

Hewlett Packard Company	ProLiant ML350T03 X3.06/533 512 SA641	TPC-C Rev. 5.3
	C/S with HP ML110	Report Date: Oct. 19, 2004

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
\$27,827 USD	17,810	\$1.57 USD	Oct. 19, 2004

Processors	Database Manager	Operating System	Other Software	Number of Users
1 Intel Xeon 3.06 GHz – 512 K L3 cache – Server 1 Intel Xeon 3.0 GHz – Clients	Microsoft SQL Server 2000 Standard Edition SP3	Microsoft Windows Server 2003, Standard Edition	Microsoft Visual C++ Microsoft COM+	14500

The diagram illustrates the hardware configuration for the system. It features a central server rack and a client tower. Callout boxes provide detailed specifications for various components:

- 2 HP Storage Works MSA30 disk enclosures with 28X 18.2 GB 15K drives**: Two external storage enclosures are shown to the left of the server rack.
- HP ProLiant ML350T03 w/ 2.5 GB RAM, 2 SMART 5302 RAID controller 1X SA641 controller 2X 72GB 10K Drives and 3X 18.2 GB 15K drives in the internal bays 1X 36GB 10 K OS drive**: A central callout box points to the server rack.
- 1 RTE simulating 14500 PCs**: A callout box points to the client tower.
- 1 HP ML110 1x3.0 GHz Processor w/768MB RAM, 1X 80 GB ATA drive**: A callout box points to the client tower.

	Server		Each Client	
System Components	Quantity	Description	Quantity	Description
Processor	1	3.06 GHz Intel Xeon w/ 512 K Cache	1	3.0 GHz Pentium III Xeon w/ 256K cache
Memory	2	1GB DDR	1	256 MB DDR
	1	512MB DDR	1	512MB DDR
	1	SA 641 Controller	1	IDE controller
Disk Controllers	2	SMART 5302 Array Controller		
	1	Internal SCSI Controller		
	1	Internal SCSI Controller		
Disk Drives	2	72.8 GB SCSI Drives	1	80 GB ATA
	31	18.2 GB SCSI Drives		
	1	36.4 GB SCSI Drives		
Total Storage		695.82 GB		80GB

Hewlett-Packard		ML350T03 X3.06/533 512 SA641			TPC-C Rev. 5.3		
Company		Client/Server		Report Date:		19-Oct-04	
Description	Part Number	Third Party	Unit Price	Qty	Extended Price	3 yr. Maint. Price	
Server Hardware		Brand Pricing					
ML350T03 X3.06/533 512 SA641 US	333373-001		1,369	1	1,369		
1GB PC2100 DDR SDRAM DIMM 2x512 WW	287497-B21		499	2	998		
S5500 15 carbon / silver monitor	281802-001		119	1	119		
HP StorageWorks Modular Smart Array 30 Enclosure	302969-B21		2,978	2	5,956		
Smart Array 5302/128 Controller WW	A9825A		1,399	2	2,798		
Pro UPS 500 127V US	136386-001		146	1	146		
18.2GB 15Krpm U320 UNI HDD	286775-B22		269	31	8,339		
18.2GB 15Krpm U320 UNI HDD (10% spares of external drives)	286775-B22		269	3		807	
HP 72GB 10K U320 Pluggable Hard Drive	286714-B22		389	2	778		
36GB 10K Ultra320 NHP Hard Drive WW	271832-B21		259	1	259		
CarePaq Service - 300 Series Servers 3Yr,7x24,4hr	162657-002		949	1		949	
FM-4E724-36 3YR 24X7/4HR EMPTY DISK ENCL	171242-002		157	2		314	
Subtotal					20,762	2,070	
Server Software							
SQL Server 2000 Standard Edition	228-01079	Microsoft	4,999	1	4,999		
Visual C++ .Net Standard	254-00170	Microsoft	109	1	109	Incl below	
Windows Server 2003, Standard Edition	P72-00264	Microsoft	738	1	738	Incl below	
Database Server Support Package	RO-PRORS-16U-01	Microsoft	245	1		245	
Subtotal					5,846	245	
Client Hardware							
ML110 P3.0 512KB 256MB 80GB ATA TWR US	359661-001		729	1	729		
512 UNREG PC3200 1X512 ML110 WW	354560-B21		259	1	259		
NC1020 PCI Gigabit NIC 10/100/1000 WOL	353377-B21		99	1	99		
Mini Desktop KVM Switch PS/2	3525554	Inland	12	1	12		
Mini Desktop KVM Switch PS/2 spare	3525554	Inland	12	2		24	
HP CP 3Y 4H 24x7 HW TC2120 4-Hour 24 Hour x 7 Day Coverage 3 Years	321653-002		448	1		448	
Subtotal					1,099	472	
Client Software							
Microsoft Windows 2000 Server	C11-00821	Microsoft	738	1	738	Incl. Above	
Subtotal					738	0	
User Connectivity							
7ft CAT 5e Network Patch Cables	CBLC57	LanAdapters	2	3	6		
Subtotal					6	0	
Large Purchase and Net 30 discount (See Note 1)	14.0%						
Total					(\$3,058)	(\$353)	
Total					\$25,393	\$2,434	
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:		\$27,827	
				tpmC Rating:		17,810	
				\$/tpmC:		USD 1.57	
Pricing: 1=HP 2= Microsoft 3=LanAdapters.com 4=Inland							
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

17,810 tpmC

Response Times (in seconds)	Average	90%	Maximum
New-Order	0.81	1.25	9.30
Payment	0.45	0.78	5.58
Order-Status	0.64	1.04	11.85
Delivery (interactive portion)	0.10	0.11	0.25
Delivery (deferred portion)	2.15	3.13	7.33
Stock-Level	5.39	6.92	16.96
Menu	0.10	0.11	0.70

Transaction Mix, in percent of total transaction

New-Order	44.94%
Payment	43.04%
Order-Status	4.01%
Delivery	4.01%
Stock-Level	4.00%

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	18.00/0.00	18.02/12.05	18.06/120.49
Payment	3.00/0.00	3.02/12.04	3.60/120.49
Order-Status	2.00/0.00	2.02/10.05	2.57/100.49
Delivery (interactive)	2.00/0.00	2.02/5.06	2.60/50.50
Stock-Level	2.00/0.00	2.02/5.05	2.60/50.49

Test Duration

Ramp-up time	20 minutes
Measurement interval	120 minutes
Transactions (all types) completed during measurement interval	4,734,877
Ramp down time	5 minutes

Checkpointing

Number of checkpoints	4
Checkpoint interval	30 minutes