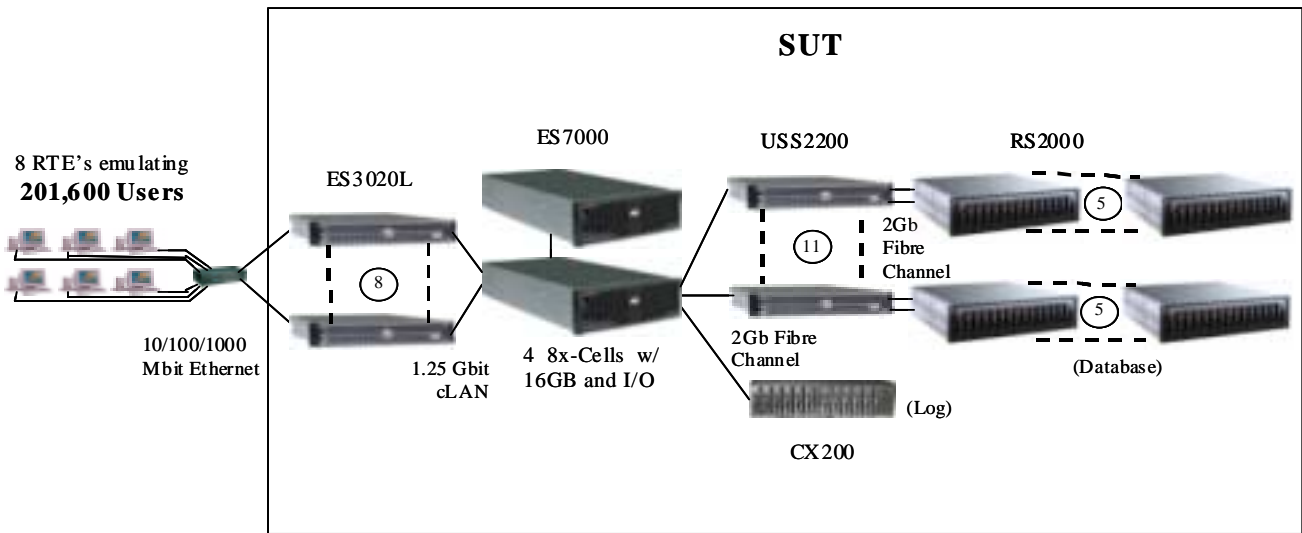


<b>UNISYS</b>	<b>ES7000 Orion 540 Enterprise Server</b>		TPC-C Rev. 5.1
			Report Date June 27, 2003
<b>Total System Cost</b>	<b>TPC-C Throughput</b>	<b>Price Performance</b>	<b>Availability Date</b>
<b>\$1,824,732</b>	<b>252,920.49 tpmC</b>	<b>\$7.22 / tpmC</b>	<b>July 22, 2003</b>
<b>Processors</b>	<b>Database Manager</b>	<b>Operating System</b>	<b>Other Software</b>
32 - Database 16 - Clients	Microsoft SQL Server 2000 Enterprise Edition	Microsoft Windows Server 2003, Datacenter Edition	Windows 2000 Server w/ IIS 5.0 and COM+ Microsoft Visual C++
			<b>Number of Users</b>
			<b>201,600</b>



**Clients (each of 8)  
ES3020L Server**

2 x 2.4GHz Intel® Xeon™ Processor  
w/ 512KB L2 cache,  
1 GB memory,  
1 x 18GB internal disk,  
2 Inbuilt 10/100/1000Mb Ethernet (1 used),  
1 x PCI cLAN controller

**ES7000 Orion 540  
Enterprise Server**

32 x 2.8GHz Intel® Xeon™ Processor MP  
w/ 2MB L3 cache,  
64 GB memory,  
1 internal disk controller,  
1 x 40GB internal disk,  
12 x PCI Fibre Channel controllers,  
8 x PCI cLAN controllers

**Storage**

**USS2200/RS2000 & CX200**

770 x 18GB + 18 x 73GB  
Hot-Pluggable,  
External Fibre Channel disks,  
13 x FC RAID controllers

System Components	Enterprise Server		Clients (each of 8)	
	Quantity	Type	Quantity	Type
Processors	32	2.8GHz Intel® Xeon™ Processor MP, 2MB Lvl 3 Cache	2	2.4GHz Intel® Xeon™ Processor, 512KB Lvl 2 Cache
Memory	4	16 GB	2	512 KB
Disk Controllers	12 1	PCI Fibre Channel Inbuilt (boot media)	1	Inbuilt SCSI
Disk Drives	770 18 1	18GB FC (17.1 GB useable) 73GB FC (66.6 GB useable) 40GB boot (37.3 GB useable)	1	18GB SCSI (16.9 GB useable)
Total Storage		14.0 TB		16.9 GB
Tape / CD-ROM	1	IDE CD-ROM	1	IDE CD-ROM
Terminals	1	Console Monitor	1	Console Monitor

UNISYS	ES7000 Orion 540 Enterprise Server				TPC-C Rev. 5.1		
					Report Date June 27, 2003		
Description	Part No.	Third Party		Unit Price	Qty.	Extended Price	3 yr.Maint. Price
		Brand	Price				
<b>Server Hardware:</b>							
SYS: ES7000-540, 32x 2.8GHz, 128MB Cch, 16GB Mem. Inbuilt Disk Controller, 1x 40GB Disk (boot media)	ES7540326-100	Included		1	1	\$349,220	\$12,384
SYS MGT: Sentinel Management S/W and Media	SEN70002-MSV			1	1	\$4,242	\$1,656
MEM: 16GB Memory, 1 GB DIMMs	RAM7-16G			1	3	\$28,500	
CTRL: Fibre Channel HBA, 2-Port, 64-bit PCI	FC76222-P64			1	12	\$34,200	
CTRL: cLAN, PCI Host Adapter & Cable	PCI10001-CXG			1	8	\$6,040	
I/F: Monitor, 15-inch Color, Kybrd, Mse & Cable	ES70003-UIF			1	1	\$570	
<b>Server Software:</b>							
O/S: Windows 2003 Srvr, Datacenter Edtn,32P, 1yr Lsub.	WND2332-TSP			2	1	\$70,224	
O/S: Windows 2003 Server, DC Lmtd Sbscrtptn, 1yr.	DUS200332-TSP			2	1	\$12,768	
O/S: Windows 2003 Server DC Support, 24x7x4, 1yr.	GTS7523432-SSA			2	1	\$17,168	\$51,504
APP: Microsoft SQL Server 2000 Enterprise Edtn, 32P	DQL200332-LX			2	1	\$425,600	* Inc. below
SRVC: Microsoft Database Server Support Package*	PRO-PRORS-16U-01			2	2	\$1,950	\$5,850
<b>Server Subtotal</b>						<b>\$931,364</b>	<b>\$71,394</b>
<b>Storage Hardware:</b>							
DISK: 18GB Drive, 15Krpm, 2Gb FC, SCA	JBD201815-2F			1	770	\$445,060	Spared
DISK: 18GB Drive, 15Krpm, 2Gb FC, SCA 10% spares**	JBD201815-2F			1	77	\$578	\$44,506
DISK: 73GB Drive, 10Krpm, 2Gb FC, SCA	CXR7310-2GF			1	18	\$31,464	Spared
DISK: 73GB Drive, 10Krpm, 2Gb FC, SCA 10% spares**	CXR7310-2GF			1	2	\$3,496	
RCK: FC 2Gb Storage, Standard, Copper/Copper I/F	JBD2002-SA			1	33	\$105,501	\$17,820
RCK: FC 2Gb Storage, Standard, Optical/Copper I/F	JBD2011-SA			1	22	\$75,086	\$12,672
CTRL: Symmetric Disk Virt. 2x2GHz, 512MB Mem	RMM20103-ELS			1	11	\$60,522	\$12,804
CTRL: USS, Fibre Channel HBA, 1-Port, 64-bit PCI	RMM20701-TAR			1	33	\$72,897	\$15,048
APP: Unisys Storage Sentinel 2200 SDV Software	USS10300-SW			1	1	\$8,550	\$4,068
APP: Storage Sentinel SDV SW, 20TB License	USS20320-LIC			1	1	\$68,875	
CBL: FC, Copper, HSDC2 Conn's, 0.3m	JBD20003-CCL			1	33	\$1,782	
CBL: FC, Optical, LC->LC Conn's, 20m + 10% Spares	GCFAZLL			3	38	\$2,926	
RCK: Rack Mount Kit, Disk Enclosure	JBD2000-RMK			1	55	\$10,010	
CTRL: DPE: 2 RAID Cntrl, 1GB Cache ea., 0 Disk	CX200-DPE			1	1	\$19,000	\$2,976
RCK: FC 2Gb Storage, Optical I/F, DAE	CX600-DAE			1	1	\$7,600	\$1,176
SYS MGT: Storage, Navisphere Manager	CXN200-T3			1	1	\$3,800	\$744
SYS MGT: Storage, Navisphere Agent	CXN600-WIN			1	1	\$950	\$204
SWTCH: Switch, 10/100/1000Mb Ethernet	GS516-T16			1	1	\$2,850	
SWTCH: Switch, 8-port KVM	SWC81-SXR			1	3	\$4,560	\$3,348
CBL: Cable, KVM, 12 foot	CBL121-SWC			1	19	\$2,717	
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	18	\$2,916	
CBL: Power, U.S. (Domestic), C20 - L6-20P	USE1936-LC6			1	18	\$1,548	
CAB: 36U x 19" x 41" Open Front Cabinet	HRT361941-OFT			1	6	\$8,550	
DOOR: 36U x 19", Rear	HRT3619-RDR			1	6	\$2,850	
PNL: 36U x 41" Side Skins, L&R HRT	HRT3641-SDS			1	6	\$2,850	
INSTL: Stabilizer Foot	RM1936-FOT			1	6	\$972	
<b>Storage Subtotal</b>						<b>\$949,632</b>	<b>\$118,862</b>
<b>Client Hardware:</b>							
SYS: ES3020L w/ 1x 2.4GHz Proc., 0MB Mem	ESL30201-240			1	8	\$12,456	\$10,464
PROC: 1x 2.4GHz Intel Xeon/512KB Cache	CPL3020241-512			1	8	\$5,320	
MEM: 1GB, 2x 512KB DDR DRAM PC133ECC	DIM3000022-1GB			1	8	\$7,464	
RCK: ESL2026 Disk Backpanel, 1x4	HBP3020101-51			1	8	\$2,120	
DISK: 18GB 15Krpm U320 3.5 Internal	HDP18115-DC4			1	8	\$3,512	
CTRL: cLAN, PCI Host Adapter & Cable	PCI10001-CXG			1	8	\$6,040	
RCK: ES3020L Universal Rack Kit	ESL3020-VRL			1	8	\$2,664	
<b>Client Software:</b>							
O/S: Microsoft Windows 2000 Server	C11-00821			2	2	\$738	* Inc. above
ACC: Microsoft Visual C++ Standard	254-00170			2	2	\$109	* Inc. above
<b>Client Subtotal</b>						<b>\$45,589</b>	<b>\$10,464</b>
<b>Total</b>						<b>\$1,926,585</b>	<b>\$200,720</b>
Computer Resolutions Large Volume Discount						(\$302,573)	
<b>Notes:</b>					<b>Three Year Cost of Ownership: \$1,824,732</b> <b>tpmC Rating: 252,920.49</b> <b>\$ / tpmC: \$7.22</b>		
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% spare disks added in place of onsite service.							
Benchmark results and test methodology audited by Lorna Livingtree 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: 252,920.49 tpmC**

### Response Times, in seconds

Transaction	90th %ile	Average	Maximum
New-Order	0.43	0.30	8.00
Payment	0.39	0.25	5.55
Order-Status	0.40	0.28	9.95
Delivery (interactive portion)	0.25	0.17	2.89
Delivery (deferred portion)	0.28	0.20	2.63
Stock-Level	1.11	0.81	3.70
Menu	0.25	0.17	6.48

### 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	44.92%
Payment	43.03%
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	18.05 / 120.31
Payment	3.01 / 0.00	3.01 / 12.03	3.03 / 120.31
Order-Status	2.01 / 0.00	2.01 / 10.06	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 / 5.07	2.03 / 50.61

### Test Duration

Ramp up time	40 minutes
Measurement interval (M)	120 minutes
Transactions (all types) completed during measurement interval	67,559,332
Ramp-down time	7 minutes

### Checkpointing:

Number of checkpoints	4
Checkpoint interval	30 minutes