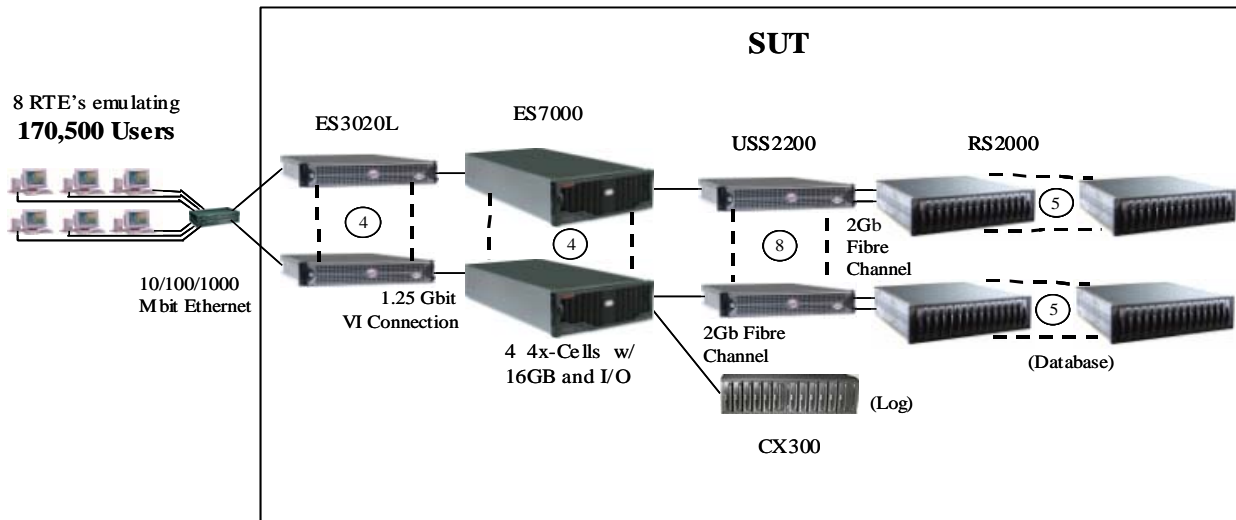


UNISYS	ES7000 Orion 540 Enterprise Server (16P)		TPC-C Rev. 5.2	
			Report Date June 14, 2004	
Total System Cost	TPC-C Throughput	Price Performance	Availability Date	
\$1,001,940	212,511 tpmC	\$4.72 / tpmC	June 14, 2004	
Processors/ Cores/Threads	Database Manager	Operating System	Other Software	Number of Users
16/16/32 Database 8/8/16 Clients	Microsoft SQL Server 2000 Enterprise Edition	Microsoft Windows Server 2003, Datacenter Edition	Windows Server 2003 w/ IIS 6.0 and COM+ Microsoft Visual C++	170,500



Clients (each of 4)
ES3020L Server
 2x 3.06GHz Intel® Xeon™
 w/ 1MB L2 cache,
 2 GB memory,
 1x 18GB internal disk,
 2 Inbuilt 10/100/1000Mb
 Ethernet (1 used),
 1 PCI VI controller

ES7000 Orion 540
Enterprise Server
 16x 2.2GHz Intel® Xeon™ MP
 w/ 2MB L3 cache,
 64 GB memory,
 1 internal disk controller,
 1x 40GB internal disk,
 9 PCI Fibre Channel controllers,
 4 PCI VI controllers

Storage
USS2200/RS2000 & CX300
 560x 18GB + 8x 146GB
 Hot-Pluggable,
 External Fibre Channel disks,
 10 FC RAID controllers

System Components	Server		Clients (each of 4)	
	Quantity		Quantity	
Processors/Cores/Threads Cache	16/16/32	2.2GHz Intel® Xeon™ Processor MP, 2MB Lvl 3 Cache	2/2/4	3.06GHz Intel® Xeon™ Processor, 1MB Lvl 2 Cache
Memory	4	16 GB	4	512 MB
Disk Controllers	9	PCI Fibre Channel	1	Inbuilt SCSI
Disk Drives	1	Inbuilt (boot media)		
	560	18GB FC (17.1 GB useable)		
	8	146GB FC (136.6 GB useable)	1	18GB SCSI (16.9 GB useable)
Total Storage	1	40GB boot (37.3 GB useable)		
		10.0 TB		16.9 GB
Tape / CD-ROM	1	IDE CD-ROM	1	IDE CD-ROM
Terminals	1	Console Monitor	1	Console Monitor



ES7000 Orion 540 Enterprise Server (16P)

TPC-C Rev. 5.2

Report Date
June 14, 2004

Description	Part No.	Third Party		Unit Price	Qty.	Extended Price	3 yr. Maint. Price
		Brand	Price				
Server Hardware:							
SYS: ES7000-540, 16x 2.2GHz, 128MB Cch, 64GB Mem. Inbuilt Disk Controller, 1x 40GB Disk (boot media)	ES7540165-140			1	1	\$185,250	\$13,968
SYS MGT: Server, Sentinel Management	SEN70003-MSV			1	1	\$2,585	\$456
SYS MGT: O/S Windows 2000 Server	WSS200004-EN	2	1		1	\$949	* Inc. below
CTRL: HBA, PCI, 2Gb Fibre Channel, 2-Port,	FC76222-P64			1	9	\$25,650	
CTRL: HBA, PCI, VI Connection, 1-Port & Cable	PCI10001-CXG			1	4	\$3,020	
I/F: Monitor, 15-inch Color, Kybrd, Mse & Cable	ES70003-UIF			1	1	\$570	
Server Software:							
O/S: Windows 2003 Srvr, Datacenter Edtn, 16P, 1yr Lsub.	WND2316-TSP	2	1		1	\$35,112	
O/S: Windows 2003 Server, DC Lmt'd Sbscrptn, 1yr.	DUS200316-TSP	2	1		2	\$6,346	
O/S: Windows 2003 Server DC Support, 24x7x4, 1yr.	GTS7524016-SSA	2	1		3	\$12,574	\$37,722
APP: Microsoft SQL Server 2000 Enterprise Edtn, 16P	DQL200316-LX	2	1		1	\$212,800	* Inc. below
SRVC: Microsoft Database Server Support Package*	PRO-PRORS-16U-01	2	2		3	\$1,950	\$5,850
Server Subtotal						\$472,282	\$57,996
Storage Hardware:							
DISK: 1.5TB Pkg, 84x 18GB, 15Krpm, + 10% spares **	JBD201815-P84			1	7	\$29,839	Spared
DISK: 0.5 TB Pkg, 28x 18GB, 15Krpm, + 10% spares **	JBD201815-P28			1	1	\$14,556	Spared
DISK: 146GB, 10Krpm, 2Gb FC, + 10% Spares **	CXR14610-2GF			1	10	\$25,080	Spared
RCK: FC 2Gb Storage, Standard, Copper/Copper I/F	JBD2002-SA			1	24	\$72,240	\$12,096
RCK: FC 2Gb Storage, Standard, Optical/Copper I/F	JBD2011-SA			1	16	\$51,424	\$8,640
CTRL: Symmetric Disk Virt. 2x2GHz, 512MB Mem	RMM20103-ELS			1	8	\$36,472	\$8,832
CTRL: USS, Fibre Channel HBA, 1-Port, 64-bit PCI	RMM20701-TAR			1	24	\$43,320	\$10,368
APP: Unisys Storage Sentinel 2200 SDV Software	USS10300-SW			1	1	\$5,472	\$4,068
APP: Storage Sentinel SDV SW, 10TB License	USS20310-LIC			1	1	\$25,200	
CBL: FC, Copper, HSDC2 Conn's, 0.3m	JBD20003-CCL			1	24	\$1,296	
CBL: FC, Optical, LC->LC Conn's, 10m + 10% Spares **	GCFAZLL10	3	3		28	\$1,176	Spared
RCK: Rack Mount Kit, Disk Enclosure	JBD2001-RMK			1	40	\$7,600	
CTRL: DPE: 2 RAID Cntrl, 1GB Cache ea., 0 Disk	CX300-DPE			1	1	\$19,000	\$2,988
SYS MGT: Storage, Navisphere Agent	CXN600-WIN			1	1	\$646	\$324
SYS MGT: Storage, Navisphere Manager	CX2002-DPE			1	1	\$1,549	\$720
SYS MGT: Storage, Navisphere Manager	CX200-DAE			1	1	\$7,695	\$3,636
SWTCH: Switch, 10/100/1000Mb Ethernet	GS516-T16			1	1	\$2,850	
CBL: Ethernet, Cat5e, RJ45 Conn's, 10ft + 10% Spares **	GCPO888910	3	3		12	\$24	Spared
SWTCH: Switch, 8-port KVM	SWC81-SXR			1	2	\$3,040	\$2,304
CBL: Cable, KVM, 12 foot	CBL121-SWC			1	12	\$1,716	
KBD: Keyboard & Drawer, Rackmount	KBR28301-SXR			1	2	\$666	
MON: Display, Rackmount LCD	MON2145-LCD			1	2	\$5,130	
PWR: Distribution Strip, 9-Plug, 220V	SFR9-PWR			1	15	\$2,430	
CBL: Power, U.S. (Domestic), C20 - L6-20P	USE1936-LC6			1	15	\$1,290	
CAB: 36U x 19" x 41" Open Front Cabinet	HRT361941-OFT			1	5	\$7,125	
Storage Subtotal						\$545,870	\$53,976
Client Hardware:							
SYS: ES3020L w/ 1x 3.0GHz Proc., 0MB Mem	ESL302021-306			1	4	\$7,480	\$5,808
PROC: 1x 3.0GHz Intel Xeon/1MB Cache	CPL3020302-1MB			1	4	\$4,796	
MEM: 2GB, 4x 512MB DIMMs DDR SDRAM	DIM3020042-2GB			1	4	\$5,860	
RCK: ESL3020 Disk HS Backpanel, 1x4	HBP3020101-51			1	4	\$1,060	
DISK: 18GB 15Krpm U320 3.5 Internal	HDP18115-DC4			1	4	\$1,332	
RCK: ESL3020 Universal Rack Kit	ESL3020-VRL			1	4	\$1,332	
CTRL: HBA, PCI, VI Connection, 1-Port & Cable	PCI10001-CXG			1	4	\$3,020	
Client Software:							
O/S: Windows Server 2003, Standard Edition	P73-00295	2	2		4	\$2,952	* Inc. above
ACC: Visual C++ Standard	254-00170	2	2		1	\$109	* Inc. above
Client Subtotal						\$27,941	\$5,808
Total						\$1,046,093	\$117,780
						(\$161,933)	

All prices are effective as of the date of publication.
Computer Resolutions Inc. 15% Large Volume Discount

Notes:

1. 3rd Party Brand & Pricing: 1 = CRI Product Price, Unisys Maintenance Price
2 = Microsoft 3 = GoCables
2. HW & SW maintenance figured at 24 x 7 w/ 4 hr. max. response time for spares.
3. ** = 10% spares added in place of onsite service.

Three Year Cost of Ownership: \$1,001,940
tpmC Rating: 212,511
\$ / tpmC: \$4.72

Benchmark results and test methodology audited by Tom Sawyer of Performance Metrics, Inc.

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 assumption 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 benchmarks specifications. If you find that the stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank You.

Numerical Quantities Summary

MQTh, Computed Maximum Qualified Throughput: 212,511 tpmC

Response Times, in seconds

Transaction	90th %ile	Average	Maximum
New-Order	0.50	0.39	5.53
Payment	0.45	0.34	5.55
Order-Status	0.46	0.35	5.55
Delivery (interactive portion)	0.34	0.23	2.33
Delivery (deferred portion)	0.38	0.23	2.59
Stock-Level	1.29	0.88	3.98
Menu	0.34	0.23	2.34

Response time delay added for emulated components, in seconds

RT Response time	0.1
Menu Response time	0.1

Transaction Mix, in percent of total transactions

New Order	44.94%
Payment	43.01%
Order-Status	4.00%
Delivery (interactive portion)	4.01%
Stock-Level	4.01%

Keying / Think Time Times, in seconds

Transaction	Minimum	Average	Maximum
New Order	18.01 / 0.00	18.01 / 12.03	18.03 / 120.31
Payment	3.01 / 0.00	3.01 / 12.03	3.03 / 120.31
Order-Status	2.01 / 0.00	2.01 / 10.08	2.03 / 100.70
Delivery (interactive portion)	2.01 / 0.00	2.01 / 5.06	2.03 / 50.61
Stock-Level	2.01 / 0.00	2.01 / 5.06	2.03 / 50.61

Test Duration

Ramp up time	43 minutes
Measurement interval (M)	120 minutes
Transactions (all types) completed during measurement interval	56,738,317
Ramp-down time	4 minutes

Checkpointing:

Number of checkpoints	4
Checkpoint interval	30 minutes