

Hewlett-Packard Company	HP ProLiant BL45p - 4P	TPC-C Rev. 5.4
	C/S with 6 HP ProLiant BL35p	Report Date: June 24, 2005

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
\$362,172 USD	108,574	\$3.34 USD	June 24, 2005

Processors	Database Manager	Operating System	Other Software	Number of Users
4 AMD Opteron 2.6 GHz - Server 12 AMD Opteron 2.4 GHz - Clients	Microsoft SQL Server 2000 Enterprise Edition SP3	Windows Server 2003, Enterprise Edition SP1	Microsoft Visual C++ Microsoft COM+	86760



1X HP BLp Enhance Enclosure containing:
1X HP ProLiant BL45p
6X HP ProLiant BL35p
1X HP BLp-Class C-GbE2 Interconnect Switch



3X HP Rack 5642 containing: 9X HP MSA1000 Enclosures with 14X 36 GB 15K Drives each, 1X HP MSA1000 Enclosure with 8X 72 GB 10K Drives, and 12X HP MSA30 SB Enclosures with 14X 36 GB 15K Drives each

6 RTEs simulating 86760 PCs connected to 6 HP ProLiant BL35p with 2x2.4GHz AMD Opteron, 2 GB RAM each

	Server		Each Client	
System Components	Quantity	Description	Quantity	Description
Processor	4	AMD Opteron 2.6 GHz w/ 1MB Cache	2	2.4 GHz AMD Opteron w/ 1MB cache
Memory	16	2 GB DDR	4	512 MB
Disk Controllers	1	Integrated SMART 6i Array Controller	1	Integrated IDE Controller
	1	QLogic Fibre Channel Host Adapter (Dual Port)		
Disk Drives	8	72.8 GB SCSI Drive	2	60 GB IDE Drive
	296	36.4 GB SCSI Drive		
Total Storage		11356.8 GB		120 GB

Hewlett-Packard	HP Proliant BL45p 2.6GHz/1M			TPC-C Rev. 5.4		
Company	Client/Server			Report Date:	24-Jun-05	
Description	Part Number	Third Party	Unit Price	Qty	Extended Price	3 yr. Maint. Price
Server Hardware						
		Brand	Pricing			
HP BL45p 2.6GHz 1G 1P Svr	374966-B21	1	6,999	1	6,999	
AMD O852 2.6/1GHz-1M SC BL45p Processor	390603-B21	1	3,699	3	11,097	
HP 4GB Reg PC3200 2x2GB Memory	379300-B21	1	2,369	8	18,952	
HP Storageworks MSA 30 SB Storage	302969-B21	1	2,829	12	33,948	
Modular SAN Array 1000	201723-B22	1	6,995	10	69,950	
MSA SAN Switch 2/8	288247-B21	1	4,149	2	8,298	
HP 5642 Unassembled Rack	358254-B21	1	689	3	2,067	
HP BL25/45p Fiber Channel Adapter	381881-B21	1	599	1	599	
UPS R1500 XR Low Voltage US	204404-001	1	866	1	866	
HP BLp Enhanced Enclosure w/8 RDP Licenses	281404-B22	1	2,039	1	2,039	
HP BLp-Class C-GbE2 Interconnect Switch	283192-B21	1	4,399	1	4,399	
HP BLp 1U Pwr Encl w/6 Pwr Spplly Kit	378284-B21	1	2,299	1	2,299	
36GB 15Krpm U320 UNI HDD (OS, data)	286776-B22	1	299	296	88,504	
HP 72GB 15K U320 Pluggable Hard Drive (log)	286778-B22	1	569	8	4,552	
Blade Carepaq 3yr 4hr 24x7	UA205E	1	424	1		424
MSA1000 Carepaq 3yr 4hr 24x7	402164-002	1	3,538	10		35,380
MSA30 Carepaq 3yr 4hr 24x7	U8130E	1	1,827	12		21,924
Storage Works LC/LC 15m Fibre Cable	221692-B23	1	103	10	1,030	
Storage Works LC/LC 15m Fibre Cable (10% spares)	221692-B23	1	103	2		206
HP CAT5 KVM USB 1 Pack Interface Adapter	336047-B21	1	99	1	99	
HP s7540 17in. CRT Monitor	PF997AA#ABA	1	149	1	149	
HP PS/2 Scroll Mouse carbonite	DG169AV	1	5	1	5	
HP Enhanced Keyboard	DG170AV#ABA	1	10	1	10	
				Subtotal	255,862	57,934
Server Software						
Microsoft SQL Server 2000 Enterprise Edition(per processor)	810-00845	Microsoft	2	16,541	4	66,164
Visual C++ .Net Standard	254-00170	Microsoft	2	109	1	109
Microsoft Windows 2003, Enterprise Edition	P72-00264	Microsoft	2	2,334	1	2,334
Microsoft Problem Resolution Services (1 incident)		Microsoft	2	245	1	245
				Subtotal	68,607	245
Client Hardware						
HP BL35p O2.4GHz 1M 2P Blade	374212-B21	1	3,899	6	23,394	
HP BL35p Blade Sleeve Server	354101-B21	1	199	3	597	
HP BL35p 60GB ATA Hard Drive	354052-B21	1	299	12	3,588	
Blade Carepaq 3yr 4hr 24x7	UA205E	1	424	6		2,544
				Subtotal	27,579	2,544
Client Software						
Microsoft Windows 2000 Server	C11-00821	Microsoft	2	738	6	4,428
				Subtotal	4,428	0
Large Purchase and Net 30 discount (See Note 1)	16.0%		1			
				Total	\$311,125	\$51,047
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 pricing 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.				Three-Year Cost of Ownership: \$362,172 USD		
				tpmC Rating: 108,574		
				\$ / tpmC: \$3.34 USD		
Pricing: 1=HP 2= Microsoft						
Note 1 = Discount based on HP Direct guidance with large purchase and Net 30 discount.						
Note:The benchmark results and test methodology were audited by Tom Sawyer of Performance Metrics, Inc.						

Numerical Quantities Summary

MQTH, Computed Maximum Qualified Throughput

108,574 tpmC

Response Times (in seconds)	Average	90 %	Maximum
New-Order	0.38	0.74	9.35
Payment	0.32	0.67	11.34
Order-Status	0.34	0.68	8.43
Delivery (interactive portion)	0.10	0.11	0.13
Delivery (deferred portion)	0.17	0.22	0.86
Stock-Level	0.93	1.48	9.77
Menu	0.10	0.11	1.09

Transaction Mix, in percent of total transaction

New-Order	44.89%
Payment	43.07%
Order-Status	4.00%
Delivery	4.00%
Stock-Level	4.03%

Emulation Delay (in seconds)

	Resp.Time	Menu
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

Keying/Think Times (in seconds)

	Min.	Average	Max.
New-Order	18.01/0.00	18.03/12.06	18.18/120.62
Payment	3.00/0.00	3.02/12.06	3.16/120.62
Order-Status	2.00/0.00	2.02/10.06	2.16/100.61
Delivery (interactive)	2.00/0.00	2.02/5.07	2.16/50.61
Stock-Level	2.00/0.00	2.02/5.06	2.14/50.61

Test Duration

Ramp-up time	44 minutes
Measurement interval	120 minutes
Transactions (all types) completed during measurement interval	30,055,558
Ramp down time	17 minutes

Checkpointing

Number of checkpoints	4
Checkpoint interval	30 minutes