

<b>Hewlett-Packard Company</b>	HP ProLiant BL480c Server Blade	TPC-C Rev. 5.7
	C/S with 8 HP ProLiant BL460c	Report Date: Nov. 14, 2006

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
<b>USD \$603,191</b>	<b>222,117</b>	<b>USD \$2.72</b>	<b>Feb. 1, 2007</b>

Database Server Processors /Cores/Threads	Database Manager	Operating System	Other Software	Number of Users
2/8/8 Intel Xeon X5355 2.66 GHz QC	Microsoft SQL Server 2005 Enterprise x64 Edition SP1	Windows Server 2003, Enterprise x64 Edition SP1	Microsoft Visual C++ Microsoft COM+	<b>176960</b>

5 HP Racks 5642 containing: 34X MSA 30 StorageWorks Enclosure with 14X 36 GB 15K Drives each, 17X MSA 1000 StorageWorks Enclosure with 14X 36GB 15K Drives and 1X MSA 1000 Storage works Enclosure with 12X 146 GB 10K Drives

1X HP BLc7000 Enclosure containing:  
1X HP ProLiant BL480c  
8X HP ProLiant BL460c

8 RTEs simulating 176960 PCs

	Server		Each Client	
System Components	Quantity	Description	Quantity	Description
Processors/Cores/Threads	2/8/8	2.66 GHz QC Intel Xeon X5355 w/ 8M Cache	1/2/2	3.0 GHz DC Intel 5160 Xeon w/ 4MB cache
Memory	6	8 GB DDR (2 X 4 GB)	2	1 GB
Disk Controllers	1	Integrated Smart P400i Controller	1	Integrated E200i Controller
	3	HP BL480c Dual Port Fiber Channel Adapter		
Disk Drives	12	146 GB SCSI Drive	2	36 GB SCSI Drive
	714	36 GB SCSI Drive		
	2	36 GB SAS Drive		
Total Storage		27,528 GB		72 GB

Hewlett-Packard Company		HP ProLiant BL480C Server Blade 2.66 GHz/8MB QC Client/Server			TPC-C Rev. 5.7		
					Report Date	14-Nov-06	
Description	Part Number	Third Party	Unit Price	Qty	Extended Price	3 yr. Maint. Price	
<b>Server Hardware</b>							
		<b>Brand</b>	<b>Pricing</b>				
HP ProLiant BL480c G1 5355 4G 2P Svr - 2x2.66GHz Intel Xeon X5355 Quad Core Processors,4GB memory,4 embedded NICs - integrated Smart Array P400i Controller	435463-B21	1*	7,999	1	7,999		
HP 8GB FBD PC2-5300 2x4GB Kit	397415-B21	1	7,999	6	47,994		
HP BLc QLogic QMH2462 Dual Channel FC HBA Opt Kit	403619-B21	1	749	3	2,247		
HP BLc7000 1 PH 2 PowerSupply 4 Fan Full ICDC Kit	403321-B21	1	6,983	1	6,983		
HP BLc7000 Encl Pwr Sply IEC320 Option	412138-B21	1	249	4	996		
HP BLc7000 Encl Single Fan Option	412140-B21	1	149	4	596		
HP BLc 1Gb Enet Pass Thru Mod Opt Kit	406740-B21	1	999	2	1,998		
HP BLc 4Gb FC Pass Thru Module	403626-B21	1	4,499	6	26,994		
HP 5642 Pallet Unassembled Rack	358254-B21	1	865	5	4,325		
UPS R1500 XR Low Voltage US	204404-001	1	866	1	866		
36GB 15Krpm U320 UNI HDD	286776-B22	1	269	714	192,066		
36GB 15Krpm U320 UNI HDD (10% spares)	286776-B22	1	269	72			19,368
HP 146GB 10K U320 Pluggable Hard Drive	286716-B22	1	409	12	4,908		
HP 146GB 10K U320 Pluggable Hard Drive (10% Spares)	286716-B22	1	409	2			818
HP 36GB 10K SAS 2.5 Hot Plug Hard Drive	375859-B21	1	279	2	558		
HP Storageworks MSA 30 SB Storage	302969-B21	1	2,829	34	96,186		
Modular SAN Array 1000 (incl. 2 Gb SFP SW Transceiver Kit)	201723-B22	1	6,995	18	125,910		
Modular SAN Array 1000 (incl. 2 Gb SFP SW Transceiver Kit) (10% Spares)	201723-B22	1	6,995	2			13,990
HP Storageworks MSA 30 SB Storage	302969-B21	1	2,829	4			11,316
Storage Works LC/LC 15m Fibre Cable	221692-B23	1	103	24	2,472		
Storage Works LC/LC 15m Fibre Cable (10% spares)	221692-B23	1	103	3			309
HP StorageWorks 4/32 Full SAN Switch	A7393A	1	32,490	1	32,490		
HP 4GB SW Single Pack SFP Transceiver	A7446B	1	199	24	4,776		
HP 1y PW 4h 24x7 Stor B Ser 32Pts HWSupp	UA490PE	1	1,566	3			4,698
HP s7540 CRT Monitor	PF997AA#ABA	1	139	1	139		
HP USB Standard Keyboard	DX752AV#ABA	1	12	1	12		
HP USB 2-Button Optical Scroll Mouse	PT951AV	1	5	1	5		
HP 3y 4h 24x7 c7000 Enclosure HW Supp	UE479E	1	927	1			927
HP 3y 4h 24x7 c-Class Svr Blade HW Supp	UE459E	1	369	1			369
				<b>Subtotal</b>	<b>560,520</b>		<b>51,795</b>
<b>Server Software</b>							
Microsoft SQL Server 2005 Enterprise X64 Edition(per processor)	810-03150	Microsoft	2	23,911	2	47,822	Incl Below
Microsoft Visual C++ Standard	254-00170	Microsoft	2	109	1	109	Incl Below
Microsoft Windows 2003 Server, Enterprise Edition X64	P72-00274	Microsoft	2	2,334	1	2,334	Incl Below
Microsoft Problem Resolution Services		Microsoft	2	245	1		245
				<b>Subtotal</b>	<b>50,265</b>		<b>245</b>
<b>Client Hardware</b>							
HP ProLiant BL460c G1 5160 2G 1P Svr - 3.0 GHz Intel 5160 Dual Core Processor, 2 GB memory, 2 embedded NICs - integrated Smart Array E200i Controller	416656-B21	1	3,479	8	27,832		
HP 36GB 10K SAS 2.5 Hot Plug Hard Drive	375859-B21	1	279	16	4,464		
HP 3y 4h 24x7 c-Class Svr Blade HW Supp	UE459E	1	369	8			2,952
				<b>Subtotal</b>	<b>32,296</b>		<b>2,952</b>
<b>Client Software</b>							
Windows Server 2003, Standard Edition	P73-00295	Microsoft	2	719	8	5,752	Incl. Above
				<b>Subtotal</b>	<b>5,752</b>		<b>0</b>
<b>User Connectivity</b>							
HP ProCurve Switch 2824	J4903A#ABA	1	2499	1	2,499		
HP CP for HP ProCurve Networking products 3 Yr 4 hr/24x7	U2856E	1	1000	1			1,000
10 foot Cat5E Non Booted Network Patch Cables	cblc5ENB10	3	3	10	30		
10 foot Cat5E Non Booted Network Patch Cables (plus 10% spares)	cblc5ENB10	3	3	2			6
				<b>Subtotal</b>	<b>2,529</b>		<b>1,006</b>
Large Purchase and Net 30 discount (See Note 1)	16.0%	1			<b>(\$95,250)</b>		<b>(\$8,920)</b>
				<b>Total</b>	<b>\$556,112</b>		<b>\$47,078</b>
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.					<b>Three-Year Cost of Ownership: USD \$603,191</b>		
					<b>tpmC Rating: 222,117</b>		
					<b>\$ / tpmC: USD \$2.72</b>		
Pricing: 1=HP Direct 800-203-6748 2= Microsoft 3= LanAdapters.com							
Note 1 = Discount based on HP Direct guidance applies to all lines where pricing = 1							
* = These components are not immediately orderable. See the FDR for more information.							
Note 2 = The benchmark results were audited by Lorna Livingtree of Performance Metrics							

## Numerical Quantities Summary

**MQTH, Computed Maximum Qualified Throughput**

**222,117 tpmC**

<b>Response Times (in seconds)</b>	<b>Average</b>	<b>90%</b>	<b>Maximum</b>
New-Order	0.32	0.50	5.45
Payment	0.28	0.46	5.49
Order-Status	0.30	0.48	4.97
Delivery (interactive portion)	0.11	0.11	1.68
Delivery (deferred portion)	0.14	0.19	4.73
Stock-Level	0.30	0.48	3.00
Menu	0.11	0.11	1.69

### **Transaction Mix, in percent of total transaction**

New-Order	44.91%
Payment	43.02%
Order-Status	4.02%
Delivery	4.01%
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	18.02/0.00	18.03/12.06	18.35/120.53
Payment	3.02/0.00	3.03/12.06	3.35/120.53
Order-Status	2.02/0.00	2.03/10.06	2.35/100.53
Delivery (interactive)	2.02/0.00	2.03/5.07	2.35/50.52
Stock-Level	2.02/0.00	2.03/5.07	2.35/50.53

### **Test Duration**

Ramp-up time	51 minutes
Measurement interval	120 minutes
Transactions (all types) completed during measurement interval	86,636,066
Ramp down time	24 minutes

### **Checkpointing**

Number of checkpoints	4
Checkpoint interval	30 minutes