



HP Integrity rx4640

C/S with 6 ProLiant ML110

TPC-C Version 5.3

Report Date

November 8, 2004

Total System Cost		TPC-C Throughput	Price/Performance	Availability Date
\$634,380 USD		161,217 tpmC	\$3.94 USD/ tpmC	December 17, 2004
Processors	Database Manager	Operating System	Other Software	Number of Users
4 x 1.6GHz Intel Itanium2 9M Processors – Server 1 x Xeon 3.0GHz / Client	Oracle Database 10g Standard Edition	Red Hat Enterprise Linux AS 3 Update 3	Microsoft COM+	129,000



10 x HP MSA1000 w/20 x MSA30 (data)
2 x HP MSA1000 (log)

HP Integrity rx4640




HP ProCurve Gigabit Switch



6 x HP ProLiant ML110

System Components	Server		Each Client	
	Quantity	Description	Quantity	Description
Processor	4	1.6 GHz Itanium2 9M w/ 9MB Cache	1	3.0GHz Xeon w/ 256K cache
Memory	32	4GB		1.5GB
Disk Controllers	6	PCI-X HBA FC Dual Controller	1	Integrated IDE Controller
	1	Integrated SCSI Controller		
Disk Drives	420	36GB 15K SCSI Drives	1	80 GB ATA Drive
	28	146GB 10K SCSI Drives		
Total Storage		19,208 GB		

	HP Integrity rx4640 1.60GHz/9MB 4P			TPC-C Version 5.3			
				Report Date:	8-Nov-04		
Description	Part Number	Third Party		Unit Price	Qty	Extended Price	3 yr. Maint. Price
Server Hardware							
HP Integrity rx4640, Intel Itanium2 processor 1.60GHz with 9MB L3 cache	AB533A	Brand	Pricing	1	1	56,700.00	
Single power supply, 1-Year Limited Warranty, Core I/O (2NICs, Mgt LAN, U320, SCSI, RS-232 sp, VGA, USB), 32-DIMM memory carrier board, 1 73GB/15krpm hard disk							
16GB memory quad (4 x 4GB DIMMs)	AB475A			1	8	45,000	360,000
73GB 15k Hot Plug Ultra320 SCSI Low Profile Drive	A9897A			1	1	1,350	1,350
Channel Adapter, PCI-X (64-bit, 133 MHz) with 2 LC connectors, auto	A6826A			1	6	4,395	26,370
USB Keyboard kit PC-104/105 (inc. USB Kydb and USB mouse)	A7861C			1	1	32	32
HP S5500 color monitor (carbon/silver 15-inch CRT)	P9006A#ABA			1	1	129	129
HP T1000 Low Voltage US Tower UPS	204155-001			1	1	399	399
Rack Model 5642	358254-B21			1	3	689	2,067
3YR 24x7/4HR for HP Integrity rx4640	HA110A3-6KT			1	1	8,759	8,759
Server Hardware Subtotal						447,047	8,759
External Storage							
Modular SAN Array 1000	201723-B22			1	12	6,995	83,940
Modular SAN Array 1000, Support 3yr 24x7, 4 hr	402164-002			1	12	3,538	42,456
2Gb SFF-SW Trmcr Kit	221470-B21			1	12	199	2,388
2Gb SFF-SW Trmcr Kit (10% spares)	221470-B21			1	2	199	398
Myricom 3M US Fibre Cable	257897-002			1	12	75	900
Myricom 3M US Fibre Cable (10% spares)	257897-002			1	2	75	150
StorageWorks Enclosure Model MSA 30 SB - Rack-mountable	302969-B21			1	20	2,978	59,560
146GB Pluggable Ultra320 SCSI 10,000 rpm Hard Drive (DB Log)	286776-B22			1	28	599	16,772
36GB Pluggable Ultra320 SCSI 15,000 rpm Hard Drive (Database)	286776-B22			1	420	299	125,580
36GB Pluggable Ultra320 SCSI 15,000 rpm Hard Drive (10% spares)	286776-B22			1	28	299	8,372
F1M4E724-36 3YR 24X7/4HR EMPTY DISK ENCL	171242-002			1	20	157	3,140
Server External Storage Subtotal						289,688	53,968
Server Software							
Red Hat Enterprise Linux AS 3.0	T2744AA-324	HP		1	1	1,908	1,908
3 Yrs 24 x 7 Support Contract for Red Hat Enterprise Linux AS 3.0	HA110A3-6L4	HP		1	1	4,839	4,839
Oracle Database 10g Standard Edition-Per Processor for 3 years, unlimited users	run-time	Oracle		2	4	7,500	30,000
Oracle Database Server Support Package for 3 years	run-time	Oracle		2	3	2,000	6,000
Server Software Subtotal						31,908	10,839
Client Hardware							
HP ProLiant ML110 P3.0GHz 256MB memory 80GB Ultra ATA drive.	359661-001			1	6	729	4,374
PCI Gigabit NIC (embedded) 10/100/1000 WOL (Wake on LAN)							
ML110 3 Years 7x24 4hr Support	U4435A			1	6	448	2,688
512 UNREG PC3200 1X512 ML110 WW	354560-B21			1	12	259	3,108
256 UNREG PC3200 1X256 ML110 WW	354557-B21			1	6	149	894
Client Hardware Subtotal						8,376	2,688
Client Software							
Microsoft Windows 2000 Server	C11-00821	Microsoft		3	6	738	4,428
Client Software Subtotal						4,428	
User Connectivity							
HP Procurve 1GB - Switch 2824	J4903A#ABA			1	1	2,499	
Connectivity Subtotal						2,499	
Large Purchase (Integrity Direct) and Net 30 discount						(\$161,092)	(\$3,153)
Large Purchase (Direct) and Net 30 discount						(\$48,021)	(\$9,065)
Oracle E-Business Suite Mandatory Discount						(\$1,800)	0
Total						\$573,033	\$61,348
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							Three-Year Cost of Ownership: \$634,380 USD
tpmC Rating:						161,217	

Numerical Quantities Summary

MQTH, Computed Maximum Qualified Throughput

161,217 tpmC

Response Times (in seconds)	Average	90%	Maximum
New-Order	0.201	0.302	6.315
Payment	0.193	0.294	7.651
Order-Status	0.208	0.310	5.155
Delivery (interactive portion)	0.102	0.103	0.124
Delivery (deferred portion)	0.089	0.186	2.812
Stock-Level	0.195	0.296	5.570
Menu	0.102	0.103	0.126

Transaction Mix, in percent of total transaction

New-Order	44.915%
Payment	43.020%
Order-Status	4.020%
Delivery	4.025%
Stock-Level	4.020%

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	18.005/0.00	18.008/12.605	18.024/126.004
Payment	3.010/0.00	3.018/12.015	3.031/120.098
Order-Status	2.010/0.00	2.018/10.015	2.030/99.971
Delivery (interactive)	2.010/0.00	2.018/5.025	2.030/50.198
Stock-Level	2.010/0.00	2.018/5.015	2.030/49.934

Test Duration

Ramp-up time	46.5 minutes
Measurement interval	120 minutes
Transactions (all types) completed during measurement interval	43,072,709
Ramp down time	50.5 minutes

Checkpointing

Number of checkpoints	5
Checkpoint interval	24.5 minutes