



**IBM System x3950
DB2® 9**

TPC-C Rev. 5.8

**Report Date:
March 26, 2007**

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date	
\$2,784,599 USD	511,342	\$5.45 USD	March 26, 2007	
Database Processors/Cores/Threads	Database Manager	Operating System	Other Software	No. Users
8/16/32 3.5 GHz Intel Xeon 7150N	DB2 9	SLES 10	Microsoft Visual C++ Microsoft COM+	416000

Priced



16 Clients

IBM® System x3500
2x Intel 5160 DC
3.0GHz
2GB Memory
36GB Internal Drive
2 Gigabit Ethernet

IBM® System x3950

8 x Intel Xeon 7150N (3.5GHz)
128GB Memory
1x DS4000 Single Port 4GB FC
1x36GB Internal SAS Drives
10 x DS4000 Dual Port 4GB FC
2 x Integrated GB Ethernet

Storage

10 x IBM® DS4800 Storage Servers
120x IBM® EXP810 DiskEnclosures
1680 x 36.4GB 15K RPM Drives
1 x DS3400 DC Storage Controller
10 x 73.4GB 15K RPM SAS Drives

System Components	Each of the 16 Clients		Server	
	Quantity	Description	Quantity	Description
Processors/Cores/Threads	2/4/4	3.0GHz 2MB L2 Xeon 5160 Dual Core	8/16/32	3.5 GHz Intel Xeon 7150N
Memory	4	512 MB	32	4 GB
Disk Controllers	1	SAS	2 10 1 10 1	Integrated SAS 4Gb dual-port FC Adapters 4Gb single-port FC Adapters IBM DS4800 Controllers for Data IBM DS3400 Controller for Log
Disk Drives	1	36 GB	1680 1 10	36.4GB 15K RPM FC 36GB 10K RPM SAS 73.4GB 15K RPM SAS
Total Storage		576 GB		61,152 GB
Terminals	1	System Console	1	System Console

IBM Corporation	IBM System x3950 c/s			TPC-C Revision 5.8			
	DB2 9			Report Date: March 26, 2007			
Description	Part Number	Third Party Brand	Pricing	Unit Price	Quantity	Extended Price	3-Yr. Maint. Price
Server Hardware							
IBM System x3950 (2 x Intel Xeon Processor 7150N 3.5GHz 667MHz, 2 x 1 MB L2 Cache and 16MB L3 Cache)	8878-5RU	IBM	1	21,269	1	21,269	
Intel Xeon Processor 7150N 3.5GHz/2x1MB L2, 16MB L3	43V4553	IBM	1	5,699	6	34,194	
x3950 E (0 Processors, 0 Memory, 2 Memory Cards)	8879-1RU	IBM	1	6,999	1	6,999	
Scalability Cable 2.3.M	13M7414	IBM	1	299	2	598	
8GB (2x4GB) PC2-3200 CL3 2RX4 ECC DDR2 SDRAM RDIMM	30R5145	IBM	1	5,569	16	89,104	
Active Memory 4-Slot Memory Expansion Card	41Y5000	IBM	1	499	2	998	
IBM 36.4GB 10K 2.5 inch SAS Drive	40K1051	IBM	1	279	1	279	
IBM T115 15-inch TFT Display	494215U	IBM	1	209	1	209	
IBM Preferred Pro USB Keyboard	40K9584	IBM	1	29	1	29	
IBM 3-Button Optical Mouse - Black - USB	40K9201	IBM	1	19	1	19	
ServicePac for 3-Year 24x7x4 Support (x3950)	96P2688	IBM	1	3,390	1		3,390
ServicePac for 3-Year 24x7x4 Support (x3950 E)	10N3059	IBM	1	1,695	1		1,695
ServicePac for 3-Year 24x7x4 Support (Display)	30L9183	IBM	1	90	1		90
Subtotal						153,698	5,175
Server Storage							
IBM DS4000 FC 4Gbps - PCI-X Dual Port HBA	39M5895	IBM	1	2,485	10	24,850	
IBM TotalStorage DS4800 Midrange Disk Subsystem	1815-82H	IBM	1	65,245	10	652,450	
IBM Short Wave SFP Module (4 Pack)	22R0483	IBM	1	550	55	30,250	
IBM 1m LC-LC Fibre Channel Cable	39M5696	IBM	1	79	240	18,960	
IBM 5m LC-LC Fibre Channel Cable	39M5697	IBM	1	129	20	2,580	
IBM TotalStorage DS4000 EXP810 Storage Exp. Unit	1812-81H	IBM	1	6,000	120	720,000	
36.4GB 15K 2Gbps FC Drive	06P5772	IBM	1	1,115	1680	1,873,200	
IBM System Storage DS3400 Dual Controller	1726-42X	IBM	1	9,295	1	9,295	
IBM Short Wave SFP Module	19K1271	IBM	1	499	1	499	
73.4GB 15K SAS Hot-Swap HDD	40K1043	IBM	1	349	10	3,490	
IBM DS4000 FC 4Gbps - PCI-X Single-Port HBA	39M5894	IBM	1	1,485	1	1,485	
1M Fibre Optic Cable	39M5696	IBM	1	79	1	79	
IBM S2 42U Standard Rack	93074RX	IBM	1	1,489	10	14,890	
ServicePac for 3-Year 24x7x4 Support (EXP810)	41L2768	IBM	1	760	120		91,200
ServicePac for 3-Year 24x7x4 Support (DS4800)	96P2062	IBM	1	1,087	10		10,870
ServicePac for 3-Year 24x7x4 Support (DS3400)	41L2768	IBM	1	760	1		760
ServicePac for 3-Year 24x7x4 Support (Rack)	41L2760	IBM	1	300	10		3,000
Subtotal						3,352,028	105,830
Server Software							
DB2 ESE 9		IBM	2	270.59	800	216,472	
Extended Systems - SW License and Maintenance 12 Months							
SW Maintenance Renewal - 1 Year		IBM	2	12.89	1600		20,624
SUSE Linux Enterprise Server 10 for x86, AMD64, and							
Intel EM64T with Priority Support for 3 Years	4584142100	SUSE	3	3,748	1	3,748	
Subtotal						220,220	20,624
Client Hardware							
Linksys ProConnect KVM Switch - 2 ports (2 spares)	430446		6	40	3	120	
IBM System x3500 (Dual-Core Intel Xeon 5160 3.00GHz, 2x512MB RAM	7977-92U	IBM	1	3,399	16	54,384	
3.00GHz/1333MHz/2x2MB L2 Xeon Processor 5160 Upgrade	40K1236	IBM	1	1,575	16	25,200	
1GB (2x512MB) PC2-5300 CL5 ECC DDR2 FBD 667MHz	39M5782	IBM	1	459	16	7,344	
36.4GB 15K SAS Hot-Swap Drive	40K1042	IBM	1	249	16	3,984	
ServicePac for 3-Year 24x7x4 Support (x3550)	96P2250	IBM	1	586	16		9,376
Subtotal						91,032	9,376
Client Software							
Microsoft Windows Server 2003 Web Edition with COM+	484143	Microsoft	6	296	16	4,736	
Microsoft Visual C++ Professional 6.0	254-00170	Microsoft	4	109	1	109	
Microsoft Problem Resolution Services		Microsoft	4	245	1		245
Subtotal						4,845	245
Network Components							
D-LINK DGS-1024D 24-Port 10/100/1000 Switch (2 spares)	DGS1024D		5	230	3	690	
Ethernet Cable (2 spares)	CC5E-B14B		7	3	20	60	
Subtotal						750	
Total						3,822,573	141,250
Large Purchase Discount (See Note 1.)	31.72%		1			1,179,224	
Pricing: 1 - IBM - 1-888-SHOP-IBM, ext. 5821; 2 - IBM; 3 - Novell; 4 - Microsoft; 5 - compuplus.com; 6 - CDW.com; 7 - newegg.com					Three-Year Cost of Ownership USD:		\$2,784,599
Note 1: Discount based on IBM Direct guidance applies to all line items where Pricing=1. Pricing is for this system or one of similar size.					tpmC:		511,342
Note 2: Pricing for DB2 9 is based on Value Units (VUs) as shown in the price quote in Appendix D.					\$ USD/tpmC:		\$5.45
Note 3: Fifteen x335s were substituted for the priced clients.							
Audited by Francois Raab, 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 sections 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.							

Numerical Quantities Summary for the IBM System x3950

MQTH, computed Maximum Qualified Throughput: 511,342 tpmC

<u>Response Times (in seconds)</u>	<u>90th %</u>	<u>Average</u>	<u>Maximum</u>
New Order	1.34	0.70	11.29
Payment	1.36	0.68	11.15
Order-Status	1.14	0.65	10.97
Delivery (interactive)	0.48	0.21	9.89
Delivery (deferred)	0.38	0.22	1.19
Stock-Level	1.76	1.16	12.00
Menu	0.63	0.23	9.89

Response time delay added for emulated components was 0.1 seconds

<u>Transaction Mix, in percent of total transactions</u>	<u>Percent</u>
New Order	44.96%
Payment	43.02%
Order-Status	4.01%
Delivery	4.01%
Stock-Level	4.01%

<u>Keying/Think Times (in seconds)</u>	<u>Min.</u>	<u>Average</u>	<u>Max.</u>
New Order	18.00/0.00	18.00/12.04	18.02/120.31
Payment	3.00/0.00	3.00/12.04	3.02/120.33
Order-Status	2.00/0.00	2.00/10.04	2.02/100.31
Delivery	2.00/0.00	2.00/5.04	2.02/50.31
Stock-Level	2.00/0.00	2.00/5.04	2.02/50.31

Test Duration

Ramp-up Time	1 hour 26 minutes
Measurement interval	2 hours 00 minutes
Transactions during measurement interval (all types)	136,488,049

Checkpoints

Number of checkpoints	N/A
Checkpoint interval	N/A