



**HP ProLiant ML350 G5**  
**2.66 GHz**  
**C/S with 2 ProLiant ML110G4**

**TPC-C Version 5.8**

Report Date: **June 8, 2007**

Revision Date: **August 29, 2007**

Total System Cost		TPC-C Throughput	Price/Performance	Availability Date
<b>\$74,368 USD</b>		<b>100,926 tpmC</b>	<b>\$0.74 USD/ tpmC</b>	<b>June 8, 2007</b>
Processors	Database Manager	Operating System	Other Software	Number of Users
1/4/4 Intel X5355 2.66 GHz QC	Oracle Database 10g Standard Edition One	Oracle Enterprise Linux	Microsoft COM+	<b>80,000</b>

**HP ProLiant ML350 G5 w/ 2.66 GHz processor and 24GB RAM, 2 SMART Array P800 SAS RAID Controllers, 1 SMART Array E200i SAS RAID Controller, 2 X 36GB 10K SFF SAS Drives, and 4 X 146GB 10K SFF SAS Drives in internal bay**

**4 RTEs simulating 80,000 PCs**

**1 HP 5642 Rack containing: 4 X MSA 70 StorageWorks Enclosure with 25X 36 GB 15K SFF SAS Drives**

**2 HP ProLiant ML110 G4 NC110T**

	Server		Each Client	
System Components	Quantity	Description	Quantity	Description
Processor	1/4/4	Intel X5355 QC 2.66 GHz 8 MB cache	1	3.0GHz Xeon w/ 256K cache
Memory	24 GB	4x4GB and 4x2GB		1.5GB
Disk Controllers	2	Smart P800 Controller	1	Integrated IDE Controller
	1	Smart E200i Controller		
Disk Drives	4	146 GB 10K SFF SAS drives (log)	1	80 GB ATA Drive
	100	36 GB 15K SFF SAS drives (data)		
	1	36 GB 10K SFF SAS drives (OS)		
Total Storage	3960.6 GB			

Hewlett-Packard		HP ProLiant ML350G5			TPC-C Rev. 5.8		
Company					Report Date	8-Jun-07	
					Revision Date	29-Aug-07	
Description	Part Number	Pricing	Unit Price	Qty	Extended Price	3 yr. Maint. Price	
<b>Server Hardware</b>							
HP ProLiant ML350G5 SFF SAS/SATA Tower CTO Chassis	395570-B21	1	1,013	1	1,013		
HP X5355 ML350G5 FIO Kit	436015-L21	1	1,399	1	1,399		
HP SA E200 64MB Cache FIO Kit	405102-B21	1	99	1	99		
8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21	1	2,399	1	2,399		
HP 48X CD-ROM ALL (no screws)	384758-B21	1	79	1	79		
8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21	1	2,399	1	2,399		
4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21	1	749	2	1,498		
HP Smart Array P800 Controller	381513-B21	1	1,099	2	2,198		
HP NC7170 PCI-X Dp Gigabit Svr Adapter	313881-B21	1	269	1	269		
HP s7540 17in. CRT Monitor	PF997AA#ABA	1	139	1	139		
HP 5642 Pallet Unassembled Rack	358254-B21	1	865	1	865		
T1000 UPS	AF403A	1	395	1	395		
36GB 15Krpm SFF SAS HDD	431933-B21	1	369	100	36,900		
146GB 10K SAS 2.5 HP HDD	431958-B21	1	409	4	1,636		
HP 36GB 10K SAS 2.5 Hot Plug Hard Drive	375859-B21	1	269	1	269		
HP StorageWorks MSA-70 Storage	418800-B21	1	3,199	4	12,796		
HP 3y 4h 24x7 MSA60/70 HW Support	UF303E	1	2,198	4		8,792	
HP 3y 4h 24x7 ProLiant ML350 HW Support	U4513E	1	449	1		449	
					<b>Subtotal</b>	<b>64,353</b>	<b>9,241</b>
<b>Server Software</b>							
Oracle Enterprise Linux		6	0	1	0		
Oracle Unbreakable Linux Support: Enterprise Linux Basic Limited for 3 years		2	1,197	1		1,197	
Oracle Database 10g Standard Edition One, Unlimited Users , 3 years		2	2,498	1	2,498		
Oracle Premium Support for 3 years		2	1,099	3		3,297	
					<b>Subtotal</b>	<b>2,498</b>	<b>4,494</b>
<b>Client Hardware</b>							
HP ML110G4 P915 NHP-SATA US Svr,512MB, NHP 160GB SATA, single port ni	417248-001	1	799	2	1,598		
HP 512MB UB PC2-5300 1x512MB Kit	432803-B21	1	69	2	138		
HP NC110T PCIe Gigabit Server Adapter	434905-B21	1	99	2	198		
HP 3y 4h 24x7 ProLiant ML110 HW Support	U4435E	1	366	2		732	
					<b>Subtotal</b>	<b>1,934</b>	<b>732</b>
<b>Client Software</b>							
Microsoft Problem Resolution Services	N/A	3	245	1		245	
Windows Server 2003, Standard Edition SP1	P73-00295	3	999	2	1,998	Incl.	
Microsoft Visual C++ .Net Standard 2003	254-00170	3	109	1	109		
					<b>Subtotal</b>	<b>2,107</b>	<b>245</b>
<b>User Connectivity</b>							
4 port KVM switch	NW0099	5	66	3	198		
3 foot Cat5E Non Booted Network Patch Cables (plus 10% spares)	415-1003	4	1	4	5		
					<b>Subtotal</b>	<b>203</b>	<b>0</b>
Large Purchase and Net 30 discount (See Note 1)	15.0%	1				<b>(\$9,943)</b>	<b>(\$1,496)</b>
					<b>Total</b>	<b>\$61,152</b>	<b>\$13,216</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</b>		<b>\$74,368</b>
					<b>tpmC Rating:</b>		<b>100,926.8</b>
					<b>\$ / tpmC: USD</b>		<b>\$0.74</b>
Pricing: 1=HP Direct 800-203-6748 2=Oracle 3=Microsoft 4= http://store.graycables.com 5= www.serversdirect.com							
Note 1 = Discount based on HP Direct guidance applies to all lines where pricing = 1							
Note 6=Oracle Enterprise Linux is a free download							
The benchmark results were audited by Lorna Livingtree of Performance Metrics							

## Numerical Quantities Summary

**MQTH, Computed Maximum Qualified Throughput**

**100,926 tpmC**

<b>Response Times (in seconds)</b>	<b>Average</b>	<b>90%</b>	<b>Maximum</b>
New-Order	0.203	0.229	5.162
Payment	0.173	0.190	5.152
Order-Status	0.197	0.233	5.158
Delivery (interactive portion)	0.123	0.102	4.858
Delivery (deferred portion)	0.083	0.187	4.875
Stock-Level	0.566	0.837	5.616
Menu	0.123	0.102	4.875

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

New-Order	44.917%
Payment	43.018
Order-Status	4.020%
Delivery	4.025%
Stock-Level	4.020%

<b>Emulation Delay (in seconds)</b>	<b>Resp.Time</b>	<b>Menu</b>
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

<b>Keying/Think Times (in seconds)</b>	<b>Min.</b>	<b>Average</b>	<b>Max.</b>
New-Order	18.005/0.00	18.005/12.098	18.013/120.992
Payment	3.010/0.00	3.010/12.010	3.018/120.087
Order-Status	2.010/0.00	2.010/10.011	2.014/100.014
Delivery (interactive)	2.010/0.00	2.010/5.020	2.015/50.103
Stock-Level	2.010/0.00	2.010/5.010	2.017/50.080

### **Test Duration**

Ramp-up time	46:10
Measurement interval	120 minutes
Transactions (all types) completed during measurement interval	26,963,480
Ramp down time	50 minutes

### **Checkpointing**

Number of checkpoints	4
Checkpoint interval	25:29