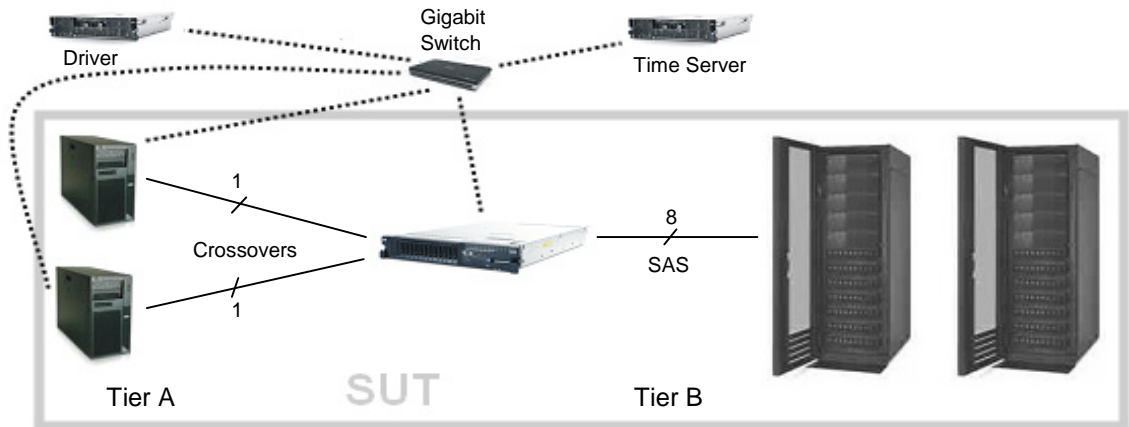
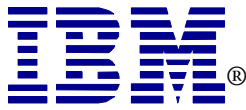
	<b>IBM<sup>®</sup> System x<sup>™</sup> 3650 M2</b> <b>Microsoft<sup>®</sup> SQL Server 2008</b>		<b>TPC-E 1.7.0</b> <b>TPC Pricing 1.4.0</b>
			Report Date: March 30, 2009
TPC-E Throughput <b>798.00 tpsE</b>	Price/Performance <b>\$378.63</b> <b>USD per tpsE</b>	Availability Date <b>June 30, 2009</b>	Total System Cost <b>\$302,146 USD</b>
<b>Database Server Configuration</b>			
Operating System <b>Microsoft Windows Server 2008 Enterprise x64 Edition</b>	Database Manager <b>Microsoft SQL Server 2008 Enterprise x64 Edition</b>	Processors/Cores/Threads <b>2/8/16</b>	Memory <b>96GB</b>
			
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 - 2 x 73GB 15K SAS (RAID-1) - 4 x IBM ServeRAID-MR10M SAS Controller - 1 x IBM ServeRAID-MR10i SAS Controller - Onboard Gigabit Ethernet - 1 x Ethernet Daughter Card	38 x IBM System Storage EXP3000 Enclosure - 2 of those contain (log): 8 x 73GB 15K SAS = 1 x 16-drive RAID-10 - 36 of those contain (data): 12 x 73GB 15K SAS = 18 x 24-drive RAID-10 <b>448 Total External Drives</b>	
Initial Database Size <b>3,093 GB</b>	Redundancy Level: <b>1</b> <b>RAID-10 Log &amp; Data</b>		Storage <b>450 x 73.4 GB Drives</b>



# IBM System x3650 M2 Microsoft SQL Server 2008

**TPC-E 1.7.0**  
**TPC Pricing 1.4.0**

Report Date:  
March 30, 2009

Availability Date:  
June 30, 2009

Description	Part Number	Price Source	Unit Price	Quantity	Extended Price	3-Yr. Maint. Price
<b>Server Hardware</b>						
x3650 M2 with 1 x Intel Xeon Processor X5570 (2.93GHz / 1MB L2 Cache / 8MB L3 Cache) 2x 2GB Memory	794792U	1a*	4,625	1	4,625	
Dual port 1Gb Ethernet Daughter Card	46M1076	1a*	199	1	199	
Intel Xeon Processor X5570 (2.93GHz/1MB L2/8MB L3 Cache)	46M1087	1a*	2,209	1	2,209	
IBM 8 GB PC2-5300 AMF 8GB (1x8GB) Dual Rank	44C7449	1a*	1,999	12	23,988	
73GB 15K 2.5" Hot-Swap SAS SFF	43X0837	1	369	2	738	
IBM ServeRAID-MR10M SAS/SATA Controller	43W4339	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	
				<b>Subtotal</b>	<b>35,763</b>	<b>600</b>
<b>Server Storage</b>						
IBM S2 42U Standard Rack	93074RX	1	1,489	2	2,978	
IBM System Storage EXP3000 Enclosure	1727-01X	1	3,199	38	121,562	
IBM 1M SAS cable	39R6529	1	119	32	3,808	
IBM 3M SAS cable	39R6531	1	135	6	810	
IBM Hot-Swap 3.5 inch 73.4GB 15K SAS HDD	43W7523	1	309	448	138,432	
ServicePac for 3-Year 24x7x4 Support (EXP3000)	41L2768	1	760	38		28,880
ServicePac for 3-Year 24x7x4 Support (Rack)	41L2760	1	300	2		600
				<b>Subtotal</b>	<b>267,590</b>	<b>29,480</b>
<b>Server Software</b>						
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
				<b>Subtotal</b>	<b>53,997</b>	<b>245</b>
<b>Client Hardware</b>						
x3200 M2 with Intel Xeon X3360 (2.83GHz/12MB L2 Cache) 1GB (2x512GB) PC2-6400 CL6 ECC DDR2 800MHz	436776U	1-S	1,575	2	3,150	
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
				<b>Subtotal</b>	<b>5,194</b>	<b>798</b>
<b>Client Software</b>						
Microsoft Windows Server 2008 Standard x64 Edition	P73-04190	2	999	2	1,998	
				<b>Subtotal</b>	<b>1,998</b>	<b>0</b>
<b>Infrastructure</b>						
Ethernet Crossover Cable (2 spares)	RCW-717	3	2	4	8	
				<b>Subtotal</b>	<b>8</b>	<b>0</b>
				<b>Total</b>	<b>364,550</b>	<b>31,123</b>
Dollar Volume Discount (See Note 1)		28.94%	1		89,161	
Microsoft Open Program Discount Schedule		7.80%	2		4,366	

Pricing: 1 - IBM - 1-866-426-0472; 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:** \$302,146  
**TPC-E Throughput:** 798.00  
**\$ USD/tpsE:** \$378.63

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:  
March 30, 2009

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Numerical Quantities Summary				
<b>Reported Throughput: 798.00 tpsE</b>		<b>Configured Customers: 400,000</b>		
Response Time (in seconds)	Minimum	Average	90 <sup>th</sup> Percentile	Maximum
Broker-Volume	0.00	0.03	0.06	0.35
Customer-Position	0.00	0.03	0.06	2.04
Market-Feed	0.00	0.04	0.13	2.04
Market-Watch	0.00	0.02	0.05	0.85
Security-Detail	0.00	0.02	0.03	0.97
Trade-Lookup	0.00	0.55	0.70	2.26
Trade-Order	0.00	0.09	0.14	3.26
Trade-Result	0.00	0.09	0.16	3.31
Trade-Status	0.00	0.03	0.05	1.13
Trade-Update	0.03	0.64	0.75	9.42
Data-Maintenance	0.01	0.13	N/A	0.51
Transaction Mix		Transaction Count	Mix %	
Broker-Volume		2,815,264	4.900	
Customer-Position		7,469,289	13.000	
Market-Feed		574,562	1.000	
Market-Watch		10,341,677	18.000	
Security-Detail		8,043,639	14.000	
Trade-Lookup		4,596,188	8.000	
Trade-Order		5,803,028	10.100	
Trade-Result		5,745,610	10.000	
Trade-Status		10,916,453	19.000	
Trade-Update		1,148,906	2.000	
Data-Maintenance		120	N/A	
Test Duration and Timings				
Ramp-up Time (hh:mm:ss)			00:42:59	
Measurement Interval (hh:mm:ss)			02:00:00	
Business Recovery Time (hh:mm:ss)			00:27:54	
Total Number of Transactions Completed in Measurement Interval			57,454,616	