ᗡᗡ Sun ∞ FUJITSU	Sun Enterprise 450 C/S w/7 Front-Ends	TPC-C 3.5
		Report Date: **January 28, 2000**

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
$557,377	**20,123.7** tpmC	**$27.70**	**July 28, 2000**

Processors	Database Manager	Operating System	Other Software	Number of Users
4 * 400MHz UltraSPARC II	**SymfoWARE Server for Workgroup 2.0**	**Solaris 7**	**BEA Tuxedo 6.3**	**17600**

17600 User Connections to 7 Clients

Sun Enterprise 450 Server
4 * 400 Mhz UltraSPARC CPU
4 GB RAM
19 x 9.1 GB Drives

19 * Sun StorEdge MultiPack
-6 * 18GB Each

7 * Sun StorEdge MultiPack
-6 * 9GB Each

2 * Sun StorEdge MultiPack
-2* 9 GB
-3* 9 GB

7 * Sun Ultra 10 Model 333 Server
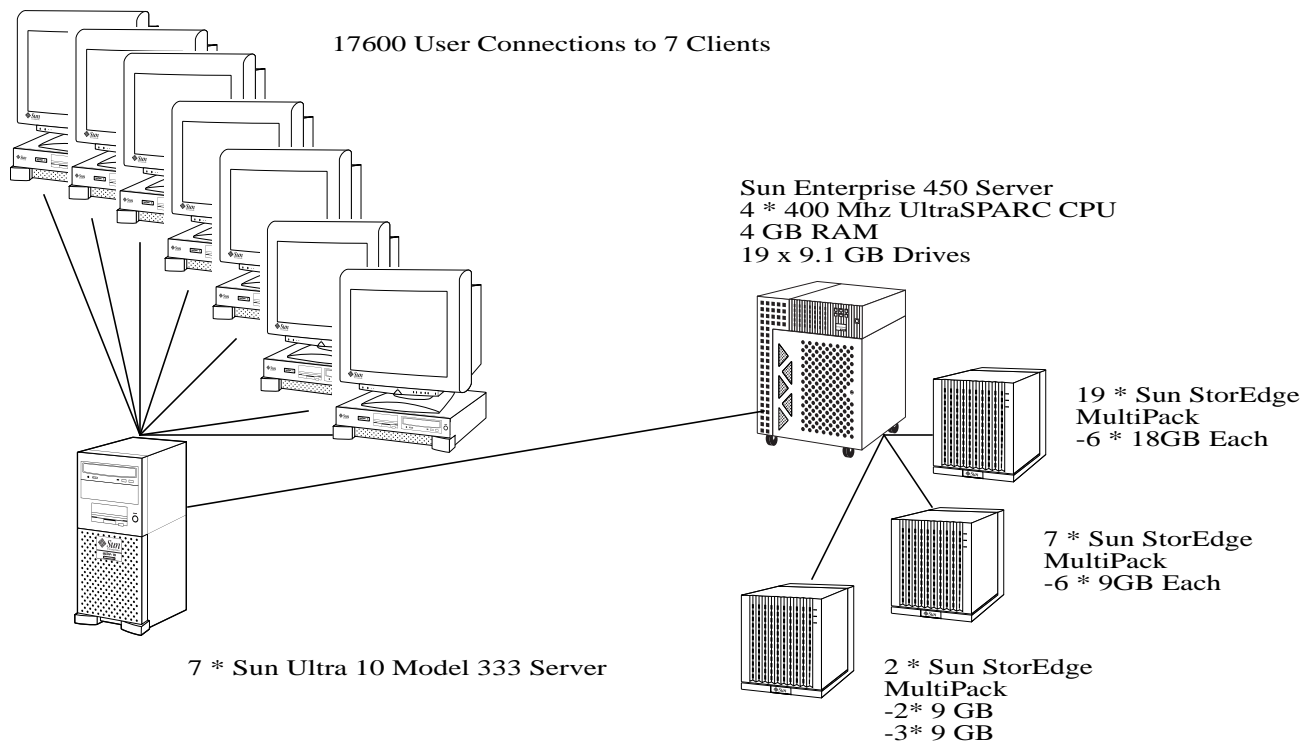
Configuration

	Server System	Front End Systems
Database Nodes:	1 Sun Enterprise E450 Server	7 * Ultra 10 Model 333
Processors	4* 400 MHz UltraSPARC II	1 * 333 MHz UltraSPARC II each
Cache memory	32KB (D+I), 4MB external	32KB (D+I), 512KB external, each
Main memory	4 GB	1 GB each
Disk controllers	6 x DPT RAID Controllers 4 x PCI UltraSCSI Controllers	1 * SCSI-2 each
Disk Drives	66* 9.1GB 10K RPM SCSI 114 * 18.2 GB 10K RPM SCSI	1 * 9.1 GB 10K RPM SCSI
Total Disk Storage	2646 GB	9.1 GB each
10 BaseT Hub	None	2202 * 9-Port Hubs
100 Base T Hub	1 x 8-port Hub	None

Pricing Summary

Description	Part Number	Source	Unit Price	Qty	Ext. Price	5 Yr. Maint.
Server Hardware						
Sun Enterprise E450 Server Base	A25-BA	2	9,984	1	9,984	13,993
400MHz/4MB UltraSPARC II	2244A	2	4,928	4	19,712	
512-Mbyte Memory Expansion	7005A	2	2,640	8	21,120	
Expansion kit for Internal Storage	6601A	2	999	2	1,998	
PCI UltraSCSI Controller	6540A	2	387	2	774	
DPT3755U2B 64Bit PCI HWRAID Card	6542A	2	2,033	6	12,197	
Internal 9.1-Gbyte, 10K RPM Disk	5229A	2	968	20	19,360	
18.2-Gbyte StorEdge MultiPack	SG-XDSK020C-18G	2	2640	2	5,280	
54.6-Gbyte StorEdge MultiPack	SG-XDSK060C-54G	2	6512	7	45,584	
109.2-Gbyte StorEdge MultiPack	SG-XDSK060C-109G	2	8712	19	165,528	
4mm DDS-3 Tape Drive	6286A	2	986	1	986	
Wyse55 General Purpose Terminal	WYSE-WY55-A	2	489	1	489	
Cable-68/68pin SCSI W/PWR CRD	X3856A	2	40	12	475	
North American/Asia PWR CRD	X311L	2	0	16	0	
Server Hardware Subtotal					303,486	13,993
Server Software						
Solaris Server Software	SOLMS-26ZW9999	1	100	1	100	
SPARC Compiler C/C++ 5.0	WCCIS-500-T999	1	995	1	995	1,080
Fujitsu COBOL Standard Edition		3	2500	1	2,500	2,500
SymfoWARE Server for Workgroup 2.0		3	34790	1	34,790	17,395
Server Software Subtotal					38,385	20,975
Client Hardware						
Ultra 10 Server Model 333	A22UHC1Z9S-B512CP	2	5,496	7	38,469	30,139
512MB Memory for Ultra 10	7039A	2	1,580	7	11,057	
PCI QFE Card	1034A	2	1,310	7	9,172	
Color Monitor	x7126	2	343	7	2,402	
Client Hardware Subtotal			8,729		61,101	30,139
Client Software						
BEA Tuxedo CFS 6.3		4	3,000	7	21,000	16,800
Client Software Subtotal					21,000	16,800
User Connectivity						
8-Port 100Mbps Ethernet Hub	8380	5	115	3	345	
9-port 10Mbps Ethernet Hub	Z85094	5	27	2422	65,399	
User Connectivity Subtotal					65,744	
Sun Enterprise Services discounts						(14,246)
				Total	489,716	67,661
				5Yr. cost	557,377	
				tpmC Rating	20,123	
				$/tpmC	$27.70	

Service for all Sun products is from Sun Microsystems, Inc.

Notes:

1. Sun Microsystems Inc. 2. CAT Technology Inc 3. Fujitsu 4. BEA Systems, Inc. 5. Software House Int

Audited by: Bradley J. Askins, Infosizing Inc.

Numerical Quantity Summary

MQTH, Computed Maximum Qualified Throughput   **= 20,123.7 tpmC**

% throughput difference, reported & reproducibility runs   = < 0.1%

Response Times (in secs)	90th Percentile	Average	Maximum
Menu	0.50	0.25	0.70
New-Order	4.00	2.17	81.94
Payment	4.20	2.19	82.69
Order-Status	2.80	1.61	59.11
Delivery(interactive)	0.54	0.40	46.44
Delivery(deferred)	3.00	1.44	48.00
Stock-level	3.00	1.30	48.67

Transaction Mix, in percent of total transactions

New-Order	44.79%
Payment	43.08%
Order-Status	4.04%
Delivery	4.02%
Stock-level	4.07%

Keying/Think Times (in secs)	Average.	Min.	Maximum
New-Order	18.02/12.23	18.01/0	18.08/122.00
Payment	3.02/12.18	3.01/0	3.08/122.00
Order-Status	2.02/10.28	2.01/0	2.07/102.50
Delivery	2.02/5.24	2.01/0	2.07/52.00
Stock-level	2.02/5.25	2.01/0	2.07/52.00

Test Duration	
Ramp-up time	25 minutes
Measurement Interval	30 minutes
Number of checkpoints	1
Checkpoint Interval	30 minutes
Number of transactions (all types) completed in measurement interval	1347926