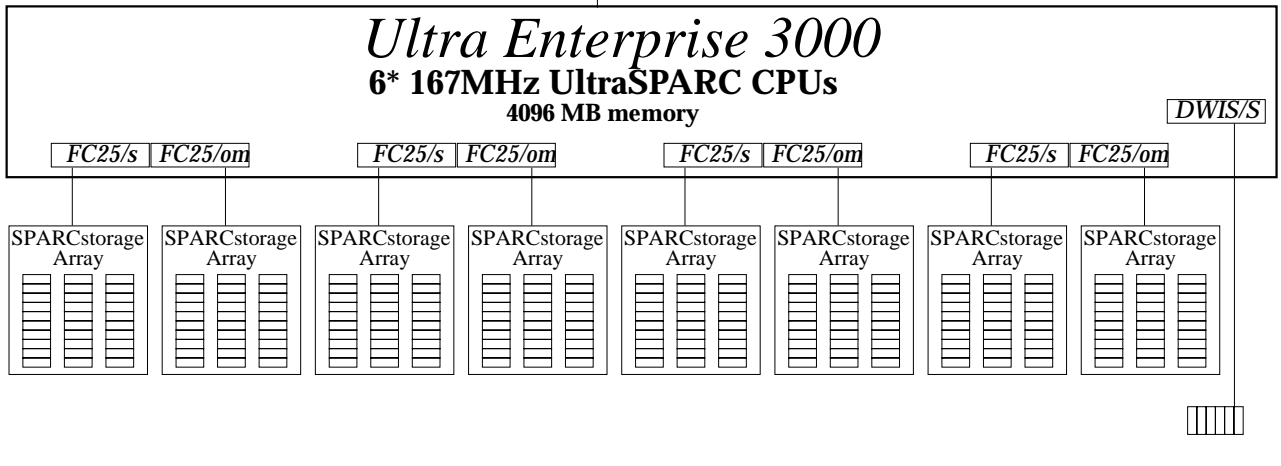
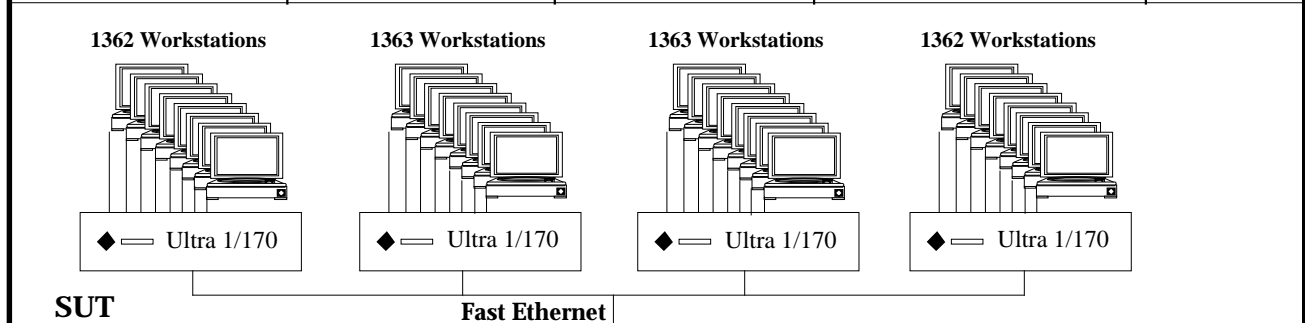


Sun Microsystems	Ultra Enterprise 3000		TPC-C Rev 3.2
IBM Corporation	C/S w/4 Front-Ends		Report Date: 8/8/96, Revised: 9/17/97
Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
\$682,999.14	6662.47 tpmC	\$102.51 per tpmC	Oct 25, 1996

Processors	Database Manager	Operating System	Other Software	Number of Users
6 UltraSPARC 167 MHz	DB2 for Solaris V2.1.2 RDBMS	Solaris 2.5.1	Tuxedo Ver. 4.2.2	5450



System Components	Server System	Front End Systems
Database Nodes:	1 Ultra Enterprise 3000	4 UltraServer 1 Model 170
Processors	6 x 167 MHz UltraSPARC RISC	1 x 167 MHz UltraSPARC each
Cache memory	32KB (D+I), 1MB External each	32KB (D+I), 512KB External each
Main memory	4096 MB	512 MB each
Disk controllers	4 FC25/S + 1 FSBE/S	1 x SCSI-2 each
Disk Drives	240 x 2.1 GB SCSI 6 * 4.2 GB SCSI	1 x 2.1GB SCSI-2 in each
Total Disk Storage	529 GB	2 GB each
Terminals	1 Console	4 Consoles
10 BaseT Hubs	None	250 x 24-Port

Sun Microsystems

Ultra Enterprise 3000 C/S w/4 Front-Ends

TPC-C

Report Date: 8/8/96, Revised: 9/17/97

Order Number	Description	Quantity	Unit Price	Extended Price	Maint. rate/unit	5 yr total Maint.
Server Hardware						
<i>Pricing from CAT Technology, Inc.</i>						
E3000	E3000 Base Package	1	8,250.00	8,250.00	358.00	19,332.00
2600A	CPU/Memory Board	3	6,750.00	20,250.00	154.00	24,948.00
2510A	UltraSPARC module,167Mhz, 1MB Eca	6	9,000.00	54,000.00		
7023A	1GB ECC memory expansion	4	21,000.00	84,000.00		
2610A	SBus I/O Board	1	4,875.00	4,875.00		
954A	Power/Cooling Module	1	1,350.00	1,350.00		
5214A	4.2GB Fast/Wide SCSI-2 Internal Disk	6	1,050.00	6,300.00		
6592A	SSA Model 112 w/ 30 2.1 GB Disks	8	34,050.00	272,400.00		
956A	Enterprise Expansion Cabinet	2	6,000.00	12,000.00	163.00	8,802.00
967A	SSA Rackmount Acc. Kit	2	0.00	0.00		
595A	FibreChannel Optical Module	5	450.00	2,250.00		
1057A	FibreChannel/SBus Host Adapter	3	1,200.00	3,600.00		
6104A	2.5GB 1/4" Internal Tape Drive	1	675.00	675.00		
X311L	Power Cord Kit - US/Asia	1	0.00	0.00		
Ultra Enterprise 3000 Subtotal:				469,950.00		53,082.00

Client Hardware						
<i>Pricing from CAT Technology, Inc.</i>						
A11-UBA1-9S-064CE	UltraServer 1 Model 170 (64MB RAM + 1 x 2.1GB SCSI Disk)	4	5,621.25	22,485.00	86.00	18,576.00
X1042A	SBus Quad FastEthernet Controller	4	1,496.25	5,985.00		
X7003A	128 MB SIMM expansion	16	1,500.00	24,000.00		
UltraServer 1 Subtotal:				52,470.00		18,576.00

User Connectivity						
<i>Terminal Pricing from SunExpress, Hubs from MicroWarehouse, Inc.</i>						
SX-WY35-G-G35	Wyse 35 terminal for console	5	295.00	1,475.00		
DEH1487	Allied Teledyn 24 Port Hub	251	219.00	54,969.00		
Terminals and Connectivity Subtotal:				56,444.00		

ALL HARDWARE SUBTOTALS: 578,864.00 71,658.00

Server and Client Software						
<i>Sun Software Pricing from Sun</i>						
SOLS-C	Solaris Software on CD-ROM	1	100	100		
CC-3.0.1-S	SPARCCompiler Single User License	1	695	695	20.00	1,140.00
Sun Software Subtotal:				795.00		1,140.00
<i>DB2 Pricing from IBM DB2</i>						
DB2 v2.1.2 for common server	DB2 for common server (72 users)	1	10,840.00	10,840		0.00
DB2 Software Subtotal:				10,840.00		0.00

Client Software						
<i>Tuxedo Pricing from BEA Systems, Inc.</i>						
	Tuxedo 4.2 Runtime License	4	4,200	16,800	630.00	12,600.00
Tuxedo Software Subtotal:				16,800.00		12,600.00
ALL SOFTWARE SUBTOTALS:				28,435.00		13,740.00

Sun maintenance rate/unit is monthly rate and Tuxedo maintenance rate/unit is yearly rate
H/W Maintenance 1 YR warranty (maintenance at 50%) & 4 YR Maintenance

Discount						
Sun 3 year Maintenance Contract Discount (Hardware)		12%				-6,436.80
Yearly prepayment Discount		5%				-3,261.06

TOTAL HARDWARE AND SOFTWARE COST (5 YR) 682,999.14
TpmC Rating 6,662.47
Price Per TpmC 102.51

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 assumptions 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 benchmark 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 for Ultra Enterprise 3000

MQTH, Computed Maximum Qualified Throughput **6662.47 tpmC**
% throughput difference, reported & reproducibility runs < 1.5%

Response Times (in secs)	90th Percentile	Average	Maximum
Menu	0.25	0.02	0.80
New-Order	1.40	0.74	9.28
Payment	1.20	0.59	6.32
Order-Status	1.20	0.51	3.51
Delivery(interactive)	0.04	0.02	0.57
Delivery(deferred)	2.00	0.77	6.00
Stock-level	2.00	1.06	6.29

Transaction Mix, in percent of total transactions

New-Order	44.76%
Payment	43.06%
Order-Status	4.04%
Delivery	4.07%
Stock-level	4.07%

Keying/Think Times (in secs)	Average.	Min.	Maximum
New-Order	18.02/12.18	18.01/0	18.20/122.0
Payment	3.02/12.14	3.01/0	3.21/122.0
Order-Status	2.02/10.28	2.01/0	2.04/98.0
Delivery	2.02/5.16	2.01/0	2.07/52.0
Stock-level	2.02/5.28	2.01/0	2.08/52.0

Test Duration

Ramp-up time	13 minutes
Measurement Interval	30 minutes
Number of transactions (all types) completed in measurement interval	446507