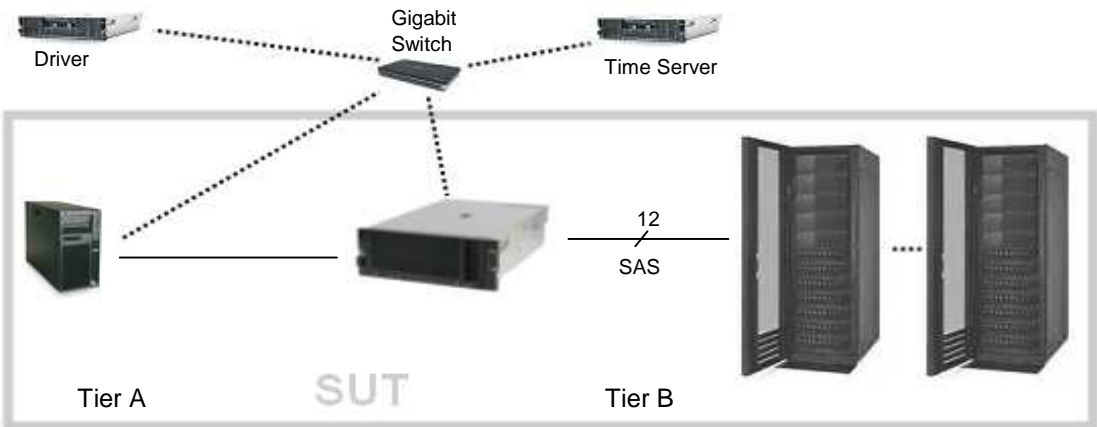
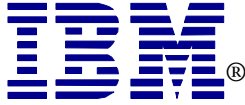
	IBM® System x® 3850 X5 Microsoft® SQL Server 2008 R2		TPC-E 1.9.0 TPC Pricing 1.5.0
			Report Date: March 30, 2010
			Revision Date: June 7, 2010
TPC-E Throughput 2022.64 tpsE	Price/Performance \$355.02 USD per tpsE	Availability Date July 30, 2010	Total System Cost \$718,065 USD
Database Server Configuration			
Operating System Microsoft Windows Server 2008 R2 Enterprise Edition	Database Manager Microsoft SQL Server 2008 R2 Enterprise Edition	Processors/Cores/Threads 4/32/64	Memory 1024GB
			
IBM x3500 M2 - 2 x Intel Xeon Processor X5570 2.93GHz (2 Procs/8 Cores/16 Threads) - 8GB Memory - 2 x 160GB SFF SATA (RAID-1) - 1 x IBM ServeRAID-BR10i - Onboard Gigabit Ethernet - 1 x 10Gb Ethernet	IBM System x3850 X5 - 4 x Intel Xeon Processor X7560 2.26GHz (4 Procs/32 Cores/64 Threads) - 1TB Memory - 2 x 160GB SFF SATA (RAID-1) - 6 x 300GB SFF SAS (RAID-10) - 1 x IBM ServeRAID-M5015 - 6 x IBM ServeRAID-M5025 - Onboard Gigabit Ethernet - 1 x 10Gb Ethernet	84 x IBM System Storage EXP3000 Enclosure Four contain: - 12 x 300GB 3.5" 15K SAS 80 contain: - 12 x 146GB 3.5" 15K SAS = 42 x 24-drive RAID-10 1008 Total External Drives	
Initial Database Size 8,512 GB	Redundancy Level: 1 RAID-10 Log & Data	Storage 2 x 160 GB 960 x 146GB 54 x 300 GB	



IBM System x3850 X5 Microsoft SQL Server 2008 R2

TPC-E 1.9.0
TPC Pricing 1.5.0

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Description	Part Number	Price Source	Unit Price	Quantity	Extended Price	3-Yr. Maint. Price
Server Hardware						
x3850 X5 with 2 x Intel Xeon Processor X7560 (2.26GHz / 2MB L2 Cache / 24MB L3 Cache) 4 x 4GB Memory, 2 memory cards	71455RU	1	21,705	1	21,705	
Intel Xeon Processor X7560 (2.26GHz/2MB L2/24MB L3)	49Y4300	1	6,455	2	12,910	
16GB (1x16GB) QuadRank PC3-8500 1066MHz LP RDIMM	46C7483	1	1,549	64	99,136	
IBM x3850X5 Memory Expansion Card	46M0071	1	299	6	1,794	
IBM ServeRAID-M5015 SAS/SATA Controller	46M0829	1	649	1	649	
IBM 160GB 7200 NL SATA 2.5" SFF Slim-HS HDD	42D0747	1	259	2	518	
IBM 300GB 10K 6Gbps SAS 2.5" SFF Slim-HS HDD	42D0637	1	559	6	3,354	
IBM ServeRAID-M5025 SAS/SATA Controller	46M0830	1*	649	6	3,894	
IBM Preferred Pro USB Keyboard	40K9584	1	29	1	29	
IBM 3-Button Optical Mouse - Black - USB	40K9201	1	19	1	19	
Single-Port SFP+ 10GbE PCI-E x8 Adapter	46M1809	1	1,499	1	1,499	
ServicePac for 3-Year 24x7x4 Support (x3850 X5)	10N3059	1	1,695	1		1,695
Acer V173 Bb Black 17" 5ms LCD Monitor (2 spares)	V173Bb	3	120	3		360
				Subtotal	145,867	1,695
Server Storage						
IBM S2 42U Standard Rack	93074RX	1	1,609	5	8,045	
IBM System Storage EXP3000 Enclosure	1727-01X	1	3,199	84	268,716	
IBM 1M SAS cable	39R6529	1	119	72	8,568	
IBM 3M SAS cable	39R6531	1	135	12	1,620	
IBM 300GB 15K 6Gbps SAS 3.5" Hot-Swap HDD	44W2234	1	599	48	28,752	
146GB 15K 3.5" Hot-Swap SAS	40K1044	1 - S	359	960	344,640	
ServicePac for 3-Year 24x7x4 Support (EXP3000)	41L2768	1	760	84		63,840
ServicePac for 3-Year 24x7x4 Support (Rack)	41L2760	1	300	5		1,500
				Subtotal	660,341	65,340
Server Software						
Microsoft SQL Server 2008 R2 Enterprise x64 Edition		2	28,749	4	114,996	
Microsoft Windows Server 2008 R2 Enterprise x64 Edition	P73-04217	2	3,999	1	3,999	
Microsoft Problem Resolution Services	N/A	2a	259	1		259
				Subtotal	118,995	259
Client Hardware						
x3500 M2 with 1 x Intel Xeon Processor X5570 (2.93GHz / 1MB L2 Cache / 8MB L3 Cache) 2x 1GB Memory	783982U	1	3,845	1	3,845	
Intel Xeon Processor X5570 (2.93GHz/1MB L2/8MB L3 Cache)	46D1357	1	2,135	1	2,135	
2GB (1x2GB) DualRank PC3-10600 DDR3-1333 LP RDIMM	44T1481	1	125	4	500	
ServeRAID-BR10i SAS/SATA Controller	44E8689	1	229	1	229	
IBM 160GB 7200 NL SATA 2.5" SFF Slim-HS HDD	42D0747	1	259	2	518	
Single-Port SFP+ 10GbE PCI-E x8 Adapter	46M1809	1	1,499	1		1,499
ServicePac for 3-Year 24x7x4 Support (x3500 M2)	21P2078	1	600	1		600
				Subtotal	7,227	2,099
Client Software						
Microsoft Windows Server 2008 R2 Standard x64 Edition	P73-04980	2	1,029	1	1,029	
				Subtotal	1,029	0
Infrastructure						
1M Fibre Optic Cable LC-LC	39M5696	1	79	1	79	
				Subtotal	79	0
				Total	933,538	69,393
Dollar Volume Discount (See Note 1)	27.72%	1			244,585	
Microsoft Open Program Discount Schedule	33.49%	2			40,281	

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.

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.

Three-Year Cost of Ownership USD: \$718,065
TPC-E Throughput: 2,022.64
\$ USD/tpsE: \$355.02



**IBM System x3850 X5
Microsoft SQL Server 2008 R2**

**TPC-E 1.9.0
TPC Pricing 1.5.0**

Report Date:
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Numerical Quantities Summary				
Reported Throughput: 2022.64 tpsE		Configured Customers: 1,050,000		
Response Time (in seconds)	Minimum	Average	90 th Percentile	Maximum
Broker-Volume	0.01	0.05	0.09	1.72
Customer-Position	0.01	0.03	0.06	2.19
Market-Feed	0.01	0.03	0.05	17.06
Market-Watch	0.01	0.03	0.07	2.46
Security-Detail	0.01	0.02	0.03	2.16
Trade-Lookup	0.01	0.40	0.60	3.34
Trade-Order	0.01	0.08	0.12	2.77
Trade-Result	0.01	0.09	0.15	14.72
Trade-Status	0.01	0.02	0.04	2.45
Trade-Update	0.01	0.45	0.61	10.32
Data-Maintenance	0.01	0.07	N/A	0.32
Transaction Mix		Transaction Count	Mix %	
Broker-Volume		7,135,411	4.900	
Customer-Position		18,930,528	13.000	
Market-Feed		1,456,309	1.000	
Market-Watch		26,211,229	18.000	
Security-Detail		20,386,162	14.000	
Trade-Lookup		11,649,210	8.000	
Trade-Order		14,707,405	10.100	
Trade-Result		14,563,015	10.001	
Trade-Status		27,667,569	19.000	
Trade-Update		2,912,297	2.000	
Data-Maintenance		120	N/A	
Test Duration and Timings				
Ramp-up Time (hh:mm:ss)				00:35:53
Measurement Interval (hh:mm:ss)				02:00:00
Business Recovery Time (hh:mm:ss)				00:39:39
Total Number of Transactions Completed in Measurement Interval				145,619,135