

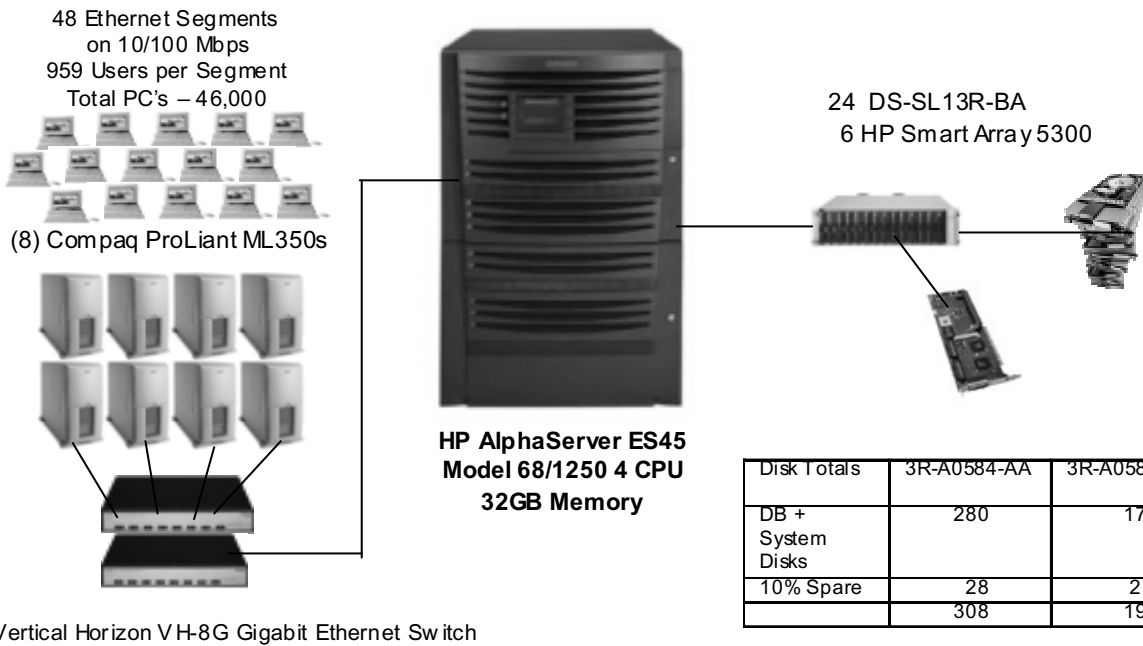


HP AlphaServer ES45 Model 68/1250 4 CPU Client/Server System

TPC-C Rev. 5

Report Date: August 15, 2002

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date	
\$531,965	56,375	\$9.44	September 27, 2002	
Processors	Database	Operating System	Other Software	Number of Users
(4) 1250 MHz Alphachip 21264C	Sybase Adaptive Server Enterprise 12.5	HP Tru64 UNIX V5.1B	BEA Tuxedo 6.5 CTS	46,000



	System Components Database Server, HP AlphaServer ES45		Client Components (Each of 8) Compaq ProLiant ML350	
	Qty	Type	Qty	Type
Processors	4	68/1250 MHz Alphachip 21264C	2	1GHz Intel Pentium III
Cache Memory	16	MB Cache	1	512KB Cache
Memory	4	8 GB Memory	1	128MB Memory
Total Memory	32	GB Memory	2	256MB Memory
Disk Controllers	6	HP Smart Array 5300		640MB Total Memory
Disks	280	9.1 GB Disks	1	18GB Disk
	17	18 GB Disks		
Total Disk Storage	2.85	TB		



**AlphaServer ES45
Model 68/1250
4 CPU C/S System**

**TPC-C REV 5 EXECUTIVE SUMMARY
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Report Date: August 15, 2002

Description	Part Number	Third Party Brand	Unit Price Pricing	Qty	Extended Price	3 yr. Maint. Price
Server Hardware						
ES45 68/1250 M2 4GB UNIX	DA-68EBA-DA	1	53,456	1	53,456	17,896
ES45 Tower Enclosure	BA61M-CT	1	325	1	325	Inc.
ES45 68/1.25GHZ SMP CPU Unix	KN610-EB	1	11,050	3	33,150	Inc.
ES45 4GB Memory Option	MS620-DA	1	17,306	7	121,142	Inc.
PCI to GbE SX Adapter	DEGPA-SA	1	1,287	1	1,267	Inc.
Power Supply, Self Sensing	H7906-A9	1	813	2	1,626	Inc.
SmartArray 5304A/128 for Alpha	3X-KZPDC-DF	1	1,624	6	9,744	Inc.
Ultra 68VHD 10M Cable Assembly	BN37A-03	1	91	24	2,184	0
Star Lite Storage Shelf	DS-SL13R-BA	1	2,290	24	54,960	0
12/24gb 4MM Dat 5.25 Tape Drive	TLZ10-LB	1	444	1	444	862
9GB 10K U3 UNI HP HARD DRIVE **	3R-A0584-AA	1	207	308	63,756	Spared
18GB 10K U3 UNI HP HARD DRIVE **	3R-A0585-AA	1	207	19	3,933	Spared
VT510,WHITE,NORTH AMER,NO KEY	VT510-AA	1	397	1	397	0
US& Canada/English KB	PCXLA-NA	1	18	1	18	0
17-03212-05 8mp-8mp Patch Cable	BN25G-07	1	6	1	6	0
Vertical Horizon VH-8G Gigabit Ethernet Switch	VH-8G	2	2,747.25	4	10,989	
Subtotal					357,397	18,758
Server Software						
3YR, As ES40/45 Unix Brnz24x7	FM-E4WUS-36	1	1,896	1		1,896
3YR AS ES45 Unix SMP	FM-62USM-36	1	214	3		642
3YR Digital UNIX O/S & LP	FM-CDDST-36	1	6,765	1		6,765
Tru64 UNIX Alpha CDRM	QA-MT4AA-H8	1	293	1	293	
Sybase ASE	Sybase	3	34,995	1	34,995	22,100
Subtotal					35,288	31,403
Client Hardware						
Compaq ProLiant ML350 1.0Ghz	225864-001	1	1,587	8	12,696	9,280
Pentium II P1000-256k Processor	207068-B21	1	571	8	4,568	Inc.
512MB SDRAM DIMM Memory	128279-B21	1	435	8	3,480	Inc.
ProLiant ML350 Hot Plug Drive Cage	161275-B21	1	413	8	3,304	Inc.
18.2GB Wide Ultra 3 Drive	3R-A0585-AA	1	207	8	1,656	Inc.
NC3134 Fast Ethernet NIC 64 PCI Dual Port 10/100	138603-B21	1	207	16	3,312	Inc.
NC3135 Fast Ethernet Mod Dual 10/100 Upgrade for NC3134	138604-B21	1	207	8	1,656	Inc.
Gigabit Daughter CD Upgrade	338456-B23	1	516	8	4,128	Inc.
128MB SDRAM Dimm Memory Option	313615-B21	1	144	8	1,152	Inc.
SC-SC Dual FO Cbl, MM, PP, 4.5M	BN34B-4E	1	62	8	496	Inc.
V700 15" Monitor NH US	261602-001	1	130	10	1,300	Spared
Subtotal					37,748	9,280
Client Software						
Sybase Software Developers Kit	Sybase	3	1,645	1	1,645	1,086
BEA Tuxedo 6.5 Tier 1	BEA Tuxedo	4	2,850	8	22,800	16,560
Subtotal					24,445	17,646

Notes: 10% Spares**

Subtotal **\$454,878** **\$77,087**
Three Year Cost of Ownership **\$531,965**

1=IC System Solutions, 2=Enterasys Networks, 3=Sybase, 4=BEA Tuxedo

tpmC Rating: **56,375**

Audited by InfoSizing

\$/ tpmC: **\$9.44**

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.

Numeric Quantities Summary
AlphaServer ES45 Client/Server

MQTH

MQTH, computed Maximum Qualified Throughput	56,375
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Response Times in seconds

Transaction	90th percentile	Average	Maximum
New-Order	1.334	0.758	6.127
Payment	1.395	0.864	300.138
Order-Status	1.337	0.765	5.882
Delivery (interactive)	1.180	0.503	15.542
Delivery (deferred)	26.937	7.471	41.265
Stock-Level	1.572	0.916	6.573
Menu	0.396	0.225	4.670

Transaction Mix in percent of total transactions

Transaction	Total Occurrences	Percentage
New-Order	6765043	44.975%
Payment	6468907	43.006%
Order-Status	603301	4.011%
Delivery (interactive)	602342	4.004%
Stock-Level	602221	4.004%

Keying/Think Times in seconds

Transaction	Minimum	Average	Maximum
New-Order	18.000/0.000	18.004/12.005	18.089/119.990
Payment	3.000/0.000	3.000/12.002	3.046/119.996
Order-Status	2.000/0.000	2.000/10.004	2.034/ 99.990
Delivery (interactive)	2.000/0.000	2.000/ 5.005	2.027/ 49.817
Stock-Level	2.000/0.000	2.000/ 5.007	2.034/ 49.757

Emulation Delay in seconds

Transaction	Response Time	Menu Response Time
New-Order	0.10	0.10
Payment	0.10	0.10
Order-Status	0.10	0.10
Delivery (interactive)	0.10	0.10
Stock-Level	0.10	0.10

Test Duration

Ramup up time	30:00:00 minutes
Measurement interval	120:00:00 minutes
Number of checkpoints	4
Number of New Order transactions	6765043
Number of transactions (all types) completed in measurement interval	15041814