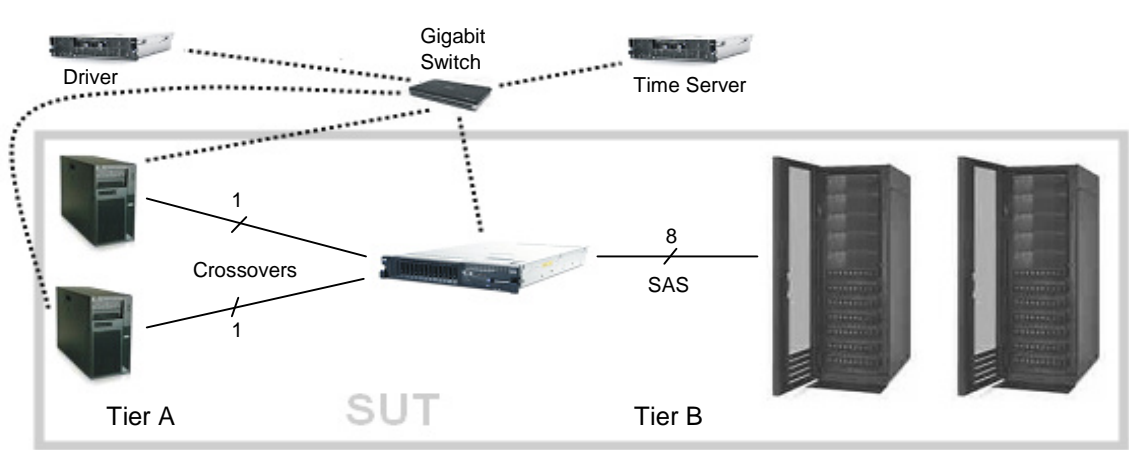
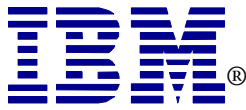
	IBM® System x® 3650 M2 Microsoft® SQL Server 2008		TPC-E 1.7.0 TPC Pricing 1.4.0
			Report Date: July 14, 2009
TPC-E Throughput 817.15 tpsE	Price/Performance \$319.15 USD per tpsE	Availability Date July 31, 2009	Total System Cost \$260,792 USD
Database Server Configuration			
Operating System Microsoft Windows Server 2008 Enterprise x64 Edition	Database Manager Microsoft SQL Server 2008 Enterprise x64 Edition (SP1)	Processors/Cores/ Threads 2/8/16	Memory 96GB
			
2 x IBM x3200 M2 Each contains: - 1 x Quad-Core Intel Xeon Processor X3360 2.83GHz (1 Proc/4 Cores/4 Threads) - 2GB Memory - 2 x 73GB 15K SAS (RAID-1) - Onboard RAID Controller - Onboard Gigabit Ethernet - 1 x NetXtreme II 1000 Express	IBM System x3650 M2 - 2 x Intel Xeon Processor X5570 2.93GHz (2 Procs/8 Cores/16 Threads) - 96GB Memory - 8 x 300GB 10K SATA (RAID-1) - 4 x IBM ServeRAID-MR10M SAS Controller - 1 x IBM ServeRAID-MR10i SAS Controller - Onboard Gigabit Ethernet - 1 x Ethernet Daughter Card	32 x IBM System Storage EXP3000 Enclosure Each contains: - 12 x 73GB 15K SAS = 16 x 24-drive RAID-10 384 Total External Drives	
Initial Database Size 3,163 GB	Redundancy Level: 1 RAID-10 Log & Data		Storage 384 x 73.4 GB 8 x 300 GB



IBM System x3650 M2 Microsoft SQL Server 2008

TPC-E 1.7.0
TPC Pricing 1.4.0

Report Date:
July 14, 2009

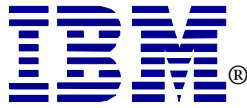
Availability Date:
July 31, 2009

Description	Part Number	Price Source	Unit Price	Quantity	Extended Price	3-Yr. Maint. Price
Server Hardware						
x3650 M2 with 1 x Intel Xeon Processor X5570 (2.93GHz / 1MB L2 Cache / 8MB L3 Cache) 2x 2GB Memory	794792U	1	4,379	1	4,379	
Dual port 1Gb Ethernet Daughter Card	46M1076	1	89	1	89	
Intel Xeon Processor X5570 (2.93GHz/1MB L2/8MB L3 Cache)	46M1087	1	2,135	1	2,135	
8GB (1X8GB) Dual Rank PC3-8500 CL7 ECC DDR3-1066 LP RDIMM	46C7449	1	1,049	12	12,588	
300GB 10K SFF SATA	43W7666	1	499	8	3,992	
IBM ServeRAID-MR10M SAS/SATA Controller	44E8825	1	899	4	3,596	
IBM Preferred Pro USB Keyboard	40K9584	1	29	1	29	
IBM 3-Button Optical Mouse - Black - USB	40K9201	1	19	1	19	
ServicePac for 3-Year 24x7x4 Support (x3650 M2)	21P2078	1	600	1		600
Acer V173 b Black 17" 5ms LCD Monitor (2 spares)	V173b	3	120	3	360	
				Subtotal	27,187	600
Server Storage						
IBM S2 42U Standard Rack	93074RX	1	1,489	2	2,978	
IBM System Storage EXP3000 Enclosure	1727-01X	1	3,199	32	102,368	
IBM 1M SAS cable	39R6529	1	119	28	3,332	
IBM 3M SAS cable	39R6531	1	135	4	540	
IBM Hot-Swap 3.5 inch 73.4GB 15K SAS HDD	43W7523	1	309	384	118,656	
ServicePac for 3-Year 24x7x4 Support (EXP3000)	41L2768	1	760	32		24,320
ServicePac for 3-Year 24x7x4 Support (Rack)	41L2760	1	300	2		600
				Subtotal	227,874	24,920
Server Software						
Microsoft SQL Server 2008 Enterprise x64 Edition	810-07509	2	24,999	2	49,998	
Microsoft Windows Server 2008 Enterprise x64 Edition	P72-03195	2	3,999	1	3,999	
Microsoft Problem Resolution Services	N/A	2a	245	1		245
				Subtotal	53,997	245
Client Hardware						
x3200 M2 with Intel Xeon X3360 (2.83GHz/12MB L2 Cache) 1GB (2x512GB) PC2-6400 CL6 ECC DDR2 800MHz	436776U	1-S	1,519	2	3,038	
1GB (2x512MB) PC2-6400 CL6 ECC DDR2 800MHz DIMM	46C7443	1-S	115	2	230	
73GB 15K 2.5" SFF Hot-Swap SAS	43X0837	1-S	369	4	1,476	
NetXtreme II 1000 Express Ethernet Adapter	39Y6066	1	169	2	338	
ServicePac for 3-Year 24x7x4 Support (x3200 M2)	51J9054	1	399	2		798
				Subtotal	5,082	798
Client Software						
Microsoft Windows Server 2008 Standard x64 Edition	P73-04190	2	999	2	1,998	
				Subtotal	1,998	0
Infrastructure						
Ethernet Crossover Cable (2 spares)	RCW-717	3	2	4	8	
				Subtotal	8	0
				Total	316,146	26,563
Dollar Volume Discount (See Note 1)		27.11%	1		77,551	
Microsoft Open Program Discount Schedule		7.80%	2		4,366	

Pricing: 1 - IBM - 1-800-656-0833 x35330; 2 - Microsoft; 3 - newegg.com
 Note 1: Discount applies to all line items where Pricing=1; pricing is for these or similar quantities.
 Discounts for similarly sized configurations will be similar to what is quoted here, but may vary based on the components in the price quotation
 S: One or more components of the measured configuration have been substituted in the priced configuration. See the FDR for details.
 * These components are not immediately orderable. See the FDR for more information.

Three-Year Cost of Ownership USD: \$260,792
TPC-E Throughput: 817.15
\$ USD/tpsE: \$319.15

Implementation and results audited by Doug Johnson for InfoSizing, Inc. (www.sizing.com)
 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 section 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. Thank you.



**IBM System x3650 M2
Microsoft SQL Server 2008**

**TPC-E 1.7.0
TPC Pricing 1.4.0**

Report Date:
July 14, 2009

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July 31, 2009

Numerical Quantities Summary				
Reported Throughput: 817.15 tpsE		Configured Customers: 409,000		
Response Time (in seconds)	Minimum	Average	90 th Percentile	Maximum
Broker-Volume	0.00	0.03	0.06	1.12
Customer-Position	0.00	0.03	0.06	4.76
Market-Feed	0.00	0.04	0.14	4.74
Market-Watch	0.00	0.02	0.05	0.90
Security-Detail	0.00	0.02	0.03	0.95
Trade-Lookup	0.00	0.60	0.78	9.07
Trade-Order	0.00	0.09	0.14	1.41
Trade-Result	0.00	0.09	0.16	10.51
Trade-Status	0.00	0.03	0.06	0.71
Trade-Update	0.01	0.71	0.83	10.45
Data-Maintenance	0.01	0.14	N/A	0.75
Transaction Mix		Transaction Count	Mix %	
Broker-Volume		2,882,455	4.900	
Customer-Position		7,647,504	13.000	
Market-Feed		588,349	1.000	
Market-Watch		10,588,263	17.999	
Security-Detail		8,235,913	14.000	
Trade-Lookup		4,705,699	7.999	
Trade-Order		5,941,471	10.100	
Trade-Result		5,883,500	10.001	
Trade-Status		11,176,988	19.000	
Trade-Update		1,176,487	2.000	
Data-Maintenance		120	N/A	
Test Duration and Timings				
Ramp-up Time (hh:mm:ss)			00:20:19	
Measurement Interval (hh:mm:ss)			02:00:00	
Business Recovery Time (hh:mm:ss)			00:19:41	
Total Number of Transactions Completed in Measurement Interval			58,826,629	