UNISYS ORACLE	e-@ction ES2085R Enterprise Server (8P 550MHz/2MB)	TPC-C Rev. 3.5 Report Date: 13-Dec-1999

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
$1,527,980	**41,085.43 tpmC**	**$37.19 per tpmC**	**1-Jun-2000 ***

Processors	Database Manager	Operating System	Other Software	Number of Users
8 Pentium® III Xeon 550 MHz 2MB L2 cache	Oracle 8i, Version 8.1.6	UnixWare 7 Data Center Edition, Version 7.1.1	UnixWare 7 Business Edtn. Windows NT Server 4.0 Tuxedo 6.4 & 6.5 CFS	**33,000**

33,000 PC's **4x NetServer LC3 Clients** **1x e-@ction ES2043 Client** **e-@ction ES2085R Enterprise Server** **ESM7700 Storage**

100 Mbit Ethernet Switch 100 Mbit Ethernet Switch

10Mbit Ethernet   10/100Mbit Ethernet Switches

1 Inbuilt + 1 PCI SCSI Controller
1 x 9GB Hot-Pluggable
Internal SCSI Disk
1 Fast Ethernet controller
6 x FC Controllers

12 x FC-FC RAID
Controllers
340 x 18GB Hot-Pluggable
External FC Disks
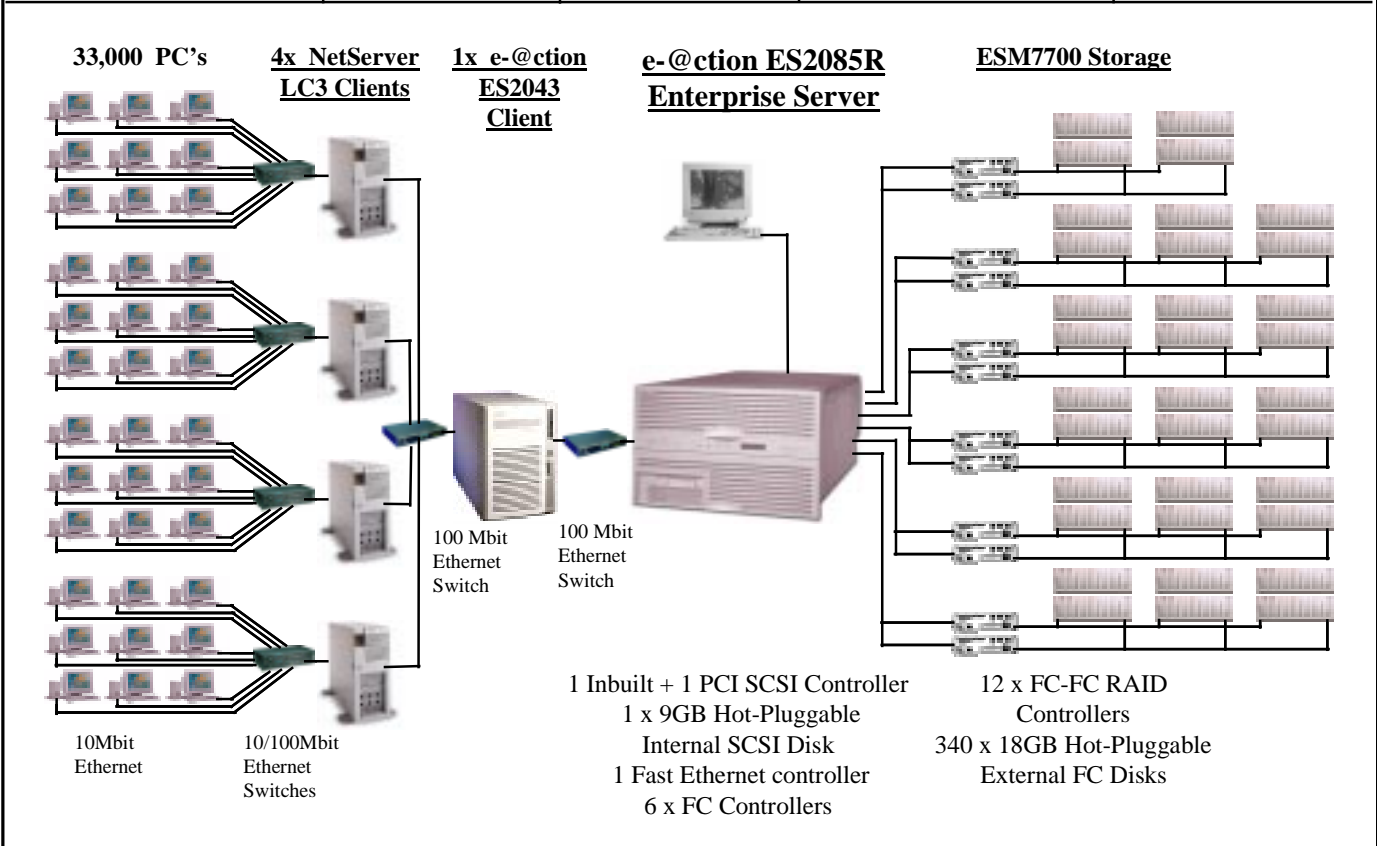
System Components	Enterprise Server		ES2043 Client		LC3 Clients (each of 4)	
	Quantity	Type	Quantity	Type	Quantity	Type
Processors	8	550 MHz Pentium® III Xeon with 2MB Level 2 Cache	4	500MHz Pentium® III Xeon w/ 1MB Level 2 Cache	2	500MHz Pentium® III w/ 512KB Level 2 Cache
Memory	1	16,384 MB	1	1024 MB	1	1024 MB
Disk Controllers	1 + 1 6	Inbuilt + PCI SCSI Fiber Channel Controllers	1	PCI SCSI	1	Inbuilt SCSI
Disk Drives	1 340	8.54 GB 16.54 GB	1	8.54 GB	1	8.54 GB
Total Storage		5565.73 GB		8.54 GB		8.54 GB
CD-ROM / Tape	1	SCSI CD-ROM Drive	1	CD-ROM Drive	1	CD-ROM Drive

* All hardware components are available now.

e-@ction ES2085R Enterprise Server
(8P 550MHz/2MB)

UNISYS ORACLE

TPC-C Rev 3.5
13-Dec-1999

Description	Style	Third Party Brand	Pricing	Unit Price	Qty.	Extended Price	5 Years Maint.
Server Hardware							
SYS: e-@ction ES2085R, w/ CDRom, 0 Proc, 0MB	ESR208151-GZU		1	$13,997	1	$13,997	$5,040
PROC: 550MHz P-III Xeon /2MB Cache & VRMs	XEO3550-2MB		1	$5,893	8	$47,144	$13,248
BRD: Processor Mezzanine Board, 0 Proc.	ESR81-MEZ		1	$1,179	1	$1,179	$312
MEM: 512 MB Memory, SDRAM, Buf 6ns	DIM6168-512		1	$1,989	32	$63,648	$13,056
BRD: Memory Carrier Board, 0 Mem.	ESR81-MCB		1	$737	1	$737	$192
MEM: Cache Coherency Filter, 4x SRAM	ESR81-CC4		1	$921	2	$1,842	$480
CTRL: Fiber Channel HBA, 32/64-bit PCI	PCI1100-FC		1	$1,175	6	$7,050	$2,304
DISK: 9GB, 10K SCSI LVD, SCA	HDL91102-CX1		1	$516	1	$516	$240
ACC: HBA, SCSI w/ VHD Connector	PCI300-SUW		1	$249	1	$249	$96
ETHERNET: 10/100Mbit/sec, PCI 32-bit	ETH1010052-PCI		1	$100	1	$100	
MONITOR: 15-inch Color	EVG2100-P		1	$221	1	$221	
					Subtotal	**$136,683**	**$34,968**
Storage Hardware							
DISK: 18GB Drive, 10Krpm, Fiber Channel	ESM18201-F96		1	$1,250	168	$210,000	Spared
DISK: 18GB Drive, 10Krpm, FC 10% spares	ESM18201-F96		1	$1,250	17	$21,250	
DPE: 2 RAID Cntrls, 2x256MB, 10 18GB Disk, BBU	ESM7700-A10		1	$36,611	6	$219,666	$81,216
CAB: DAE Expn Enclsr, w/ 4 18GB Disk	ESM700-A04		1	$8,406	28	$235,368	$91,728
MEM: 256MB DPE Cache Expansion SIMM	ESM7700-44M		1	$1,479	6	$8,874	$3,024
CBL: FC, HSSDC->DB9 Conn's, 10m	CBL136-10		1	$165	6	$990	
CAB: Rackmount Kit for DPE	ESM7700-PRM		1	$84	6	$504	
CAB: Rackmount Kit for DAE	ESM700-DRM		1	$84	28	$2,352	
PWR: Distribution Kit, 220V	SFR220-PWR		1	$42	24	$1,008	
CAB: 36U x 19" x 34" Cabinet, Open	RM361934-OFT		1	$884	6	$5,304	
DOOR: 36U x 19", Rear	RM3619-RDR		1	$277	6	$1,662	
PNL: 36U x 34" Side Skins, L&R	RM3634-SDS		1	$221	6	$1,326	
					Subtotal	**$687,054**	**$197,218**
Server Software							
O/S: UnixWare 7 Data Center Edition, Ver 7.1.1, 150 users	UXW71-DCL		1	$7,366	1	$7,366	$3,792
O/S: UnixWare 7 Media Kit, Version 7.1.1	UNX971-PSK		1	$277	1	$277	$144
DB: Oracle 8i, Version 8.1.6, unlimited user license				$166,810	1	$166,810	$166,810
					Subtotal	**$174,453**	**$170,746**
Client Hardware							
SYS: NetServer LC3, w/1 500MHz Proc., 0MB Mem	D7127-AV		1	$2,018	4	$8,072	$6,444
PROC:1x500MHz Pentium III/512KB Cache UPG	D7130-AV		1	$1,300	4	$5,200	
MEM: 256 MB SDRAM Memory Upgrade	D6099-AV		1	$655	16	$10,480	
DISK: 9GB SCSI 3.5 Internal	D4911-AV		1	$338	4	$1,352	$1,632
ETHERNET: 10/100TX Mbit/sec, PCI 32-bit	D5013-AV		1	$68	8	$544	
MONITOR:15-inch Color	EVG2100-P		1	$221	4	$884	
SYS: e-@ction ES2043, w/CD-ROM, 0 Proc, 0MB	ES204131-GCU		1	$3,536	1	$3,536	$3,192
PROC: 500MZ/1MB PIII Xeon/1MB Cache	XEO3500-1MB		1	$3,536	4	$14,144	$16,512
ACC: Voltage Reg Mod	XEO24001-VRM		1	$44	4	$176	
ETHERNET: 10/100Mbit/sec, PCI 32-bit	ETH1010052-PCI		1	$100	2	$200	
MEM: 128MB 50ns DIMMs	DIM5072-128		1	$398	8	$3,184	$12,288
DISK: 9GB, 10K SCSI LVD, SCA	HDL91102-CX1		1	$516	1	$516	$240
ACC: HBA, SCSI w/ VHD Connector	PCI300-SUW		1	$249	1	$249	$96
MONITOR: 15-inch Color	EVG2100-P		1	$221	1	$221	
					Subtotal	**$48,758**	**$40,404**
Client Software							
O/S: UnixWare 7 Business Edition, Version 7.1.1, 5 users	UXW71-BZL		1	$1,030	1	$1,030	$528
O/S: Processor Upgrade, UnixWare 7	UNX71-PU		1	$553	3	$1,659	
O/S: UnixWare 7 Media Kit, Version 7.1.1	UNX971-PSK		1	$277	1	$277	$144
TM: TUXEDO Core Functional Services 6.5 for UnixWare		BEA	2	$12,000	1	$12,000	$9,600
O/S: Microsoft Windows NT Server 4.0, 5 CALs		Microsoft	3	$809	4	$3,236	$10,475
ACC: Microsoft Visual C++ Professional 6.0		Microsoft	3	$549	1	$549	Inc. above
TM: TUXEDO Core Functional Services 6.4 for NT		BEA	2	$3,000	4	$12,000	$9,600
					Subtotal	**$15,785**	**$20,075**
User Connectivity							
SWITCH: Ethernet, 8-Port 100TX TrueFast + 10% spares	NX-SW8	Netlux	4	$179	12	$2,148	Spared
HUB: Ethernet, 8-Port 10Base-T (8+1 ports) + 10% spares	HB-1009DX/P	NetCruiser	5	$24	4568	$109,632	Spared
					Subtotal	**$111,780**	**$0**
					Total	**$1,174,513**	**$463,411**
Unisys Service Pre-Pay Discount							($19,509)
Western Micro Discount			1			($90,435)	

Notes:

1. HW Maintenance - Unisys 36 month warranty is upgraded to service level: Standard
   Performance-Gold. Last 24 months are also at service level: Standard Performance-Gold.
2. 10% or minimum 2 spares are added in place of onsite service (products have a five
   year return-to-vendor warranty)
3. Pricing: 1 = Western Micro, 2 = BEA, 3 = Microsoft, 4 = Netlux, 5 = NetCruiser

Five Year Cost of Ownership	**$1,527,980**
TPC-C Throughput	**41,085.43**
$/tpmC	**$37.19**

The benchmark results and test methodology were audited by Tom Sawyer of Performance Metrics, Inc.

NUMERICAL QUANTITIES SUMMARY
for
Unisys e-@ction ES2085R Enterprise Server

MQTh, Computed Maximum Qualified Throughput: **41,085.43**

% throughput difference, reported & reproducibility runs: 0.18%

Transaction Mix

New Order	44.84%
Payment	43.06%
Delivery	4.02%
Stock-Level	4.03%
Order-Status	4.03%

Response Times

Transaction	Average	Maximum	90th %ile
New-Order	0.33	6.97	0.46
Payment	0.25	5.32	0.37
Delivery	0.12	1.82	0.12
Stock-Level	0.31	5.48	0.59
Order Status	0.31	1.84	0.43
Menu	0.12	4.51	0.12
Delivery (Deferred)	0.30	1.97	0.44

Response time delay added for emulated components (seconds)

RT Response time	0.1
Menu Response time	0.1

Keying/Think Time Times (seconds)

Transaction	Minimum	Average	Maximum
New-Order	18.18.00/0	18.18/12.14	19.6/121.51
Payment	3.03.00/0	3.03/12.16	4.45/121.51
Delivery	2.02.00/0	2.02/5.1	3.26/51.11
Stock-Level	2.02.00/0	2.02/5.11	2.74/51.11
Order-Status	2.02.00/0	2.02/10.15	3.01/101.73

Test Duration

Ramp up time	45 minutes
Measurement interval (M)	60 minutes
Transactions (all types) completed during measurement interval	5,497,023
Ramp-down time	11 minutes

Checkpointing:

Number of checkpoints	4
Checkpoint interval	15 minutes