

**IBM® eServer® xSeries® 460 c/s
and
Microsoft® SQL Server 2005**

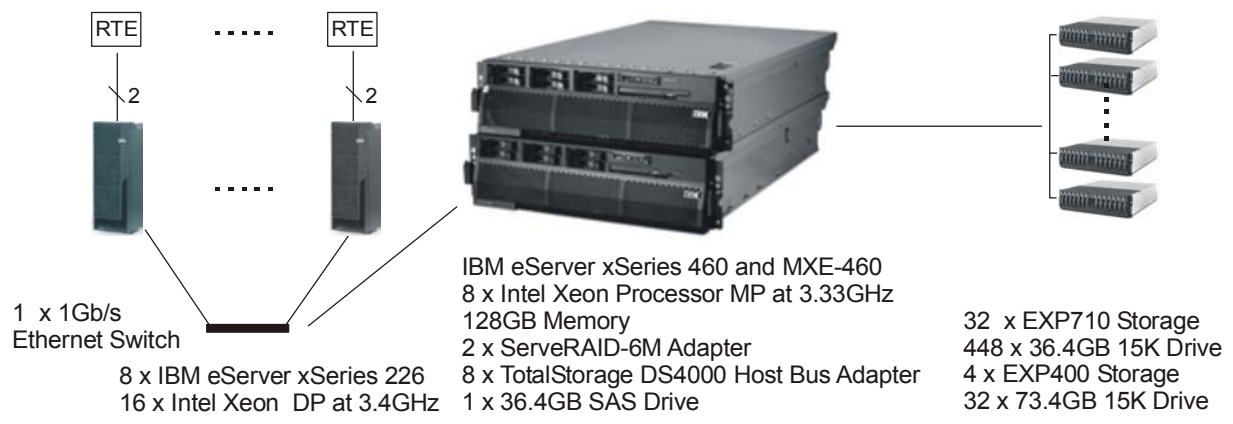
TPC-C Rev. 5.4

Report Date: Sept. 14, 2005
Amended: Nov. 17, 2005

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
\$1,470,259 USD	241,300 tpmC	\$6.09 USD / tpmC	Nov. 30, 2005

Database Server Processors/Cores/Threads	Database Manager	Operating System	Other Software	Number of Users
8/8/16 64-Bit Intel® Xeon™ Processor MP at 3.33GHz	Microsoft SQL Server 2005 Enterprise x64 Edition	Microsoft Windows® Server 2003 Enterprise x64 Edition	Microsoft Visual C++ 6.0 Microsoft COM+	194,760

8 RTEs emulating 194,760 users



System Component	Qty	Server:	Qty	Each of Eight Clients:
Processors/Cores/Threads	8/8/16	Intel Xeon Processor MP at 3.33GHz/8MB L3 Cache	2/2/4	Intel Xeon DP at 3.4GHz
Cache		Cache		2MB L2 Cache
Memory	32	4GB ECC RDIMM	4	512MB
Disk Controllers	2	ServeRAID-6M Adapter	2	256MB
Disk Drives	448	36.4GB 2Gbps FC (15K)	1	Ultra320 SCSI Interface
	32	73.4GB Ultra320 (15K)	1	36.4GB (15K)
	1	36.4GB SAS (10K)		
Total Storage		17535GB		

IBM Corporation	IBM @server 460 c/s with Microsoft SQL Server 2005			TPC-C Revision 5.4			
	Report Date: September 14, 2005						
Description	Part Number	Third Party Brand	Pricing	Unit Price	Quantity	Extended Price	3-Yr. Maint. Price
Server Hardware							
xSeries 460 with 2 x 3.33GHz/8MB L3 Cache Intel Xeon Processor MP	8872-3RU	IBM		1	24,999	1	24,999
xSeries 3.33GHz/8MB L3 Cache Intel Xeon Processor MP	13N0713	IBM		1	5,699	6	34,194
MXE-460 (0 Processors, 0 Memory, 2 Memory Cards)	8874-1RU	IBM		1	6,999	1	6,999
Scalability Cable 2.3.M	13M7414	IBM		1	299	2	598
8GB (2x4GB) PC2-3200 CL3 2RX4 ECC DDR2 SDRAM RDIMM	30R5145	IBM		1	17,879	16	286,064
Active Memory 4-Slot Memory Expansion Card	13M7409	IBM		1	499	4	1,996
IBM 36.4GB 10K 2.5 inch SAS Drive	26K5654	IBM		1	419	1	419
ServeRAID-6M Ultra320 SCSI Adapter	32P0033	IBM		1	879	2	1,758
E54 15" (13.8" Viewable) Color Monitor	633147N	IBM		1	139	1	139
IBM Preferred Pro Full-Size Keyboard PS/2	25R2968	IBM		1	29	1	29
Optical 3-Button ScrollPoing Mouse	90P0742	IBM		1	25	1	25
ServicePac for 3-Year 24x7x4 Support (x460 and MXE-460)	96P2688	IBM		1	3,390	2	6,780
ServicePac for 3-Year 24x7x4 Support (Monitor)	30L9183	IBM		1	90	1	90
Subtotal						357,220	6,870
Server Storage							
IBM TotalStorage DS4000 Host Bus Adapter	24P0960	IBM		1	1,485	8	11,880
IBM TotalStorage DS4500 Midrange Disk Subsystem	174290U	IBM		1	49,900	4	199,600
IBM DS4000 Mini Hub	19K1269	IBM		1	899	8	7,192
IBM Short Wave SFP Module	19K1271	IBM		1	499	136	67,864
IBM 1m LC-LC Fibre Channel Cable	19K1247	IBM		1	79	64	5,056
IBM 5m LC-LC Fibre Channel Cable	19K1248	IBM		1	129	8	1,032
IBM TotalStorage DS4000 EXP710 Storage Exp. Unit	1740710	IBM		1	6,000	32	192,000
2Gbps FC 36.4GB 15K Hot-Swap HDD	06P5772	IBM		1	1,115	448	499,520
73.4GB 15K Ultra320 SCSI Hot-Swap HDD	90P1381	IBM		1	499	32	15,968
IBM EXP400 Rack Storage Exp. Enclosure	17331RU	IBM		1	3,099	4	12,396
IBM UPS 750TLV	21301TX	IBM		1	299	2	598
IBM S2 42U Standard Rack	93074SX	IBM		1	1,489	5	7,445
ServicePac for 3-Year 24x7x4 Support (EXP710)	41L2768	IBM		1	760	32	24,320
ServicePac for 3-Year 24x7x4 Support (DS4500)	96P2062	IBM		1	1,087	4	4,348
ServicePac for 3-Year 24x7x4 Support (EXP400)	41L2768	IBM		1	760	4	3,040
ServicePac for 3-Year 24x7x4 Support (Rack)	41L2760	IBM		1	300	5	1,500
Subtotal						1,020,551	33,208
Server Software							
Microsoft SQL Server 2005 Enterprise x64 Edition	810-03134	Microsoft		2	23,432	8	187,456
Microsoft Windows Server 2003 Enterprise x64 Edition *	P72-00264	Microsoft		2	2,334	1	2,334
Microsoft Problem Resolution Services		Microsoft		2	245	1	245
Subtotal						189,790	245
Client Hardware							
x226 with 3.4GHz/2MB Xeon DP, 512MB (2x256MB) Memory	8648-6AU	IBM		1	1,939	8	15,512
3.4GHz/2MB Xeon DP Processor Upgrade	13N0674	IBM		1	1,049	8	8,392
1GB (2x512MB) PC-3200 DDR2 ECC SDRAM RDIMM	73P3522	IBM		1	399	16	6,384
36.4GB 15K Ultra320 SCSI Drive	90P1380	IBM		1	299	8	2,392
PRO/1000 MT Dual-Port Server Adapter	73P2701	Intel		1	249	24	5,976
E54 15" (13.8" Viewable) Color Monitor	633147N	IBM		1	139	8	1,112
ServicePac for 3-Year 24x7x4 Support (x226)	96P2250	IBM		1	586	8	4,688
ServicePac for 3-Year 24x7x4 Support (Monitor)	30L9183	IBM		1	90	8	720
Subtotal						39,768	5,408
Client Software							
Microsoft Windows 2000 Server with COM+*	C11-00821	Microsoft		2	738	8	5,904
Microsoft Visual C++ Professional 6.0	254-00170	Microsoft		2	109	1	109
Subtotal						6,013	
Network Components							
NetGear 24-Port Ethernet Switch (2 spares)	GSM 7224			3	745	3	2,235
Ethernet Cable 8 Ft. (2 spares)				3	4	12	48
Subtotal						2,283	
Compsat Technology Discounts (See Quote to View Line Items)							
Total						1,615,625	45,731
Discount						185,639	5,458
Pricing: 1- IBM; 2 - Microsoft (*See Quote for Discounts); 3 - amazon.com				Three-Year Cost of Ownership USD:		\$1,470,259	
Audited by Bradley J. Askins, InfoSizing, Inc.				tpmC:		241,300	
				\$ USD/tpmC:		\$6.09	
<p>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.</p> <p>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 specifications. If you find that stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org.</p>							

Numerical Quantities Summary			
MQTh, Computed Maximum Qualified Throughput: 241,300 tpmC			
Response Times (in seconds)	90th Percentile	Average	Maximum
New-Order	1.23	0.60	16.06
Payment	1.21	0.58	17.24
Delivery	0.11	0.10	2.22
Stock Level	1.49	0.83	14.89
Order Status	1.23	0.61	15.10
Delivery (Deferred)	0.16	0.13	4.09
Menu	0.11	0.10	2.38
Response Time Delay Added for Emulated Components: 0.1 Seconds			
Transaction Mix (in percent of total transactions)			Percent
New-Order			44.95
Payment			43.03
Delivery			4.01
Stock-Level			4.01
Order Status			4.00
Keying/Think Times (in seconds)	Minimum	Average	Maximum
New Order	18.02 / 0.00	18.03 / 12.07	18.07 / 120.53
Payment	3.02 / 0.00	3.03 / 12.06	3.06 / 120.53
Delivery	2.02 / 0.00	2.03 / 5.07	2.06 / 50.53
Stock Level	2.02 / 0.00	2.03 / 5.06	2.06 / 50.53
Order Status	2.02 / 0.00	2.03 / 10.06	2.06 / 100.53
Test Duration			
Ramp-up time			51 minutes 15 seconds
Measurement interval			120 minutes
Number of checkpoints			4
Checkpoint interval			29.5 minutes
Number of transactions (all types) completed in measurement interval			67,000,366