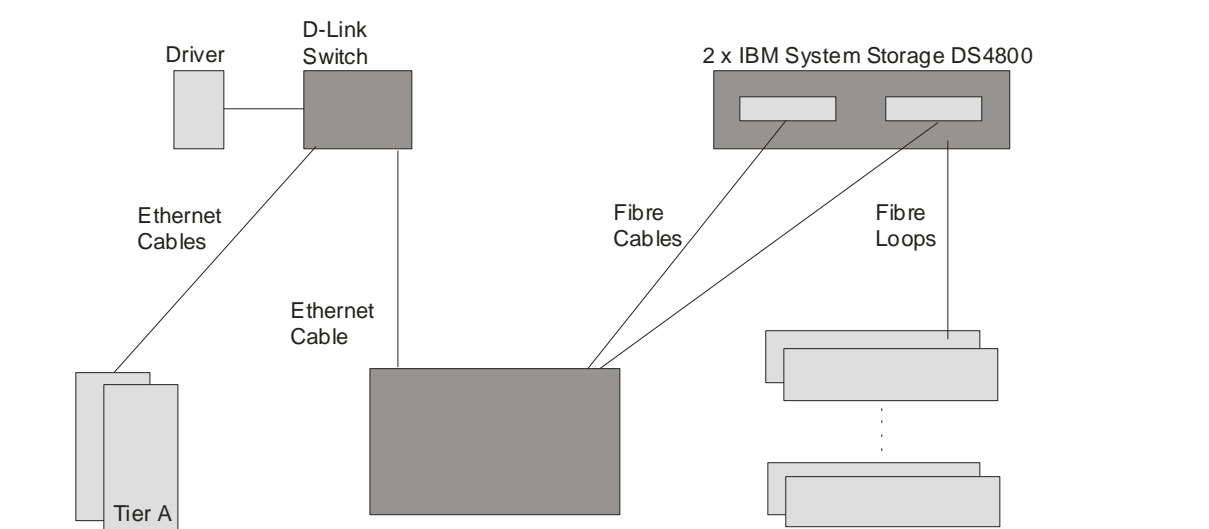
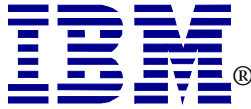
	<b>IBM® System x™ 3850 M2</b> <b>Microsoft® SQL Server 2005</b>		TPC-E Revision 1.2.0 TPC Pricing 1.2.0
			Report Date: October 23, 2007
TPC-E Throughput <b>419.80 tpsE</b>	Price/Performance <b>\$ 1,527.25</b> <b>USD per tpsE</b>	Availability Date <b>December 7, 2007</b>	Total System Cost <b>\$ 641,140 USD</b>
<b>Database Server Configuration</b>			
Operating System <b>Microsoft Windows Server 2003 R2 Enterprise x64 Edition</b>	Database Manager <b>Microsoft SQL Server 2005 Enterprise x64 Edition SP2</b>	Processors/Cores/Threads <b>4/16/16</b>	Memory <b>128GB</b>
 <p>The diagram illustrates the network and storage architecture. On the left, two Tier A servers are connected to a D-Link switch via Ethernet cables. The switch is also connected to an IBM System x3850 M2 server via an Ethernet cable. This server is connected to two IBM System Storage DS4800 enclosures via fibre cables. The DS4800 enclosures are connected to two IBM System Storage EXP810 enclosures via fibre loops.</p>			
2 x IBM System x3500 Each contains: 1 x Quad-Core Intel Xeon Processor E5345 2.33GHz (1 Processor, 4 Cores, 4 Threads) 4GB of Memory 2 x 73.4GB SAS Drive (RAID-1 for OS, Onboard RAID Controller, Onboard Dual-Port 1 Gigabit Ethernet Controller)	IBM System x3850 M2 4 x Quad-Core Intel Xeon Processor X7350 2.93GHz (4 Processors, 16 Cores, 16 Threads) 128GB of Memory 2 x IBM 4Gb FC Dual-Port PCI-E HBA 1 x IBM NetXtreme II 1000 Express Ethernet Adapter	24 x IBM System Storage EXP810 Enclosure Each Contains: 16 x 36.4GB 15K rpm Drives (Total of 384 Drives arrayed as: 1 x 16-Disk RAID-10 23 x 16-Disk RAID-5)	
Initial Database Size <b>1,774 GB</b>	Redundancy Level: 1 <b>RAID-10 Log + RAID-5 Data</b>		Storage <b>384 x 36.4 GB 15K</b>



# IBM System x3850 M2 Microsoft SQL Server 2005

TPC-E Revision 1.2.0  
TPC Pricing Spec 1.2.0

Report Date:  
October 23, 2007

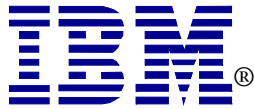
Availability Date:  
December 7, 2007

Description	Part Number	Price Source	Unit Price	Quantity	Extended Price	3-Yr. Maint. Price
<b>Server Hardware</b>						
IBM System x3850 M2 (2 x Intel Xeon Processor X7350 (2.93GHz/2x4MB L2 Cache) with 4 Memory Cards and 8 x 1GB DIMM)	7141-4RU	1a	17,499	1	17,499	
Intel Xeon Processor X7350 (2.93GHz/1066MHz FSB/2x4MB L2)	44E4243	1a	4,799	2	9,598	
8GB (2x4GB) PC2-5300 CL5 ECC DDR2 SDRAM (Chipkill)	41Y2768	1b	4,298	16	68,784	
73GB 10K 2.5" Hot-Swap SAS SFF	40K1052	1b	319	2	638	
IBM 4Gb FC Dual-Port PCI-E HBA for IBM System x	39R6527	1a	1,329	2	2,658	
NetXtreme II 1000 Express Ethernet Adapter	39Y6066	1b	279	1	279	
IBM T115 15-inch TFT Display	494215U	1a	209	1	209	
IBM Preferred Pro USB Keyboard	40K9584	1b	29	1	29	
IBM 3-Button Optical Mouse - Black - USB	40K9201	1b	19	1	19	
ServicePac for 3-Year 24x7x4 Support (x3850 M2)	96P2688	1b	3,390	1		3,390
ServicePac for 3-Year 24x7x4 Support (Display)	10N3110	1b	90	1		90
<b>Subtotal</b>					<b>99,713</b>	<b>3,480</b>
<b>Server Storage</b>						
4 Gbps SW SFP Transceiver 4 Pack	22R4897	1b	550	9	4,950	
IBM 1m LC-LC Fibre Channel Cable	39M5696	1b	79	40	3,160	
IBM 5m LC-LC Fibre Channel Cable	39M5697	1b	129	12	1,548	
IBM S2 42U Standard Rack	93074RX	1b	1,489	3	4,467	
IBM UPS 750TLV	2130R1X	1b	299	1	299	
ServicePac for 3-Year 24x7x4 Support (Rack)	41L2760	1b	300	3		900
IBM System Storage DS4800 Disk Upgrade to 8GB Cache	1815-82A	2	53,995	2	107,990	
IBM System Storage DS4000 EXP810 Storage Exp. Unit	1812-81A	2	6,000	24	144,000	
36.4GB 15K 4Gbps FC E-DDM Hot-Swap HDD	40K6812	2	892	384	342,528	
ServicePac for 3-Year 24x7x4 Support (EXP810)	10N3651	2	960	24		23,040
ServicePac for 3-Year 24x7x4 Support (DS4800)	41C5953	2	3,200	2		6,400
<b>Subtotal</b>					<b>608,942</b>	<b>30,340</b>
<b>Server Software</b>						
Microsoft SQL Server 2005 Enterprise x64 Edition	810-03150	3a	24,999	4	99,996	
Microsoft Windows Server 2003 R2 Enterprise x64 Edition	P72-01684	3a	3,999	1	3,999	
Microsoft Problem Resolution Services		3b	245	1		245
<b>Subtotal</b>					<b>103,995</b>	<b>245</b>
<b>Client Hardware</b>						
x3500 with Intel Xeon E5345 (2.33GHz/8MB), 4GB Memory	7977EGU	1a	2,599	2	5,198	
73.4GB 15K 3.5" Hot-Swap SAS	40K1043	1b	309	4	1,236	
ServicePac for 3-Year 24x7x4 Support (x3500)	21P2084	1b	689	2		1,378
<b>Subtotal</b>					<b>6,434</b>	<b>1,378</b>
<b>Client Software</b>						
Microsoft Windows Server 2003 R2 Standard Edition	P73-01972	3a	999	2	1,998	
<b>Subtotal</b>					<b>1,998</b>	<b>0</b>
<b>Infrastructure</b>						
D-Link DGS 1008TLEthernet Switch (2 spares)	DGS1008TL	4	206	4	824	
Ethernet Cable (2 spares)	A3L791-10-BLK	5	4	11	44	
<b>Subtotal</b>					<b>868</b>	
<b>Total</b>					<b>821,950</b>	<b>35,443</b>
IBM Large Purchase Discount (See Note 1.)	28.38%	1b			-25,872	
Compsat Technology Large Purchase Discount	29.15%	2			-181,888	
Microsoft Open Program Discount Schedule	8.01%	3a			-8,493	

Pricing: 1 - IBM - 1-888-SHOP-IBM, ext. 5821; 2 - Compsat Technology	<b>Three-Year Cost of Ownership USD:</b>	\$641,140
3 - Microsoft; 4 - www.superwarehouse.com; 5 - newegg.com	<b>TPC-E Throughput:</b>	419.80
Note 1: Discount based on IBM Direct guidance applies to all line items where Pricing=1b. Pricing is for this system or one of similar size.	<b>\$ USD/tpsE:</b>	\$1,527.25
Note 2: Discount applies to all line items where Pricing=2; pricing is for these or similar quantities.		

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 x3850 M2  
Microsoft SQL Server 2005**

TPC-E Revision 1.2.0  
TPC Pricing Spec 1.2.0

Report Date:  
October 23, 2007

Availability Date:  
December 7, 2007

<b>Reported Throughput: 419.80 tpsE</b>		<b>Configured Customers: 230,000</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	0.05	0.08	1.56
Customer-Position	0.00	0.04	0.07	0.27
Market-Feed	0.00	0.04	0.07	0.44
Market-Watch	0.00	0.04	0.08	0.71
Security-Detail	0.00	0.02	0.04	1.41
Trade-Lookup	0.00	0.46	0.64	0.98
Trade-Order	0.00	0.11	0.17	1.55
Trade-Result	0.00	0.12	0.18	3.44
Trade-Status	0.00	0.03	0.05	0.37
Trade-Update	0.02	0.55	0.70	1.21
Data-Maintenance	0.01	0.11	N/A	1.43
<b>Transaction Mix</b>		<b>Transaction Count</b>	<b>Mix %</b>	
Broker-Volume		1,481,229	4.900	
Customer-Position		3,929,916	13.000	
Market-Feed		302,262	1.000	
Market-Watch		5,441,519	18.001	
Security-Detail		4,232,089	14.000	
Trade-Lookup		2,418,134	7.999	
Trade-Order		3,053,256	10.100	
Trade-Result		3,022,591	9.999	
Trade-Status		5,743,993	19.001	
Trade-Update		604,568	2.000	
Data-Maintenance		124	N/A	
<b>Test Duration and Timings</b>				
<b>Ramp-up Time</b>			00:41:00	
<b>Measurement Interval</b>			02:00:00	
<b>Business Recovery Time</b>			01:17:48	
<b>Total Number of Transactions Completed in Measurement Interval</b>			30,229,557	