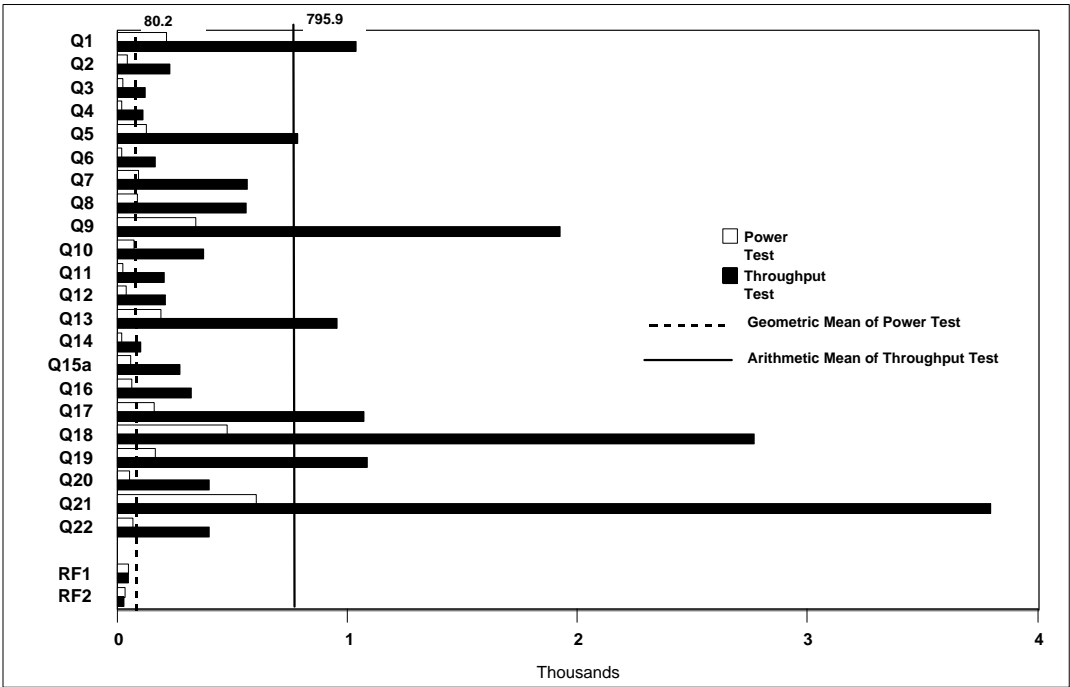


IBM Corporation	IBM® System x™ 3650 with IBM DB2® UDB 8.2		TPC-H Rev 2.3.0	
			Report Date: Oct. 6, 2006	
Total System Cost	Composite Query-per-Hour Metric		Price/Performance	
\$156,535 USD	10,165.4 QphH @ 300GB		\$15.40 USD per QphH @ 300GB	
Database Size	Database Manager	Operating System	Other Software	Availability Date
300GB	IBM DB2 UDB 8.2	SUSE® Linux® Enterprise Server 9 SP3	None	Oct. 6, 2006



Database Load Time: 03:08:12		Load Included Backup: Y	Total Data Storage / Database Size: 12.8
RAID (Base Tables Only): N		RAID (Base Tables and Auxiliary Data Structures): N	RAID (All): N
Configuration			
Processors/Cores/Threads	2/4/4	Intel® Xeon® Processor 5160 (3.0GHz, 4MB L2 Cache, 1333MHz FSB)	
Memory	4	8GB (2 x 4GB) PC2-5300 ECC DDR2 SDRAM RDIMM Kits	
Disk Controllers	2	IBM MegaRAID 8480 SAS Controller	
Disk Drives	96	36.4GB 15K SAS Drive	
	6	36.4GB 10K SFF SAS Drive	
	2	73.4GB 10K SFF SAS Drive	
Total Disk Storage		3838.8GB	

IBM Corporation	IBM System x3650 with IBM DB2 UDB 8.2			TPC-H 2.3.0 Executive Summary			
					Report Date: Oct. 6, 2006		
Description	Part Number	Third Party Brand	Pricing	Unit Price	Quantity	Extended Price	3-Yr. Maint. Price
Server Hardware							
IBM System x3650 with 1 Intel Xeon Processor 5160 (3.0GHz/4MB L2 Cache/1333MHz FSB) 2 x 512MB PC2-5300 DDR2 DIMM	7979-7AU	IBM	1	2,739	1	2,739	
Intel Xeon Processor 5160	40K1236	IBM	1	1,279	1	1,279	
8GB (2x4GB) PC2-5300 DDR2 Memory	39M5797	IBM	1	6,529	4	26,116	
IBM 36.4GB 10K 2.5 inch SAS SFF H/S Drive	40K1051	IBM	1	279	6	1,674	
IBM 73.4GB 10K 2.5 inch SAS SFF H/S Drive	40K1052	IBM	1	349	2	698	
IBM MegaRAID 8480 SAS Controller	39R8850	IBM	1	1,199	2	2,398	
PCI-E Riser Card for the x3650		IBM	1	79	1	79	
Display	49387NU	IBM	1	149	1	149	
IBM Preferred Pro USB Keyboard	40K9584	IBM	1	29	1	29	
ScrollPoint 800 DPI Optical Mouse - USB & PS/2	90P0742	IBM	1	25	1	25	
ServicePac for 3-Year 24x7x4 Support (x3650)	21P2078	IBM	1	600	1		600
ServicePac for 3-Year 24x7x4 Support (Display)	30L9183	IBM	1	90	1		90
					Subtotal	35,186	690
Server Storage							
IBM System Storage EXP3000	1727-01X	IBM	1	3,599	8	28,792	
IBM SAS 1m Cable	39R6471	IBM	1	119	4	476	
IBM EXP3000 1m Cable	39R6529	IBM	1	119	4	476	
IBM Hot-Swap 3.5-inch 15K 36.4GB SAS HDD	40K1042	IBM	1	249	96	23,904	
IBM UPS 750TLV	21301TX	IBM	1	299	1	299	
IBM S2 42U Standard Rack	93074RX	IBM	1	1,489	1	1,489	
ServicePac for 3-Year 24x7x4 Support (EXP3000)	41L2768	IBM	1	760	8		6,080
ServicePac for 3-Year 24x7x4 Support (Rack)	41L2760	IBM	1	300	1		300
					Subtotal	55,436	6,380
Server Software							
DB2 UDB ESE 8.2 SW Lic. & Maintenance 12 Months		IBM	2	23,902	2	47,804	
SW Maintenance Renewal - 1 Year		IBM	2	1,138	4		4,552
DPF SW License & Maintenance 12 Months		IBM	2	7,180	2	14,360	
DPF SW Maintenance Renewal - 1 Year		IBM	2	342	4		1,368
SUSE Linux Enterprise Server 9 for x86, AMD64, and Intel EM64T 1-2 Processors w/3-Year Maintenance		Novell	3	4,279	1	4,279	
					Subtotal	66,443	5,920
					Total	\$157,065	\$12,990
Large Purchase Discount (See Note 1.)			1	13.84% Discount		13,520	
Pricing: 1 - 1-888-Shop-IBM, ext. 5821 ; 2 - IBM; 3 - Novell Note 1: Pricing is for this system or one of similar size.					Three-Year Cost of Ownership USD:		\$156,535
					QphH@300GB:		10,165.4
					\$ USD/QphH@300GB:		\$15.40
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. Thank you.							

IBM Corporation	IBM System x3650 with IBM DB2 UDB 8.2	TPC-H Rev 2.3.0
		Report Date: Oct. 6, 2006

Measurement Results:

Database Scale Factor	300
Total Data Storage/Database Size	12.8
Start of Database Load	17:03:57
End of Database Load	20:12:09
Database Load Time	03:08:12
Query Streams for Throughput Test	6
TPC-H Power	13,467.1
TPC-H Throughput	7,673.2
TPC-H Composite Query-per-Hour (QphH@300GB)	10,165.4
Total System Price over 3 Years	\$156,535 USD
TPC-H Price/Performance Metric (\$/QphH@300GB)	\$15.40 USD

Measurement Interval:

Measurement Interval in Throughput Test (Ts) = 18,579

Duration of Stream Execution:

	Seed	Query Start Date/Time Query End Date/Time	RF1 Start Date/Time RF1 End Date/Time	RF2 Start Date/Time RF2 End Date/Time	Duration
Stream 00	929201209	09/30/06 02:39:09 09/30/06 03:31:00	09/30/06 02:39:09 09/30/06 02:40:01	09/30/06 03:30:25 09/30/06 03:31:00	00:51:51
Stream 01	929201210	09/30/06 03:31:03 09/30/06 08:31:26	09/30/06 08:32:42 09/30/06 08:33:33	09/30/06 08:33:33 09/30/06 08:34:07	05:00:22
Stream 02	929201211	09/30/06 03:31:03 09/30/06 08:28:31	09/30/06 08:34:07 09/30/06 08:34:54	09/30/06 08:34:54 09/30/06 08:35:23	04:57:28
Stream 03	929201212	09/30/06 03:31:03 09/30/06 08:32:43	09/30/06 08:35:23 09/30/06 08:36:10	09/30/06 08:36:10 09/30/06 08:36:40	05:01:40
Stream 04	929201213	09/30/06 03:31:03 09/30/06 08:02:16	09/30/06 08:36:40 09/30/06 08:37:33	09/30/06 08:37:33 09/30/06 08:38:09	04:31:14
Stream 05	929201214	09/30/06 03:31:03 09/30/06 08:23:17	09/30/06 08:38:09 09/30/06 08:38:56	09/30/06 08:38:56 09/30/06 08:39:26	04:52:13
Stream 06	929201215	09/30/06 03:31:03 09/30/06 08:19:11	09/30/06 08:39:26 09/30/06 08:40:12	09/30/06 08:40:12 09/30/06 08:40:42	04:48:08

IBM Corporation**IBM System x3650
with
IBM DB2 UDB 8.2**

TPC-H Rev 2.3.0

Report Date: Oct. 6, 2006

TPC-H Timing Intervals (in seconds):

Query	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Stream 00	215.8	48.7	24.6	24.0	126.9	24.2	93.6	92.0	342.0	76.9	28.7	41.3
Stream 01	395.2	257.9	178.1	31.4	1,354.9	181.9	522.4	614.8	1,920.1	313.9	190.8	338.0
Stream 02	1,144.9	223.4	127.4	138.6	848.6	206.3	464.4	421.5	2,134.8	386.3	183.2	219.1
Stream 03	1,344.4	202.2	23.7	123.4	648.7	154.6	608.2	614.8	1,793.2	374.2	240.2	41.3
Stream 04	1,186.8	258.0	142.3	94.3	594.6	96.9	540.1	506.9	1,894.0	370.6	202.4	162.8
Stream 05	1,158.8	198.3	151.2	148.5	506.9	190.8	653.6	626.4	1,726.1	345.2	208.4	273.0
Stream 06	999.7	255.0	121.2	148.3	771.5	172.8	611.4	582.6	2,091.8	475.9	216.2	226.7
Minimum	395.2	198.3	23.7	31.4	506.9	96.9	464.4	421.5	1,726.1	313.9	183.2	41.3
Average	1,038.3	232.5	124.0	114.1	787.5	167.2	566.7	561.2	1,926.7	377.7	206.9	210.2
Maximum	1,344.4	258.0	178.1	148.5	1,354.9	206.3	653.6	626.4	2,134.8	475.9	240.2	338.0

Stream ID	Q13	Q14	Q15a	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	192.3	22.5	60.5	63.4	165.4	478.4	170.0	55.1	604.8	72.8	51.2	35.3
Stream 01	1,029.8	89.4	222.1	195.4	1,023.1	3,257.0	1,198.3	407.6	4,050.2	250.2	50.0	33.9
Stream 02	1,081.8	94.0	412.7	211.1	1,208.6	3,235.3	1,215.0	426.5	3,061.3	403.2	47.2	29.1
Stream 03	1,083.3	111.4	271.8	130.0	1,198.7	3,559.2	1,163.2	341.6	3,669.9	401.7	46.6	29.8
Stream 04	752.2	88.7	283.0	264.7	768.3	2,144.1	1,061.2	432.1	4,131.2	298.3	53.4	35.9
Stream 05	1,006.1	87.0	240.3	846.6	1,193.7	1,960.0	780.1	429.9	4,073.8	728.5	46.6	30.0
Stream 06	800.3	146.7	224.3	287.3	1,059.9	2,469.8	1,122.6	382.1	3,804.7	317.4	46.3	30.1
Minimum	752.2	87.0	222.1	130.0	768.3	1,960.0	780.1	341.6	3,061.3	250.2	46.3	29.1
Average	958.9	102.9	275.7	322.5	1,075.4	2,770.9	1,090.1	403.3	3,798.5	399.9	48.4	31.5
Maximum	1,083.3	146.7	412.7	846.6	1,208.6	3,559.2	1,215.0	432.1	4,131.2	728.5	53.4	35.9