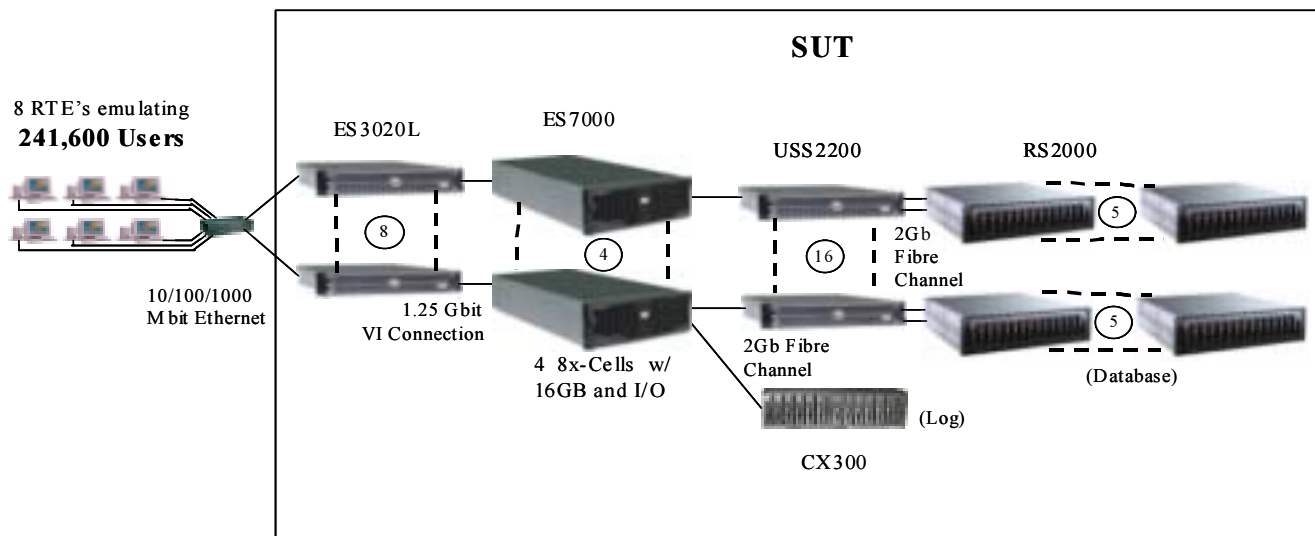


UNISYS**ES7000 Orion 540
Enterprise Server**

TPC-C Rev. 5.2

Report Date
April 28, 2004**Total System Cost****TPC-C Throughput****Price Performance****Availability Date****\$1,877,165****304,148.50 tpmC****\$6.18 / tpmC****April 28, 2004****Processors****Database Manager****Operating System****Other Software****Number of Users**32 - Database
16 - ClientsMicrosoft SQL
Server 2000 Enterprise
EditionMicrosoft Windows
Server 2003,
Datacenter EditionWindows Server 2003
w/ IIS 6.0 and COM+
Microsoft Visual C++**241,600****Clients (each of 8)****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**32x 3.0GHz Intel® Xeon™ MP
w/ 4MB L3 cache,
64 GB memory,
1 internal disk controller,
1x 40GB internal disk,
17 PCI Fibre Channel controllers,
8 PCI VI controllers**Storage****USS2200/RS2000 & CX300**1092x 18GB + 12x 146GB
Hot-Pluggable,
External Fibre Channel disks,
18 FC RAID controllers

System Components	Server		Clients (each of 8)	
	Quantity	Type	Quantity	Type
Processors	32	3.0GHz Intel® Xeon™ Processor MP, 4MB Lvl 3 Cache	2	3.06GHz Intel® Xeon™ Processor, 1MB Lvl 2 Cache
Memory	4	16 GB	4	512 MB
Disk Controllers	17	PCI Fibre Channel	1	Inbuilt SCSI
Disk Drives	1	Inbuilt (boot media)	1	18GB SCSI (16.9 GB useable)
	1092	18GB FC (17.1 GB useable)		
	12	146GB FC (133.7 GB useable)		
	1	40GB boot (37.3 GB useable)		
Total Storage		19.0 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. 5.2		
						Report Date April 28, 2004		
Description	Part No.	Third Party		Unit Price	Qty.	Extended Price	3 yr.Maint. Price	
		Brand	Price					
Server Hardware:								
SYS: ES7000-540, 32x 3.0GHz, 128MB Cch, 16GB Mem.	ES7540327-100		1	\$349,220	1	\$349,220	\$27,192	
Inbuilt Disk Controller, 1x 40GB Disk (boot media)	Included							
SYS MGT: Sentinel Management S/W and Media	SEN70002-MSV		1	\$4,242	1	\$4,242	\$1,656	
MEM: 16GB Memory, 1 GB DIMMs	RAM7500-16G		1	\$9,500	3	\$28,500		
CTRL: HBA, PCI, 2Gb Fibre Channel, 2-Port,	FC76222-P64		1	\$2,850	17	\$48,450		
CTRL: HBA, PCI, VI Connection, 1-Port & Cable	PCI10001-CXG		1	\$755	8	\$6,040		
I/F: Monitor, 15-inch Color, Kybrd, Mse & Cable	ES70003-UIF		1	\$570	1	\$570		
Server Software:								
O/S: Windows 2003 Srvr, Datacenter Edtn,32P, 1yr Lsub.	WND2332-TSP	2	1	\$70,224	1	\$70,224		
O/S: Windows 2003 Server, DC Lmtd Sbscrptn, 1yr.	DUS200332-TSP	2	1	\$6,346	2	\$12,692		
O/S: Windows 2003 Server DC Support, 24x7x4, 1yr.	GTS7524032-SSA	2	1	\$17,168	3		\$51,504	
APP: Microsoft SQL Server 2000 Enterprise Edtn, 32P	DQL200332-LX	2	1	\$425,600	1	\$425,600	* Inc. below	
SRVC: Microsoft Database Server Support Package*	PRO-PRORS-16U-01	2	2	\$1,950	3		\$5,850	
Server Subtotal						\$945,538	\$86,202	
Storage Hardware:								
DISK: 1.5TB Pkg, 84x 18GB, 15Krpm, + 10% spares **	JBD201815-P84		1	\$29,839	14	\$417,746	Spared	
DISK: 0.5 TB Pkg, 28x 18GB, 15Krpm, + 10% spares **	JBD201815-P28		1	\$14,556	1	\$14,556	Spared	
DISK: 146GB, 10Krpm, 2Gb FC, + 10% Spares **	CXR14610-2GF		1	\$2,508	14	\$35,112	Spared	
RCK: FC 2Gb Storage, Standard, Copper/Copper I/F	JBD2002-SA		1	\$3,010	46	\$138,460	\$23,184	
RCK: FC 2Gb Storage, Standard, Optical/Copper I/F	JBD2011-SA		1	\$3,214	32	\$102,848	\$17,280	
CTRL: Symmetric Disk Virt. 2x2GHz, 512MB Mem	RMM20103-ELS		1	\$4,559	16	\$72,944	\$18,624	
CTRL: USS, Fibre Channel HBA, 1-Port, 64-bit PCI	RMM20701-TAR		1	\$1,805	48	\$86,640	\$21,888	
APP: Unisys Storage Sentinel 2200 SDV Software	USS10300-SW		1	\$5,472	1	\$5,472	\$4,068	
APP: Storage Sentinel SDV SW, 20TB License	USS20320-LIC		1	\$37,484	1	\$37,484		
CBL: FC, Copper, HSDC2 Conn's, 0.3m	JBD20003-CCL		1	\$54	46	\$2,484		
CBL: FC, Optical, LC->LC Conn's, 10m + 10% Spares **	GCFAZLL10	3	3	\$42	54	\$2,268	Spared	
RCK: Rack Mount Kit, Disk Enclosure	JBD2001-RMK		1	\$190	78	\$14,820		
CTRL: DPE: 2 RAID Cntrl, 1GB Cache ea., 0 Disk	CX300-DPE		1	\$19,000	1	\$19,000	\$2,988	
SYS MGT: Storage, Navisphere Agent	CXN600-WIN		1	\$646	1	\$646	\$132	
SYS MGT: Storage, Navisphere Manager	CX2002-DPE		1	\$1,549	1	\$1,549	\$312	
SYS MGT: Storage, Navisphere Manager	CX200-DAE		1	\$7,695	1	\$7,695	\$1,524	
SWTCH: Switch, 10/100/1000Mb Ethernet	GS516-T16		1	\$2,850	1	\$2,850		
CBL: Ethernet, Cat5e, RJ45 Conn's, 10ft + 10% Spares **	GCPO888910	3	3	\$2	20	\$40	Spared	
SWTCH: Switch, 8-port KVM	SWC81-SXR		1	\$1,520	3	\$4,560	\$3,456	
CBL: Cable, KVM, 12 foot	CBL121-SWC		1	\$143	24	\$3,432		
KBD: Keyboard & Drawer, Rackmount	KBR28301-SXR		1	\$333	2	\$666		
MON: Display, Rackmount LCD	MON2145-LCD		1	\$2,565	2	\$5,130		
PWR: Distribution Strip, 9-Plug, 220V	SFR9-PWR		1	\$162	27	\$4,374		
CBL: Power, U.S. (Domestic), C20 - L6-20P	USE1936-LC6		1	\$86	27	\$2,322		
CAB: 36U x 19" x 41" Open Front Cabinet	HRT361941-OFT		1	\$1,425	9	\$12,825		
Storage Subtotal						\$995,923	\$93,456	
Client Hardware:								
SYS: ES3020L w/ 1x 3.0GHz Proc., 0MB Mem	ESL302021-306		1	\$1,870	8	\$14,960	\$6,336	
PROC: 1x 3.0GHz Intel Xeon/1MB Cache	CPL3020302-1MB		1	\$1,199	8	\$9,592		
MEM: 2GB, 4x 512MB DIMMs DDR SDRAM	DIM3020042-2GB		1	\$1,465	8	\$11,720		
RCK: ESL2026 Disk Backpanel, 1x4	HBP3020101-51		1	\$265	8	\$2,120		
DISK: 18GB 15Krpm U320 3.5 Internal	HDP18115-DC4		1	\$333	8	\$2,664		
RCK: ES3020L Universal Rack Kit	ESL3020-VRL		1	\$333	8	\$2,664		
CTRL: HBA, PCI, VI Connection, 1-Port & Cable	PCI10001-CXG		1	\$755	8	\$6,040		
Client Software:								
O/S: Windows Server 2003, Standard Edition	P73-00295	2	2	\$738	8	\$5,904	* Inc. above	
ACC: Visual C++ Standard	254-00170	2	2	\$109	1	\$109	* Inc. above	
Client Subtotal						\$55,773	\$6,336	
Total						\$1,997,234	\$185,994	
						(\$306,063)		
Computer Resolutions Inc. 15% Large Volume Discount								
Notes:					Three Year Cost of Ownership: \$1,877,165 tpmC Rating: 304,148.50 \$ / tpmC: \$6.18			
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.								
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: 304,148.50 tpmC

Response Times, in seconds

Transaction	90th %ile	Average	Maximum
New-Order	0.36	0.25	22.02
Payment	0.31	0.21	6.83
Order-Status	0.32	0.23	18.13
Delivery (interactive portion)	0.14	0.14	2.17
Delivery (deferred portion)	0.39	0.23	21.81
Stock-Level	1.20	0.75	22.27
Menu	0.14	0.14	2.22

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	44.93%
Payment	43.02%
Order-Status	4.01%
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	69 minutes
Measurement interval (M)	120 minutes
Transactions (all types) completed during measurement interval	81,224,786
Ramp-down time	15 minutes

Checkpointing:

Number of checkpoints	4
Checkpoint interval	30 minutes