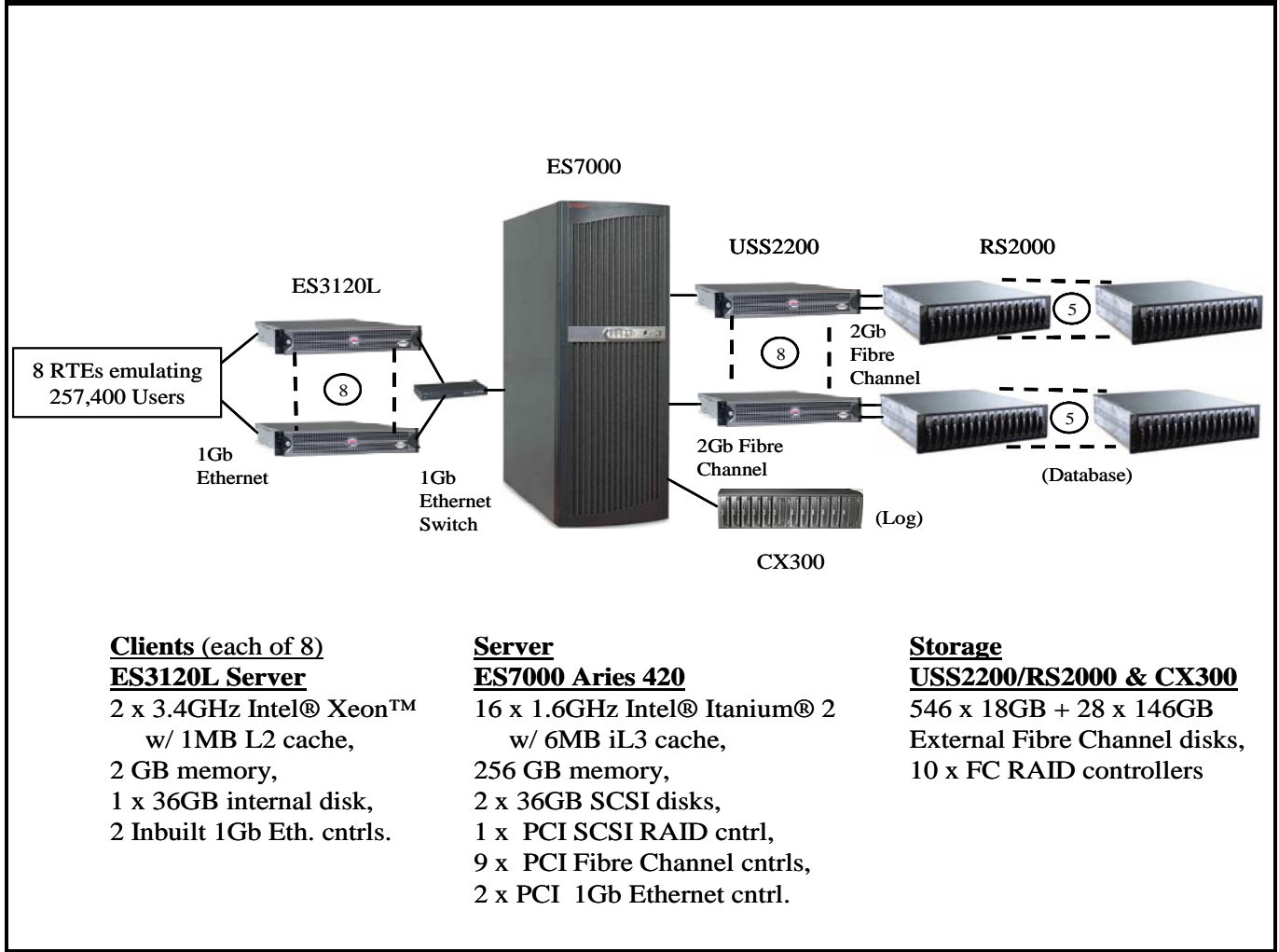


UNISYS	ES7000 Aries 420 Enterprise Server		TPC-C Rev. 5.4
			Report Date June 24, 2005
Total System Cost	TPC-C Throughput	Price Performance	Availability Date
\$1,442,995 USD	322,805 tpmC	\$4.48 / tpmC	July 29, 2005
Processors	Database Manager	Operating System	Other Software
16 - Database 16 - Clients	Oracle Database 10g Enterprise Edition	SUSE® Linux® Enterprise Server 9 for Itanium Processors, SP1	Windows Server 2003 w/ IIS 6.0 and COM+ Microsoft Visual C++
			Number of Users
			257,400



Clients (each of 8)
ES3120L Server
 2 x 3.4GHz Intel® Xeon™
 w/ 1MB L2 cache,
 2 GB memory,
 1 x 36GB internal disk,
 2 Inbuilt 1Gb Eth. cntrls.

Server
ES7000 Aries 420
 16 x 1.6GHz Intel® Itanium® 2
 w/ 6MB iL3 cache,
 256 GB memory,
 2 x 36GB SCSI disks,
 1 x PCI SCSI RAID cntrl,
 9 x PCI Fibre Channel cntrls,
 2 x PCI 1Gb Ethernet cntrl.

Storage
USS2200/RS2000 & CX300
 546 x 18GB + 28 x 146GB
 External Fibre Channel disks,
 10 x FC RAID controllers

System Components	Server		Clients (each of 8)	
	Quantity	Type	Quantity	Type
Processors	16	1.6GHz Intel® Itanium® 2 with 6MB iL3 Cache	2	3.4GHz Intel® Xeon™ Processor, 1MB Lvl 2 Cache
Memory	4	64 GB	2	1 GB
Disk Controllers	9	PCI Fibre Channel	1	Inbuilt SCSI
	1	PCI SCSI RAID (boot media)		
Disk Drives	546	18GB FC (17.1 GB useable)	1	36GB SCSI (34.3 GB useable)
	28	146GB FC (133.7 GB useable)		
	2	36GB boot (34.3 GB useable)		
Total Storage		12.8 TB		34.3 GB
Tape / CD-ROM	1	IDE CD/DVD/CDR-W	1	IDE CD-ROM
Terminals	1	Console Monitor	1	Console Monitor



ES7000 Aries 420 Enterprise Server

TPC-C Rev. 5.4

Report Date
June 24, 2005

Description	Part No.	Third Party		Unit Price	Qty.	Extended Price	3-yr.Maint. Price
		Brand	Price				
Server Hardware:							
SYS: ES7000-420, 16x 1.6GHz/6MB, 128GB Mem. 1x RAID Controller, 2x 36GB Disk (boot media) Sentinel System Management S/W and Media 36Ux19"x34" cabinet and skins	ES7420167-123 Included Included Included			\$407,362	1	\$407,362	\$6,984
MEM: 64GB Memory, 4 GB DIMMs	MEM164-64G			\$118,560	2	\$237,120	
MOD: I/F, 2-Slot IO Module, 133MHz	MOD3133-PCI			\$1,805	7	\$12,635	
CTRL: Fibre Channel HBA, 1-Port, 64-bit PCI	FCH2340-PCX			\$1,853	9	\$16,677	
CTRL: Ethernet, 1000Mb, 1-Port Cu, PCI	ETH33312-PCX			\$152	2	\$304	
I/F: Monitor, 17-inch LCD, Kybrd, Mse & Cable	ES70004-UIF			\$665	1	\$665	
Server Software:							
O/S: SUSE Linux Entrprs Srvr 9, Supt, Upgds, Drvrs, 1-yr	SLE96416-PKG			\$3,204	3	\$0	\$9,612
APP: Oracle Database 10g Ent. Edtn, Per Proc, Unlmtd Usrs, 3yrs		4	4	\$20,000	16	\$320,000	Inc. below
SRVC: Oracle Database Server Support Pkg. for 3 yrs		4	4	\$6,000	1		\$6,000
Server Subtotal						\$994,763	\$22,596
Storage Hardware:							
DISK: 1.5TB Pkg, 84x 18GB, 15Krpm, + 10% spares *	JBD201815-P84			\$28,220	7	\$197,540	Spared
DISK: 0.2 TB Pkg, 14x 18GB, 15Krpm, + 10% spares *	JBD201815-P14			\$7,342	1	\$7,342	Spared
DISK: 146GB, 10Krpm, 2Gb FC	CXR14610-2GF			\$1,463	28	\$40,964	
RCK: FC 2Gb Storage, Standard, Copper/Copper I/F	JBD2002-SA			\$3,197	23	\$73,531	\$11,592
RCK: FC 2Gb Storage, Standard, Optical/Copper I/F	JBD2011-SA			\$3,413	16	\$54,608	\$8,640
CTRL: Symmetric Disk Virt. 2x2GHz, 512MB Mem	RMM20103-ELS			\$4,559	8	\$36,472	\$9,312
CTRL: USS, Fibre Channel HBA, 1-Port, 64-bit PCI	RMM20701-TAR			\$1,805	24	\$43,320	\$10,944
APP: Unisys Storage Sentinel 2200 SDV Software	USS10300-SW			\$5,472	1	\$5,472	\$4,068
APP: Storage Sentinel SDV SW, 10TB License	USS20310-LIC			\$25,200	1	\$25,200	
CBL: FC, Copper, HSDC2 Conn's, 0.3m	JBD20003-CCL			\$53	23	\$1,219	
CBL: FC, Optical, LC->LC Conn's, 10m + 10% Spares *	GCFAZLL20	3	3	\$38	28	\$1,064	Spared
RCK: Rack Mount Kit, Disk Enclosure	JBD2001-RMK			\$190	39	\$7,410	
CTRL: DPE: 2 RAID Cntrl, 1GB Cache ea., 0 Disk	CX300-DPE			\$13,728	1	\$13,728	\$1,440
RCK: FC 2Gb Storage, Optical I/F, DAE	CX600-DAE			\$5,890	1	\$5,890	
SYS MGT: Storage, Navisphere Manager	CXN300-WRK			\$2,185	1	\$2,185	\$1,044
SWTCH: Switch, 10/100/1000Mb Ethernet	GS516-T16			\$2,850	1	\$2,850	
SWTCH: Switch, 8-port KVM	SWC81-SXR			\$1,520	2	\$3,040	\$2,304
CBL: Cable, KVM, 12 foot	CBL121-SWC			\$143	16	\$2,288	
KBD: Keyboard & Drawer, Rackmount	KBR28301-SXR			\$333	2	\$666	
MON: Display, Rackmount LCD	MON2145-LCD			\$2,565	2	\$5,130	
PWR: Distribution Strip, 9-Plug, 220V	SFR9-PWR			\$162	12	\$1,944	
CBL: Power, U.S. (Domestic), C20 - L6-20P	USE1936-LC6			\$86	12	\$1,032	
CAB: 36U x 19" x 41" Open Front Cabinet	HRT361941-OFT			\$1,425	4	\$5,700	
Storage Subtotal						\$538,595	\$49,344
Client Hardware:							
SYS: ES3120L w/ 1x 3.4GHz Proc., 0MB Mem	ESL3120-340			\$1,881	8	\$15,048	\$14,784
PROC: 1x 3.4GHz Intel Xeon/1MB Cache	CPL3120341-1MB			\$1,065	8	\$8,520	
MEM: 2GB, 2x 1GB DIMMs DDR SDRAM	DIM3120021-2GB			\$864	8	\$6,912	
DISK: 36GB 15Krpm U320 3.5 Internal	HDP36115-DC4			\$398	8	\$3,184	
RCK: ES3120L Universal Rack Kit	ESL3120-VRL			\$331	8	\$2,648	
SWTCH: Switch, 10/100/1000Mb Ethernet	GS516-T16			\$2,850	1	\$2,850	
CBL: Ethernet, Cat5e, RJ45 Conn's, 10ft + 10% Spares *	GCPO888910	3	3	\$1	30	\$30	Spared
Client Software:							
O/S: Windows Server 2003, Standard Edition, SP1	WSS200304-EN	2	1	\$949	8	\$7,592	\$4,896
ACC: Microsoft Visual C++ Standard Edition	254-00257	2	2	\$109	1	\$109	Inc. below
Client Subtotal						\$46,893	\$19,680
Total USD						\$1,580,251	\$91,620
Note: All prices are effective as of the date of publication							
Oracle Mandatory E-Business Discount (license and support) - 20%							(\$65,200)
Computer Resolutions Inc. Volume Cash Discount - 13%							(\$163,676)

Notes: 1. * = 10% spares added in place of onsite service.
 2. HW & SW maintenance at 24 x 7 w/ 4 hr. max. response time for spares.
 3. 3rd Party Brand & Pricing: 1 = CRI Product Price, Unisys Maintenance Price
 2 = Microsoft 3 = GoCables 4 = Oracle; pricing contact: MaryBeth Pierantoni, mary.beth.pierantoni@oracle.com, 916-315-5081

3-Year Cost of Ownership: \$1,442,995 USD
tpmC Rating: 322,805
\$/ tpmC: \$4.48

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: 322,805 tpmC

Response Times, in seconds

Transaction	90th %ile	Average	Maximum
New-Order	0.42	0.28	1.81
Payment	0.40	0.27	1.99
Order-Status	0.42	0.28	1.69
Delivery (interactive portion)	0.31	0.19	1.52
Delivery (deferred portion)	0.13	0.09	1.63
Stock-Level	0.40	0.26	1.61
Menu	0.31	0.20	2.03

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	44.90%
Payment	43.02%
Order-Status	4.02%
Delivery (interactive portion)	4.02%
Stock-Level	4.02%

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 / 120.33
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	119 minutes
Measurement interval (M)	120 minutes
Transactions (all types) completed during measurement interval	86,261,235
Ramp-down time	50 minutes

Checkpointing:

Number of checkpoints	4
Checkpoint interval	28 minutes