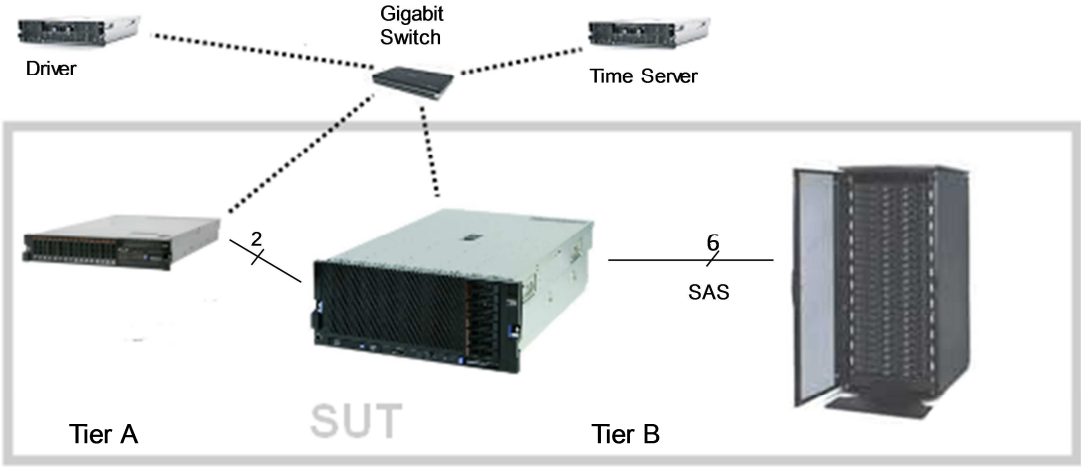
	<b>IBM® System x® 3850 X5 Microsoft® SQL Server 2012</b>		<b>TPC-E 1.12.0 TPC Pricing 1.7.0</b>
			Report Date: November 28, 2012
			Revision Date: November 28, 2012
TPC-E Throughput <b>3218.46 tpsE</b>	Price/Performance <b>\$225.30 USD per tpsE</b>	Availability Date <b>November 28, 2012</b>	Total System Cost <b>\$725,096 USD</b>
<b>Database Server Configuration</b>			
Operating System <b>Microsoft Windows Server 2012 Standard Edition</b>	Database Manager <b>Microsoft SQL Server 2012 Enterprise Edition</b>	Processors/Cores/ Threads <b>4/40/80</b>	Memory <b>2048GB</b>
			
IBM x3650 M4, with: <ul style="list-style-type: none"> <li>- 2 x Intel Xeon Processor E5-2690 2.90GHz (2 Procs/16 Cores/32 Threads)</li> <li>- 16GB Memory</li> <li>- 2 x 250GB SFF SATA (RAID-1)</li> <li>- 1 x IBM ServeRAID M5110e</li> <li>- Onboard Quad Gb Ethernet</li> </ul>	IBM System x3850 X5, with: <ul style="list-style-type: none"> <li>- 4 x Intel Xeon Processor E7-4870 2.40GHz (4 Procs/40 Cores/80 Threads)</li> <li>- 2048GB Memory</li> <li>- 2 x 250GB SFF SATA (RAID-1)</li> <li>- 6 x 600GB 10K SAS (RAID-10)</li> <li>- 1 x IBM ServeRAID M5015</li> <li>- 6 x IBM ServeRAID M5025</li> <li>- Onboard Dual Gb Ethernet</li> <li>- NetXtreme Dual Gb Ethernet</li> </ul>	6 x IBM EXP2524 JBOD Enclosures, with: <ul style="list-style-type: none"> <li>- 126 x 200GB 2.5" SAS SSD (6 x 21-drive RAID-5 DB data)</li> <li>- 2 x 600GB 2.5" SAS HDD (1 x 2-drive RAID-1 temp space)</li> </ul>	128 Total External Drives
Initial Database Size <b>13,328 GB</b>	Redundancy Level: <b>1</b> <b>RAID-10 Log</b> <b>RAID-5 Data</b>	Storage <b>2 x 250GB 2.5" 7.2K SATA</b> <b>126 x 200GB 2.5" SAS SSD</b> <b>8 x 600GB 2.5" 10K SAS</b>	



# IBM System x3850 X5 Microsoft SQL Server 2012

**TPC-E 1.12.0**  
**TPC Pricing 1.7.0**

Report Date:  
November 28, 2012

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Availability Date:  
November 28, 2012

Description	Part Number	Price Source	Unit Price	Quantity	Extended Price	3-Yr. Maint. Price
<b>Server Hardware</b>						
IBM System x3850 X5 Configure-To-Order, includes:	7915AC1	1	164,703	1	164,703	
x3850 X5/x3950 X5 Base + Planar	7626, A14C			1		
Intel Xeon Processor E7-4870	A14F, A14T			4		
32GB PC3L-8500 1066MHz LP RDIMM	A1CP			64		
IBM 1975W Power Supply	2111			2		
IBM x3850 X5 MB2 Memory Expansion Card	A14D			8		
IBM x3850 X5 and x3950 X5 QPI Wrap Card	5104			2		
IBM Hot Swap SAS Hard Disk Drive Backplane	3873			2		
IBM UltraSlim Enhanced SATA DVD-ROM	4161			1		
IBM ServeRAID-M5015 SAS/SATA Controller	0093			1		
IBM 250GB 7200 NL SATA 2.5" SFF HS HDD	A1NX			2		
IBM 600GB 10K 6Gbps SAS 2.5" SFF Slim-HS HDD	A2XD			6		
NetXtreme II 1000 Express Ethernet Adapter	2995			1		
Power Cable	6311			2		
IBM ServeRAID-M5025 SAS/SATA Controller	46M0830	1	649	6	3,894	
ServeRAID M5000 Series Performance Accelerator Key	81Y4426	1	399	6	2,394	
IBM Preferred Pro Keyboard USB - US English 103P RoHS	94Y6138	1	29	1	29	
IBM 2-Button Optical Mouse - Black - USB	40K9200	1	19	1	19	
ServicePac for 3-Year 24x7x4 Support (x3850 X5)	67567CG	1	1,250	1		1250
Hanns-G 18.5" 5ms LED LCD Monitor (2 spares)	HL193ABB	3	130	3	390	
				<b>Subtotal</b>	<b>171,429</b>	<b>1,250</b>
<b>Server Storage</b>						
IBM S2 42U Standard Rack	93074RX	1	1,459	1	1,459	
IBM System Storage EXP2524 Storage Enclosure	174724X	1	3,999	6	23,994	
IBM 1M SAS cable	39R6529	1	119	6	714	
200GB 2.5" SAS SSD	81Y9956	1	4,099	126	516,474	
IBM 600GB 10K 6Gbps SAS 2.5" SFF Slim-HS HDD	49Y2003	1	589	2	1,178	
ServicePac for 3-Year 24x7x4 Support (EXP2524)	91Y5785	1	1,200	6		7,200
ServicePac for 3-Year 24x7x4 Support (Rack)	41L2760	1	315	1		315
				<b>Subtotal</b>	<b>543,819</b>	<b>7,515</b>
<b>Server Software</b>						
SQL Server 2012 Enterprise Edition	7JQ-00256	2a	13,473	20	269,450	
Windows Server 2012 Standard Edition	P73-05761	2	882	2	1,764	
Microsoft Problem Resolution Services	N/A	2a	259	1		259
				<b>Subtotal</b>	<b>271,214</b>	<b>259</b>
<b>Client Hardware</b>						
IBM System x3650 M4 Configure-To-Order, includes:	7915AC1	1	10,418	1	10,418	
x3650 M4 Base + Planar	A1KF, A1KH			1		
900W High Efficiency Platinum AC Power Supply	A2EB			2		
Intel Xeon Processor E5-2690 8C 2.9GHz 20MB 135W	A2VN, A2QL			2		
IBM UltraSlim Enhanced SATA DVD-ROM + cable	4161, A22N			1		
x3650 M4 PCIe Riser Card 2 (1 x8 FH/FL + 2 x8 FH/HL Slots)	A1JU			1		
IBM System x Gen-III Slides Kit + CMA	A228, A229			1		
IBM 250GB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD	A1NX			2		
IBM System x Lightpath Kit	A1LF			1		
x3650 M4 8x 2.5" HS HDD Assembly Kit	A1JX			1		
4GB PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM	8941			4		
Power Cable	6263			2		
ServeRAID M5100 Series 512MB Cache/RAID 5 Upgrade	A1J3			1		
ServicePac for 3-Year 24x7x4 Support (x3650 M4)	67567XR	1	790	1		790
				<b>Subtotal</b>	<b>10,418</b>	<b>790</b>
<b>Client Software</b>						
Windows Server 2012 Standard Edition	P73-05761	2	882	1	882	
				<b>Subtotal</b>	<b>882</b>	<b>0</b>
<b>Infrastructure</b>						
Ethernet Cables (2 spares)	RCW-717	3		3	12	
				<b>Subtotal</b>	<b>12</b>	<b>0</b>
				<b>Total</b>	<b>997,774</b>	<b>9,814</b>
Dollar Volume Discount (See Note 1)	38.38%	1			282,051	
Microsoft Open Program Discount Schedule	16.67%	2			441	

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 specific components priced.

**Three-Year Cost of Ownership USD:** \$725,096  
**TPC-E Throughput:** 3,218.46  
**\$ USD/tpsE:** \$225.30

Benchmark results and test methodology 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 x3850 X5  
Microsoft SQL Server 2012**

**TPC-E 1.12.0  
TPC Pricing 1.7.0**

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Numerical Quantities Summary				
<b>Reported Throughput: 3218.46 tpsE</b>		<b>Configured Customers: 1,625,000</b>		
<b>Response Time (in seconds)</b>	<b>Minimum</b>	<b>Average</b>	<b>90<sup>th</sup> Percentile</b>	<b>Maximum</b>
Broker-Volume	0.00	0.02	0.03	0.70
Customer-Position	0.00	0.01	0.02	4.80
Market-Feed	0.00	0.01	0.02	4.77
Market-Watch	0.00	0.01	0.02	0.23
Security-Detail	0.00	0.00	0.01	0.37
Trade-Lookup	0.00	0.06	0.11	0.84
Trade-Order	0.00	0.04	0.12	1.00
Trade-Result	0.00	0.01	0.04	1.06
Trade-Status	0.00	0.01	0.01	0.71
Trade-Update	0.00	0.07	0.12	0.35
Data-Maintenance	0.00	0.01	N/A	0.10
<b>Transaction Mix</b>		<b>Transaction Count</b>	<b>Mix %</b>	
Broker-Volume		11,354,945	4.900%	
Customer-Position		30,125,078	13.000%	
Market-Feed		2,317,297	1.000%	
Market-Watch		41,712,093	18.000%	
Security-Detail		32,442,446	14.000%	
Trade-Lookup		18,538,303	8.000%	
Trade-Order		23,405,016	10.100%	
Trade-Result		23,172,931	10.001%	
Trade-Status		44,029,299	19.000%	
Trade-Update		4,634,638	2.000%	
Data-Maintenance		120	N/A	
<b>Test Duration and Timings</b>				
Ramp-up Time (hh:mm:ss)			00:25:44	
Measurement Interval (hh:mm:ss)			02:00:00	
Business Recovery Time (hh:mm:ss)			00:18:33	
Total Number of Transactions Completed in Measurement Interval			231,732,046	