❋ *Sun* **Sybase, Inc.**	**Sun Enterprise 4500 C/S w/15 Front-Ends**	TPC-C 3.5
		Report Date: **November 22, 1999**

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
$2,507,453	**50268.07**	**$49.88**	**March 30, 2000**

Processors	Database Manager	Operating System	Other Software	Number of Users
14 * 400MHz UltraSPARC II	**Sybase ASE 11.9.3 GA**	**Solaris 7**	**BEA Tuxedo 6.3**	**40800**

40800 User Connections to 15 Clients

Sun Enterprise 4500 Server
14 * 400 Mhz UltraSPARC CPU
28 Gb RAM

4 * Sun StorEdge
A1000 Array
- 12 * 9GB Each

15 * Sun Ultra Model 333 Server

18* Sun StorEdge A5200 Array
- 22 * 9GB Each
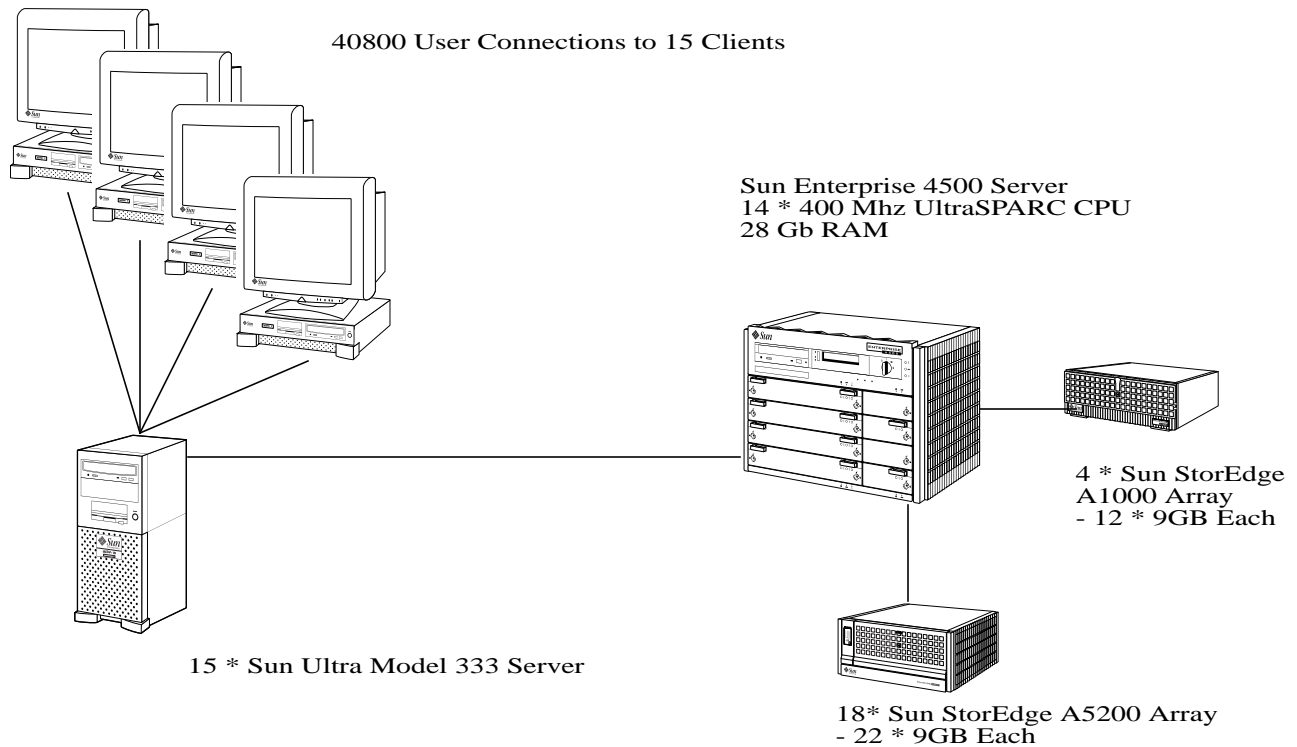
Configuration

	Server System	Front End Systems
Database Nodes:	1 Sun Enterprise 4500 Servers	15 * Ultra 10 Model 333
Processors	14* 400 MHz UltraSPARC II	1 * 333 MHz UltraSPARC II each
Cache memory	32KB (D+I), 8MB external	32KB (D+I), 512KB external, each
Main memory	28 GB	1 GB each
Disk controllers	3 Dualport FC-AL, 2 Fast/Wide SCSI-2	1 * SSCSI-2 each
Disk Drives	444 * 9GB FC-AL (18 * A5200, 4 * A1000), 6 * 9GB SCSI-2 (1 * MultiPack)	1 * 9 GB disk
Total Disk Storage	4050 GB	9 GB each
10 BaseT Hub	None	5100* 9-Port Hubs
100 Base T Hubs	None	None
100 BaseT Switches	1 * 16-Port	None

Sun Enterprise 4500 C/S w/15 Front-Ends

Sun

Sybase, Inc.

TPC-C 3.5

Report Date:
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Pricing Summary

Description	Part Number	Source	Unit Price	Qty	Ext. Price	5 Yr. Maint.
Server Hardware						
E4500	E4501	2	23,360	1	23,360	30,967
CPU/Memory board	2602A	2	4,380	7	30,660	71,098
400MHz/8MB UltraSPARC II	2580A	2	10,950	14	153,300	
2GB memory (8 * 256MB)	7026A	2	12,045	14	168,630	
PS/300W for Ex000	954A	2	1,314	2	2,628	
SBus I/O board	2612A	2	4,745	1	4,745	
FCAL SBus Host adapter	6730A	2	1,971	2	3,942	
DWIS/S SBus Host Adapter	1062A	2	945	1	945	
200GB StorEdge A5200 Array	SG-XARY520A-200G	2	51,120	18	920,160	254,016
109-Gbyte StorEdge A1000 Array	SG-XARY144A-109G	2	18,036	4	72,142	40,320
54.6-Gbyte StorEdge MultiPack	SG-XDSK060C-54G	2	6512	1	6,512	
SCSI Cable 68 pin	3856A	2	40	1	40	
Opt Int Tape 12Gb 4MM	6283A	2	986	1	986	
Wyse Terminal	WYSE-WY55-A	1	430	1	430	
Server Hardware Subtotal					1,388,480	396,401
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
Sybase Adaptive Server Enterprise 11.9.3		3	295000	1	295,000	236,000
Sybase Development		3	9600	1	9,600	7,680
Sybase Open Client		3	795	1	795	636
Sybase Discount (10%)					(30,540)	
Server Software Subtotal					275,951	245,396
Client Hardware						
Ultra 10 Server Model 333	A22UHC1Z9S-B512CP	2	5,496	15	82,434	64,584
512MB Memory for Ultra 10	7039A	2	1,580	15	23,694	
PCI QEF Card	1034A	2	1,310	15	19,655	
Color Monitor	x7126	2	343	15	5,148	
Client Hardware Subtotal					130,931	64,584
Client Software						
BEA Tuxedo CFS 6.3		4	3,000	15	45,000	36,000
Client Software Subtotal					45,000	36,000
User Connectivity						
16-port 10/100Mbps Fast Ethernet Hub	Z179489	5	420	3	1,260	
9-port 10Mbps Ethernet Hub	Z179489	5	27	5610	151,470	
User Connectivity Subtotal					152,730	
Sun Enterprise Services discounts						(228,020)
				Total	1,993,092	514,361
				5Yr. cost	2,507,453	
				tpmC Rating	50,268	
				$/tpmC	$49.88	

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

Notes:

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

Audited by: Francois Raab, Infosizing 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 assumptions about past or future purchase 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 the stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.

Numerical Quantity Summary

**MQTH, Computed Maximum Qualified Throughput
tpmC**   **= 50268.07**

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

Response Times (in secs)	90th Percentile	Average	Maximum
Menu	0.50	0.25	0.65
New-Order	0.80	0.34	24.14
Payment	1.00	0.47	25.52
Order-Status	1.00	0.51	21.63
Delivery(interactive)	0.26	0.25	0.35
Delivery(deferred)	2.00	0.64	5.00
Stock-level	2.00	0.67	5.44

Transaction Mix, in percent of total transactions

New-Order	44.85%
Payment	43.06%
Order-Status	4.02%
Delivery	4.04%
Stock-level	4.03%

Keying/Think Times (in secs)	Average.	Min.	Maximum
New-Order	18.02/12.20	18.01/0	18.17/122.00
Payment	3.02/12.20	3.01/0	3.13/122.00
Order-Status	2.02/10.25	2.01/0	2.14/102.50
Delivery	2.02/5.19	2.01/0	2.10/52.00
Stock-level	2.02/5.20	2.01/0	2.10/52.00

Test Duration	
Ramp-up time	25 minutes
Measurement Interval	60 minutes
Number of checkpoints	4
Checkpoint Interval	15 minutes
Number of transactions (all types) completed in measurement interval	6724854