 values less than (157500001)
,
partition lpqedso127 values less than (158750001)
,
partition lpqedso128 values less than (160000001)
,
partition lpqedso129 values less than (161250001)
,
partition lpqedso130 values less than (162500001)
,
partition lpqedso131 values less than (163750001)
,
partition lpqedso132 values less than (165000001)
,
partition lpqedso133 values less than (166250001)
,
partition lpqedso134 values less than (167500001)
,
partition lpqedso135 values less than (168750001)
,
partition lpqedso136 values less than (170000001)
,
partition lpqedso137 values less than (171250001)
,
partition lpqedso138 values less than (172500001)
,
partition lpqedso139 values less than (173750001)
,
partition lpqedso140 values less than (175000001)
,
partition lpqedso141 values less than (176250001)
,
partition lpqedso142 values less than (177500001)
,
partition lpqedso143 values less than (178750001)
,
partition lpqedso144 values less than (180000001)
,
partition lpqedso145 values less than (181250001)
,

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partition lpqedso146 values less than (182500001)
,
partition lpqedso147 values less than (183750001)
,
partition lpqedso148 values less than (185000001)
,
partition lpqedso149 values less than (186250001)
,
partition lpqedso150 values less than (187500001)
,
partition lpqedso151 values less than (188750001)
,
partition lpqedso152 values less than (190000001)
,
partition lpqedso153 values less than (191250001)
,
partition lpqedso154 values less than (192500001)
,
partition lpqedso155 values less than (193750001)
,
partition lpqedso156 values less than (195000001)
,
partition lpqedso157 values less than (196250001)
,
partition lpqedso158 values less than (197500001)
,
partition lpqedso159 values less than (198750001)
,
partition lpqedso160 values less than (MAXVALUE)
)
parallel (degree 48 instances 1)
;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
L_RDCDSMOK_CRE_START from dual;
}
*sql
{
connect system/manager;
alter tablespace temp coalesce;
}
*sql
{
connect tpcd/tpcd;
create index l_ored
on lineitem
(l_orderkey,l_returnflag,l_extendedprice,l_discount)
pctfree 3
initrans 10
nologging
tablespace index3
storage (initial 16k next 50m freelists 32 freelist
groups 5 maxextents unlimited pctincrease 0)
global partition by range (l_orderkey)
(
partition lored1 values less than (11250001),
partition lored2 values less than (22500001),
partition lored3 values less than (33750001),
partition lored4 values less than (45000001),
partition lored5 values less than (56250001),
partition lored6 values less than (67500001),
partition lored7 values less than (78750001),
partition lored8 values less than (90000001),
partition lored9 values less than (101250001),
partition lored10 values less than (112500001),
partition lored11 values less than (123750001),
partition lored12 values less than (135000001),
partition lored13 values less than (146250001),
partition lored14 values less than (157500001),
partition lored15 values less than (168750001),
partition lored16 values less than (180000001),
partition lored17 values less than (191250001),
partition lored18 values less than (202500001),
partition lored19 values less than (213750001),
partition lored20 values less than (225000001),
partition lored21 values less than (236250001),
partition lored22 values less than (247500001),
partition lored23 values less than (258750001),
partition lored24 values less than (270000001),
partition lored25 values less than (281250001),
partition lored26 values less than (292500001),
partition lored27 values less than (303750001),
partition lored28 values less than (315000001),
partition lored29 values less than (326250001),
partition lored30 values less than (337500001),
partition lored31 values less than (348750001),
partition lored32 values less than (360000001),
partition lored33 values less than (371250001),
partition lored34 values less than (382500001),
partition lored35 values less than (393750001),
partition lored36 values less than (405000001),
partition lored37 values less than (416250001),
partition lored38 values less than (427500001),
partition lored39 values less than (438750001),
partition lored40 values less than (450000001),
partition lored41 values less than (461250001),
partition lored42 values less than (472500001),
partition lored43 values less than (483750001),
partition lored44 values less than (495000001),
partition lored45 values less than (506250001),
partition lored46 values less than (517500001),
partition lored47 values less than (528750001),
partition lored48 values less than (540000001),
partition lored49 values less than (551250001),
partition lored50 values less than (562500001),
partition lored51 values less than (573750001),
partition lored52 values less than (585000001),
partition lored53 values less than (596250001),
partition lored54 values less than (607500001),
partition lored55 values less than (618750001),
partition lored56 values less than (630000001),
partition lored57 values less than (641250001),
partition lored58 values less than (652500001),
partition lored59 values less than (663750001),
partition lored60 values less than (675000001),
partition lored61 values less than (686250001),
partition lored62 values less than (697500001),
partition lored63 values less than (708750001),
partition lored64 values less than (720000001),
partition lored65 values less than (731250001),
partition lored66 values less than (742500001),
partition lored67 values less than (753750001),
partition lored68 values less than (765000001),
partition lored69 values less than (776250001),
partition lored70 values less than (787500001),
partition lored71 values less than (798750001),
partition lored72 values less than (810000001),
partition lored73 values less than (821250001),
partition lored74 values less than (832500001),
partition lored75 values less than (843750001),
partition lored76 values less than (855000001),
partition lored77 values less than (866250001),
partition lored78 values less than (877500001),
partition lored79 values less than (888750001),
partition lored80 values less than (900000001),
partition lored81 values less than (911250001),
partition lored82 values less than (922500001),
partition lored83 values less than (933750001),
partition lored84 values less than (945000001),
partition lored85 values less than (956250001),
partition lored86 values less than (967500001),
partition lored87 values less than (978750001),
partition lored88 values less than (990000001),
partition lored89 values less than (1001250001),
partition lored90 values less than (1012500001),
partition lored91 values less than (1023750001),
partition lored92 values less than (1035000001),
partition lored93 values less than (1046250001),
partition lored94 values less than (1057500001),
partition lored95 values less than (1068750001),
partition lored96 values less than (1080000001),
partition lored97 values less than (1091250001),
partition lored98 values less than (1102500001),
partition lored99 values less than (1113750001),
partition lored100 values less than (1125000001),
partition lored101 values less than (1136250001),
partition lored102 values less than (1147500001),
partition lored103 values less than (1158750001),
partition lored104 values less than (1170000001),
partition lored105 values less than (1181250001),

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partition lored106 values less than (1192500001),
partition lored107 values less than (1203750001),
partition lored108 values less than (1215000001),
partition lored109 values less than (1226250001),
partition lored110 values less than (1237500001),
partition lored111 values less than (1248750001),
partition lored112 values less than (1260000001),
partition lored113 values less than (1271250001),
partition lored114 values less than (1282500001),
partition lored115 values less than (1293750001),
partition lored116 values less than (1305000001),
partition lored117 values less than (1316250001),
partition lored118 values less than (1327500001),
partition lored119 values less than (1338750001),
partition lored120 values less than (1350000001),
partition lored121 values less than (1361250001),
partition lored122 values less than (1372500001),
partition lored123 values less than (1383750001),
partition lored124 values less than (1395000001),
partition lored125 values less than (1406250001),
partition lored126 values less than (1417500001),
partition lored127 values less than (1428750001),
partition lored128 values less than (1440000001),
partition lored129 values less than (1451250001),
partition lored130 values less than (1462500001),
partition lored131 values less than (1473750001),
partition lored132 values less than (1485000001),
partition lored133 values less than (1496250001),
partition lored134 values less than (1507500001),
partition lored135 values less than (1518750001),
partition lored136 values less than (1530000001),
partition lored137 values less than (1541250001),
partition lored138 values less than (1552500001),
partition lored139 values less than (1563750001),
partition lored140 values less than (1575000001),
partition lored141 values less than (1586250001),
partition lored142 values less than (1597500001),
partition lored143 values less than (1608750001),
partition lored144 values less than (1620000001),
partition lored145 values less than (1631250001),
partition lored146 values less than (1642500001),
partition lored147 values less than (1653750001),
partition lored148 values less than (1665000001),
partition lored149 values less than (1676250001),
partition lored150 values less than (1687500001),
partition lored151 values less than (1698750001),
partition lored152 values less than (1710000001),
partition lored153 values less than (1721250001),
partition lored154 values less than (1732500001),
partition lored155 values less than (1743750001),
partition lored156 values less than (1755000001),
partition lored157 values less than (1766250001),
partition lored158 values less than (1777500001),
partition lored159 values less than (1788750001),
partition lored160 values less than (MAXVALUE)
)
parallel (degree 48 instances 1)
;
}
*sql
{
connect tpcd/tpcd;
create index l_rdcdsdsmok
on lineitem
(l_receiptdate,l_orderkey,l_commitdate,l_shipdate,l_ship
mode)
pctfree 2
intrans 10
nologging
tablespace index3
storage (initial 16k next 50m freelists 32 freelist
groups 5 maxextents unlimited pctincrease 0)
global partition by range (l_receiptdate)
(
partition lrdcdsdsmok1 values less than (to_date('1992-
03-01','YYYY-MM-DD'))
,
partition lrdcdsdsmok2 values less than (to_date('1992-
03-24','YYYY-MM-DD'))
,
partition lrdcdsdsmok3 values less than (to_date('1992-
04-14','YYYY-MM-DD'))
,
partition lrdcdsdsmok4 values less than (to_date('1992-
05-01','YYYY-MM-DD'))
,
partition lrdcdsdsmok5 values less than (to_date('1992-
05-16','YYYY-MM-DD'))
,
partition lrdcdsdsmok6 values less than (to_date('1992-
06-01','YYYY-MM-DD'))
,
partition lrdcdsdsmok7 values less than (to_date('1992-
06-16','YYYY-MM-DD'))
,
partition lrdcdsdsmok8 values less than (to_date('1992-
07-01','YYYY-MM-DD'))
,
partition lrdcdsdsmok9 values less than (to_date('1992-
07-16','YYYY-MM-DD'))
,
partition lrdcdsdsmok10 values less than (to_date('1992-
08-01','YYYY-MM-DD'))
,
partition lrdcdsdsmok11 values less than (to_date('1992-
08-16','YYYY-MM-DD'))
,
partition lrdcdsdsmok12 values less than (to_date('1992-
09-01','YYYY-MM-DD'))
,
partition lrdcdsdsmok13 values less than (to_date('1992-
09-16','YYYY-MM-DD'))
,
partition lrdcdsdsmok14 values less than (to_date('1992-
10-01','YYYY-MM-DD'))
,
partition lrdcdsdsmok15 values less than (to_date('1992-
10-16','YYYY-MM-DD'))
,
partition lrdcdsdsmok16 values less than (to_date('1992-
11-01','YYYY-MM-DD'))
,
partition lrdcdsdsmok17 values less than (to_date('1992-
11-16','YYYY-MM-DD'))
,
partition lrdcdsdsmok18 values less than (to_date('1992-
12-01','YYYY-MM-DD'))
,
partition lrdcdsdsmok19 values less than (to_date('1992-
12-16','YYYY-MM-DD'))
,
partition lrdcdsdsmok20 values less than (to_date('1993-
01-01','YYYY-MM-DD'))
,
partition lrdcdsdsmok21 values less than (to_date('1993-
01-16','YYYY-MM-DD'))
,
partition lrdcdsdsmok22 values less than (to_date('1993-
02-01','YYYY-MM-DD'))
,
partition lrdcdsdsmok23 values less than (to_date('1993-
02-16','YYYY-MM-DD'))
,
partition lrdcdsdsmok24 values less than (to_date('1993-
03-01','YYYY-MM-DD'))
,
partition lrdcdsdsmok25 values less than (to_date('1993-
03-16','YYYY-MM-DD'))
,
partition lrdcdsdsmok26 values less than (to_date('1993-
04-01','YYYY-MM-DD'))
,
partition lrdcdsdsmok27 values less than (to_date('1993-
04-16','YYYY-MM-DD'))
,
partition lrdcdsdsmok28 values less than (to_date('1993-
05-01','YYYY-MM-DD'))
,
partition lrdcdsdsmok29 values less than (to_date('1993-
05-16','YYYY-MM-DD'))
,

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partition lrdcdsdsmsok138 values less than
(to_date('1997-12-01','YYYY-MM-DD'))
,
partition lrdcdsdsmsok139 values less than
(to_date('1997-12-16','YYYY-MM-DD'))
,
partition lrdcdsdsmsok140 values less than
(to_date('1998-01-01','YYYY-MM-DD'))
,
partition lrdcdsdsmsok141 values less than
(to_date('1998-01-16','YYYY-MM-DD'))
,
partition lrdcdsdsmsok142 values less than
(to_date('1998-02-01','YYYY-MM-DD'))
,
partition lrdcdsdsmsok143 values less than
(to_date('1998-02-16','YYYY-MM-DD'))
,
partition lrdcdsdsmsok144 values less than
(to_date('1998-03-01','YYYY-MM-DD'))
,
partition lrdcdsdsmsok145 values less than
(to_date('1998-03-16','YYYY-MM-DD'))
,
partition lrdcdsdsmsok146 values less than
(to_date('1998-04-01','YYYY-MM-DD'))
,
partition lrdcdsdsmsok147 values less than
(to_date('1998-04-16','YYYY-MM-DD'))
,
partition lrdcdsdsmsok148 values less than
(to_date('1998-05-01','YYYY-MM-DD'))
,
partition lrdcdsdsmsok149 values less than
(to_date('1998-05-16','YYYY-MM-DD'))
,
partition lrdcdsdsmsok150 values less than
(to_date('1998-06-01','YYYY-MM-DD'))
,
partition lrdcdsdsmsok151 values less than
(to_date('1998-06-16','YYYY-MM-DD'))
,
partition lrdcdsdsmsok152 values less than
(to_date('1998-07-01','YYYY-MM-DD'))
,
partition lrdcdsdsmsok153 values less than
(to_date('1998-07-16','YYYY-MM-DD'))
,
partition lrdcdsdsmsok154 values less than
(to_date('1998-08-01','YYYY-MM-DD'))
,
partition lrdcdsdsmsok155 values less than
(to_date('1998-08-16','YYYY-MM-DD'))
,
partition lrdcdsdsmsok156 values less than
(to_date('1998-09-01','YYYY-MM-DD'))
,
partition lrdcdsdsmsok157 values less than
(to_date('1998-09-16','YYYY-MM-DD'))
,
partition lrdcdsdsmsok158 values less than
(to_date('1998-10-01','YYYY-MM-DD'))
,
partition lrdcdsdsmsok159 values less than
(to_date('1998-11-01','YYYY-MM-DD'))
,
partition lrdcdsdsmsok160 values less than (MAXVALUE)
)
parallel (degree 24 instances 1)
;
}
*sql
{
connect tpcd/tpcd;
create index l_osdqeps
on lineitem
(l_orderkey,l_shipdate,l_discount,l_quantity,l_extendedp
rice,l_partkey,l_suppkey)
pctfree 2
initrans 10
nologging
tablespace index3
storage (initial 16k next 50m freelists 32 freelist
groups 5 maxextents unlimited pctincrease 0)
local (
partition losdqeps1
,
.....
.....
partition losdqeps159
,
partition losdqeps160
)
parallel (degree 24 instances 1)
;
}
*sql
{
connect tpcd/tpcd;
drop index o_clokod;
create index o_clokod
on orders (o_c_lerk,o_orderkey,o_orderdate)
pctfree 2
initrans 10
nologging
tablespace index1
storage (initial 16k next 50m freelists 32 freelist
groups 5 maxextents unlimited pctincrease 0)
local
(partition oclokod1,
partition oclokod2,
partition oclokod3,
.....
.....
partition oclokod159,
partition oclokod160
)
parallel (degree 24 instances 1);
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
O_OP_CRE_START from dual;
}
*sql
{
connect system/manager;
alter tablespace temp coalesce;
alter tablespace index1 coalesce;
}
*sql
{
connect tpcd/tpcd;
drop index o_op;
create unique index o_op
on orders (o_orderkey,o_orderpriority)
pctfree 60
initrans 10
nologging
tablespace index3
storage (initial 50m next 50m freelists 32 freelist
groups 5 maxextents unlimited pctincrease 0)
parallel (degree 24 instances 1)
;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
PS_SKEY_CRE_START from dual;
}
*sql
{
connect system/manager;
alter tablespace temp coalesce;
alter tablespace index1 coalesce;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
PS_SKSC_CRE_START from dual;
}
*sql

```

```

{
connect system/manager;
alter tablespace temp coalesce;
alter tablespace index1 coalesce;
}
*sql
{
connect tpcd/tpcd;
drop index ps_pksksc;
create unique index ps_pksksc
on partsupp (ps_partkey,ps_suppkey,ps_supplycost)
pctfree 1
nologging
tablespace index1
storage (initial 10m next 10m maxextents unlimited
pctincrease 0)
parallel (degree 24 instances 1)
;
}
*sql
{
connect tpcd/tpcd;
create unique index ps_skpk
on partsupp (ps_suppkey,ps_partkey)
pctfree 1
nologging
tablespace index3
storage (initial 16k next 10m maxextents unlimited
pctincrease 0)
parallel (degree 48 instances 1)
;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
PS_SPSA_CRE_START from dual;
}
*sql
{
connect system/manager;
alter tablespace temp coalesce;
alter tablespace index1 coalesce;
}
*sql
{
connect tpcd/tpcd;
drop index ps_spsa;
create unique index ps_spsa
on partsupp
(ps_suppkey,ps_partkey,ps_supplycost,ps_availqty)
pctfree 1
nologging
tablespace index1
storage (initial 10m next 10m maxextents unlimited
pctincrease 0)
parallel (degree 12 instances 1)
;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
PS_CBP_CRE_START from dual;
}
*sql
{
connect system/manager;
alter tablespace temp coalesce;
alter tablespace index1 coalesce;
}
*sql
{
connect tpcd/tpcd;
drop index p_cbp;
create index p_cbp
on parts (p_container,p_brand,p_partkey)
pctfree 1
nologging
tablespace index1
storage (initial 16k next 50m maxextents unlimited
pctincrease 0)
global partition by range (p_container,p_brand)
(
partition pcbp1 values less than ('JUMBO BAG','11')
,
partition pcbp2 values less than ('JUMBO BAG','12')
,
partition pcbp3 values less than ('JUMBO BAG','13')
,
partition pcbp4 values less than ('JUMBO BAG','14')
,
partition pcbp5 values less than ('JUMBO BAG','15')
,
partition pcbp6 values less than ('JUMBO BAG','21')
,
partition pcbp7 values less than ('JUMBO BAG','22')
,
partition pcbp8 values less than ('JUMBO BAG','23')
,
partition pcbp9 values less than ('JUMBO BAG','24')
,
partition pcbp10 values less than ('JUMBO BAG','25')
,
partition pcbp11 values less than ('JUMBO BAG','31')
,
partition pcbp12 values less than ('JUMBO BAG','32')
,
partition pcbp13 values less than ('JUMBO BAG','33')
,
partition pcbp14 values less than ('JUMBO BAG','34')
,
partition pcbp15 values less than ('JUMBO BAG','35')
,
partition pcbp16 values less than ('JUMBO BAG','41')
,
partition pcbp17 values less than ('JUMBO BAG','42')
,
partition pcbp18 values less than ('JUMBO BAG','43')
,
partition pcbp19 values less than ('JUMBO BAG','44')
,
partition pcbp20 values less than ('JUMBO BAG','45')
,
partition pcbp21 values less than ('JUMBO BAG','51')
,
partition pcbp22 values less than ('JUMBO BAG','52')
,
partition pcbp23 values less than ('JUMBO BAG','53')
,
partition pcbp24 values less than ('JUMBO BAG','54')
,
partition pcbp25 values less than ('JUMBO BAG','55')
,
partition pcbp26 values less than ('JUMBO BOX','11')
,
partition pcbp27 values less than ('JUMBO BOX','12')
,
partition pcbp28 values less than ('JUMBO BOX','13')
,
partition pcbp29 values less than ('JUMBO BOX','14')
,
partition pcbp30 values less than ('JUMBO BOX','15')
,
partition pcbp31 values less than ('JUMBO BOX','21')
,
partition pcbp32 values less than ('JUMBO BOX','22')
,
partition pcbp33 values less than ('JUMBO BOX','23')
,
partition pcbp34 values less than ('JUMBO BOX','24')
,
partition pcbp35 values less than ('JUMBO BOX','25')
,
partition pcbp36 values less than ('JUMBO BOX','31')
,
partition pcbp37 values less than ('JUMBO BOX','32')
,
partition pcbp38 values less than ('JUMBO BOX','33')
,
partition pcbp39 values less than ('JUMBO BOX','34')
,
partition pcbp40 values less than ('JUMBO BOX','35')
,

```





```

partition pcbp203 values less than ('LG BAG','13')
,
partition pcbp204 values less than ('LG BAG','14')
,
partition pcbp205 values less than ('LG BAG','15')
,
partition pcbp206 values less than ('LG BAG','21')
,
partition pcbp207 values less than ('LG BAG','22')
,
partition pcbp208 values less than ('LG BAG','23')
,
partition pcbp209 values less than ('LG BAG','24')
,
partition pcbp210 values less than ('LG BAG','25')
,
partition pcbp211 values less than ('LG BAG','31')
,
partition pcbp212 values less than ('LG BAG','32')
,
partition pcbp213 values less than ('LG BAG','33')
,
partition pcbp214 values less than ('LG BAG','34')
,
partition pcbp215 values less than ('LG BAG','35')
,
partition pcbp216 values less than ('LG BAG','41')
,
partition pcbp217 values less than ('LG BAG','42')
,
partition pcbp218 values less than ('LG BAG','43')
,
partition pcbp219 values less than ('LG BAG','44')
,
partition pcbp220 values less than ('LG BAG','45')
,
partition pcbp221 values less than ('LG BAG','51')
,
partition pcbp222 values less than ('LG BAG','52')
,
partition pcbp223 values less than ('LG BAG','53')
,
partition pcbp224 values less than ('LG BAG','54')
,
partition pcbp225 values less than ('LG BAG','55')
,
partition pcbp226 values less than ('LG BOX','11')
,
partition pcbp227 values less than ('LG BOX','12')
,
partition pcbp228 values less than ('LG BOX','13')
,
partition pcbp229 values less than ('LG BOX','14')
,
partition pcbp230 values less than ('LG BOX','15')
,
partition pcbp231 values less than ('LG BOX','21')
,
partition pcbp232 values less than ('LG BOX','22')
,
partition pcbp233 values less than ('LG BOX','23')
,
partition pcbp234 values less than ('LG BOX','24')
,
partition pcbp235 values less than ('LG BOX','25')
,
partition pcbp236 values less than ('LG BOX','31')
,
partition pcbp237 values less than ('LG BOX','32')
,
partition pcbp238 values less than ('LG BOX','33')
,
partition pcbp239 values less than ('LG BOX','34')
,
partition pcbp240 values less than ('LG BOX','35')
,
partition pcbp241 values less than ('LG BOX','41')
,
partition pcbp242 values less than ('LG BOX','42')
,
partition pcbp243 values less than ('LG BOX','43')
,
partition pcbp244 values less than ('LG BOX','44')
,
partition pcbp245 values less than ('LG BOX','45')
,
partition pcbp246 values less than ('LG BOX','51')
,
partition pcbp247 values less than ('LG BOX','52')
,
partition pcbp248 values less than ('LG BOX','53')
,
partition pcbp249 values less than ('LG BOX','54')
,
partition pcbp250 values less than ('LG BOX','55')
,
partition pcbp251 values less than ('LG CAN','11')
,
partition pcbp252 values less than ('LG CAN','12')
,
partition pcbp253 values less than ('LG CAN','13')
,
partition pcbp254 values less than ('LG CAN','14')
,
partition pcbp255 values less than ('LG CAN','15')
,
partition pcbp256 values less than ('LG CAN','21')
,
partition pcbp257 values less than ('LG CAN','22')
,
partition pcbp258 values less than ('LG CAN','23')
,
partition pcbp259 values less than ('LG CAN','24')
,
partition pcbp260 values less than ('LG CAN','25')
,
partition pcbp261 values less than ('LG CAN','31')
,
partition pcbp262 values less than ('LG CAN','32')
,
partition pcbp263 values less than ('LG CAN','33')
,
partition pcbp264 values less than ('LG CAN','34')
,
partition pcbp265 values less than ('LG CAN','35')
,
partition pcbp266 values less than ('LG CAN','41')
,
partition pcbp267 values less than ('LG CAN','42')
,
partition pcbp268 values less than ('LG CAN','43')
,
partition pcbp269 values less than ('LG CAN','44')
,
partition pcbp270 values less than ('LG CAN','45')
,
partition pcbp271 values less than ('LG CAN','51')
,
partition pcbp272 values less than ('LG CAN','52')
,
partition pcbp273 values less than ('LG CAN','53')
,
partition pcbp274 values less than ('LG CAN','54')
,
partition pcbp275 values less than ('LG CAN','55')
,
partition pcbp276 values less than ('LG CASE','11')
,
partition pcbp277 values less than ('LG CASE','12')
,
partition pcbp278 values less than ('LG CASE','13')
,
partition pcbp279 values less than ('LG CASE','14')
,
partition pcbp280 values less than ('LG CASE','15')
,
partition pcbp281 values less than ('LG CASE','21')
,
partition pcbp282 values less than ('LG CASE','22')
,
partition pcbp283 values less than ('LG CASE','23')
,

```

















```

partition pcbp932 values less than ('WRAP JAR','22')
,
partition pcbp933 values less than ('WRAP JAR','23')
,
partition pcbp934 values less than ('WRAP JAR','24')
,
partition pcbp935 values less than ('WRAP JAR','25')
,
partition pcbp936 values less than ('WRAP JAR','31')
,
partition pcbp937 values less than ('WRAP JAR','32')
,
partition pcbp938 values less than ('WRAP JAR','33')
,
partition pcbp939 values less than ('WRAP JAR','34')
,
partition pcbp940 values less than ('WRAP JAR','35')
,
partition pcbp941 values less than ('WRAP JAR','41')
,
partition pcbp942 values less than ('WRAP JAR','42')
,
partition pcbp943 values less than ('WRAP JAR','43')
,
partition pcbp944 values less than ('WRAP JAR','44')
,
partition pcbp945 values less than ('WRAP JAR','45')
,
partition pcbp946 values less than ('WRAP JAR','51')
,
partition pcbp947 values less than ('WRAP JAR','52')
,
partition pcbp948 values less than ('WRAP JAR','53')
,
partition pcbp949 values less than ('WRAP JAR','54')
,
partition pcbp950 values less than ('WRAP JAR','55')
,
partition pcbp951 values less than ('WRAP PACK','11')
,
partition pcbp952 values less than ('WRAP PACK','12')
,
partition pcbp953 values less than ('WRAP PACK','13')
,
partition pcbp954 values less than ('WRAP PACK','14')
,
partition pcbp955 values less than ('WRAP PACK','15')
,
partition pcbp956 values less than ('WRAP PACK','21')
,
partition pcbp957 values less than ('WRAP PACK','22')
,
partition pcbp958 values less than ('WRAP PACK','23')
,
partition pcbp959 values less than ('WRAP PACK','24')
,
partition pcbp960 values less than ('WRAP PACK','25')
,
partition pcbp961 values less than ('WRAP PACK','31')
,
partition pcbp962 values less than ('WRAP PACK','32')
,
partition pcbp963 values less than ('WRAP PACK','33')
,
partition pcbp964 values less than ('WRAP PACK','34')
,
partition pcbp965 values less than ('WRAP PACK','35')
,
partition pcbp966 values less than ('WRAP PACK','41')
,
partition pcbp967 values less than ('WRAP PACK','42')
,
partition pcbp968 values less than ('WRAP PACK','43')
,
partition pcbp969 values less than ('WRAP PACK','44')
,
partition pcbp970 values less than ('WRAP PACK','45')
,
partition pcbp971 values less than ('WRAP PACK','51')
,
partition pcbp972 values less than ('WRAP PACK','52')
,
partition pcbp973 values less than ('WRAP PACK','53')
,
partition pcbp974 values less than ('WRAP PACK','54')
,
partition pcbp975 values less than ('WRAP PACK','55')
,
partition pcbp976 values less than ('WRAP PKG','11')
,
partition pcbp977 values less than ('WRAP PKG','12')
,
partition pcbp978 values less than ('WRAP PKG','13')
,
partition pcbp979 values less than ('WRAP PKG','14')
,
partition pcbp980 values less than ('WRAP PKG','15')
,
partition pcbp981 values less than ('WRAP PKG','21')
,
partition pcbp982 values less than ('WRAP PKG','22')
,
partition pcbp983 values less than ('WRAP PKG','23')
,
partition pcbp984 values less than ('WRAP PKG','24')
,
partition pcbp985 values less than ('WRAP PKG','25')
,
partition pcbp986 values less than ('WRAP PKG','31')
,
partition pcbp987 values less than ('WRAP PKG','32')
,
partition pcbp988 values less than ('WRAP PKG','33')
,
partition pcbp989 values less than ('WRAP PKG','34')
,
partition pcbp990 values less than ('WRAP PKG','35')
,
partition pcbp991 values less than ('WRAP PKG','41')
,
partition pcbp992 values less than ('WRAP PKG','42')
,
partition pcbp993 values less than ('WRAP PKG','43')
,
partition pcbp994 values less than ('WRAP PKG','44')
,
partition pcbp995 values less than ('WRAP PKG','45')
,
partition pcbp996 values less than ('WRAP PKG','51')
,
partition pcbp997 values less than ('WRAP PKG','52')
,
partition pcbp998 values less than ('WRAP PKG','53')
,
partition pcbp999 values less than ('WRAP PKG','54')
,
partition pcbp1000 values less than (MAXVALUE,MAXVALUE)
)
parallel (degree 96 instances 1)
;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
PS_SPTM_CRE_START from dual;
}
*sql
{
connect system/manager;
alter tablespace temp coalesce;
alter tablespace index1 coalesce;
}
*sql
{
connect tpcd/tpcd;
drop index p_sptm;
create index p_sptm
on parts (p_size,p_partkey,p_type,p_mfgr)
pctfree 1
nologging
tablespace index1

```

```

storage (initial 16k next 50m maxextents unlimited
pctincrease 0)
global partition by range (p_size)
(
partition psptm1 values less than (2)
,
partition psptm2 values less than (3)
,
.....
.....
partition psptm49 values less than (50)
,
partition psptm50 values less than (MAXVALUE)
)
parallel (degree 96 instances 1)
;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
P_TP_CRE_START from dual;
}
*sql
{
connect system/manager;
alter tablespace temp coalesce;
alter tablespace index1 coalesce;
}
*sql
{
connect tpcd/tpcd;
drop index p_tp;
create index p_tp
on parts (p_type,p_partkey)
pctfree 1
nologging
tablespace index1
storage (initial 16k next 50m maxextents unlimited
pctincrease 0)
global partition by range (p_type)
(
partition ptp1 values less than ('ECONOMY ANODIZED
COPPER')
,
partition ptp2 values less than ('ECONOMY ANODIZED
NICKEL')
,
partition ptp3 values less than ('ECONOMY ANODIZED
STEEL')
,
partition ptp4 values less than ('ECONOMY ANODIZED TIN')
,
partition ptp5 values less than ('ECONOMY BRUSHED
BRASS')
,
partition ptp6 values less than ('ECONOMY BRUSHED
COPPER')
,
partition ptp7 values less than ('ECONOMY BRUSHED
NICKEL')
,
partition ptp8 values less than ('ECONOMY BRUSHED
STEEL')
,
partition ptp9 values less than ('ECONOMY BRUSHED TIN')
,
partition ptp10 values less than ('ECONOMY BURNISHED
BRASS')
,
partition ptp11 values less than ('ECONOMY BURNISHED
COPPER')
,
partition ptp12 values less than ('ECONOMY BURNISHED
NICKEL')
,
partition ptp13 values less than ('ECONOMY BURNISHED
STEEL')
,
partition ptp14 values less than ('ECONOMY BURNISHED
TIN')
,
partition ptp15 values less than ('ECONOMY PLATED
BRASS')
,
partition ptp16 values less than ('ECONOMY PLATED
COPPER')
,
partition ptp17 values less than ('ECONOMY PLATED
NICKEL')
,
partition ptp18 values less than ('ECONOMY PLATED
STEEL')
,
partition ptp19 values less than ('ECONOMY PLATED TIN')
,
partition ptp20 values less than ('ECONOMY POLISHED
BRASS')
,
partition ptp21 values less than ('ECONOMY POLISHED
COPPER')
,
partition ptp22 values less than ('ECONOMY POLISHED
NICKEL')
,
partition ptp23 values less than ('ECONOMY POLISHED
STEEL')
,
partition ptp24 values less than ('ECONOMY POLISHED
TIN')
,
partition ptp25 values less than ('LARGE ANODIZED
BRASS')
,
partition ptp26 values less than ('LARGE ANODIZED
COPPER')
,
partition ptp27 values less than ('LARGE ANODIZED
NICKEL')
,
partition ptp28 values less than ('LARGE ANODIZED
STEEL')
,
partition ptp29 values less than ('LARGE ANODIZED TIN')
,
partition ptp30 values less than ('LARGE BRUSHED BRASS')
,
partition ptp31 values less than ('LARGE BRUSHED
COPPER')
,
partition ptp32 values less than ('LARGE BRUSHED
NICKEL')
,
partition ptp33 values less than ('LARGE BRUSHED STEEL')
,
partition ptp34 values less than ('LARGE BRUSHED TIN')
,
partition ptp35 values less than ('LARGE BURNISHED
BRASS')
,
partition ptp36 values less than ('LARGE BURNISHED
COPPER')
,
partition ptp37 values less than ('LARGE BURNISHED
NICKEL')
,
partition ptp38 values less than ('LARGE BURNISHED
STEEL')
,
partition ptp39 values less than ('LARGE BURNISHED TIN')
,
partition ptp40 values less than ('LARGE PLATED BRASS')
,
partition ptp41 values less than ('LARGE PLATED COPPER')
,
partition ptp42 values less than ('LARGE PLATED NICKEL')
,
partition ptp43 values less than ('LARGE PLATED STEEL')
,
partition ptp44 values less than ('LARGE PLATED TIN')
,
partition ptp45 values less than ('LARGE POLISHED
BRASS')

```

```

, partition ptp46 values less than ('LARGE POLISHED
COPPER')
,
, partition ptp47 values less than ('LARGE POLISHED
NICKEL')
,
, partition ptp48 values less than ('LARGE POLISHED
STEEL')
,
, partition ptp49 values less than ('LARGE POLISHED TIN')
,
, partition ptp50 values less than ('MEDIUM ANODIZED
BRASS')
,
, partition ptp51 values less than ('MEDIUM ANODIZED
COPPER')
,
, partition ptp52 values less than ('MEDIUM ANODIZED
NICKEL')
,
, partition ptp53 values less than ('MEDIUM ANODIZED
STEEL')
,
, partition ptp54 values less than ('MEDIUM ANODIZED TIN')
,
, partition ptp55 values less than ('MEDIUM BRUSHED
BRASS')
,
, partition ptp56 values less than ('MEDIUM BRUSHED
COPPER')
,
, partition ptp57 values less than ('MEDIUM BRUSHED
NICKEL')
,
, partition ptp58 values less than ('MEDIUM BRUSHED
STEEL')
,
, partition ptp59 values less than ('MEDIUM BRUSHED TIN')
,
, partition ptp60 values less than ('MEDIUM BURNISHED
BRASS')
,
, partition ptp61 values less than ('MEDIUM BURNISHED
COPPER')
,
, partition ptp62 values less than ('MEDIUM BURNISHED
NICKEL')
,
, partition ptp63 values less than ('MEDIUM BURNISHED
STEEL')
,
, partition ptp64 values less than ('MEDIUM BURNISHED
TIN')
,
, partition ptp65 values less than ('MEDIUM PLATED BRASS')
,
, partition ptp66 values less than ('MEDIUM PLATED
COPPER')
,
, partition ptp67 values less than ('MEDIUM PLATED
NICKEL')
,
, partition ptp68 values less than ('MEDIUM PLATED STEEL')
,
, partition ptp69 values less than ('MEDIUM PLATED TIN')
,
, partition ptp70 values less than ('MEDIUM POLISHED
BRASS')
,
, partition ptp71 values less than ('MEDIUM POLISHED
COPPER')
,
, partition ptp72 values less than ('MEDIUM POLISHED
NICKEL')
,
, partition ptp73 values less than ('MEDIUM POLISHED
STEEL')
,
, partition ptp74 values less than ('MEDIUM POLISHED TIN')
,
,
, partition ptp75 values less than ('PROMO ANODIZED
BRASS')
,
, partition ptp76 values less than ('PROMO ANODIZED
COPPER')
,
, partition ptp77 values less than ('PROMO ANODIZED
NICKEL')
,
, partition ptp78 values less than ('PROMO ANODIZED
STEEL')
,
, partition ptp79 values less than ('PROMO ANODIZED TIN')
,
, partition ptp80 values less than ('PROMO BRUSHED BRASS')
,
, partition ptp81 values less than ('PROMO BRUSHED
COPPER')
,
, partition ptp82 values less than ('PROMO BRUSHED
NICKEL')
,
, partition ptp83 values less than ('PROMO BRUSHED STEEL')
,
, partition ptp84 values less than ('PROMO BRUSHED TIN')
,
, partition ptp85 values less than ('PROMO BURNISHED
BRASS')
,
, partition ptp86 values less than ('PROMO BURNISHED
COPPER')
,
, partition ptp87 values less than ('PROMO BURNISHED
NICKEL')
,
, partition ptp88 values less than ('PROMO BURNISHED
STEEL')
,
, partition ptp89 values less than ('PROMO BURNISHED TIN')
,
, partition ptp90 values less than ('PROMO PLATED BRASS')
,
, partition ptp91 values less than ('PROMO PLATED COPPER')
,
, partition ptp92 values less than ('PROMO PLATED NICKEL')
,
, partition ptp93 values less than ('PROMO PLATED STEEL')
,
, partition ptp94 values less than ('PROMO PLATED TIN')
,
, partition ptp95 values less than ('PROMO POLISHED
BRASS')
,
, partition ptp96 values less than ('PROMO POLISHED
COPPER')
,
, partition ptp97 values less than ('PROMO POLISHED
NICKEL')
,
, partition ptp98 values less than ('PROMO POLISHED
STEEL')
,
, partition ptp99 values less than ('PROMO POLISHED TIN')
,
, partition ptp100 values less than ('SMALL ANODIZED
BRASS')
,
, partition ptp101 values less than ('SMALL ANODIZED
COPPER')
,
, partition ptp102 values less than ('SMALL ANODIZED
NICKEL')
,
, partition ptp103 values less than ('SMALL ANODIZED
STEEL')
,
, partition ptp104 values less than ('SMALL ANODIZED TIN')
,
, partition ptp105 values less than ('SMALL BRUSHED
BRASS')
,
,

```

```

partition ptp106 values less than ('SMALL BRUSHED
COPPER')
,
partition ptp107 values less than ('SMALL BRUSHED
NICKEL')
,
partition ptp108 values less than ('SMALL BRUSHED
STEEL')
,
partition ptp109 values less than ('SMALL BRUSHED TIN')
,
partition ptp110 values less than ('SMALL BURNISHED
BRASS')
,
partition ptp111 values less than ('SMALL BURNISHED
COPPER')
,
partition ptp112 values less than ('SMALL BURNISHED
NICKEL')
,
partition ptp113 values less than ('SMALL BURNISHED
STEEL')
,
partition ptp114 values less than ('SMALL BURNISHED
TIN')
,
partition ptp115 values less than ('SMALL PLATED BRASS')
,
partition ptp116 values less than ('SMALL PLATED
COPPER')
,
partition ptp117 values less than ('SMALL PLATED
NICKEL')
,
partition ptp118 values less than ('SMALL PLATED STEEL')
,
partition ptp119 values less than ('SMALL PLATED TIN')
,
partition ptp120 values less than ('SMALL POLISHED
BRASS')
,
partition ptp121 values less than ('SMALL POLISHED
COPPER')
,
partition ptp122 values less than ('SMALL POLISHED
NICKEL')
,
partition ptp123 values less than ('SMALL POLISHED
STEEL')
,
partition ptp124 values less than ('SMALL POLISHED TIN')
,
partition ptp125 values less than ('STANDARD ANODIZED
BRASS')
,
partition ptp126 values less than ('STANDARD ANODIZED
COPPER')
,
partition ptp127 values less than ('STANDARD ANODIZED
NICKEL')
,
partition ptp128 values less than ('STANDARD ANODIZED
STEEL')
,
partition ptp129 values less than ('STANDARD ANODIZED
TIN')
,
partition ptp130 values less than ('STANDARD BRUSHED
BRASS')
,
partition ptp131 values less than ('STANDARD BRUSHED
COPPER')
,
partition ptp132 values less than ('STANDARD BRUSHED
NICKEL')
,
partition ptp133 values less than ('STANDARD BRUSHED
STEEL')
,
partition ptp134 values less than ('STANDARD BRUSHED
TIN')
,
partition ptp135 values less than ('STANDARD BURNISHED
BRASS')
,
partition ptp136 values less than ('STANDARD BURNISHED
COPPER')
,
partition ptp137 values less than ('STANDARD BURNISHED
NICKEL')
,
partition ptp138 values less than ('STANDARD BURNISHED
STEEL')
,
partition ptp139 values less than ('STANDARD BURNISHED
TIN')
,
partition ptp140 values less than ('STANDARD PLATED
BRASS')
,
partition ptp141 values less than ('STANDARD PLATED
COPPER')
,
partition ptp142 values less than ('STANDARD PLATED
NICKEL')
,
partition ptp143 values less than ('STANDARD PLATED
STEEL')
,
partition ptp144 values less than ('STANDARD PLATED
TIN')
,
partition ptp145 values less than ('STANDARD POLISHED
BRASS')
,
partition ptp146 values less than ('STANDARD POLISHED
COPPER')
,
partition ptp147 values less than ('STANDARD POLISHED
NICKEL')
,
partition ptp148 values less than ('STANDARD POLISHED
STEEL')
,
partition ptp149 values less than ('STANDARD POLISHED
TIN')
,
partition ptp150 values less than (MAXVALUE)
)
parallel (degree 192 instances 1)
;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
S_SKEY_CRE_START from dual;
}
*sql
{
connect system/manager;
alter tablespace temp coalesce;
alter tablespace index1 coalesce;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
S_SN_CRE_START from dual;
}
*sql
{
connect system/manager;
alter tablespace temp coalesce;
alter tablespace index1 coalesce;
}
*sql
{
connect tpcd/tpcd;
drop index s_sn;
create unique index s_sn
on supplier (s_suppkey,s_nationkey)
pctfree 1
nologging

```

```

tablespace index1
storage (initial 10m next 10m maxextents unlimited
pctincrease 0)
parallel (degree 48 instances 1)
;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
S_SN_CRE_END from dual;
}
*wait
*bgoff
%e-ixcre
%b-anlyz
*bgon=161
#####
#####
# Analyze Phase
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
L_ORED_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze index l_ored partition (lored1) estimate
statistics sample 6250 rows;
}
.....
.....
*sql
{
connect tpcd/tpcd;
analyze index l_ored partition (lored160) estimate
statistics sample 6250 rows;
}
*wait
*sql
{
connect tpcd/tpcd;
analyze index l_osdqeps partition (losdqeps1) estimate
statistics sample 6250 rows;
}
*sql
{
connect tpcd/tpcd;
analyze index l_osdqeps partition (losdqeps2) estimate
statistics sample 6250 rows;
}
.....
.....
*sql
{
connect tpcd/tpcd;
analyze index l_osdqeps partition (losdqeps160) estimate
statistics sample 6250 rows;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
L_PQEDSO_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze index l_pqedso partition (lpqedso1) estimate
statistics sample 6250 rows;
}
*sql
{
connect tpcd/tpcd;
analyze index l_pqedso partition (lpqedso2) estimate
statistics sample 6250 rows;
}
*sql
{
connect tpcd/tpcd;
analyze index l_pqedso partition (lpqedso3) estimate
statistics sample 6250 rows;
}
}
.....
.....
*sql
{
connect tpcd/tpcd;
analyze index l_pqedso partition (lpqedso159) estimate
statistics sample 6250 rows;
}
*sql
{
connect tpcd/tpcd;
analyze index l_pqedso partition (lpqedso160) estimate
statistics sample 6250 rows;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
L_RDCDSMOK_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze index l_rdcdsdsmok partition (lrdcdsdsmok1)
estimate statistics sample 6250 rows;
}
.....
.....
*sql
{
connect tpcd/tpcd;
analyze index l_rdcdsdsmok partition (lrdcdsdsmok160)
estimate statistics sample 6250 rows;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
O_CLOKOD_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze index o_clokod partition (oclokod1) estimate
statistics sample 6250 rows;
}
.....
.....
*sql
{
connect tpcd/tpcd;
analyze index o_clokod partition (oclokod160) estimate
statistics sample 6250 rows;
}
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
O_OP_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze index o_op estimate statistics sample 1000000
rows;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
PS_PKSKSC_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze index ps_skpk estimate statistics sample 1000000
rows;
}
*sql
{
connect tpcd/tpcd;
analyze index ps_psksksc estimate statistics sample
1000000 rows;
}
}

```

```

*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
PS_SPSA_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze index ps_spsa estimate statistics sample 1000000
rows;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
P_CBP_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze index p_cbp partition (pcbp1) estimate
statistics sample 1000 rows;
}
.....
*sql
{
connect tpcd/tpcd;
analyze index p_cbp partition (pcbp1000) estimate
statistics sample 1000 rows;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
P_SPTM_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze index p_sptm partition (psptm1) estimate
statistics sample 20000 rows;
}
.....
*sql
{
connect tpcd/tpcd;
analyze index p_sptm partition (psptm50) estimate
statistics sample 20000 rows;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
P_PTP_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze index p_ptp partition (ptp1) estimate statistics
sample 6667 rows;
}
.....
*sql
{
connect tpcd/tpcd;
analyze index p_tp partition (ptp150) estimate
statistics sample 6667 rows;
}
*sql
{
connect tpcd/tpcd;
analyze index s_skey estimate statistics sample 1000000
rows;
}
*sql
{
connect tpcd/tpcd;
analyze index s_sn estimate statistics sample 1000000
rows;
}
*sql
{
connect tpcd/tpcd;
analyze table lineitem partition (item1) estimate
statistics sample 6250 rows;
}
.....
*sql
{
connect tpcd/tpcd;
analyze table lineitem partition (item160) estimate
statistics sample 6250 rows;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
ORDERS_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze table orders partition (ord1) estimate
statistics sample 6250 rows;
}
.....
*sql
{
connect tpcd/tpcd;
analyze table orders partition (ord160) estimate
statistics sample 6250 rows;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
PS_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze table partsupp estimate statistics sample
1000000 rows;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
PART_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze table parts partition (part1) estimate
statistics sample 20000 rows;
}
.....
*sql
{
connect tpcd/tpcd;
analyze table parts partition (part50) estimate
statistics sample 20000 rows;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
CUST_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze table customer partition (cust1) estimate
statistics sample 200000 rows;
}
.....
*sql
{
connect tpcd/tpcd;
analyze table customer partition (cust5) estimate
statistics sample 200000 rows;
}
}

```

```

*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
SUPP_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze table supplier estimate statistics sample
1000000 rows;
}
*sql
{
select to_char(sysdate, 'MM-DD-YYYY HH24:MI:SS')
NATION_ANL_START from dual;
}
*sql
{
connect tpcd/tpcd;
analyze table nation estimate statistics sample 1000000
rows;
}
*sql
{
connect tpcd/tpcd;
analyze table region estimate statistics sample 1000000
rows;
}
*wait
*bgoff
%e-anlyz

```

# Appendix C

Begin Execution at Sun May 24 09:14:06 1998

-- using 1661279136 as a seed to the RNG  
 -- Query 1 (Original)

```

SELECT
L_RETURNFLAG,
L_LINESTATUS,
SUM(L_QUANTITY) AS SUM_QTY,
SUM(L_EXTENDEDPRI) AS SUM_BASE_PRICE,
SUM(L_EXTENDEDPRI * (1 - L_DISCOUNT)) AS
SUM_DISC_PRICE,
SUM(L_EXTENDEDPRI * (1 - L_DISCOUNT) * (1 + L_TAX)) AS
SUM_CHARGE,
AVG(L_QUANTITY) AS AVG_QTY,
AVG(L_EXTENDEDPRI) AS AVG_PRICE,
AVG(L_DISCOUNT) AS AVG_DISC,
COUNT(*) AS COUNT_ORDER
FROM LINEITEM
WHERE L_SHIPDATE <= TO_DATE('1998-12-01','YYYY-MM-DD') -
113
GROUP BY L_RETURNFLAG, L_LINESTATUS
ORDER BY L_RETURNFLAG, L_LINESTATUS
  
```

L_RETURNFLAG	L_LINESTATUS	SUM_QTY	SUM_BASE_PRICE	SUM_DISC_PRICE	SUM_CHARGE	AVG_QTY	AVG_PRICE	AVG_DISC	COUNT_ORDER
A	F	11337839257.00	17001138187344.10	16151058686499.00	16797092850688.30	25.50	38237.51	0.05	444619361.00
N	F	295809853.00	443577852594.60	421392494963.17	438249606962.39	25.50	38232.24	0.05	11602195.00
N	O	21957718183.00	32925582937965.50	31279364766169.30	32530545213951.60	25.50	38237.22	0.05	861087339.00
R	F	11337807281.00	17000848773528.20	16150808318541.00	16796820750443.80	25.50	38236.03	0.05	444629027.00

4 rows processed.  
 Statement Processed in 4357.08 seconds.

Ended Executing this Query at Sun May 24 10:26:44 1998

Query Started at 896015647.01  
 Query Ended at 896020004.09  
 Query Processed in 4357.08 seconds.

-- Query 4 (Original)

Began Executing this Query at Sun May 24 10:26:44 1998

```

SELECT
O_ORDERPRIORITY,
COUNT(*) AS ORDER_COUNT
FROM ORDERS
WHERE O_ORDERDATE >= TO_DATE('1997-05-01','YYYY-MM-DD')
  
```

```

AND O_ORDERDATE < ADD_MONTHS(TO_DATE('1997-05-01','YYYY-
MM-DD'),3)
AND EXISTS
(SELECT
*
FROM LINEITEM
WHERE L_ORDERKEY = O_ORDERKEY
AND L_COMMITDATE < L_RECEIPTDATE)
GROUP BY O_ORDERPRIORITY
ORDER BY O_ORDERPRIORITY
  
```

O_ORDERPRIORITY	ORDER_COUNT
1-URGENT	3159246.00
2-HIGH	3158207.00
3-MEDIUM	3158287.00
4-NOT SPECIFIED	3161157.00
5-LOW	3158779.00

5 rows processed.  
 Statement Processed in 624.41 seconds.

Ended Executing this Query at Sun May 24 10:37:08 1998

Query Started at 896020004.09  
 Query Ended at 896020628.50  
 Query Processed in 624.41 seconds.

-- Query 15 (Variant B)

Began Executing this Query at Sun May 24 10:37:08 1998

```

CREATE TABLE REVENUE0 (SUPPLIER_NO INTEGER,
TOTAL_REVENUE NUMBER(20, 2))
Statement Processed in 0.20 seconds.
  
```

```

INSERT INTO REVENUE0
SELECT
L_SUPPKEY,
SUM(L_EXTENDEDPRI*(1-L_DISCOUNT))
FROM LINEITEM
WHERE L_SHIPDATE >= TO_DATE('1997-05-01','YYYY-MM-DD')
AND L_SHIPDATE < ADD_MONTHS(TO_DATE('1997-05-01','YYYY-
MM-DD'),3)
GROUP BY L_SUPPKEY
Statement Processed in 166.45 seconds.
  
```

```

COMMIT
Statement Processed in 0.09 seconds.
  
```

```

SELECT
S_SUPPKEY,
S_NAME,
S_ADDRESS,
S_PHONE,
TOTAL_REVENUE
FROM SUPPLIER, REVENUE0
WHERE S_SUPPKEY = SUPPLIER_NO
AND TOTAL_REVENUE = (SELECT MAX(TOTAL_REVENUE) FROM
REVENUE0)
ORDER BY S_SUPPKEY
  
```

S_SUPPKEY	S_NAME	S_PHONE
1591981.00	Supplier#001591981	17-959-348-3755
OQL00 3m7jR0kiBS B5j		2460920.79

1 row` processed.  
 Statement Processed in 10.96 seconds.

```

DROP TABLE REVENUE0
Statement Processed in 8.32 seconds.
Setting the number of rows to fetch to: 20
  
```

Ended Executing this Query at Sun May 24 10:40:14 1998

Query Started at 896020628.50  
Query Ended at 896020814.52  
Query Processed in 186.02 seconds.

-----

-- Query 10 (Original)

Began Executing this Query at Sun May 24 10:40:14 1998

```
SELECT
C_CUSTKEY,
C_NAME,
SUM(L_EXTENDEDPRI * (1-L_DISCOUNT)) AS REVENUE,
C_ACCTBAL,
N_NAME,
C_ADDRESS,
C_PHONE,
C_COMMENT
FROM CUSTOMER, ORDERS, LINEITEM, NATION
WHERE C_CUSTKEY = O_CUSTKEY
AND L_ORDERKEY = O_ORDERKEY
AND O_ORDERDATE >= TO_DATE('1994-11-01', 'YYYY-MM-DD')
AND O_ORDERDATE < ADD_MONTHS(TO_DATE('1994-11-01',
'YYYY-MM-DD'), 3)
AND L_RETURNFLAG = 'R'
AND C_NATIONKEY = N_NATIONKEY
GROUP BY C_CUSTKEY, C_NAME, C_ACCTBAL, C_PHONE, N_NAME,
C_ADDRESS, C_COMMENT
ORDER BY REVENUE DESC
```

```
C_CUSTKEY          C_NAME          REVENUE
C_ACCTBAL          N_NAME
C_ADDRESS          C_PHONE
C_COMMENT
33138524.00       Customer#033138524
952322.93
-387.85          MOROCCO
RiQ3nN0NR066Swy          25-147-102-3758
5ANnLyx7k 4Cykkyz1NOOh6OkSnyQBk1kz606zmgg0Ohh22NRBO
j5PMxMLi4BgjCmBA30 N6POC
43314248.00       Customer#043314248
949569.97
5551.30          PERU
xSAw55LR503OP2j150S244g3          27-207-394-3262
w70CzzzWwB4306zAnj4 4B j2P RPynxj1z2PQ6nQkmmh2N6yjM
mgPnSng
....
....
....
7853.34          CANADA
L17h 20g3gyOz jy7BBiQxLgz6njAB          13-680-708-3462
P1BBwzRkM44Axw3mBnww6gzR4jz0My2
```

20 rows processed.  
Statement Processed in 810.10 seconds.

Ended Executing this Query at Sun May 24 10:53:44 1998

Query Started at 896020814.52  
Query Ended at 896021624.63  
Query Processed in 810.10 seconds.

-----

-- Query 11 (Original)

Began Executing this Query at Sun May 24 10:53:44 1998

```
SELECT
```

```
PS_PARTKEY,
SUM(PS_SUPPLYCOST * PS_AVAILQTY) AS VALUE
FROM PARTSUPP, SUPPLIER, NATION
WHERE PS_SUPPKEY = S_SUPPKEY
AND S_NATIONKEY = N_NATIONKEY
AND N_NAME = 'RUSSIA'
GROUP BY PS_PARTKEY
HAVING SUM(PS_SUPPLYCOST*PS_AVAILQTY) >
(SELECT
SUM(PS_SUPPLYCOST * PS_AVAILQTY) * 0.0000003333
FROM PARTSUPP, SUPPLIER, NATION
WHERE PS_SUPPKEY = S_SUPPKEY
AND S_NATIONKEY = N_NATIONKEY
AND N_NAME = 'RUSSIA' )
ORDER BY VALUE DESC
```

```
PS_PARTKEY          VALUE
53725751.00         25360362.54
28562682.00         24629281.98
59906618.00         24357852.44
...
...
...
8210099.00          7991890.28
3568888.00          7991889.13
```

283611 rows processed.  
Statement Processed in 1068.79 seconds.

Ended Executing this Query at Sun May 24 11:11:33 1998

Query Started at 896021624.63  
Query Ended at 896022693.41  
Query Processed in 1068.79 seconds.

-----

-- Query 6 (Original)

Began Executing this Query at Sun May 24 11:11:33 1998

```
SELECT
SUM(L_EXTENDEDPRI * L_DISCOUNT) AS REVENUE
FROM LINEITEM
WHERE L_SHIPDATE >= TO_DATE('1997-01-01', 'YYYY-MM-DD')
AND L_SHIPDATE < ADD_MONTHS(TO_DATE('1997-01-01', 'YYYY-
MM-DD'), 12)
AND L_DISCOUNT BETWEEN 0.05 - 0.01 AND 0.05 + 0.01
AND L_QUANTITY < 24
```

```
REVENUE
30852227121.45
```

1 row` processed.  
Statement Processed in 63.14 seconds.  
Setting the number of rows to fetch to: 100

Ended Executing this Query at Sun May 24 11:12:36 1998

Query Started at 896022693.41  
Query Ended at 896022756.55  
Query Processed in 63.14 seconds.

-----

-- Query 2 Variant A

Began Executing this Query at Sun May 24 11:12:36 1998

```
SELECT
S_ACCTBAL,
S_NAME,
```

```

N_NAME,
P_PARTKEY,
P_MFGR,
S_ADDRESS,
S_PHONE,
S_COMMENT
FROM PARTS, SUPPLIER, PARTSUPP, NATION, REGION
WHERE P_PARTKEY = PS_PARTKEY
AND S_SUPPKEY = PS_SUPPKEY
AND P_SIZE = 45
AND P_TYPE LIKE '%NICKEL'
AND S_NATIONKEY = N_NATIONKEY
AND N_REGIONKEY = R_REGIONKEY
AND R_NAME = 'AMERICA'
AND (P_PARTKEY ,PS_SUPPLYCOST) IN
(SELECT
    PS_PARTKEY,
    MIN(PS_SUPPLYCOST)
FROM PARTSUPP, SUPPLIER, NATION, REGION
WHERE S_SUPPKEY = PS_SUPPKEY
AND S_NATIONKEY = N_NATIONKEY
AND N_REGIONKEY = R_REGIONKEY
AND R_NAME = 'AMERICA'
GROUP BY PS_PARTKEY)
ORDER BY S_ACCTBAL DESC, N_NAME, S_NAME, P_PARTKEY

S_ACCTBAL          S_NAME          N_NAME
P_PARTKEY          P_MFGR
S_ADDRESS          S_PHONE
S_COMMENT
9999.98            Supplier#001125520      CANADA
375519.00         Manufacturer#4
w7nlz xMxR4nNA4OBChAPx      13-969-976-6775
3zjjNRh30503115xMh6ixCmi7kkS2iSB04z4N1a3kByOShQCgx0RN415
Rx42SliQzBB0 RgzA73i7z3304yNgnMA
9999.98            Supplier#001692761      UNITED
STATES
3192758.00        Manufacturer#3
4x n20g5CL Q1AkyL4mQqniw5yPzACO      34-910-162-3267
zA6zmgyn
NML11AOxhNNx5N5R56kN1z36LOL0SwkN5NzML0AlMnmymyO5k2zC1
4QxNQpZLN2110Mixm2wg31
9999.94            Supplier#002504406      UNITED
STATES
57254348.00       Manufacturer#4
1mOy6wgROlkNgOLh34Qi7h C5L5PNC1nh5      34-478-809-6218
jziyN54xyzwSy5jP1ClRAkzPhOjOQg0mS2C6CmxN N17zg5S73
9999.72            Supplier#002923783      BRAZIL
...
...
9991.54            Supplier#001107369      CANADA
49857320.00       Manufacturer#3
nyMi3B3j7 xwCRLBz      13-330-438-1234
zgh52BwO40z3w4kxMknA 4BB0B gM4PBB7S4PwM3
OhBjwPONPsiSnMByij1ylj3gQzh LLkshSB01Pj

100 rows processed.
Statement Processed in 155.50 seconds.

Ended Executing this Query at Sun May 24 11:15:12 1998

Query Started at 896022756.55
Query Ended at 896022912.05
Query Processed in 155.50 seconds.

-----

-- Query 16 (Original)

Began Executing this Query at Sun May 24 11:15:12 1998

SELECT
P_BRAND,
P_TYPE,
P_SIZE,
COUNT(DISTINCT PS_SUPPKEY) AS SUPPLIER_CNT

```

```

FROM PARTSUPP, PARTS
WHERE P_PARTKEY = PS_PARTKEY
AND P_BRAND <> 'Brand#52'
AND P_TYPE NOT LIKE 'SMALL POLISHED%'
AND P_SIZE IN (9, 30 ,48 ,41 ,12, 46, 44, 27)
AND PS_SUPPKEY NOT IN
(SELECT
    S_SUPPKEY
FROM SUPPLIER
WHERE S_COMMENT LIKE '%Better Business
Bureau%Complaints%')
GROUP BY P_BRAND, P_TYPE, P_SIZE
ORDER BY SUPPLIER_CNT DESC, P_BRAND, P_TYPE, P_SIZE

P_BRAND    P_TYPE          P_SIZE
SUPPLIER_CNT
Brand#12    LARGE BURNISHED BRASS      12.00
1584.00
Brand#44    STANDARD BRUSHED COPPER    46.00
1568.00
Brand#13    STANDARD PLATED TIN        12.00
1560.00
...
...
...
Brand#15    ECONOMY BRUSHED COPPER     48.00
1016.00
Brand#23    PROMO ANODIZED TIN         9.00
1003.00

27840 rows processed.
Statement Processed in 439.68 seconds.

Ended Executing this Query at Sun May 24 11:22:31 1998

Query Started at 896022912.05
Query Ended at 896023351.73
Query Processed in 439.68 seconds.

-----

-- Query 14 (Variant C)

Began Executing this Query at Sun May 24 11:22:31 1998

CREATE TABLE ALL_SALES0 (TYPE VARCHAR2(25), AMOUNT
NUMBER(20, 2))
Statement Processed in 0.36 seconds.

CREATE TABLE SUM_PROMO_SALES0 (PROMO_AMOUNT NUMBER(20,
2))
Statement Processed in 0.16 seconds.

CREATE TABLE SUM_ALL_SALES0 (ALL_AMOUNT NUMBER(20, 2))
Statement Processed in 0.13 seconds.

INSERT INTO ALL_SALES0
SELECT
P_TYPE,
SUM(L_EXTENDEDPRI * (1-L_DISCOUNT))
FROM LINEITEM, PARTS
WHERE L_PARTKEY = P_PARTKEY
AND L_SHIPDATE >= TO_DATE('1997-06-01', 'YYYY-MM-DD')
AND L_SHIPDATE < ADD_MONTHS(TO_DATE('1997-06-01', 'YYYY-
MM-DD'), 1)
GROUP BY P_TYPE
Statement Processed in 73.37 seconds.

COMMIT
Statement Processed in 0.02 seconds.

INSERT INTO SUM_PROMO_SALES0
SELECT
SUM(AMOUNT)
FROM ALL_SALES0
WHERE TYPE LIKE 'PROMO%'
Statement Processed in 0.01 seconds.

```

COMMIT  
Statement Processed in 0.01 seconds.

INSERT INTO SUM\_ALL\_SALES0  
SELECT  
SUM(AMOUNT)  
FROM ALL\_SALES0  
Statement Processed in 0.02 seconds.

COMMIT  
Statement Processed in 0.01 seconds.

SELECT  
100.00\*PROMO\_AMOUNT/ALL\_AMOUNT AS PROMO\_REVENUE  
FROM SUM\_PROMO\_SALES0, SUM\_ALL\_SALES0

PROMO\_REVENUE  
16.66

1 row` processed.  
Statement Processed in 0.00 seconds.

DROP TABLE ALL\_SALES0  
Statement Processed in 0.70 seconds.

DROP TABLE SUM\_PROMO\_SALES0  
Statement Processed in 0.54 seconds.

DROP TABLE SUM\_ALL\_SALES0  
Statement Processed in 0.53 seconds.

Ended Executing this Query at Sun May 24 11:23:47 1998

Query Started at 896023351.73  
Query Ended at 896023427.60  
Query Processed in 75.87 seconds.

-- Query 8 (Variant B)

Began Executing this Query at Sun May 24 11:23:47 1998

SELECT  
YEAR,  
SUM(DECODE(NATION, 'RUSSIA', VOLUME, 0)) / SUM(VOLUME)  
AS MKT\_SHARE  
FROM  
(SELECT  
TO\_CHAR(O\_ORDERDATE, 'YYYY') AS YEAR,  
L\_EXTENDEDPRI\*(1-L\_DISCOUNT) AS VOLUME,  
N2.N\_NAME AS NATION  
FROM PARTS, SUPPLIER, LINEITEM, ORDERS, CUSTOMER, NATION  
N1, NATION N2, REGION  
WHERE P\_PARTKEY = L\_PARTKEY  
AND S\_SUPPKEY = L\_SUPPKEY  
AND L\_ORDERKEY = O\_ORDERKEY  
AND O\_CUSTKEY = C\_CUSTKEY  
AND C\_NATIONKEY = N1.N\_NATIONKEY  
AND N1.N\_REGIONKEY = R\_REGIONKEY  
AND R\_NAME = 'EUROPE'  
AND S\_NATIONKEY = N2.N\_NATIONKEY  
AND O\_ORDERDATE BETWEEN TO\_DATE ('1995-01-01', 'YYYY-MM-DD')  
AND TO\_DATE ('1996-12-31', 'YYYY-MM-DD')  
AND P\_TYPE = 'MEDIUM BURNISHED NICKEL'  
) ALL\_NATIONS  
GROUP BY YEAR  
ORDER BY YEAR

YEAR MKT\_SHARE  
1995 0.04  
1996 0.04

2 rows processed.  
Statement Processed in 491.35 seconds.

Ended Executing this Query at Sun May 24 11:31:58 1998

Query Started at 896023427.60  
Query Ended at 896023918.95  
Query Processed in 491.35 seconds.

-- Query 12 (Variant B)

Began Executing this Query at Sun May 24 11:31:58 1998

SELECT  
L\_SHIPMODE,  
SUM(DECODE(O\_ORDERPRIORITY, '1-URGENT', 1, '2-HIGH', 1, 0))  
AS HIGH\_LINE\_COUNT,  
SUM(DECODE(O\_ORDERPRIORITY, '1-URGENT', 0, '2-HIGH', 0, 1))  
AS LOW\_LINE\_COUNT  
FROM ORDERS, LINEITEM  
WHERE O\_ORDERKEY = L\_ORDERKEY  
AND L\_SHIPMODE IN ('SHIP', 'RAIL')  
AND L\_COMMITDATE < L\_RECEIPTDATE  
AND L\_SHIPDATE < L\_COMMITDATE  
AND L\_RECEIPTDATE >= TO\_DATE('1994-01-01', 'YYYY-MM-DD')  
AND L\_RECEIPTDATE < ADD\_MONTHS(TO\_DATE('1994-01-01',  
'YYYY-MM-DD'), 12)  
GROUP BY L\_SHIPMODE  
ORDER BY L\_SHIPMODE

L_SHIPMODE	HIGH_LINE_COUNT	LOW_LINE_COUNT
RAIL	1872922.00	2805867.00
SHIP	1871171.00	2808736.00

2 rows processed.  
Statement Processed in 288.20 seconds.

Ended Executing this Query at Sun May 24 11:36:47 1998

Query Started at 896023918.95  
Query Ended at 896024207.16  
Query Processed in 288.21 seconds.

-- Query 17 (Original)

Began Executing this Query at Sun May 24 11:36:47 1998

SELECT  
SUM(L\_EXTENDEDPRI)/7.0 AS AVG\_YEARLY  
FROM LINEITEM, PARTS  
WHERE P\_PARTKEY = L\_PARTKEY  
AND P\_BRAND = 'Brand#52'  
AND P\_CONTAINER = 'LG JAR'  
AND L\_QUANTITY <  
(SELECT  
0.2\* AVG(L1.L\_QUANTITY)  
FROM LINEITEM L1  
WHERE L1.L\_PARTKEY = P\_PARTKEY)

AVG\_YEARLY  
100280353.47  
  
1 row` processed.  
Statement Processed in 165.99 seconds.  
Setting the number of rows to fetch to: 10

Ended Executing this Query at Sun May 24 11:39:33 1998

Query Started at 896024207.16

Query Ended at 896024373.16  
Query Processed in 165.99 seconds.

AND O\_ORDERDATE < ADD\_MONTHS(TO\_DATE('1994-01-01','YYYY-MM-DD'),12)  
GROUP BY N\_NAME  
ORDER BY REVENUE DESC

-- Query 3 (Original)

N_NAME	REVENUE
EGYPT	15964294536.18
IRAQ	15960338132.32
SAUDI ARABIA	15933331081.54
IRAN	15855065826.98
JORDAN	15782518581.07

Began Executing this Query at Sun May 24 11:39:33 1998

5 rows processed.  
Statement Processed in 1988.16 seconds.

```
SELECT
L_ORDERKEY,
SUM(L_EXTENDEDPRI*(1-L_DISCOUNT)) AS REVENUE,
TO_CHAR(O_ORDERDATE, 'YYYY-MM-DD'),
O_SHIPRIORITY
FROM CUSTOMER, ORDERS, LINEITEM
WHERE C_MKTSEGMENT = 'MACHINERY'
AND C_CUSTKEY = O_CUSTKEY
AND L_ORDERKEY = O_ORDERKEY
AND O_ORDERDATE < TO_DATE('1995-03-12','YYYY-MM-DD')
AND L_SHIPDATE > TO_DATE('1995-03-12','YYYY-MM-DD')
GROUP BY L_ORDERKEY, O_ORDERDATE, O_SHIPRIORITY
ORDER BY REVENUE DESC, O_ORDERDATE
```

Ended Executing this Query at Sun May 24 12:25:16 1998

Query Started at 896025127.94  
Query Ended at 896027116.11  
Query Processed in 1988.17 seconds.

L_ORDERKEY	REVENUE	
TO_CHAR(O_ORDERDATE, 'YYYY-MM-DD')		
O_SHIPRIORITY		
206485604.00	493111.68	1995-03-11
0.00		
1397984197.00	483602.24	1995-02-18
0.00		
1437671750.00	481199.00	1995-03-07
0.00		
1032607844.00	481196.51	1995-03-09
0.00		
1315135654.00	480347.70	1995-03-08
0.00		
1465875681.00	474977.89	1995-02-21
0.00		
118396642.00	471346.75	1995-02-23
0.00		
543728225.00	470110.30	1995-03-10
0.00		
1366898498.00	469958.76	1995-03-11
0.00		
249762471.00	469578.19	1995-02-11
0.00		

-- Query 13 (Original)

Began Executing this Query at Sun May 24 12:25:16 1998

```
SELECT
YEAR,
SUM(REVENUE) AS REVENUE
FROM
(SELECT
TO_CHAR(O_ORDERDATE, 'YYYY') AS YEAR,
L_EXTENDEDPRI * (1-L_DISCOUNT) AS REVENUE
FROM LINEITEM, ORDERS
WHERE O_ORDERKEY = L_ORDERKEY
AND O_CLERK = 'Clerk#000000883'
AND L_RETURNFLAG = 'R'
) PERFORMANCE
GROUP BY YEAR
ORDER BY YEAR

YEAR REVENUE
1992 15991825.08
1993 17442109.96
1994 18191582.24
1995 4692079.76
```

10 rows processed.  
Statement Processed in 754.78 seconds.

4 rows processed.  
Statement Processed in 5.92 seconds.

Ended Executing this Query at Sun May 24 11:52:07 1998

Ended Executing this Query at Sun May 24 12:25:22 1998

Query Started at 896024373.16  
Query Ended at 896025127.94  
Query Processed in 754.78 seconds.

Query Started at 896027116.11  
Query Ended at 896027122.04  
Query Processed in 5.93 seconds.

-- Query 5 (Original)

-- Query 7 (Original)

Began Executing this Query at Sun May 24 11:52:07 1998

Began Executing this Query at Sun May 24 12:25:22 1998

```
SELECT
N_NAME,
SUM(L_EXTENDEDPRI*(1-L_DISCOUNT)) AS REVENUE
FROM CUSTOMER, ORDERS, LINEITEM, SUPPLIER, NATION,
REGION
WHERE C_CUSTKEY = O_CUSTKEY
AND O_ORDERKEY = L_ORDERKEY
AND L_SUPPKEY = S_SUPPKEY
AND C_NATIONKEY = S_NATIONKEY
AND S_NATIONKEY = N_NATIONKEY
AND N_REGIONKEY = R_REGIONKEY
AND R_NAME = 'MIDDLE EAST'
AND O_ORDERDATE >= TO_DATE('1994-01-01','YYYY-MM-DD')
```

```
SELECT
SUPP_NATION,
CUST_NATION,
YEAR,
SUM(VOLUME) AS REVENUE
FROM
(SELECT
N1.N_NAME AS SUPP_NATION,
N2.N_NAME AS CUST_NATION,
TO_CHAR(L_SHIPDATE, 'YYYY') AS YEAR,
```

```

L_EXTENDEDPRI * (1-L_DISCOUNT) AS VOLUME
FROM SUPPLIER, LINEITEM, ORDERS, CUSTOMER, NATION N1,
NATION N2
WHERE S_SUPPKEY = L_SUPPKEY
AND O_ORDERKEY = L_ORDERKEY
AND C_CUSTKEY = O_CUSTKEY
AND S_NATIONKEY = N1.N_NATIONKEY
AND C_NATIONKEY = N2.N_NATIONKEY
AND ((N1.N_NAME = 'RUSSIA' AND N2.N_NAME = 'INDONESIA')
OR (N1.N_NAME = 'INDONESIA' AND N2.N_NAME = 'RUSSIA'))
AND L_SHIPDATE BETWEEN TO_DATE('1995-01-01','YYYY-MM-
DD')
AND TO_DATE('1996-12-31','YYYY-MM-DD')
) SHIPPING
GROUP BY SUPP_NATION, CUST_NATION, YEAR
ORDER BY SUPP_NATION, CUST_NATION, YEAR

```

```

Statement Processed in 2710.79 seconds.
Ended Executing this Query at Sun May 24 13:28:29 1998
Query Started at 896028199.09
Query Ended at 896030909.89
Query Processed in 2710.80 seconds
SQL statements processed: 33
Queries processed: 17

```

SUPP_NATION	CUST_NATION	YEAR
REVENUE		
INDONESIA	RUSSIA	1995
15825343276.77		
INDONESIA	RUSSIA	1996
15908099512.42		
RUSSIA	INDONESIA	1995
15885297675.96		
RUSSIA	INDONESIA	1996
15854686747.56		

```

4 rows processed.
Statement Processed in 1077.03 seconds.
Ended Executing this Query at Sun May 24 12:43:19 1998

```

```

Query Started at 896027122.04
Query Ended at 896028199.09
Query Processed in 1077.05 seconds.

```

-----  
-- Query 9 (Original)

```

Began Executing this Query at Sun May 24 12:43:19 1998

```

```

SELECT
NATION,
YEAR,
SUM(AMOUNT) AS SUM_PROFIT
FROM
(SELECT
N_NAME AS NATION,
TO_CHAR(O_ORDERDATE,'YYYY') AS YEAR,
L_EXTENDEDPRI * (1-L_DISCOUNT) - PS_SUPPLYCOST *
L_QUANTITY AS AMOUNT
FROM PARTS, SUPPLIER, LINEITEM, PARTSUPP, ORDERS, NATION
WHERE S_SUPPKEY = L_SUPPKEY
AND PS_SUPPKEY = L_SUPPKEY
AND PS_PARTKEY = L_PARTKEY
AND P_PARTKEY = L_PARTKEY
AND O_ORDERKEY = L_ORDERKEY
AND S_NATIONKEY = N_NATIONKEY
AND P_NAME LIKE '%snow%'
) PROFIT
GROUP BY NATION, YEAR
ORDER BY NATION, YEAR DESC

```

NATION	YEAR	SUM_PROFIT
ALGERIA	1998	8031496431.95
ALGERIA	1997	13702561017.45
ALGERIA	1996	13725871753.80
...		
...		
...		
VIETNAM	1993	13637887030.59
VIETNAM	1992	13726832522.96

```

175 rows processed.

```

## Appendix D

Begin Execution at Sun May 24 09:14:06 1998

```
-- using 1661279136 as a seed to the RNG
-- Query 1 (Original)
L_SHIPDATE <= TO_DATE('1998-12-01','YYYY-MM-DD') - 113
-- Query 4 (Original)
DATE='1997-05-01'
-- Query 15 (Variant B)
DATE='1997-05-01'
-- Query 10 (Original)
DATE='1994-11-01'
-- Query 11 (Original)
FRACTION=0.0000003333
NATION='RUSSIA'
-- Query 6 (Original)
DATE='1997-01-01'
DISCOUNT=0.09
QUANTITY < 24
-- Query 2 Variant A
SIZE = 45
TYPE LIKE '%NICKEL'
REGION = 'AMERICA'
-- Query 16 (Original)
BRAND <> 'Brand#52'
TYPE NOT LIKE 'SMALL POLISHED%'
SIZE IN (9, 30, 48, 41, 12, 46, 44, 27)
-- Query 14 (Variant C)
DATE='1997-06-01'
-- Query 8 (Variant B)
NATION='RUSSIA'
TYPE = 'MEDIUM BURNISHED NICKEL'
REGION='EUROPE'
-- Query 12 (Variant B)
SHIPMODE IN ('SHIP','RAIL')
-- Query 17 (Original)
BRAND = 'Brand#52'
CONTAINER = 'LG JAR'
-- Query 3 (Original)
DATE='1995-03-12'
MKTSEGMENT = 'MACHINERY'
-- Query 5 (Original)
REGION = 'MIDDLE EAST'
DATE='1994-01-01'
-- Query 13 (Original)
CLERK = 'Clerk#000000883'
RETURNFLAG = 'R'
ORDER BY YEAR
-- Query 7 (Original)
NATION1 = 'RUSSIA'
NATION2 = 'INDONESIA')
-- Query 9 (Original)
NAME LIKE '%snow%'
```



# Appendix E

```
#!/bin/sh

TPCD_DIR=${ORACLE_HOME}/tpcd
BIN_DIR=${TPCD_DIR}/bin
BUMPX_DIR=${TPCD_DIR}/bumpx/bumpx

echo "The current mounted filesystems are: 'date'"
df
echo ""
echo "-----"
#echo "First Power Run"
#echo "Restarting Oracle to flush all database cache 'date'"

# ${BIN_DIR}/o_start

#echo "Oracle restarted 'date'"

echo "Starting First Power Run 'date'"
${BIN_DIR}/runpower1.sh -o 300 80
echo "Ending First Power Run 'date'"

#echo "-----"
#echo "Second Power Run"

echo "Restarting Oracle to flush all database cache 'date'"

${BIN_DIR}/o_start

echo "Oracle restarted 'date'"

echo "Starting Second Power Run 'date'"
${BIN_DIR}/runpower1.sh -o 300 80
echo "Ending Power Run 'date'"

#!/bin/sh
#
=====+
# Copyright (c) 1996 Oracle Corp, Redwood Shores, CA |
# OPEN SYSTEMS PERFORMANCE DIVISION |
# All Rights Reserved |
#
=====+
# FILENAME
# runpower1.sh
# DESCRIPTION
# Usage: runpower1.sh [-p <program for query stream>]
# [-u1 <program for UF1>] [-u2 <program for UF2>]
# [-o] [-s] [-h] [-u <user/password>]
# <scale factor> <update parallelism>
#
# Single stream TPC-D Power Test.
#
=====+
TPCD_HOME=/tpcd/tpcd_kit_729/tpcd_out.v8
SCRIPT_DIR=${TPCD_HOME}/scripts
SQL_DIR=${TPCD_HOME}/sql
UPD_DIR=${TPCD_HOME}/update
SRC_DIR=${TPCD_HOME}/source
QRY_DIR=${TPCD_HOME}/queries
QGEN_DIR=${TPCD_HOME}/bumpx/dbgen
QGEN=${QGEN_DIR}/qgen

DSS_QUERY=${TPCD_HOME}/Dqueries
export DSS_QUERY

RUN_ID_FILE=${TPCD_HOME}/r_id

UPD_SQL=${UPD_DIR}/sql
UPD_SPT=${UPD_DIR}/scripts
UPD_SRC=${UPD_DIR}/source
```

```
UPD_DAT=${UPD_DIR}/data

TPCD_BIN=${TPCD_HOME}/bin
TPCD_LOG=${TPCD_HOME}/log
TPCD_RPT=${TPCD_HOME}/rpt

OUT=${TPCD_HOME}/out

GTIME=${SRC_DIR}/gtime

DF=/dev/null
HID=1
INTERVAL=60
COUNT=1200

# The defaults

USER="tpcd/tpcd"
QPROG=${SRC_DIR}/qexec.ott
U1PROG=${UPD_SRC}/uf1.ott
U2PROG=${UPD_SRC}/uf2.ott

usage () {
echo ""
echo "Usage: $0 [-p <program for query stream>] [-u1 <program for UF1>]"
echo "          [-u2 <program for UF2>] [-o] [-s] [-h] [-u <user/password>]"
echo "          <scale factor> <update parallelism>"
echo ""
echo "scale factor      : The scale factor of the run."
echo "update ||ism     : The parallelism to use for the UFs."
echo ""
echo "-p <program>     : Program for Query Stream."
echo "                  Default is $QPROG."
echo "-u1 <program>    : Program for UF1."
echo "                  Default is $U1PROG."
echo "-u2 <program>    : Program for UF2."
echo "                  Default is $U2PROG."
echo "-o               : Collect Oracle statistics."
echo "-s               : Collect System statistics."
echo "-u <user/passwd> : User/Password. Default is tpcd/tpcd."
echo "-h               : Displays this message."
}
set -- `getopt "p:u1:u2:osu:h" "$@"` || usage

while :
do
case "$1" in
-u1) shift; U1PROG=$1;;
-u2) shift; U2PROG=$1;;
-p) shift; QPROG=$1;;
-o) OSTAT=1;;
-s) SSTAT=1;;
-h) usage; exit 0;;
-) shift; break;;
esac
shift;
done

if [ "$#" -ne "2" ]
then
usage
exit 1
fi

SF=$1
PARA=$2

if [ ! -f $RUN_ID_FILE ]
then
echo "0" > $RUN_ID_FILE
fi

RUN_ID=`cat $RUN_ID_FILE`
RUN_ID=`expr $RUN_ID + 1`
echo $RUN_ID > $RUN_ID_FILE

echo "TPC-D Power Test Run 'date'"
echo "RUNID is $RUN_ID"
```

```

echo ""

TPCD_LOG_FILE=${TPCD_LOG}/query.${RUN_ID}.log
TPCD_RPT_FILE=${TPCD_RPT}/query.${RUN_ID}.rpt
QRY_FILE=${QRY_DIR}/qtemp.${RUN_ID}.${SF}

echo "Generates query template file"

${QGEN} -c -p 0 -s ${SF} > ${QRY_FILE}

echo "Done"

if [ $OSTAT ]
then
  ${TPCD_BIN}/start_ora.sh $RUN_ID ${HID}
fi

${TPCD_BIN}/start_oracle_stats.sh

if [ $$SSTAT ]
then
  ${TPCD_BIN}/start_stat.sh ${OUT} ${RUN_ID} ${HID}
fi

START=${GTIME}
echo "TPC-D Power Test Execution starts at $START"
echo ""

# Execute UF1

SDATE='date'
echo "Start UF1 at ${SDATE}"
echo "Start UF1\t${SDATE}" >> ${TPCD_RPT}/tpcd.${RUN_ID}.${HID}.rpt

UF1_START=${GTIME}
echo "Start Time for UF1 is $UF1_START"

${UPD_SPT}/runuf1.sh -u ${USER} ${RUN_ID} ${SF} 1 ${PARAM} \
  > ${OUT}/uf1.${RUN_ID}.${HID} 2>&1

# Execute Query Stream

UF1_END=${GTIME}
echo "End Time for UF1 is $UF1_END"
EDATE='date'
echo "End UF1. Start Query Stream at ${EDATE}"
echo "Start Query\t${EDATE}" >> ${TPCD_RPT}/tpcd.${RUN_ID}.${HID}.rpt

${QPROG} tpcd/tpcd q${QRY_FILE} l${TPCD_LOG_FILE}
r${TPCD_RPT_FILE} \
  > ${OUT}/qs.${RUN_ID}.${HID} 2>&1

# Execute UF2

SDATE='date'
echo "End Query Stream. Start UF2 at ${SDATE}"
echo "Start UF2\t${SDATE}" >> ${TPCD_RPT}/tpcd.${RUN_ID}.${HID}.rpt
UF2_START=${GTIME}
echo "Start Time for UF2 is $UF2_START"

${UPD_SPT}/runuf2.sh -u ${USER} ${RUN_ID} ${SF} 1 ${PARAM} \
  > ${OUT}/uf2.${RUN_ID}.${HID} 2>&1

UF2_END=${GTIME}
echo "End Time for UF2 is $UF2_END"
EDATE='date'
echo "END UF2 ${EDATE}"
echo "End UF2\t${EDATE}" >> ${TPCD_RPT}/tpcd.${RUN_ID}.${HID}.rpt

END=${GTIME}

echo "TPC-D Power Test Execution ends at $END"
MEA_INT='echo $END - $START | bc'
echo "Measurement Interval is $MEA_INT"

UF1_TIME='echo $UF1_END - $UF1_START | bc'
echo "Elapsed Time for Update Function is $UF1_TIME"
echo "-- UF1" >> ${TPCD_RPT_FILE}
echo "$UF1_TIME" >> ${TPCD_RPT_FILE}

```

```

UF2_TIME='echo $UF2_END - $UF2_START | bc'
echo "Elapsed Time for Update Function is $UF2_TIME"
echo "-- UF2" >> ${TPCD_RPT_FILE}
echo "$UF2_TIME" >> ${TPCD_RPT_FILE}

echo ""
echo "-----"
echo ""

echo "Power Test completed at 'date'" >
${TPCD_RPT}/tpcd.${RUN_ID}.${HID}.rpt
${SRC_DIR}/metric ${SF} < ${TPCD_RPT_FILE} \
  >> ${TPCD_RPT}/tpcd.${RUN_ID}.${HID}.rpt

THRUPUT='expr 17 \* 3600 \* ${SF}'
THRUPUT='echo "scale=2\n${THRUPUT}/${MEA_INT}" | bc'
echo "Real Throughput Metric is: $THRUPUT"
echo "Real Throughput Metric is: $THRUPUT" >> \
  ${TPCD_RPT}/tpcd.${RUN_ID}.${HID}.rpt

if [ $OSTAT ]
then
  $TPCD_BIN/end_ora.sh $RUN_ID ${HID}
fi

${TPCD_BIN}/end_oracle_stats.sh

mv report.txt > ${OUT}/oracle_stats.$RUN_ID

if [ $$SSTAT ]
then
  $TPCD_BIN/kill_stat.sh ${OUT} ${RUN_ID} ${HID}
fi

echo "Restoring UF1 'date'"
${UPD_SPT}/resuf1.sh ${RUN_ID} ${SF} 1 ${PARAM}
echo "Finished Restoring UF1 'date'"
echo "Restoring UF2 'date'"
${UPD_SPT}/resuf2.sh ${RUN_ID} ${SF} 1 ${PARAM}
echo "Finished Restoring UF2 'date'"

#!/bin/sh
svrmgrl << EOF
connect internal;
shutdown ;
startup pfile=/oracle8/oracle/app/oracle/product/8.0.3/dbs/init1_tpcd.ora;
exit
EOF

/*=====
=====+
| Copyright (c) 1997 Oracle Corp, Redwood Shores, CA |
| OPEN SYSTEMS PERFORMANCE GROUP |
| All Rights Reserved |
+=====
=====+
| FILENAME
| qexecpl.c
| DESCRIPTION
| SQL Execution Engine, Oracle v8, OCI version
| MODIFIED
| pswong 02/19/97 - migrating to version 8
| pswong 04/02/96 - more polishing
| pswong 03/25/96 - polish up
| pswong 03/06/96 - created
+=====
=====*/

#include <stdio.h>
#include <string.h>
#include <setjmp.h>
#include <sys/param.h>
#include <errno.h>
#include <math.h>
#include <string.h>
#include <sys/types.h>

```

```

#include <time.h>

#include "qexecpl.h"

/* Function Prototypes */

extern double gettime();

/* function prototypes from gen.c */

int get_statement();

/* Declare error handling functions */

void sql_error();

/* Other prototypes */

int define_output_variables();
void process_select_list();
void usage();
void SQLinit();
void SQLexec();
void SQLexit();
void *memalloc();
void print_header();
void print_rows();
int OFEN();
void remove_newline();

char logname[UNAME_LEN]; /* username/passwd combo */
char *passwd;

double tr_start = 0.0; /* query start time */
double tr_end = 0.0; /* query end time */

double s_tr_start = 0.0; /* statement start time */
double s_tr_end = 0.0; /* statement end time */

/* For our purpose of timing, we will treat comments as delimiters */
/* for queries. Thus, we will collect query timings whenever we */
/* encounter a comment (of course not for the first comment in a */
/* file). */

int end_flag = 0; /* flag to indicate that we have reached */
/* the end of a query */

int stmt_cnt = 0; /* Number of statements processed. */
int qry_cnt = 0; /* Number of query processed. */

double product = 1.0; /* cumulative product of query times */
int rows_ret = 0; /* the number of rows fetched */
int num_sel_list = 0; /* the number of select list item */

long num_to_fetch = -1; /* Number of rows to fetch. -1 means fetch all */

slistype slist[MAX_SEL_LIST]; /* Array for describing Select List */
dlistype *dlist[MAX_SEL_LIST]; /* Array of ptrs for Defining Select List */

char stmt[SQL_LEN]; /* The SQL statement or comment line. */
char cmnt[81]; /* Buffer to save the comment. */

FILE *qtemp = stdin; /* fd for query template */
FILE *logfile = stdout; /* log and report files */
FILE *rep = stdout;

void *defbuf; /* Buffer pointer for ODEFIN */
int deflen = 0; /* Size of data type for ODEFIN */
int deftype = 1; /* Oracle type number for ODEFIN */

int pfmem = PFMEMSIZE; /* Memory to prefetch rows */

time_t tim; /* To get wall clock time */

/* OCI handles */

OCIEnv *tpcenv = NULL;
OCIServer *tpcsrv = NULL;
OCIError *errhp = NULL;
OCISvcCtx *tpcsvc = NULL;

OCISession *tpcusr = NULL;
OCISstmt *curq = NULL;
OCISstmt *curi = NULL;
OCIPParam *tpcpar = NULL;

sword status = OCI_SUCCESS; /* OCI return value */

/* usage: prints the usage of the program */

void usage() {

    fprintf(stderr, "\nUsage: qexec.ott username/password [q<path name for query
template file>]\n");
    fprintf(stderr, "[l<path name for log>] [r<path name for reports>]\n\n");
    fprintf(stderr, "Options:\n");
    fprintf(stderr, "q<path for query> : full path name for the query template
file.\n");
    fprintf(stderr, " (default is stdin)\n");
    fprintf(stderr, "l<path name for log> : full path name for log files\n");
    fprintf(stderr, " (default is stdout)\n");
    fprintf(stderr, "r<path name for reports> : full path name for reports\n");
    fprintf(stderr, " (default is stdout)\n");
    exit(-1);
}

/* type: 0 if environment handle is passed, 1 if error handle is passwd */

void sql_error(errhp,status,type)
    OCIError *errhp;
    sword status;
    sword type;
{
    char msg[2048];
    ub4 errcode;
    ub4 msglen;
    int i,j;

    switch(status) {
    case OCI_SUCCESS_WITH_INFO:
        fprintf(stderr, "Error: Statement returned with info.\n");
        if (type)
            (void) OCIErrGet(errhp,1,NULL,(sb4*)&errcode,(text*)msg,
                2048,OCI_HTYPE_ERROR);
        else
            (void) OCIErrGet(errhp,1,NULL,(sb4*)&errcode,(text*)msg,
                2048,OCI_HTYPE_ENV);
        fprintf(stderr, "%s\n",msg);
        break;
    case OCI_ERROR:
        fprintf(stderr, "Error: OCI call error.\n");
        if (type)
            (void) OCIErrGet(errhp,1,NULL,(sb4*)&errcode,(text*)msg,
                2048,OCI_HTYPE_ERROR);
        else
            (void) OCIErrGet(errhp,1,NULL,(sb4*)&errcode,(text*)msg,
                2048,OCI_HTYPE_ENV);
        fprintf(stderr, "%s\n",msg);
        break;
    case OCI_INVALID_HANDLE:
        fprintf(stderr, "Error: Invalid Handle.\n");
        if (type)
            (void) OCIErrGet(errhp,1,NULL,(sb4*)&errcode,(text*)msg,
                2048,OCI_HTYPE_ERROR);
        else
            (void) OCIErrGet(errhp,1,NULL,(sb4*)&errcode,(text*)msg,
                2048,OCI_HTYPE_ENV);
        fprintf(stderr, "%s\n",msg);
        break;
    }

    /* Rollback just in case */

    (void) OCITransRollback(tpcsvc,errhp,OCI_DEFAULT);

    fprintf(stderr, "Exiting Oracle...\n");
    fflush(stderr);

    SQLexit();
}

```

```

exit(1);
}

void main(argc,argv)
int argc;
char *argv[];
{
int i;
int retcode; /* Return code for get_statement */

/* Initialize some variables */

if ((argc > 5) || (argc < 2)) {
usage();
}

/* argv[1] -- User and Password for Database */
strcpy(logname, argv[1]);

/* Process optional parameters */

argc -= 1;
argv += 1;

while(--argc) {
++argv;
switch(argv[0][0]) {
case 'q':
if ((qtemp = fopen(++(argv[0]),"r")) == NULL) {
fprintf(stderr,"Unable to open file %s\n", argv[0]);
fprintf(stderr,"%s: %s\n", argv[0], strerror(errno));
exit(-1);
}
break;
case 'r':
if ((rep = fopen(++(argv[0]),"a")) == NULL) {
fprintf(stderr,"Unable to open file %s\n", argv[0]);
fprintf(stderr,"%s: %s\n", argv[0], strerror(errno));
exit(-1);
}
break;
case 'l':
if ((logfile = fopen(++(argv[0]),"a")) == NULL) {
fprintf(stderr,"Unable to open file %s\n", argv[0]);
fprintf(stderr,"%s: %s\n", argv[0], strerror(errno));
exit(-1);
}
break;
default:
fprintf(stderr,"Invalid Option: %c\n", argv[0][0]);
usage();
break;
}
}

/* Do some initialization and establish connection with the database */
SQLInit();

/* May want to add some triggering mechanism here */

time(&tim);
fprintf(logfile, "Begin Execution at %s\n\n", ctime(&tim));

/* Get the next statement and start processing it */

while ((retcode = get_statement()) > 0) {

switch (retcode) {

/* If this is a comment, skips it */
case COMMENT:
if (end_flag) {
end_flag = 0; /* reset query end flag */
/* save the comment so that we can print it out later on */
strcpy(cmnt, stmt);
}
break;

case SET_FETCHROW:
/* if this is a set_row_fetch command */
fprintf(logfile,"Setting the number of rows to fetch to: %ld\n\n",
num_to_fetch);
break;

case SQL_STMT:
/* if this is a SQL statement */
/* Executes the query */
SQLExec();

s_tr_end = gettimeofday();
stmt_cnt++;

/*
fprintf(logfile,"\nStatement Started at %.2f\n", s_tr_start);
fprintf(logfile,"Statement Ended at %.2f\n", s_tr_end);
*/
fprintf(logfile,"Statement Processed in %.2f seconds.\n",
(s_tr_end - s_tr_start));
break;

/* Should never reach here */
default:
fprintf(stderr, "Invalid statement type!!\n");
SQLExit();
break;
}

/* Get Timing for the last query */
tr_end = gettimeofday();

time(&tim);
fprintf(logfile, "\nEnded Executing this Query at %s\n", ctime(&tim));
fprintf(logfile, "\nQuery Started at %.2f\n", tr_start);
fprintf(logfile, "Query Ended at %.2f\n", tr_end);
fprintf(logfile, "Query Processed in %.2f seconds\n\n",
(tr_end - tr_start));

fprintf(rep, "%.2f\n", (tr_end - tr_start));

fprintf(logfile, "\nSQL statements processed: %d\n", stmt_cnt);
fprintf(logfile, "Queries processed: %d\n", qry_cnt);

fflush(rep);
fflush(logfile);

/* Close the query template file */
fclose(qtemp);

/* Disconnect from ORACLE. */
SQLExit();
exit(0);
}

/* SQLInit(): Perform initialization tasks. */
/* Logs on to Oracle, opens some files and open a cursor for */
/* later use. */

void SQLInit() {
int i;

/* preallocate MAX_PREALLOC members of the dlist array */
/* initializes others to NULL so that we can determine who to free later */
}

```

```

for (i=0; i<MAX_SEL_LIST; i++) {
    if (i < MAX_PREALLOC) {
        dlist[i] = (dlttype *) memalloc (sizeof(dlttype));
        dlist[i]->defhdl = NULL;
    /*   OCIhalloc(curq,&(dlist[i]->defhdl),OCI_HTYPE_DEFINE); */
    }
    else
        dlist[i] = NULL;
}

/* Connect to ORACLE. Program will call sql_error() */
/* if an error occurs in connecting to the default database. */

(void) OCIInitialize(OCI_DEFAULT,(dvoid *)0,0,0);

if((status=OCIEnvInit((OCIEnv **) &tpcenv,OCI_DEFAULT,0,(dvoid **)0)) !=
OCI_SUCCESS)
    sql_error(tpcenv, status, 0);

OCIhalloc(tpcenv,&errhp,OCI_HTYPE_ERROR);
OCIhalloc(tpcenv,&curq,OCI_HTYPE_STMT);
OCIhalloc(tpcenv,&curi,OCI_HTYPE_STMT);
OCIhalloc(tpcenv,&tpcvc,OCI_HTYPE_SVCCTX);
OCIhalloc(tpcenv,&tpcsrv,OCI_HTYPE_SERVER);
OCIhalloc(tpcenv,&tpcusr,OCI_HTYPE_SESSION);

/* get username and password */

passwd = strchr(logname, '?');
*passwd = '\0';
passwd++;

if ((status = OCIServerAttach(tpcsrv,errhp,(text *)0,0,OCI_DEFAULT)) !=
OCI_SUCCESS)
    sql_error(errhp,status,1);

OCIaset(tpcvc,OCI_HTYPE_SVCCTX,tpcsrv,0,OCI_ATTR_SVRCTXT,errhp);

OCIaset(tpcusr,OCI_HTYPE_SESSION,logname,strlen(logname),OCI_ATTR_US
ERNAME,
        errhp);

OCIaset(tpcusr,OCI_HTYPE_SESSION,passwd,strlen(passwd),OCI_ATTR_PASS
WORD,
        errhp);

if ((status = OCISessionBegin(tpcvc, errhp, tpcusr, OCI_CRED_RDBMS,
OCI_DEFAULT)) !=
OCI_SUCCESS)
    sql_error(errhp,status,1);

OCIaset(tpcvc,OCI_HTYPE_SVCCTX,tpcusr,0,OCI_ATTR_USERCTXT,errhp);

/* Enable session parallel dml */

sprintf((char *) stmt, PDMLTXT);

OCIStmtPrepare(curq,errhp,(text *)stmt,strlen((char *)stmt),
OCI_NTV_SYNTAX,OCI_DEFAULT);
OCIExec(tpcvc,curq,errhp,1);

/*
if ((status=OCILOGON((OCIEnv *)tpcenv,(OCIError *)errhp,(OCISvcCtx *)tpcvc,
(text *)logname, strlen(logname), (text *)passwd,
strlen(passwd), (text *) 0, 0)) != OCI_SUCCESS)
    sql_error(errhp, status, 1);
*/
printf("\nConnected to ORACLE as user: %s\n", logname);
}

/* SQLExec() Executes the SQL statement. */
/* Parse the SQL statement. */
/* If DDL or DML statements, execute right away. */
/* Else describe and define select list outputs, */

execute and fetch results. */

void SQLExec()
{
    int i;
    ub2 stmttyp = OCI_STMT_SELECT; /* default is a SELECT statement */

    if (!end_flag) {

        /* Clause 5.3.6.2: QI(i,s) is the time between the first character */
        /* of this query text is submitted and the first */
        /* character of the next query text is submitted. */

        tr_end = gettimeofday();

        if (qry_cnt) {
            time(&tim);
            fprintf(logfile, "\nEnded Executing this Query at %s\n", ctime(&tim));
            fprintf(logfile, "\nQuery Started at %.2f\n", tr_start);
            fprintf(logfile, "Query Ended at %.2f\n", tr_end);
            fprintf(logfile, "Query Processed in %.2f seconds.\n\n",
                (tr_end - tr_start));

            fprintf(logfile, "-----\n\n");

            /* print comments for this query that we have saved */

            fprintf(logfile, "%s\n", cmnt);

            fprintf(rep, "%.2f\n", (tr_end - tr_start));
            fprintf(rep, "%s", cmnt);

            fprintf(logfile, "\nBegan Executing this Query at %s\n", ctime(&tim));

            /* Let's fflush stuff so that we can see what's going on */

            fflush(logfile);
            fflush(rep);

        }

        tr_start = tr_end;
        qry_cnt++;

        end_flag = 1;
    }

    s_tr_start = gettimeofday();

    /* prepare the statement */

    if ((status = OCIStmtPrepare(curq, errhp, (text *) stmt, (ub4) strlen(stmt),
OCI_DEFAULT)) != OCI_SUCCESS)
        sql_error(errhp,status,1);

    /* Prints the query text to the logfile */

    fprintf(logfile, "\n%s\n", stmt);

    /* if this is a DDL or DML statement, execute it right away */
    /* only worries about SELECT statements right now, cannot */
    /* execute a stored PL/SQL procedure in this version */

    OCIaset(curq,OCI_HTYPE_STMT,&stmttyp,NULL,OCI_ATTR_STMT_TYPE,err
hp);

    if (stmttyp != OCI_STMT_SELECT) {
        OCIExec(tpcvc,curq,errhp,1);
        return;
    }

    /* otherwise, this is a select statement */
    /* Describe and define output variables */

    /* first let's execute it to get the select-list definition */

    OCIaset(curq, OCI_HTYPE_STMT, &pfmem, 0,
OCI_ATTR_PREFETCH_MEMORY, errhp);

```

```

OCIExec(tpcscv,curq,errhp,0);

num_sel_list = define_output_variables();

/* Executes the query and fetches the rows */

(void) process_select_list(num_sel_list);

/* Need to get the number of rows fetched first */
/* since the following statements will screw it up */

OCIget(curq,OCI_HTYPE_STMT,&rows_ret,NULL,OCI_ATTR_ROW_CNT,errhp);

/* To control memory usage, let's free up the extra dlist entries */
/* that we have allocated. */

i=MAX_PREALLOC;
while(dlist[i] != NULL) {
    free(dlist[i]);
    dlist[i++] = NULL;
}

/* reset set_fetchrows */

num_to_fetch = -1;
}

void SQLexit() {

int i;

OCILogoff(tpcscv,errhp);
OCIhfree(tpcscv,OCI_HTYPE_STMT);
OCIhfree(tpcscv,OCI_HTYPE_SVCCTX);
OCIhfree(tpcscv,OCI_HTYPE_SERVER);
OCIhfree(tpcusr,OCI_HTYPE_SESSION);

/* free all memory */

for (i=0; i<MAX_SEL_LIST; i++) {
    if (dlist[i] != NULL) {
        free(dlist[i]);
    }
}

/* Flush all output */

fflush(rep);
fflush(logfile);

}

/* define_output_variables(): Describe and define select-list items for */
/* a query statement. */
/* Returns the number of select-list items */
/* for this query. */

int define_output_variables()
{

int i;
int retflag = 0;

for (i=0; i<MAX_SEL_LIST; i++) {

slist[i].buflen = MAX_COLNAME_SIZE;

if (OCIParamGet(curq, OCI_HTYPE_STMT, errhp, (dvoid **) &tpcpar,
                POS(i)) != OCI_SUCCESS)
    break;

/* dsize and nullok fields of dlist not used */

OCIget(tpcpar, OCI_DTYPE_PARAM, &(slist[i].dsize),
        NULL, OCI_ATTR_DATA_SIZE, errhp);
OCIget(tpcpar, OCI_DTYPE_PARAM, &(slist[i].dbtype),
        NULL, OCI_ATTR_DATA_TYPE, errhp);
OCIget(tpcpar, OCI_DTYPE_PARAM, &(slist[i].buf),
        &(slist[i].buflen), OCI_ATTR_NAME, errhp);
OCIget(tpcpar, OCI_DTYPE_PARAM, &(slist[i].precision),
        NULL, OCI_ATTR_PRECISION, errhp);
OCIget(tpcpar, OCI_DTYPE_PARAM, &(slist[i].scale),
        NULL, OCI_ATTR_SCALE, errhp);

/* For formatting purpose, remove trailing blanks in select-list name. */

if (slist[i].buflen < MAX_COLNAME_SIZE)
    (slist[i].buf)[slist[i].buflen] = '\0';

/* Well, we need to allocate for entries for dlist */

if (i >= MAX_PREALLOC) {
    dlist[i] = (dtype *) memalloc(sizeof(dtype));
    dlist[i]->defhdl = NULL;
}

/* Let's check the sizes and types for this select list item */

switch (slist[i].dbtype) {

case OCI_TYPECODE_NUMBER:

/* The odescr will not give a good estimate to the scale if */
/* no scale was given in the Oracle table definition. */

#ifdef HAVE_SCALE
    if (slist[i].scale != 0) {
        defbuf = (double *) dlist[i]->fbuf;
        deflen = FLT;
        deftype = OCI_TYPECODE_DOUBLE;
        slist[i].dbtype = OCI_TYPECODE_DOUBLE;
    } else {
        defbuf = (int *) dlist[i]->ibuf;
        deflen = INT;
        deftype = OCI_TYPECODE_INTEGER;
        slist[i].dbtype = OCI_TYPECODE_INTEGER;
    }
#else
    defbuf = (double *) dlist[i]->fbuf;
    deflen = FLT;
    deftype = OCI_TYPECODE_FLOAT;
    slist[i].dbtype = OCI_TYPECODE_FLOAT;
#endif /* HAVE_SCALE */

break;

default:

/* default is character string */

defbuf = (char **) dlist[i]->sbuf;
deflen = MAX_STR_LEN;
deftype = SQLT_STR;
/* deftype = OCI_TYPECODE_CHAR; */
break;
}

/* Define the column */

if ((status=OCIDefineByPos(curq,&(dlist[i]->defhdl),errhp,POS(i),
                           defbuf,deflen,deftype,NULL,
                           dlist[i]-
                           >rlen,NULL,OCI_DEFAULT))!=OCI_SUCCESS)
    sql_error(errhp,status,1);
}
return i;
}

/* process_select_list(): Fetch rows from a query. */

void process_select_list(num)

```

```

    int num;    /* number of select list items */
}

int i,j;
int ntf;
int num_so_far;
sword stats = OCI_SUCCESS;

/* Print the headers for the query execution result */

print_header(num);

/* See if we need to limit the rows to fetch */

ntf = (num_to_fetch >= 0) ? num_to_fetch : MAX_ARRAY;

/* Fetch the rows and print them out */

if ((ntf > MAX_ARRAY) || (num_to_fetch == -1)) {

    stats = OCIStmtFetch(curq, errhp, MAX_ARRAY, OCI_FETCH_NEXT,
OCI_DEFAULT);

OCIaget(curq,OCI_HTYPE_STMT,&rows_ret,NULL,OCI_ATTR_ROWCNT,errh
p);

    print_rows(num,rows_ret);

    /* To avoid 1022 from OFEN */
    /* More rows to fetch... */

    if (stats != OCI_NO_DATA) {
        if (num_to_fetch == -1) {
            while ((stats =
OCIStmtFetch(curq,errhp,MAX_ARRAY,OCI_FETCH_NEXT,
OCI_DEFAULT)) ==
OCI_SUCCESS) {
                OCIaget(curq,OCI_HTYPE_STMT,&num_so_far,NULL,
OCI_ATTR_ROWCNT,errhp);
                print_rows(num,(num_so_far-rows_ret));
                rows_ret = num_so_far;
            }
            /* Print the final rows */
            OCIaget(curq,OCI_HTYPE_STMT,&num_so_far,NULL,
OCI_ATTR_ROWCNT,errhp);
            print_rows(num,(num_so_far-rows_ret));
            rows_ret = num_so_far;
        } else {
            ntf -= MAX_ARRAY;

            while ((stats = OCIStmtFetch(curq,errhp,
MAX_ARRAY:ntf),
OCI_FETCH_NEXT,
OCI_DEFAULT)) ==
OCI_SUCCESS) {
                ntf -= MAX_ARRAY;
                OCIaget(curq,OCI_HTYPE_STMT,&num_so_far,NULL,
OCI_ATTR_ROWCNT,errhp);
                print_rows(num,(num_so_far-rows_ret));
                rows_ret = num_so_far;
                if (ntf <= 0) break;
            }
            OCIaget(curq,OCI_HTYPE_STMT,&num_so_far,NULL,
OCI_ATTR_ROWCNT,errhp);
            print_rows(num,(num_so_far-rows_ret));
            rows_ret = num_so_far;
        }
    } else {
        OCIStmtFetch(curq, errhp, ntf, OCI_FETCH_NEXT, OCI_DEFAULT);

OCIaget(curq,OCI_HTYPE_STMT,&rows_ret,NULL,OCI_ATTR_ROWCNT,errh
p);
        print_rows(num,rows_ret);
    }

    fprintf(logfile, "\n\n%d row%c processed.\n", rows_ret,
rows_ret == 1 ? '\0' : 's');
}

}

int get_statement()
{
    char line[128];
    char *pos, *str;

    /* Reset statement buffer */

    stmt[0] = '\0';

    while (fgets(line, 127, qtemp) != NULL) {

        /* skip blank lines */
        if (line[0] == '\n')
            continue;

        /* remove blanks */

        str = line;

        while (*str == ' ') str++;

        /* Let's get the line together first */

        strcat(stmt, str);

        /* if this is a comment line */
        if ((str[0] == '-') && (str[1] == '-'))
            return COMMENT;

        /* see if this is a set_fetchrows line */
        if (strncmp(str, "set_fetchrows", 13) == 0) {
            pos = strchr(str, ';');
            *pos = '\0';
            pos = strchr(str, '=');
            num_to_fetch = atoi(++pos);
            return SET_FETCHROW;
        }

        /* if this is the end of the current statement */
        if ((pos = strchr(stmt, ';')) != NULL) {
            *pos = '\0';
            return SQL_STMT;
        }
    }
    return END_OF_FILE;
}

/* memalloc(): Allocates memory, exit program if we have a problem. */

void *memalloc(size)
int size;
{
    void *tmp;

    if ((tmp = (void *) malloc(size)) == NULL) {
        fprintf(stderr, "Error in malloc\n");
        SQLexit();
        return NULL; /* should never reach here */
    } else {
        return tmp;
    }
}

void print_header(nsel)
int nsel; /* Number of select list items */
{
    int i, diff;
    char colname[MAX_COLNAME_SIZE];
    int len = 0; /* Running column length */
    int cwid = 0;

```

```

fprintf(logfile, "\n");
for (i=0; i<nsl; i++) {
    /* extract the column name */

    strncpy((char *)colname, (char *)slist[i].buf, slist[i].buflen);
    colname[slist[i].buflen] = '\0';

    /* format the output a little */

    cwid = MAX(slist[i].dbsize, slist[i].buflen);

    /* do a little bit of formatting */

    if (cwid > 80) {
        fprintf(logfile, "\n");
        len = 0;
    } else if ((len += cwid) > 80) {
        fprintf(logfile, "\n");
        len = cwid;
    }
}
#ifdef FORMAT1
if ((slist[i].dbtype == INT_TYPE) || (slist[i].dbtype == FLT_TYPE))
    fprintf(logfile, "%*s ", cwid, slist[i].buf);
else /* string type */
    fprintf(logfile, "%*s ", -cwid, slist[i].buf);
#else
    fprintf(logfile, "%*s ", -cwid, colname);
#endif /* FORMAT1 */
}

fprintf(logfile, "\n");
}

void print_rows(ncol, nrow)
    int ncol;
    int nrow;
{
    int i,j;
    int len;
    int diff;
    int cwid;

    for (i=0; i<nrow; i++) {

        len = 0;

        for (j=0; j<ncol; j++) {

            cwid = MAX(slist[j].dbsize, slist[j].buflen);

            /* do a little bit of formatting */

            if (cwid > 80) {
                fprintf(logfile, "\n");
                len = 0;
            } else if ((len += cwid) > 80) {
                fprintf(logfile, "\n");
                len = cwid;
            }

            switch(slist[j].dbtype) {
            case INT_TYPE:
#ifdef HAVE_SCALE
                fprintf(logfile, "%*ld", cwid, (dlist[j]->ibuf)[i]);
                break;
#endif /* HAVE_SCALE */
            case FLT_TYPE:
#ifdef FORMAT1
                fprintf(logfile, "%*.2f ", cwid, (dlist[j]->fbuf)[i]);
            #else
                fprintf(logfile, "%*.2f ", -cwid, (dlist[j]->fbuf)[i]);
            #endif /* FORMAT1 */
            break;
            default:
                fprintf(logfile, "%*s ", -cwid, (dlist[j]->sbuf)[i]);

```

```

                break;
            }
        }
        fprintf(logfile, "\n");
    }
}

/* remove_newline(): Remove newline character from str. */

void remove_newline(str)
    char *str;
{
    char *p;

    while ((p = strchr(str, '\n')) != NULL)
        *p = ' ';
}

/*=====+
| Copyright (c) 1995 Oracle Corp, Redwood Shores, CA |
| OPEN SYSTEMS PERFORMANCE GROUP |
| All Rights Reserved |
+=====+
=====+
| FILENAME
| qstream.h
| DESCRIPTION
| SQL statement execution front-end header file.
| MODIFIED
| pswong 03/07/96 - created
+=====+
=====*/

#ifdef QSTREAMPL_H

#define QSTREAMPL_H

#include <stdio.h>
#include <string.h>
#include <sys/param.h>
#include <sys/types.h>
#include <time.h>
#include <errno.h>
#include <math.h>

#include <oratypes.h>

#include <oratypes.h>

#ifdef OCIDFN
#include <ocidfn.h>
#endif /* OCIDFN */

#ifdef OCI_ORACLE
#include <oci.h>
#endif /* OCI_ORACLE */
/*
#ifdef __STDC__
#include <ociapr.h>
#else
#include <ocikpr.h>
#endif /* __STDC__ */

/* some basic definitions */

#define UNAME_LEN 64
#define MAX_FILE_PATH_LEN 128

#ifdef TRUE
#define TRUE 1
#endif /* TRUE */

#ifdef FALSE
#define FALSE 1

```

```

#endif /* FALSE */

#define MAX(x,y) ((x >= y) ? x : y)
#define MIN(x,y) ((x <= y) ? x : y)

/* defines and typedefs for parsing */

#define CRT_TBL 1
#define INS_STMT 3
#define SEL_STMT 4
#define UPD_STMT 5
#define DRP_VIEW 7
#define DRP_TBL 8
#define DEL_STMT 9
#define CRT_VIEW 10

/* defines and typedefs for query description */

#define MAX_COLNAME_SIZE 32 /* Maximum length of Column name */
#define MAX_SEL_LIST 16 /* Maximum items on a select list */

#define END_OF_LIST 1007 /* Error code when we reach the end of the */
/* select list. */

/* types for describe */

#define CHAR_TYPE 1
#define NUM_TYPE 2
#define INT_TYPE 3
#define FLT_TYPE 4
#define STR_TYPE 5
#define DATE_TYPE 12

#define NUMWIDTH 16 /* Width of the numeric fields */

#define POS(i) (i+1) /* The position is 1...n instead */
#define IND(i) (i-1) /* of 0..n-1 as in an array. */

typedef struct des
{
    ub2 dbsize;
    ub4 buflen;
    /* sb2 dsize; */
    sb4 scale;
    /* sb2 nullok; */
    OCITypeCode dbtype;
    /* text buf[MAX_COLNAME_SIZE]; */
    text *buf;
    ub1 precision;
} sltype;

/* defines and typedefs for query select list definition */

#define MAX_ARRAY 50 /* Maximum array size for array fetch */
#define PFMEMSIZE 65536 /* Memory size of prefetch buffer */

#define MAX_STR_LEN 256 /* Maximum size for string variables */
#define MAX_PREALLOC 8 /* Maximum number of preallocated select list */
/* definitions. */

#define INT sizeof(long)
#define STR sizeof(char)
#define FLT sizeof(double)

#define FLTP (double *)
#define INTP (long *)
#define STRP (char **)

typedef struct def
{
    long ibuf[MAX_ARRAY];
    double fbuf[MAX_ARRAY];
    char sbu[MAX_ARRAY][MAX_STR_LEN];
    ub2 rlen[MAX_ARRAY]; /* return length */
    OCIDefine *defhdl;
} dltype;

extern int errno;

#define SQL_LEN 2048

#ifndef NULL
#define NULL 0
#endif

#ifndef NULLP
# define NULLP (void *)NULL
#endif /* NULLP */

#ifndef DISCARD
# define DISCARD (void)
#endif

#ifndef sword
# define sword int
#endif

#ifndef ub1
#define ub1 unsigned char
#endif

#define NA -1 /* ANSI SQL NULL */
#define VER7 2
#define NOT_SERIALIZABLE 8177 /* ORA-08177: transaction not serializable */

#define ADR(object) ((ub1 *)&(object))
#define SIZ(object) ((sword)sizeof(object))
#define SID(sid) ((sid == -1) ? 0 : sid)

/* For get_statement */

#define END_OF_FILE -1
#define COMMENT 1
#define SQL_STMT 2
#define SET_FETCHROW 3

#define OCIhalloc(envh,hndl,htyp) \
    if((status=OCIHandleAlloc((dvoid *)envh,(dvoid **)hndl,htyp,0,(dvoid **))\
    !=OCI_SUCCESS) \
        sql_error(envh,status,0); \
    else \
        DISCARD 0

#define OCIhfree(hndl,htyp) \
    if((status=OCIHandleFree((dvoid *)hndl,htyp)) == OCI_SUCCESS) \
        fprintf(stderr, "Error freeing handle of type %d\n", htyp)

#define OCIaget(hndl,htyp,attp,size,atyp,errh) \
    if((status=OCIAttrGet((dvoid *)hndl,htyp,(dvoid *)attp,(dvoid *)size,atyp,errh)) \
    != OCI_SUCCESS) \
        sql_error(errh,status,1); \
    else \
        DISCARD 0

#define OCIaset(hndl,htyp,attp,size,atyp,errh) \
    if((status=OCIAttrSet((dvoid *)hndl,htyp,(dvoid *)attp,size,atyp,errh)) != \
    OCI_SUCCESS) \
        sql_error(errh,status,1); \
    else \
        DISCARD 0

#define OCIsexec(svch,stmh,errh,iter) \

if((status=OCIStmtExecute(svch,stmh,errh,iter,0,NULL,NULL,OCI_DEFAULT)) \
    != OCI_SUCCESS) \
    sql_error(errh,status,1); \
    else \
        DISCARD 0

#define ISOTXT "alter session set isolation_level = serializable"
#define PDMLTXT "alter session force parallel dml"

#endif /* QSTREAMPL_H */

```

```

#ifdef RCSID
static char *RCSid =
"$Header: gettime.c 7030100.1 96/05/21 15:31:36 plai Generic<base> $ Copyr (c)
1993 Oracle";
#endif /* RCSID */

/*=====+
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+=====+
=====+
| FILENAME
| gettime.c
| ROUTINES
| gettime
| getcpu
| DESCRIPTION
| get wall clock time.
| get cpu time.
| NOTES
| Both routines return time in seconds as a double.
+=====+
=====*/
/*
** Options:
** TIME_W_TIMES: implement gettimeofday() with times().
** TIME_W_GETTIME: implement gettimeofday() with gettimeofday().
** CPU_W_TIMES: implement getcpu() with times().
** CPU_W_GETRU: implement getcpu() with getrusage().
** GETRU_STATS: collect getrusage statistics
** GET_P_STATS: collect get_process_stats statistics
*/

#ifdef SUN_OS5
#define TIME_W_GETTIME
#define CPU_W_TIMES
#undef GETRU_STATS
#undef CPU_W_GETRU
#endif /* SUN_OS5 */

#ifdef sequent || defined(SEQ_PXS)
#define GET_P_STATS
#endif /* sequent */

#ifdef aix || defined(AIXRIOS)
#define TIME_W_GETTIME
#define CPU_W_TIMES
#define GETRU_STATS
#endif /* AIXRIOS */

#ifdef a_osf || defined(A_OSF)
#define TIME_W_GETTIME
#define CPU_W_GETRU
#define GETRU_STATS
#endif /* AIXRIOS */

#ifdef HPUX || defined(XENIX_386) || defined(SYSV_386) ||
defined(ATT_3B)
#define TIME_W_TIMES
#define CPU_W_TIMES
#endif /* HPUX || XENIX_386 || SYSV_386 */

#ifdef !defined(TIME_W_GETTIME) && !defined(TIME_W_TIMES)
#define TIME_W_TIMES
#endif

#ifdef !defined(CPU_W_GETRU) && !defined(CPU_W_TIMES)
#define CPU_W_TIMES
#endif

#ifdef GET_P_STATS
#ifdef GETRU_STATS

```

```

#undef GETRU_STATS
#endif
#endif

#ifdef defined(TIME_W_GETTIME) || defined(CPU_W_GETRU) ||
defined(GETRU_STATS)
#include <sys/time.h>
#endif /* TIME_W_GETTIME || CPU_W_GETRU || GETRU_STATS */

#ifdef defined(CPU_W_GETRU) || defined(GETRU_STATS)
#include <sys/resource.h>
#endif /* CPU_W_GETRU || GETRU_STATS */

#ifdef defined(TIME_W_TIMES) || defined(CPU_W_TIMES)
#include <sys/types.h>
#include <sys/times.h>
#include <sys/param.h> /* most systems define HZ here */
#endif /* TIME_W_TIMES or CPU_W_TIMES */

#ifdef GET_P_STATS
#include <sys/types.h>
#include <sys/procstats.h>
#endif /* GET_P_STATS */

#include <stdio.h>

#ifdef GETRU_STATS
struct rusage selfru;
struct rusage kidsru;
#endif /* GETRU_STATS */

#ifdef GET_P_STATS
struct process_stats selfru;
struct process_stats kidsru;
#endif /* GET_P_STATS */

double gettime ()
{
#ifdef TIME_W_GETTIME
struct timeval tv;

(void) gettimeofday (&tv, (struct timezone *) 0);
return ((double) tv.tv_sec + (1.0e-6 * (double) tv.tv_usec));
#endif /* TIME_W_GETTIME */

#ifdef TIME_W_TIMES
struct tms buf;

return ((double) times (&buf) / HZ);
#endif /* TIME_W_TIMES */
}

double getcpu ()
{
#ifdef CPU_W_TIMES
struct tms buf;

(void) times (&buf);
return (((double) buf.tms_utime + (double) buf.tms_stime) / HZ);
#endif /* CPU_W_TIMES */

#ifdef CPU_W_GETRU
struct rusage ru;
double usecs;

(void) getrusage (0, &ru);
usecs = 1.0e-6 * (double) (ru.ru_utime.tv_usec + ru.ru_stime.tv_usec);
return ((double) (ru.ru_utime.tv_sec + ru.ru_stime.tv_sec) + usecs);
#endif /* CPU_W_GETRU */
}

```

```

getru (fp, kids, config, runname, proc_no)

FILE *fp;
int kids;
char *config;
char *runname;
int proc_no;

{

#ifdef GETRU_STATS
struct rusage ru;

fprintf (fp, "%-10.10s %-10.10s %10d %10d ", config, runname, proc_no, kids);
getrusage (kids ? RUSAGE_CHILDREN : RUSAGE_SELF, &ru);
print_ru (fp, &ru);
fprintf (fp, "\n");
#endif /* GETRU_STATS */

#ifdef GET_P_STATS
timeval_t tv;
struct process_stats ru;

fprintf (fp, "%-10.10s %-10.10s %10d %10d ", config, runname, proc_no, kids);
if (kids)
    get_process_stats (&tv, PS_SELF, (struct process_stats *) 0, &ru);
else
    get_process_stats (&tv, PS_SELF, &ru, (struct process_stats *) 0);
print_ru (fp, &ru);
fprintf (fp, "\n");
#endif /* GET_P_STATS */

}

```

```

getru1 (kids)

int kids;

{

#ifdef GETRU_STATS
if (kids) {
    memset (&kidsru, 0, sizeof (kidsru));
    getrusage (RUSAGE_CHILDREN, &kidsru);
}
else {
    memset (&selfru, 0, sizeof (selfru));
    getrusage (RUSAGE_SELF, &selfru);
}
#endif /* GETRU_STATS */

#ifdef GET_P_STATS
timeval_t tv;

if (kids) {
    memset (&kidsru, 0, sizeof (kidsru));
    get_process_stats (&tv, PS_SELF, (struct process_stats *) 0, &kidsru);
}
else {
    memset (&selfru, 0, sizeof (selfru));
    get_process_stats (&tv, PS_SELF, &selfru, (struct process_stats *) 0);
}
#endif /* GET_P_STATS */

}

```

```

getru2 (fp, kids, config, runname, proc_no)

FILE *fp;
int kids;
char *config;
char *runname;
int proc_no;

```

```

{

#ifdef GETRU_STATS
struct rusage ru;

fprintf (fp, "%-10.10s %-10.10s %10d %10d ", config, runname, proc_no, kids);
getrusage (kids ? RUSAGE_CHILDREN : RUSAGE_SELF, &ru);
if (kids)
    diffru (&ru, &kidsru);
else
    diffru (&ru, &selfru);
print_ru (fp, &ru);
fprintf (fp, "\n");
#endif /* GETRU_STATS */

#ifdef GET_P_STATS
timeval_t tv;
struct process_stats ru;

fprintf (fp, "%-10.10s %-10.10s %10d %10d ", config, runname, proc_no, kids);
if (kids)
    get_process_stats (&tv, PS_SELF, (struct process_stats *) 0, &ru);
else
    get_process_stats (&tv, PS_SELF, &ru, (struct process_stats *) 0);
if (kids)
    diffru (&ru, &kidsru);
else
    diffru (&ru, &selfru);
print_ru (fp, &ru);
fprintf (fp, "\n");
#endif /* GET_P_STATS */

}

```

```

#ifdef GETRU_STATS

print_ru (fp, ru)

FILE *fp;
struct rusage *ru;

{

fprintf (fp, "%10ld ", ru->ru_utime.tv_sec * 1000 +
    (ru->ru_utime.tv_usec/1000));
fprintf (fp, "%10ld ", ru->ru_stime.tv_sec * 1000 +
    (ru->ru_stime.tv_usec/1000));
fprintf (fp, "%10ld ", ru->ru_maxrss);
fprintf (fp, "%10ld ", ru->ru_majflt);
fprintf (fp, "%10ld ", ru->ru_minflt);
fprintf (fp, "%10ld ", 0);
fprintf (fp, "%10ld ", 0);
fprintf (fp, "%10ld ", 0);
fprintf (fp, "%10ld ", ru->ru_nswap);
fprintf (fp, "%10ld ", 0);
fprintf (fp, "%10ld ", ru->ru_nvcsw);
fprintf (fp, "%10ld ", ru->ru_nvcsw);
fprintf (fp, "%10ld ", ru->ru_nsignals);
fprintf (fp, "%10ld ", 0);
fprintf (fp, "%10ld ", 0);
fprintf (fp, "%10ld ", ru->ru_inblock);
fprintf (fp, "%10ld ", ru->ru_oublock);
fprintf (fp, "%10ld ", 0);
fprintf (fp, "%10ld ", 0);

}

```

```

diffru (ru2, ru)

struct rusage *ru2;
struct rusage *ru;

{

ru2->ru_utime.tv_sec -= ru->ru_utime.tv_sec;

```

```

ru2->ru_utime.tv_usec -= ru->ru_utime.tv_usec;
ru2->ru_stime.tv_sec -= ru->ru_stime.tv_sec;
ru2->ru_stime.tv_usec -= ru->ru_stime.tv_usec;
ru2->ru_maxrss -= ru->ru_maxrss;
ru2->ru_ixrss -= ru->ru_ixrss;
ru2->ru_idrss -= ru->ru_idrss;
ru2->ru_minflt -= ru->ru_minflt;
ru2->ru_majflt -= ru->ru_majflt;
ru2->ru_nswap -= ru->ru_nswap;
ru2->ru_inblock -= ru->ru_inblock;
ru2->ru_oublock -= ru->ru_oublock;
ru2->ru_msgsnd -= ru->ru_msgsnd;
ru2->ru_msgrcv -= ru->ru_msgrcv;
ru2->ru_nsignals -= ru->ru_nsignals;
ru2->ru_nvcsw -= ru->ru_nvcsw;
ru2->ru_nivcsw -= ru->ru_nivcsw;

```

```

}

#endif /* GETRU_STATS */

```

```

#ifdef GET_P_STATS

```

```

print_ru (fp, ps)

```

```

FILE *fp;
struct process_stats *ps;

```

```

{
    fprintf (fp, "%lu ", ps->ps_utime.tv_sec * 1000 +
             (ps->ps_utime.tv_usec/1000));
    fprintf (fp, "%lu ", ps->ps_stime.tv_sec * 1000 +
             (ps->ps_stime.tv_usec/1000));
    fprintf (fp, "%lu ", ps->ps_maxrss);
    fprintf (fp, "%lu ", ps->ps_pagein);
    fprintf (fp, "%lu ", ps->ps_reclaim);
    fprintf (fp, "%lu ", ps->ps_zerofill);
    fprintf (fp, "%lu ", ps->ps_pffincr);
    fprintf (fp, "%lu ", ps->ps_pffdecr);
    fprintf (fp, "%lu ", ps->ps_swap);
    fprintf (fp, "%lu ", ps->ps_syscall);
    fprintf (fp, "%lu ", ps->ps_volcsw);
    fprintf (fp, "%lu ", ps->ps_involcsw);
    fprintf (fp, "%lu ", ps->ps_signal);
    fprintf (fp, "%lu ", ps->ps_lread);
    fprintf (fp, "%lu ", ps->ps_lwrite);
    fprintf (fp, "%lu ", ps->ps_bread);
    fprintf (fp, "%lu ", ps->ps_bwrite);
    fprintf (fp, "%lu ", ps->ps_phread);
    fprintf (fp, "%lu ", ps->ps_phwrite);
}

```

```

diffru (ru2, ru)

```

```

struct process_stats *ru2;
struct process_stats *ru;

```

```

{
    ru2->ps_utime.tv_sec -= ru->ps_utime.tv_sec;
    ru2->ps_utime.tv_usec -= ru->ps_utime.tv_usec;
    ru2->ps_stime.tv_sec -= ru->ps_stime.tv_sec;
    ru2->ps_stime.tv_usec -= ru->ps_stime.tv_usec;
    ru2->ps_maxrss -= ru->ps_maxrss;
    ru2->ps_pagein -= ru->ps_pagein;
    ru2->ps_reclaim -= ru->ps_reclaim;
    ru2->ps_zerofill -= ru->ps_zerofill;
    ru2->ps_pffincr -= ru->ps_pffincr;
    ru2->ps_pffdecr -= ru->ps_pffdecr;
    ru2->ps_swap -= ru->ps_swap;
    ru2->ps_syscall -= ru->ps_syscall;
    ru2->ps_volcsw -= ru->ps_volcsw;
    ru2->ps_involcsw -= ru->ps_involcsw;
    ru2->ps_signal -= ru->ps_signal;
}

```

```

ru2->ps_lread -= ru->ps_lread;
ru2->ps_lwrite -= ru->ps_lwrite;
ru2->ps_bread -= ru->ps_bread;
ru2->ps_bwrite -= ru->ps_bwrite;
ru2->ps_phread -= ru->ps_phread;
ru2->ps_phwrite -= ru->ps_phwrite;
}

```

```

#endif /* GET_P_STATS */

```

```

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+=====+

```

```

+=====+
| FILENAME
| gtime.c
| DESCRIPTION
| Wrapper for gettime
+=====+

```

```

+=====+
/*

```

```

#include<stdio.h>
#include<stdlib.h>

```

```

double gettime();

```

```

main() {
    printf("%f", gettime());
    exit(0);
}

```

```

#!/bin/sh
#

```

```

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+=====+

```

```

+=====+
# FILENAME
# runuf1.sh
# DESCRIPTION
# runuf1.sh -l [<path name for reports>] -u [<uid/passwd>]
# -p [<program>] <run_id> <scale factor> <pair number>
# <parallelism>
# USAGE
# To execute UF1.
+=====+

```

```

O=$ORACLE_HOME
TPCD_DIR=$O/tpcd
UPDATE_DIR=${TPCD_DIR}/update
SCRIPT_DIR=${UPDATE_DIR}/scripts
SRC_DIR=${UPDATE_DIR}/source
GTIME_DIR=${TPCD_DIR}/source
GTIME=${GTIME_DIR}/gtime

```

```

usage() {
    echo ""
    echo "runuf1.sh -l [<path name for reports>] -u [<uid/passwd>]"
    echo "      -p [<program>] -h <run_id> <scale factor> <set number>"
    echo "      <parallelism>"
    echo ""
    echo "run_id      : Run_ID of this update run."
    echo "scale factor : Scale Factor of the database."
    echo "set number  : The update pair number that this update function belongs to."
    echo "parallelism : The parallelism of the updates."
    echo ""
    echo "-p          : Program to execute. Default is"
    echo "$ORACLE_HOME/tpcd/update/source/uf1.ott"
}

```

```

echo "-l          : Path name for reports on the update function. Debug use for UF1
only"
echo "-u          : Userid/Password for Oracle. Default is tpcd/tpcd."
echo "-h          : To Display this message."
echo ""
}

PROG=${SRC_DIR}/uf1.ott
LOGPATH=
PASSWD="tpcd/tpcd"

set -- 'getopt "l:p:u:h" "$@"' || usage

while :
do
  case "$1" in
    -u) shift; PASSWD=$1;;
    -l) shift; LOGPATH=$1;;
    -p) shift; PROG=$1;;
    -h) usage; exit 0;;
    --) shift; break;;
    esac
  shift;
done

if [ $# -lt 4 ]
then
  usage
  exit 1
fi

RUN_ID=$1
SF=$2
SETNUM=$3
PAR=$4

i=1
PID=""

# perform the update function 1

START='$GTIME'

while [ $i -le $PAR ]
do

# Kick off the program first, but wait for the signal to start.
# In an OPS environment, we may want to rsh the PROG to the
# different nodes.

  ${PROG} ${SETNUM} ${RUN_ID} ${i} ${SF} f${LOGPATH} u${PASSWD}
&
  PID="$PID $!"
  i='expr $i + 1'

done

# All update processes have started, now wait for all the update processes
# to finish.

wait

END='$GTIME'

# Done

echo ""
echo "Update Function 1 Set $SETNUM done!"
echo "Elapsed Time is 'echo $END - $START | bc'"
echo ""

#!/bin/sh
#
=====+
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```

```

=====+
# FILENAME
# runuf2.sh
# DESCRIPTION
# runuf2.sh [-u <uid/passwd to login>] [-p <program>] <run_id>
# <scale factor> <pair number> <parallelism>
# USAGE
# To execute UF2.
=====+
O=$ORACLE_HOME
TPCD_DIR=$O/tpcd
UPDATE_DIR=${TPCD_DIR}/update
SCRIPT_DIR=${UPDATE_DIR}/scripts
SRC_DIR=${UPDATE_DIR}/source
GTIME_DIR=${TPCD_DIR}/source
GTIME=${GTIME_DIR}/gtime

usage() {
echo ""
echo "runuf2.sh [-u <user/passwd>] [-p <program>] <run_id> <scale factor> <pair
number> <parallelism>"
echo ""
echo "run_id : Run_ID of this update run."
echo "scale factor : Scale Factor of the database."
echo "set number : The update pair number that this update function belongs to."
echo "parallelism : The parallelism of the updates."
echo ""
echo "-p : Program to execute. Default is
$ORACLE_HOME/tpcd/update/source/uf2_del.ott."
echo "-u : Userid/Password for Oracle. Default is tpcd/tpcd"
echo "-h : To Display this message."
echo ""
}

PROG=${SRC_DIR}/uf2.ott
PASSWD="tpcd/tpcd"

set -- 'getopt "p:u:h" "$@"' || usage

while :
do
  case "$1" in
    -u) shift; PASSWD=$1;;
    -p) shift; PROG=$1;;
    -h) usage; exit 0;;
    --) shift; break;;
    esac
  shift;
done

if [ $# -lt 4 ]
then
  usage
  exit 1
fi

RUN_ID=$1
SF=$2
SETNUM=$3
PAR=$4

i=1
PID=""

START='$GTIME'

# perform the update function

while [ $i -le $PAR ]
do

# Kick off the program first, but wait for the signal to start

  ${PROG} ${SETNUM} ${RUN_ID} ${i} ${SF} 1 u${PASSWD} &
  PID="$PID $!"
  i='expr $i + 1'

done

```

```

# All processes have started, now wait for all the update processes to finish.

wait

END='`$GTIME`

# Done

echo ""
echo "Update Function 2 Set $SETNUM done!"
echo "Elapsed Time is `echo $END - $START | bc`"
echo ""

#!/bin/sh
#
=====
=====+
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=====
=====+
# FILENAME
# resuf2.sh
# DESCRIPTION
# resuf2.sh -l [<path name for reports>] -u [<uid/passwd>]
# <run_id> <scale factor> <pair number>
# <parallelism>
# USAGE
# To execute UF1.
=====
O=${ORACLE_HOME}
TPCD_DIR=${O}/tpcd
UPDATE_DIR=${TPCD_DIR}/update
SCRIPT_DIR=${UPDATE_DIR}/scripts
LOG_DIR=${UPDATE_DIR}/log
GTIME=${SCRIPT_DIR}/gtime

usage() {
echo ""
echo "resuf2.sh -l [<path name for reports>] -u [<uid/passwd>]"
echo " -h <run_id> <scale factor> <pair number>"
echo " <parallelism>"
echo ""
echo "run_id : Run_ID of this update run."
echo "scale factor : Scale Factor of the database."
echo "set number : The update pair number that this update function belongs to."
echo "parallelism : The parallelism of the updates."
echo ""
echo "-l : Path name for reports on the update function. Debug use for UF1 only"
echo "-u : Userid/Password for Oracle. Default is tpcd/tpcd."
echo "-h : To Display this message."
echo ""
}

LOGPATH=.
PASSWD="tpcd/tpcd"

set -- `getopt "l:u:h" "$@"` || usage

while :
do
case "$1" in
-u) shift; PASSWD=$1;;
-l) shift; LOGPATH=$1;;
-h) usage; exit 0;;
--) shift; break;;
esac
shift;
done

if [ $# -lt 4 ]
then
usage
exit 1

```

```

fi

RUN_ID=$1
SF=$2
SETNUM=$3
PAR=$4

i=1
PID=""

# Let's figure out the extent sizes in Mb
LINEEXT='echo $SF * 720 * 0.001 / ` $PAR + 1 | bc `
LINEEXT='echo $LINEEXT | sed '\,[0123456789]*$/s//`
ORDEXT='echo $SF * 200 * 0.001 / ` $PAR + 1 | bc `
ORDEXT='echo $ORDEXT | sed '\,[0123456789]*$/s//`

# perform the update function 1

START='`$GTIME`

# first create the temp tables

sqlplus $PASSWD <<!

drop table temp_item;
create table temp_item (
  l_shipdate date ,
  l_orderkey number,
  l_discount number ,
  l_extendedprice number ,
  l_suppkey number,
  l_quantity number ,
  l_returnflag char(1) ,
  l_partkey number,
  l_linestatus char(1) ,
  l_tax number,
  l_commitdate date ,
  l_receiptdate date ,
  l_shipmode varchar(10) ,
  l_linenum number,
  l_shipinstruct varchar(25) ,
  l_comment varchar(44)
)
pctfree 1
pctused 99
tablespace supplier
storage (initial 64k next ${LINEEXT}m pctincrease 0 )
parallel (degree 80 instances 1)
nologging;

drop table temp_ord;
create table temp_ord (
  o_orderdate date ,
  o_orderkey number,
  o_custkey number,
  o_orderpriority varchar(15) ,
  o_shippriority number ,
  o_clerk varchar(15) ,
  o_orderstatus char(1) ,
  o_totalprice number ,
  o_comment varchar(79)
)
pctfree 1
pctused 99
tablespace supplier
storage (initial 64k next ${ORDEXT}m pctincrease 0 )
parallel (degree 80 instances 1)
nologging;

exit;
!

while [ $i -le $PAR ]
do

# Kick off sqlldr to load the data into the temporary staging tables.

FN='expr $i - 1'
FN='expr $FN % 64'
FN='expr $FN + 1'

```

```

sqlldr userid=$PASSWD control=${SCRIPT_DIR}/tempitem.ctl \
log=${LOG_DIR}/ti${i}.log \
data=${UPDATE_DIR}/data/rlineitem.tbl.u2.${i} \
direct=true parallel=true \
file=/oracle8/oracle/app/oracle/product/8.0.4/dbs/ddisks/supplier${FN} &

sqlldr userid=$PASSWD control=${SCRIPT_DIR}/tempord.ctl \
log=${LOG_DIR}/to${i}.log \
data=${UPDATE_DIR}/data/rorder.tbl.u2.${i} \
direct=true parallel=true \
file=/oracle8/oracle/app/oracle/product/8.0.4/dbs/ddisks/supplier${FN} &

i='expr $i + 1'

done

# All sqlldr processes have started, now wait for all them to finish.

wait

# now do the insert and then drop the staging tables

sqlplus $PASSWD <<!

set timing on;
alter session force parallel dml;

analyze table temp_ord estimate statistics sample 1000 rows;
analyze table temp_item estimate statistics sample 1000 rows;

insert /*+ PARALLEL(lineitem 40) */
into lineitem
(select /*+ PARALLEL(temp_item 40) */ * from temp_item);

insert /*+ PARALLEL(orders 40) */
into orders
(select /*+ PARALLEL(temp_ord 40) */ * from temp_ord);

commit;

drop table temp_item;
drop table temp_ord;
exit;
!

END='&GT;TIME'

# Done

echo ""
echo "Update Function 2 restore Set $SETNUM done!"
echo "Elapsed Time is `echo $END - $START | bc`"
echo ""

#!/bin/sh
#
#=====+
# Copyright (c) 1995 Oracle Corp, Redwood Shores, CA |
# OPEN SYSTEM PERFORMANCE GROUP |
# All Rights Reserved |
#=====+
# FILENAME
# resuf1.sh
# DESCRIPTION
# resuf1.sh [-u <uid/passwd to login>] <run_id>
# <scale factor> <pair number> <parallelism>
# USAGE
# To restore UF1.
#=====+
O=${ORACLE_HOME}
TPCD_DIR=${O}/tpcd
UPDATE_DIR=${TPCD_DIR}/update
SCRIPT_DIR=${UPDATE_DIR}/scripts
GTIME=${SCRIPT_DIR}/gtime
LOG_DIR=${UPDATE_DIR}/log

```

```

usage() {
echo ""
echo "resuf1.sh [-u <user/passwd>] <run_id> <scale factor> <pair number>
<parallelism>"
echo ""
echo "run_id : Run_ID of this update run."
echo "scale factor : Scale Factor of the database."
echo "set number : The update pair number that this update function belongs to."
echo "parallelism : The parallelism of the updates."
echo ""
echo "-u : Userid/Password for Oracle. Default is tpcd/tpcd"
echo "-h : To Display this message."
echo ""
}

PASSWD="tpcd/tpcd"

set -- `getopt "u:h" "$@"` || usage

while :
do
case "$1" in
-u) shift; PASSWD=$1;;
-h) usage; exit 0;;
--) shift; break;;
esac
shift;
done

if [ $# -lt 4 ]
then
usage
exit 1
fi

RUN_ID=$1
SF=$2
SETNUM=$3
PAR=$4

i=1
PID=""

START='&GT;TIME'

# first create the temp tables

sqlplus $PASSWD <<!

drop table temp_okey;
create table temp_okey (
t_orderkey number
)
pctfree 1
pctused 99
tablespace orders
storage (initial 64k next 1m pctincrease 0)
parallel (degree 80 instances 1)
nologging;

exit;
!

# All processes have started, now wait for all the update processes to finish.

wait

while [ $i -le $PAR ]
do

FN='expr $i - 1'
FN='expr $FN % 64'
FN='expr $FN + 1'

sqlldr userid=$PASSWD control=${SCRIPT_DIR}/tempokey.ctl \
log=${LOG_DIR}/ti${i}.log \
data=${UPDATE_DIR}/data/okey.u${SETNUM}.${i} \
direct=true parallel=true \
file=/oracle8/oracle/app/oracle/product/8.0.4/dbs/ddisks/orders${FN} &

```

```

i='expr $i + 1'

done

wait

sqlplus $PASSWD <<!

set timing on;
alter session enable parallel dml;
analyze table temp_okey estimate statistics sample 1000 rows;

delete /*+ INDEX(lineitem L_ORED) PARALLEL(lineitem 40) */ from lineitem
where l_orderkey in (select /*+ PARALLEL(temp_okey 40) */ * from temp_okey);

delete /*+ INDEX(orders O_OP) PARALLEL(orders 40) */ from orders where
o_orderkey in (select /*+ PARALLEL(temp_okey 40) */ * from temp_okey);

commit;

rem drop table temp_okey;
exit;
!

END='$GTIME'

# Done

echo ""
echo "Update Function 1 restore Set $SETNUM done!"
echo "Elapsed Time is 'echo $END - $START | bc'"
echo ""

```

# Appendix F

Customer table

```

C_CUSTKEY C_MKTSEGME C_NATIONKEY C_NAME
-----
C_ADDRESS C_PHONE
C_ACCTBAL
-----
C_COMMENT
-----
42967644 AUTOMOBILE 11 Customer#042967644
Pn7nw5wNM6x5z5QjLgy4B 21-135-618-2950
879.03
g2BFRwmCA610PQgRnN0Qn02OiiAC3MNMjOj102y6QBil0wQSm0hzN5Q
Rz3iwmhPORBxhBA2Mx AR3z
h7w QxMPAMgLP54RRwwlCS

42967649 AUTOMOBILE 15 Customer#042967649
Oi36 0j2x22 yn240 25-805-668-5197
-242.53

C_CUSTKEY C_MKTSEGME C_NATIONKEY C_NAME
-----
C_ADDRESS C_PHONE
C_ACCTBAL
-----
C_COMMENT
-----
PMBgM0BLgAhgQmA4CPjPLONQMln73jihhk45hAkkhj RlkPjgiw7zA

42967669 AUTOMOBILE 15 Customer#042967669
0nP7Cxm3Sy2ywykCCw5nQzRA03j4P1nR6y 25-797-508-7735
384.68
lj5AxgOPj1j0l7QhxyjL0l
OLNPP7yR15iy57BmBzSn3A46kmB4iyCia0NjMhg1jNz1CzMPQ

42967671 AUTOMOBILE 17 Customer#042967671

C_CUSTKEY C_MKTSEGME C_NATIONKEY C_NAME
-----
C_ADDRESS C_PHONE
C_ACCTBAL
-----
C_COMMENT
-----
2MwP2ROsm2lz5i4772RS6S5NkSM xBQnS1OP 27-901-993-1663
7723.15
i7Rz1727ghN BPRBL2R ljb6 PLO

42967674 AUTOMOBILE 23 Customer#042967674
26MzxyARBgnk4n 1lh 33-198-552-9732
3557.05
Rk4BR2BNiScknkSnA15jxORP1RxPkly5 B0QhRC0ClP35606i2yw4
j76O02inzYm3QBxLSh5y3mkBM
7NP1O

C_CUSTKEY C_MKTSEGME C_NATIONKEY C_NAME
-----
C_ADDRESS C_PHONE
C_ACCTBAL
-----
C_COMMENT
-----

```

```

42967680 AUTOMOBILE 5 Customer#042967680
7RAyR2iQQ6gjmPP37 glwBBg 1 15-840-632-9771
6377.19
4jOSLzwiL2xOQ44ixkz 56
2L0nyQMqjNC3kPOB5lQ15nP6k1hQxS7l62 PANMS7
zOM04QwSBA2QAP1
OgP7L52N6lK7z2R060xAzw7wQNRB

```

```

42967682 AUTOMOBILE 19 Customer#042967682

C_CUSTKEY C_MKTSEGME C_NATIONKEY C_NAME
-----
C_ADDRESS C_PHONE
C_ACCTBAL
-----
C_COMMENT
-----
iCQRgiPyRmxygxlj0iRPg6BCwlrW564 29-566-477-7958
3074.4
SnMi36y2Qz 5i50l336hhk0x hk17LMghzLlhY2Rw

42967696 AUTOMOBILE 12 Customer#042967696
ixOQ6yQh5hm0 22-391-508-1169
4425.46
NB24h0Mi0M05y04wMwmw m LClgSiL24 23lMQlC
g3g4mLBPz1A1BLj7Q

C_CUSTKEY C_MKTSEGME C_NATIONKEY C_NAME
-----
C_ADDRESS C_PHONE
C_ACCTBAL
-----
C_COMMENT
-----
42967698 AUTOMOBILE 1 Customer#042967698
0nMBBN46xLBO 11-998-129-5187
-586.33
2NiSwM07AgikkOA324QP5g6zOx 0
jwL1z2higLi7ORAR5AiCwLk6Lix2332MllPB4515i0POnm

42967701 AUTOMOBILE 21 Customer#042967701
mn3AixQi hh3LCSmh 31-618-641-2007
6521.9
BzPmyl BL C2Omn6BP3N3nmmyhgQ1gxNzln6hSmhRj1l Nw1SSkn

C_CUSTKEY C_MKTSEGME C_NATIONKEY C_NAME
-----
C_ADDRESS C_PHONE
C_ACCTBAL
-----
C_COMMENT
-----
10 rows selected.

SQL> exit
lineitem table
-----
L_SHIPDATE L_ORDERKEY L_DISCOUNT L_EXTENDEDPRI
L_SUPPKEY L_QUANTITY L
-----
L_PARTKEY L L_TAX L_COMMITDA L_RECEIPTD L_SHIPMODE
L_LINENUMBER
-----
L_SHIPINSTRUCT L_COMMENT
-----

```

```

1994-01-29 1421141159      0      41029.2
2740772      24 A
4240769 F      .03 1994-03-19 1994-02-15 REG AIR
3
NONE      zml7MMC5PySAyhli73jx6mym1z

1994-01-21 1421141190      .08      23402.3
806227      19 A
49556178 F      .07 1994-01-01 1994-02-20 RAIL
3
DELIVER IN PERSON      hnRQzAP1AzNzziR7k1Agz2ily1lixg

L_SHIPDATE L_ORDERKEY L_DISCOUNT L_EXTENDEDPRI
L_SUPPKEY L_QUANTITY L
-----
L_PARTKEY L      L_TAX L_COMMITDA L_RECEIPTD L_SHIPMODE
L_LINENUMBER
-----
L_SHIPINSTRUCT      L_COMMENT
-----

1994-01-27 1421141190      .02      8880.34
1909263      7 R
52909262 F      .06 1993-12-10 1994-02-08 REG AIR
6
COLLECT COD
x74BAQxxL7iSz2BBy1gygBMMzRORAQOxm1RLl1LN

1994-01-21 1421141220      .09      26672.66
921685      17 A
53421650 F      .08 1994-02-07 1994-02-04 RAIL
2

L_SHIPDATE L_ORDERKEY L_DISCOUNT L_EXTENDEDPRI
L_SUPPKEY L_QUANTITY L
-----
L_PARTKEY L      L_TAX L_COMMITDA L_RECEIPTD L_SHIPMODE
L_LINENUMBER
-----
L_SHIPINSTRUCT      L_COMMENT
-----

NONE      SO3mMi7AN434C1 PO17M

1994-01-18 1421141511      .02      2958.14
740518      2 R
28490490 F      .04 1993-12-15 1994-02-04 FOB
1
NONE      zwg5yg7wj3m34377iQQy1lOh0

1994-01-24 1421141639      .05      67710.74
1506937      37 R

L_SHIPDATE L_ORDERKEY L_DISCOUNT L_EXTENDEDPRI
L_SUPPKEY L_QUANTITY L
-----
L_PARTKEY L      L_TAX L_COMMITDA L_RECEIPTD L_SHIPMODE
L_LINENUMBER
-----
L_SHIPINSTRUCT      L_COMMENT
-----

18006924 F      .05 1994-02-04 1994-01-27 MAIL
1
TAKE BACK RETURN      km3ySAMAOLQqHBPMjAnwhARkyRz

1994-01-21 1421141698      .01      2704.04
1650403      2 A
7650402 F      .04 1993-12-02 1994-01-25 TRUCK
1
DELIVER IN PERSON      Qghh41kg40SnB4RjgL60n yA
7j27LilnNh hBBhAy

```

```

L_SHIPDATE L_ORDERKEY L_DISCOUNT L_EXTENDEDPRI
L_SUPPKEY L_QUANTITY L
-----
L_PARTKEY L      L_TAX L_COMMITDA L_RECEIPTD L_SHIPMODE
L_LINENUMBER
-----
L_SHIPINSTRUCT      L_COMMENT
-----

1994-01-26 1421141698      .07      20352.23
1043205      17 A
293204 F      0 1993-12-03 1994-01-28 TRUCK
2
TAKE BACK RETURN      P0gQ356iAygNB006i2jihliP

1994-01-31 1421141701      .08      5748.15
1874944      3 R
37874943 F      .05 1994-04-01 1994-02-16 FOB
3
COLLECT COD      O5x732h3
zMm53M1P74mBh45y1n6m5Q

L_SHIPDATE L_ORDERKEY L_DISCOUNT L_EXTENDEDPRI
L_SUPPKEY L_QUANTITY L
-----
L_PARTKEY L      L_TAX L_COMMITDA L_RECEIPTD L_SHIPMODE
L_LINENUMBER
-----
L_SHIPINSTRUCT      L_COMMENT
-----

1994-01-26 1421141921      .08      47037.3
1559327      34 A
37559326 F      .04 1994-03-19 1994-02-23 TRUCK
1
TAKE BACK RETURN
A6RRCAy602kgj6mBzi3RS0SQh55B7AAQR

10 rows selected.

nation table
-----
N_NATIONKEY N_NAME      N_REGIONKEY
-----
N_COMMENT
-----
0 ALGERIA      0
2Cxlh7 Lliwk6hMh300izngN32CPwCikyLk6khMzSRA

1 ARGENTINA      1
zQn30kwz1wLn7PLS30hCgn56kP5PyRikgi1B71L

2 BRAZIL      1
gLmS0nACAmnBCj2klki7RCPNgPxnCOjNg4k
OiAg57COSOm1NwCnOyLx40R SC y20gPPAkNk5hxRhR5
OmgSliPQQzNAXPL30n670GyC 1617Sh4LS

N_NATIONKEY N_NAME      N_REGIONKEY
-----
N_COMMENT
-----

3 CANADA      1
4yMO AhnQ5Lh wzQAM662Aw1ByCl7CxmzRwNR5nAlO4 x

4 EGYPT      4
1lim5126 Cxj NMQmLxOikni02j2m3Ah4yNR1QQiL507j2QSlyN

5 ETHIOPIA      0
NS7n LSOP Oz5n1AlB2S02nN01Mh4SBxP iRhBO 047R26 2BlM

N_NATIONKEY N_NAME      N_REGIONKEY

```

-----  
N\_COMMENT  
-----  
-----

6 FRANCE 3  
3mjmiZl S 3L3k2hNNhN1P4w370xRxyN15wn

7 GERMANY 3  
z nOP4Rkwo CmzBB 516mAg lByw4OM3QyNPA

8 INDIA 2  
Mn1R5RCiRMj1111wjN7Myn M1ly1N1MmBQ17PL4C  
kkxQkgPQ7i3w6B67R2Qk0040xl4Q2iw76jRL7i

N\_NATIONKEY N\_NAME N\_REGIONKEY

N\_COMMENT

-----  
lhR5Q 0xC7Rm5iQ2NAx2LiBm3Qio27j

9 INDONESIA 2  
SjPmQO71Lj 7ABj6MxlAQk3nLwi73BPxzCwjzMn4z1Lzgg6nnz0j0w  
zx6C6gP6ykRPMg

10 rows selected.

orders table

-----  
O\_ORDERDAT O\_ORDERKEY O\_CUSTKEY O\_ORDERPRIORITY  
O\_SHIPRIORITY O\_CLERK

O O\_TOTALPRICE

O\_COMMENT

-----  
1992-12-16 1125000548 311458 2-HIGH

0 Clerk#000283674  
F 189586.07  
Qqyk4R3y1COjs7L4mkjC1PLhgB0ns1OQBkmLjhmmRRg6Q151QjCi

1992-12-24 1125000803 13487879 2-HIGH

0 Clerk#000093272  
F 272930.07  
MnS6OzyB4B11iizRR334N110h

O\_ORDERDAT O\_ORDERKEY O\_CUSTKEY O\_ORDERPRIORITY  
O\_SHIPRIORITY O\_CLERK

O O\_TOTALPRICE

O\_COMMENT

-----  
1992-12-18 1125000836 3070991 2-HIGH

0 Clerk#000248560  
F 191303.18  
kB x6ygSRCLC2S6ByMhw5wC1kwSn x5RBS

1992-12-28 1125000993 14782154 1-URGENT

0 Clerk#000104727  
F 77740.15

O\_ORDERDAT O\_ORDERKEY O\_CUSTKEY O\_ORDERPRIORITY  
O\_SHIPRIORITY O\_CLERK

O O\_TOTALPRICE

O\_COMMENT

-----  
jQNz1011Nyix3Ni2m20AgQ7whyygx2j2MRwhQCPB517

1992-12-31 1125001124 36318208 3-MEDIUM  
0 Clerk#000056370  
F 80075.76  
yNy2lzzLy QOPxM26m7PS

1992-12-21 1125001378 11736721 4-NOT SPECIFIED  
0 Clerk#000051722

O\_ORDERDAT O\_ORDERKEY O\_CUSTKEY O\_ORDERPRIORITY  
O\_SHIPRIORITY O\_CLERK

O O\_TOTALPRICE

O\_COMMENT

-----  
F 64736.96

6PQkMRNgxgwx6RCgMRn1xi1RAQC7ijP0xP0kgM14A1m36nx 1MBg i  
jPnAw0xAhRPniP4R0Q

1992-12-23 1125001735 7842193 3-MEDIUM

0 Clerk#000192031  
F 45729.33  
BMn4LChwS0047QCy RnNk6kP2zL32LPgwx

O\_ORDERDAT O\_ORDERKEY O\_CUSTKEY O\_ORDERPRIORITY  
O\_SHIPRIORITY O\_CLERK

O O\_TOTALPRICE

O\_COMMENT

-----  
1992-12-23 1125001860 42735667 3-MEDIUM

0 Clerk#000195685  
F 8527.36  
zQOyy4OSLP

5gzCnL2mimmBAi5ChR4hlxSx6zS2wm0jyRSS1AwNQ2x4116BySMAPzR1  
l011

1992-12-21 1125002016 42082031 2-HIGH

0 Clerk#000086712  
F 28853.3  
NgCM wNjj2On6j1M27735263Qi5R50SB7jwn h0miOCjLy0h7i

O\_ORDERDAT O\_ORDERKEY O\_CUSTKEY O\_ORDERPRIORITY  
O\_SHIPRIORITY O\_CLERK

O O\_TOTALPRICE

O\_COMMENT

-----  
1992-12-27 1125002369 28091150 5-LOW

0 Clerk#000204428  
F 43180.51  
510lOwzNyhlRC2PgMm71NQRhkNLMiANgLB0 7RhCijlj5hAlP0gk

10 rows selected.

parts table

-----  
P\_PARTKEY P\_TYPE P\_SIZE P\_BRAND

-----  
P\_NAME

P\_CONTAINE

-----  
P\_MFGR P\_RETAILPRICE P\_COMMENT

-----  
30000018 ECONOMY PLATED NICKEL 26 Brand#24

```

moccasin papaya dark black midnight
JUMBO PKG
Manufacturer#2          1116.52 RnwBhSR05

  30000177 MEDIUM PLATED BRASS          26 Brand#14
forest medium plum puff firebrick
JUMBO DRUM
Manufacturer#1          1275.68 yOMMA6Qz34R4zzji

  P_PARTKEY P_TYPE          P_SIZE P_BRAND
-----
--
P_NAME
P_CONTAINE
-----
P_MFGR          P_RETAILPRICE P_COMMENT
-----

  30000326 ECONOMY POLISHED TIN          26 Brand#44
brown chocolate forest navy floral
LG CAN
Manufacturer#4          1424.83 1mCRB
Q56Q0w200i6zBzQ

  30000336 PROMO ANODIZED COPPER          26 Brand#22
lawn cornsilk cream chiffon dark
WRAP BAG

  P_PARTKEY P_TYPE          P_SIZE P_BRAND
-----
--
P_NAME
P_CONTAINE
-----
P_MFGR          P_RETAILPRICE P_COMMENT
-----

Manufacturer#2          1434.84 ny3wmgRLw2xw4

  30000340 LARGE ANODIZED STEEL          26 Brand#34
honeydew mint forest firebrick pink
SM DRUM
Manufacturer#3          1438.85 5R6w 64B04m

  30000427 ECONOMY PLATED COPPER          26 Brand#32

  P_PARTKEY P_TYPE          P_SIZE P_BRAND
-----
--
P_NAME
P_CONTAINE
-----
P_MFGR          P_RETAILPRICE P_COMMENT
-----

ghost ivory mint green burlywood
SM BOX
Manufacturer#3          1525.93 yBrkB1zyk4

  30000430 MEDIUM POLISHED STEEL          26 Brand#21
seashell smoke papaya puff cornsilk
SM BOX
Manufacturer#2          1528.94 11h220
5160hk4MN0PAk

  P_PARTKEY P_TYPE          P_SIZE P_BRAND
-----
--
P_NAME
P_CONTAINE
-----
P_MFGR          P_RETAILPRICE P_COMMENT
-----

30000504 STANDARD POLISHED TIN          26 Brand#51

```

```

green grey navy chocolate lavender
LG DRUM
Manufacturer#5          1603.01 LBCynn1B6PSO nQ
k

  30000551 MEDIUM ANODIZED COPPER          26 Brand#53
dim navajo red blue ivory
SM BAG
Manufacturer#5          1650.06 723SN

  P_PARTKEY P_TYPE          P_SIZE P_BRAND
-----
--
P_NAME
P_CONTAINE
-----
P_MFGR          P_RETAILPRICE P_COMMENT
-----

  30000648 SMALL PLATED STEEL          26 Brand#45
orange magenta blush firebrick coral
JUMBO CASE
Manufacturer#4          1747.15 1
Q47PiRBSB6APC0A4Pw2g

10 rows selected.

partsupp table

PS_PARTKEY PS_SUPPKEY PS_SUPPLYCOST PS_AVAILQTY
-----
PS_COMMENT
-----

  3750001 750002 299.88 3892
Cn kmzQCOz26SiRAz0CwxmPCMLm414RhhzAx73711
7P62i006m61gMAiRmOk2k y7j3S60j0kgygNhy
Lj2i5mN61hr

  3750001 1500003 325.36 8704
0Ayg174P1k4wmLwL5C5NRLQ31Bm76C7QwQhQgix3MQn
227RhzzNRBSPiCzAy7RPNgSy0R03 hmSC36
zL57SzmBB7M22imx1h3CPNM1 j11k77yg5C M
L50RRmA6LRhRbGy3ySBBBw5Q1A

  3750001 2250004 921.41 1653

PS_PARTKEY PS_SUPPKEY PS_SUPPLYCOST PS_AVAILQTY
-----
PS_COMMENT
-----

P3xkzS6gBlyOg0Amz yQwmARMm 5zy
P633wz7x15POOnAMMz73wkkMm5x MQk5 mi3hjMwLzLB4POw
zk4QkB7h7i2jAB0AAPiyC751N6zxx7z5j4LM3PwAn jwlw0i0 LyA

  3750001 5 807.35 3565
N72jnzMjww5zQwMlg3CBR6PS55lg5Minykg731ARx42nOM56m6i55Nkh
my4wPQBA16kxg

  3750002 750003 918.62 2058
RLzC7N676Ogi5 R41L0zhinPjjQ7AQk0L4wQ2xiPR54
yPOhz5yhh0OygmQhBBwiSyA2Rzwi2NMmxwCS
11wjR3j1RCikN76OQ0CBgwjjAg3BP61mg1mj0igwiBmRxyjmw0B3hB4j
z1

PS_PARTKEY PS_SUPPKEY PS_SUPPLYCOST PS_AVAILQTY
-----
PS_COMMENT
-----

  3750002 1500004 808.07 6133
ORQ0kQQNk2xCPOy741SmQNBpGxj
SBg0zPzn061160SPCLRL40y11LyzQ625wM2n2LQBNB763R02PzPn
3COww74ih7M2kn3Qijx4PywyN6nzmig5z95NPy5yhRniSg5

```

```

3750002 2250005 11.89 1260
x34MQgC75Q251wXm62knCL6zNzOMhCBR17B4AP5m2h3kzj0
ARB0RwzRAyW0AR MSzn7NkWM2O2Cl0Rn
hyx70Bw4LCNR016QmL3ASQ wNzkigm7zMO0g
hhhg3LxlighySiB26mhzh415MPQRgSnlxQgw6 kn1Ok
xx5zn

```

```

PS_PARTKEY PS_SUPPKEY PS_SUPPLYCOST PS_AVAILQTY
-----
PS_COMMENT
-----

```

```

3750002 6 214.37 6804
2w5j mxgy5mgn1wMnzRwR6iO64iQ467AiMnN25nwp i yOz
27LCzCg4SPLwjlmy4w54LN2lmM5k5h
CBPm2R150 C30k73S
Ol6gh5gCQnA4zzQ6nPAOCij10RjP11QSmSk4NR2yLzzzyiSAG3OxizOk
Aw1QAC
R

```

```

3750003 750004 682.44 8884
k2lSSnOl3P42LwCnNyAljyi13kgRLlNyCgPgyQ0Lyw3w457S6n7j50xz
jk Q6PMg4hmOnz3lPA Mjj6w
jk3BSjAM1nMhzhxAgB70NBy5 5jQ2zP7NjQB4LPO100wS2
Agn36gLPkSjs

```

```

PS_PARTKEY PS_SUPPKEY PS_SUPPLYCOST PS_AVAILQTY
-----
PS_COMMENT
-----

```

```

3750003 1500005 360.05 9680
n57lg3zyg5C0wwNynmRPCS1x5N
gnC3xw15ymNRCChCRQ4hS3hlhgjBkBP1g4x5NCMCxCilk6B1lkjN1
ikw4iSxngRnjCzMxxzj5
yjm2knz6w3lnBMSH67h5nj2n0gCnR5hgPChLSxx72jAj
M5m0CygRlyBAmx
hM1AnCh

```

10 rows selected.

region table

```

R_REGIONKEY R_NAME
-----

```

```

R_COMMENT
-----

```

```

0 AFRICA
xSx31zz31Cl1z40Anmm05AjioxC3AMMNOgC0kACgwnngg3g1P7LLywlQ
y7R

```

```

1 AMERICA
kgyh3LSnC72k6z1Az0LP3k2L4QB1QL106730j01SPj0ngQ7CO100SBgm
gRQ4lgPCmk21A425iklyAR4y
BRARw4Cm5miNw 4j113mMnxw17B

```

```

2 ASIA
NSg6x1M1A11zm6mOR0Ajx nhRA77NgRxBwL1M6Py
RjySB3RLwkyPkWMM2R1BQ xAzkOgkjml10gAghi

```

```

R_REGIONKEY R_NAME
-----

```

```

R_COMMENT
-----

```

```

nP5inmNmR76MlijMS3S2zxONR15

```

```

3 EUROPE
z1SL7Qwg12hMBL5lhlz0M45QkjShwSyi004MLOh7wn1ARLQPyPayAiil
57611Li7AlnR1S RQ4SLny7B
2Ryj5P66MLhn NxhwB4C3ig0SO

```

```

4 MIDDLE EAST
RllxmhPLz3Cy2mNlg4QMBnNASM ACKi MPki7Oi

```

supplier table

```

S_SUPPKEY S_NATIONKEY
-----

```

```

S_COMMENT
-----

```

```

S_NAME S_ADDRESS
-----

```

```

S_PHONE S_ACCTBAL
-----

```

```

653751 9
xPxmw
ijL1CMz61CCzQxBmlz5Niwhl7M751khQ0Rgn5iyzyPOjyPMy5P1Bn62N
2
Supplier#000653751 5 PgyO4OMg5MPMBkkLA7Bkh414056
19-912-995-4102 6100.26

```

```

S_SUPPKEY S_NATIONKEY
-----

```

```

S_COMMENT
-----

```

```

S_NAME S_ADDRESS
-----

```

```

S_PHONE S_ACCTBAL
-----

```

```

653752 19
CwQzzRS5M7Nn0Qh3yM2ghklRQQ lg71mAnxkn5xA07hlx5kjQLx2Om
4 QOzBSx55B
Supplier#000653752
PCRz7254R55mh2M46j6xCBCxQARLPwR
29-651-530-1198 5117.35

```

```

S_SUPPKEY S_NATIONKEY
-----

```

```

S_COMMENT
-----

```

```

S_NAME S_ADDRESS
-----

```

```

S_PHONE S_ACCTBAL
-----

```

```

653753 1
R03MjQih6yQmj01xAC0g074k7ny4k7S6NzkM1kw6AQ6
Supplier#000653753
iwlLAWBm52nm30ALP2wlj4QmSygwni6025
11-587-847-2750 7234.77

```

```

S_SUPPKEY S_NATIONKEY
-----

```

```

S_COMMENT
-----

```

```

S_NAME S_ADDRESS
-----

```

```

S_PHONE S_ACCTBAL
-----

```

```

653754 17
LwO67MyNMLkjPlM50BN5LRi625QzMSkgwL j16PmN1khSS LnPNk12
4iR6m4S
Supplier#000653754 7nRh2NA500M72PgLwRMGxpP50
27-858-893-7103 9771.42

```

```

S_SUPPKEY S_NATIONKEY
-----

```

```

S_COMMENT
-----

```

```

S_NAME S_ADDRESS
-----

```

```

S_PHONE          S_ACCTBAL
-----
      653755          15
NAn6CwSPQMi45CzC5PM4PjzlyR
PmNP34S1L2hhMjAlzy0xyA3PSm0gxjC4C74QA
Supplier#000653755          1R06k0zRhQj76xPkPR1L
25-775-777-2791          7327.75

S_SUPPKEY S_NATIONKEY
-----
S_COMMENT
-----
S_NAME          S_ADDRESS
-----
S_PHONE          S_ACCTBAL
-----
      653756          20
7PnhNm3wllkPA17iQxNymmjwkjBBP4PNgPCLkQOMQm36yLS7x
Supplier#000653756          75 jAgChwPkLCS103QwBA
30-256-289-1692          -421.56

S_SUPPKEY S_NATIONKEY
-----
S_COMMENT
-----
S_NAME          S_ADDRESS
-----
S_PHONE          S_ACCTBAL
-----
      653757          13
1l2BmxxhAmBi61 M hPh
2wkSAjk3xCn12jwzgmLRMARARniL3kyxlmhAACP0RORSzBkRwizxQhii
441
B6CikkQ10M614C4n
Supplier#000653757          4LnLBQOBy1C46nC31Sknh
23-628-236-5233          7771.71

S_SUPPKEY S_NATIONKEY
-----
S_COMMENT
-----
S_NAME          S_ADDRESS
-----
S_PHONE          S_ACCTBAL
-----
      653758          2
Q5N3iLS1Ln3h4wj0746wMwik5BACRw
Supplier#000653758          yg2 7xNM0QzSmxzM3B1B
12-767-964-9836          3242.31

S_SUPPKEY S_NATIONKEY
-----
S_COMMENT
-----
S_NAME          S_ADDRESS
-----
S_PHONE          S_ACCTBAL
-----
      653759          0
11kz4xQziBnNgR
j33jmkYBOPNzPMwyhONwgQ1gyR4glx77ih4RhQnCLmmLM3MCx1
A3w1R27knh16nn
gPx07Bij6yQw45i
Supplier#000653759          RB lyPB QC7NylR 5

S_SUPPKEY S_NATIONKEY
-----
S_COMMENT
-----

```

```

-----
S_NAME          S_ADDRESS
-----
S_PHONE          S_ACCTBAL
-----
10-379-270-2902          8469.42

      653760          10
n0C70BQ6kjny7ABLRkPRyxwB0
Supplier#000653760          kx1RSMS zSggBk04kM1m

S_SUPPKEY S_NATIONKEY
-----
S_COMMENT
-----
S_NAME          S_ADDRESS
-----
S_PHONE          S_ACCTBAL
-----
20-297-444-6008          3622.58

```

10 rows selected.

# Appendix G

L\_SHIPDAT L\_ORDERKEY L\_DISCOUNT L\_EXTENDED L\_SUPPKEY  
 L\_QUANTITY L\_L\_PARTKEY L\_L\_TAX L\_COMMITD L\_RECEIPT  
 L\_SHIPMODE L\_LINENUMB L\_SHIPINSTRUCT L\_COMMENT

```

-----
1992-07-2 900000036 .06 32775.36 683353 24 R 53933335 F 0
1992-10-0 1992-08-0 REG AIR 4 COLLECT COD
jAOQ0zkjmmmw 1O5nmNh00jk3QxN4PIRCM167 AOL
1992-07-2 900000071 .03 54442.22 2235501 38 R 56235500 F
.03 1992-09-0 1992-07-2 TRUCK 5 DELIVER IN PERSON
QNm51M3jgS4k73Cw0jyLnARyn1Q1xi
1992-07-2 900000134 .03 20644.95 2451354 15 R 39951327 F
.03 1992-07-0 1992-08-1 MAIL 1 NONE 7 MOhLgRkwRIO3
Rm n
1992-07-1 900000519 0 16801.68 859409 12 A 45109393 F
.02 1992-06-2 1992-08-1 AIR 2 NONE R4PjxxQyqLhRM
0NAQSCROjiL67x
1992-07-3 900000519 .1 13596.3 2556307 10 R 53556306 F .02
1992-07-2 1992-08-0 REG AIR 3 DELIVER IN PERSON
6zNm1i1Ok2kn03 B022Nxj2mw20x
1992-07-1 900000579 .07 53246.7 730905 27 A 35980893 F
.06 1992-09-2 1992-07-1 SHIP 7 DELIVER IN PERSON
lzCkz6MPkLQnw6L3RQnRxl7QB1h05P
1992-07-1 900000768 0 27253.41 633371 19 A 19383352 F
.04 1992-06-0 1992-07-2 RAIL 1 NONE
1lnNR1xPO7wnxhiQzRy m0LlxLnkS BO0SCL0L2Bj5
1992-07-1 900000832 .09 7173.95 783489 5 A 53283454 F .06
1992-07-2 1992-08-1 AIR 5 NONE
MNS23xhln0OQjxQL5whR1mkC3 6zlwP3N2h7hj
1992-07-2 900000833 .01 18172.1 863855 10 R 12863854 F .05
1992-08-1 1992-08-1 REG AIR 3 COLLECT COD
iz1CPLxAm2MiRgMmlg7lgmN2h6 4w
1992-07-2 900000833 .01 28022.7 1393912 15 R 53893877 F
.04 1992-07-1 1992-08-2 RAIL 6 NONE
k4Q7C1C2niS6zz1i51BSiBnP
10 rows selected.
MGR-03512: spool file "10line.out" is already open
O_ORDERDA O_ORDERKEY O_CUSTKEY O_ORDERPRIORITY
O_SHIPPRIO O_CLERK O_O_TOTALPRI O_COMMENT
-----

```

```

-----
1992-01-1 1350000071 12068288 4-NOT SPECIFIED 0 Clerk#000064705 F
143611.28 h2mA5mNmmlMhOQRg54341
1992-01-1 1350001989 29878792 4-NOT SPECIFIED 0 Clerk#000070113 F
132799.73 yxx Rg6LQ2hg303wOymNO1z6RCwy
1992-01-2 1350002114 3510649 3-MEDIUM 0 Clerk#000242032 F
91444.29 h5PxxNk2PPhxCKnmLx yMzQ30QnkkQx2R056LnR021L04zSm
1992-01-3 1350002342 2191868 4-NOT SPECIFIED 0 Clerk#000288032 F
341048.77 LkSIRAAm4IBMLL143j7x7Lx3ChRhXhShm0Bh Mi24Q z27
R3Cwx45Q2LyByMzn
1992-01-2 1350002565 27620344 5-LOW 0 Clerk#000139810 F
226639.5 j6himgky04gSCw16gQP2Qy3M5wliCzi4L136jwRAM36hAkSj 5k
1992-01-2 1350002912 27379430 3-MEDIUM 0 Clerk#000230841 F
147346.85
hSz3AR6mPy25yCM6L1Piy7Bglik6g7P6Bny12MAOX007LzM3h1ON65L7CNg
6ylwJ02zR
1992-01-3 1350003458 7317394 1-URGENT 0 Clerk#000118110 F
298284.49 4C7nCB55A1x6zL1RkN655
1992-01-2 1350003972 13028756 2-HIGH 0 Clerk#000180962 F
188580.28 NkL4PgL PiCABANO6SLIR
5AZiC2P5AQ2OixRjj1450C7jCQjxwChh1PLCSQN7 zxhIRiSM1Si
1992-01-3 1350004551 26243746 2-HIGH 0 Clerk#000135345 F
216946.22 6i6w0h5
j6i5m1PymA62COQN6Q6gmm1N5M1Qi0NiSiPCPNkCQwy2Rm5y12nj0PIA0kS
3
1992-01-2 1350004742 39497101 3-MEDIUM 0 Clerk#000100490 F
92756.43 7glAgOQ 5150n2zAi7SQ1mkPh
R1225xm63xO63MkLRgCk6mPOLIOA5hAzl
10 rows selected.
MGR-03512: spool file "10line.out" is already open
S_SUPPKEY S_NATIONKE S_COMMENT
S_NAME S_ADDRESS S_PHONE
S_ACCTBAL
-----

```

```

312501 3 N3yw QOB5PR40P
11CPh0705iPiCky6kRixOm633nh7NB5Mn05A0h2RBi5ymzNjQOPB6ON2
Supplier#000312501 OM10Q4Sk0w627BAmM1yOBji 13-897-890-
4549 6353.7
312502 9 LzykLIS7
C6Snj5Nik4L3ljBjLzCOg0Bhhz5PmMzBPgPnjRQ6m0CSS3k6x MBg0L
n03kNPOixBAAMOx Supplier#000312502 NzSR L 2Ai4
19-496-474-8440 7680.65
312503 1 6y6yN2NimNxnQOI0R7MSyBmOMCNQ5iQO72x1xAm
Supplier#000312503 y0in6m mC 4S ALxgyOQ74nk4gl7y43wPwO 11-105-
276-3811 1711.75
312504 6 QLI 6MQw426wN C 2yS31AyA OC3RzCgP6y
Supplier#000312504 ynSPnzhiA1 6PmSw3QA0z6wPzy4SiAw 16-508-
782-1764 2413.72
312505 14 nijmPgRBO1jh74A y1y0inNNj7ixkA7N40n
Supplier#000312505 khkPkA4 SBiAAmy22R0ig2161P3NM2Ik314ih 24-
373-180-4560 8421.78
312506 10 7PL70n4jh4BR6PO7h4BLwSh1PxQ0wnin2PkN026xAM107S
Supplier#000312506 y2nhR4gC7y62IAN6n6zRhyygk 20-572-889-
6667 5933.95
312507 18 kCOK7OL3k2Pnn1i23yMhxz0kjSg63M6S00hQ
Supplier#000312507 MLgMRnR3SgLi2QzLRm3m5hS744S 28-393-
597-2211 3927.31
312508 19
Lyy0B4zwQak2nBOAyO4kk0PNMjx15A3247zSBxk45QAj3nP1 wzkRPNg
Supplier#000312508 0iQw3SR50gm3Qy0AO2ALjBxS56w0BA 29-187-
913-2669 4316.55
312509 15 4ix5IM53kygijgSx7PL6SNLOiOk6xyjIM
yNL4nBLiRgmMlxCLzBQ7g303yL2wz25NQ1i7BjwC0jNBA
Supplier#000312509 7R0I36Mg6kAh1ihAw65jyL 25-208-127-9651
1335.14
312510 23 xM5I76ySSwg7L5gB5nm312xmRg
Supplier#000312510 wy0j4iSm3hC 02RkBO52BLm1Nnj0mz 33-771-
101-5592 8620.05
10 rows selected.
MGR-03512: spool file "10line.out" is already open
P_PARTKEY P_TYPE P_SIZE P_BRAND P_NAME
P_CONTAINE P_MFGR P_RETAILPR P_COMMENT
-----
48750011 PROMO PLATED COPPER 21 Brand#55 misty metallic pale
beige chocolate LG BAG Manufacturer#5 1058.58
Sy02xPLiR
48750070 STANDARD POLISHED BRASS 21 Brand#45 sky orange blue
brown lavender JUMBO PACK Manufacturer#4 1117.64
6kAj57Q
48750071 LARGE ANODIZED STEEL 21 Brand#51 ivory pink white
navy blanched MED DRUM Manufacturer#5 1118.64
0QI76nmz6
48750253 ECONOMY BURNISHED NICKEL 21 Brand#32 thistle green
saddle antique rosy JUMBO CASE Manufacturer#3 1300.82
Mn30By4
48750262 STANDARD BRUSHED BRASS 21 Brand#34 slate midnight
wheat dim moccasin SM PACK Manufacturer#3 1309.83
k2gQQM2wO
48750358 MEDIUM PLATED BRASS 21 Brand#41 bisque sky lawn
violet peru WRAP JAR Manufacturer#4 1405.92 mOP4
ii CCQC10x0gBS
48750415 ECONOMY POLISHED COPPER 21 Brand#15 light mint plum
tomato spring LG PKG Manufacturer#1 1462.98
NzA03CyIS3mMCM
48750475 SMALL BURNISHED TIN 21 Brand#14 lavender antique
firebrick saddle JUMBO PKG Manufacturer#1 1523.04
wSQ1 Q
48750480 ECONOMY ANODIZED STEEL 21 Brand#35 sky royal
chiffon chocolate khaki WRAP PKG Manufacturer#3
1528.05 nyh3wM420INP5NL
48750495 MEDIUM PLATED NICKEL 21 Brand#32 chartreuse white
peru spring deep LG JAR Manufacturer#3 1543.06
0PR234xjmMhLkQMj
10 rows selected.
MGR-03512: spool file "10line.out" is already open
PS_PARTKEY PS_SUPPKEY PS_SUPPLYC PS_AVAILQT PS_COMMENT
-----
1250001 1250002 94.25 2933
ly6L6x0AijP32y1i1m3gCL14jlyjnChOwhC407yQOB
yB7nP0nkj75OQNkM7OAwxB 47Rk4MyOP3Mh0
1250001 2000002 915.96 3872 LgA 7m0kAwmzBwRhRz5k1k
1PCGN7kiOnQh 5im4k3lwmA06hBh
-----

```

1250001 2750002 2.41 1025 PASzjM  
 CjIlyNm3kCLLzyN7nQ1zQzRS2h1N13R34zn2P4k64O21n6BM770lh3NOhM37i  
 6LSMhniSgln  
 1250001 500002 887.02 8314  
 xwiRyJ3mRmC76Nh5R5i0kihNCx0kN2Nk6QnCkN7Bg2gACzQyz0jNAn45jgP3y  
 7RgA  
 1250002 1250003 141.74 6535  
 nh010SLS60ALQ2yOLN45CA3k0j0nj5SMSj0SnMQyyAAA  
 m5Ri3L4kM1QmkCy0R1xkmM2zi2A1y13yQA6  
 1250002 2000003 782.12 5419 w6RRBw6yM476RyglP1  
 jPgAO54QAK66MjLzyL3lnSlAj1g7ywMn1 P7njNQM3LN jOSLh6xMBBhCjRg  
 1250002 2750003 361.53 2473 xjkCCg2BBRmm  
 ClzAM04PkimkR64j1xj1037C3P1 nRQBw0R5wL3jnPQ3k6ihy5463LC10L167  
 1250002 500003 549.59 8432  
 5mkLM0jS4x17xzA434iwO3IRkgnYAPMgwgOAJBxzz  
 S2M52SPQ14mM1MnPgNRAY2n1xn2hR03Bgw5Q0  
 1250003 1250004 427.96 505  
 35BQwkCRyiPn4PRQ7w1P3wCmC6R2LhL0zO4mmk3m72n1iAPPgMQmh001gN  
 BxLwh nmM2w1MiO53Lnm  
 1250003 2000004 109.26 3476 Q25AyNHp15wBi  
 h5OAmCkABgiC17PN6jyBw511Mkxkz4 zM2gg1Bz  
 10 rows selected.  
 MGR-03512: spool file "10line.out" is already open  
 N\_NATIONKE N\_NAME N\_REGIONKE N\_COMMENT

-----  
 0 ALGERIA 0 2Cxlh7  
 L1iwk6hMh300izngN32CPwCikyLk6khMzSRA  
 1 ARGENTINA 1  
 zQn3Okwz1wLn7PLS3OhCgn56kP5PyRikgi1B71L  
 2 BRAZIL 1  
 gLmS0nACAmnBCj2kkl7RCPNgPxnCOjNg4k OiAg57COSOm1NwCnOyLx40R  
 SC y20gPPAKNk5hxRhR5  
 3 CANADA 1 4yMO AhnQ5Lh  
 wzQAM662Aw1ByC17CxmzRwNR5nAIO4 x  
 4 EGYPT 4 1lim5126 Cxj  
 NMQmLxOikni02j2m3Ah4yNR1QQiL507j2QSlYn  
 5 ETHIOPIA 0 NS7n LSOP Oz5n1AIB2S02n01Mh4SBxP  
 iRhBO 047R26 2BIM  
 6 FRANCE 3 3mjimizl S 3L3k2hNNhNIP4w370xRxyN15wn  
 7 GERMANY 3 z nOP4RkwO CnzBB 516mAg  
 lByw4OM3QyNPA  
 8 INDIA 2 MNIR5RCiRMj1111wjN7Myn  
 M11yNIMmBQ17PL4C kxkQkPQ7i3w6B67R2QkOO40x14Q2iw76jRL7i  
 9 INDONESIA 2 SjpMQO71Lj  
 7ABj6Mx1AQk3nLwi73BPxzCwjzMN4zLzgg6nzz0j0w zxC66gP6yRPMg  
 10 rows selected.  
 MGR-03512: spool file "10line.out" is already open  
 R\_REGIONKE R\_NAME R\_COMMENT

-----  
 0 AFRICA  
 xSx31zz31C11z4OAnmm05AjiOxC3AMMNOgC0kACgwngg3gIP7LLLlyw1Qy7R  
 1 AMERICA  
 kgyh3LSnC72k6z1Az0LP3k2L4QB1QL1O6730jO1SPj0ngQ7CO100SBgmgRQ4lg  
 PCmk21A425iklyAR4y  
 2 ASIA NSg6xIMIA11zm6mOR0Ajx nhRA77NgRxBwL1M6Py  
 RjySB3RLwkyPkWMM2R1BQ xAzkOgkjmll0gAghi  
 3 EUROPE  
 zSL7Qwg12hMBL5lhLz0M45QkjShwSyiO04MLOh7wn1ARLPQyPAyAiiL57611L  
 i7AlnR1S RQ4SLny7B  
 4 MIDDLE EAST RllxmhPLz3Cy2mNlg4QMBnNASM ACKi  
 MPki7Oi  
 5 rows selected.  
 MGR-03512: spool file "10line.out" is already open  
 C\_CUSTKEY C\_MKTSEGME C\_NATIONKE C\_NAME  
 C\_ADDRESS C\_PHONE C\_ACCTBAL C\_COMMENT

-----  
 44377301 FURNITURE 13 Customer#044377301  
 00A6lSBhLayM61x256OxPy2BRx 23-439-289-8106 8703.78  
 P00kyOkLwOA0g0L6hN4SMPj2zkP4 O  
 3BA67yy5LkLwCRw1kggh2w021M7l6045nQ13jnlRli36kBNx  
 44377302 FURNITURE 13 Customer#044377302  
 4CyQwLgQ3MR05BOM354RC702 k0A0 23-713-175-1618 4439.11  
 QSC5PRw13x5m7CBxnBBsMOSiMNM2wyy3wSgNmBgLzn2RhC0iwyAn6ng5  
 3k1znC6jz0NM

44377303 FURNITURE 13 Customer#044377303 zwCP446S0  
 23-632-840-9627 4079.21 hOw 5nS3ngS016MkiRwL0nAAzjLgz3x6  
 lmnBxw6MgxNP h ISz0R162R5i2R22m2Q4SNn7Ljla  
 44377309 FURNITURE 13 Customer#044377309 6RmCQ4151j  
 23-385-527-5726 3006.2 77lkzzhOw0111MiARI  
 6jAw7NzAQmiQhzzwLx0jBxk15znk0jkm746 jmmL2nykC5NmRi66zCAINi0y  
 44377313 FURNITURE 21 Customer#044377313  
 55B727i3CBjNmPB4iShLNL5kAhmgA7AhR0z4k 31-512-706-1504 8674.29  
 M076170Mg4iw4l70w5OB0x3miBxN2Pxx3nxgkxP61QQM2 x4kPmySkG  
 i5iBj43z65MhC  
 44377316 FURNITURE 2 Customer#044377316  
 g3kBPwS5x73RQhh7jgxN20SnO 12-522-945-3654 9161.38  
 RwCzhCNmlgy3k1B0lwB36 R4yPzg2Rgghw MMM7CPkMI43mC1ihPy B  
 44377319 FURNITURE 4 Customer#044377319  
 4050kkQNhlwP2Pwx4jBk4n i5nwlzPxAn5 BL 14-494-345-7254 8741.45  
 MwIRB26ig S1AgxCO253Shn57MSw5iyw5LIMjyjn4lmC 32C5iw4NyjjLxwRm5  
 Qlj0w 400Qmmj53A  
 44377328 FURNITURE 21 Customer#044377328  
 0MChnBg1LyhPxiwzW6PChjA6Mwzgg6Lg5 31-319-574-4155 4827.55  
 7hCLySNj5Azn3y23kMiMOMOx6m7B5hCzknQAwb2j145  
 44377333 FURNITURE 12 Customer#044377333 572h5OOyixk  
 5z2M6wjL2 22-937-508-1131 2945.83  
 5Nlz174xy0yMi61Ogn5102hl050wzgrSC1gngh  
 44377334 FURNITURE 16 Customer#044377334 AwRCo2OjBx2y  
 26-921-406-2666 8463.43 4AnmmyAizMwRQi36hMOQLzm472iSw0Q2  
 10 rows selected.  
 spool 10line.out;  
 select \* from lineitem where rownum < 11;  
 spool 10orders.out;  
 select \* from orders where rownum < 11;  
 spool 10supplier.out;  
 select \* from supplier where rownum < 11;  
 spool 10parts.out;  
 select \* from parts where rownum < 11;  
 spool 10partsupp.out;  
 select \* from partsupp where rownum < 11;  
 spool 10nation.out;  
 select \* from nation where rownum < 11;  
 spool 10region.out;  
 select \* from region where rownum < 11;  
 spool 10customer.out;  
 select \* from customer where rownum < 11;

## **Appendix H**

### ***Price Quotes***





SYSTEM SOLUTIONS

May 26, 1998

Quotation No. 131354

Maria D. Lopez  
Digital Equipment Corp

Dear Maria:

Thank you for your inquiry. We are pleased to quote as follows:  
SERVER HARDWARE

ITEM	QTY	MODEL	DESCRIPTION	UNIT PRICE	EXTENSION
01	01	DA-292GG-BA	AS8400 5/625 EXP SYS 4GB UNIX	318370.	318370.00
02	01	FM-8Z724-60	5YR 7X24/4HR AS8400DUAL 4GB	81740.	81740.00
03	05	758P2-AX	AS 8400/8200 5/625 SMP UNIX	42250.	211250.00
04	05	FM-8UP24-60	5YR 7X24/4HR AS 82/8400 CPU UP	19793.	98965.00
05	01	MS7CC-GA	4GB AlphaServer 8XXX Memory	93184.	93184.00
06	01	FM-8B724-60	5YR 7X24/4HR Memory Module 4GB	32047.	32047.00
07	01	H7263-AA	48Volt Power Regulator Option	5968.	5968.00
08	01	FM-N6724-60	5YR 7X24/4HR NTWK \$5000.-\$6999.	2644.	2644.00
09	01	DWLPB-AA	PCI PIU for 8400 for System Cab.	5850.	5850.00
10	01	FM-EXT24-60	5YR 7X24/4HR DWLPB-XX	756.	756.00
11	02	DWLPB-BA	2nd 12 Slot PCI for DWLPB-AA	5850.	11700.00
12	02	FM-EXT24-60	5YR 7X24/4HR DWLPB-XX	756.	1512.00
13	29	KZPSA-BB	PCI-Host Bus Adapter (FWD)	712.	20648.00
14	29	FM-PS724-60	5YR 7X24/4HR P/S/ Adap/Floppy	335.	9715.00
15	24	BN21K-10	10M SCSI Cable Assy.	138.	3312.00
16	01	VT510-AA	White North American No Keybrd.	245.	245.00
17	01	LK40W-AA	Keyboard US/UK	49.	49.00
18	10	DS-RZ29L-VA	4.3GB SCSI Narrow HDD in SBB	688.	6880.00
19	01	FM-D84US-60	5YR AS8400 Dual UNIX BRZ24X7	34603.	34603.00
20	01	QA-MT4AA-H8	Digital UNIX Alpha CDRom Kit	257.	257.00
21	08	SW800-FA	0GB SCSI Cab. for 24 Shlf 208V	4562.	36496.00
22	08	FM-PS724-60	5YR 7X24/4HR P/S Adap/Floppy	335.	2680.00
23	120	BA356-JC	Shelf 7-Device pwr no I/O	789.	94680.00
24	120	FM-EN724-60	5YR 7X24/4HR Enclosures	669.	80280.00
25	120	BA35X-MH	I/O Module 16-Bits for BA356	111.	13320.00
26	120	BA35X-ME	Active Term; SCSI-2 16 Bits	83.	9960.00
27	24	CMD/CRD5500	RAID Array Ctrl.128MB Cache F/T	22025.	528600.00
28	24	IC-CRD724-60	5YR 7X24/4HR CRD 5500 128/FT	7708.	184992.00
29	240	BN21K-02	2M Cable SCSI-3 "P"1S/1R	94.	22560.00
30	511	DS-RZ1CB-VW	4.3GB 7200RPM Ultra SCSI HDD	753.	384783.00

continued...

270 Broadway, Hillsdale, NJ 07642 Tel. 201-666-1122 Fax 201-666-0956



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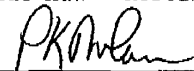
This quote is valid for 60 days from date.

Warranty: The AlphaServer carries a 5 year warranty. The storage products have a 5 year on-site, 24 hour, 7 day per week response with a 5 year return to manufacture warranty. All other products carry a standard warranty of 5 years on-site DECservice with 24 hour X 7 day per week with 4 hour response.

System Total 2,298,046.00

Delivery: 15 Days ARO  
Shipping: FOB Origin  
Terms: Net 30  
Installation: Customer Installed  
Maintenance: Included: As Quoted  
Warranty: New Equipment

Value Added Reseller

  
Philip K. Nolan  
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