



DELL
PowerEdge 2900
with SQL Server 2005
Enterprise (x64) Edition™

TPC-H Revision 2.3.0

Report Date: Jul 10, 2006

Revision Date: Jul 11, 2006

Total System Cost
\$119,799 USD

TPC-H Composite Query per Hour
10,476.7 QphH@100GB

Price/Performance
\$11.44 USD/ QphH@100GB

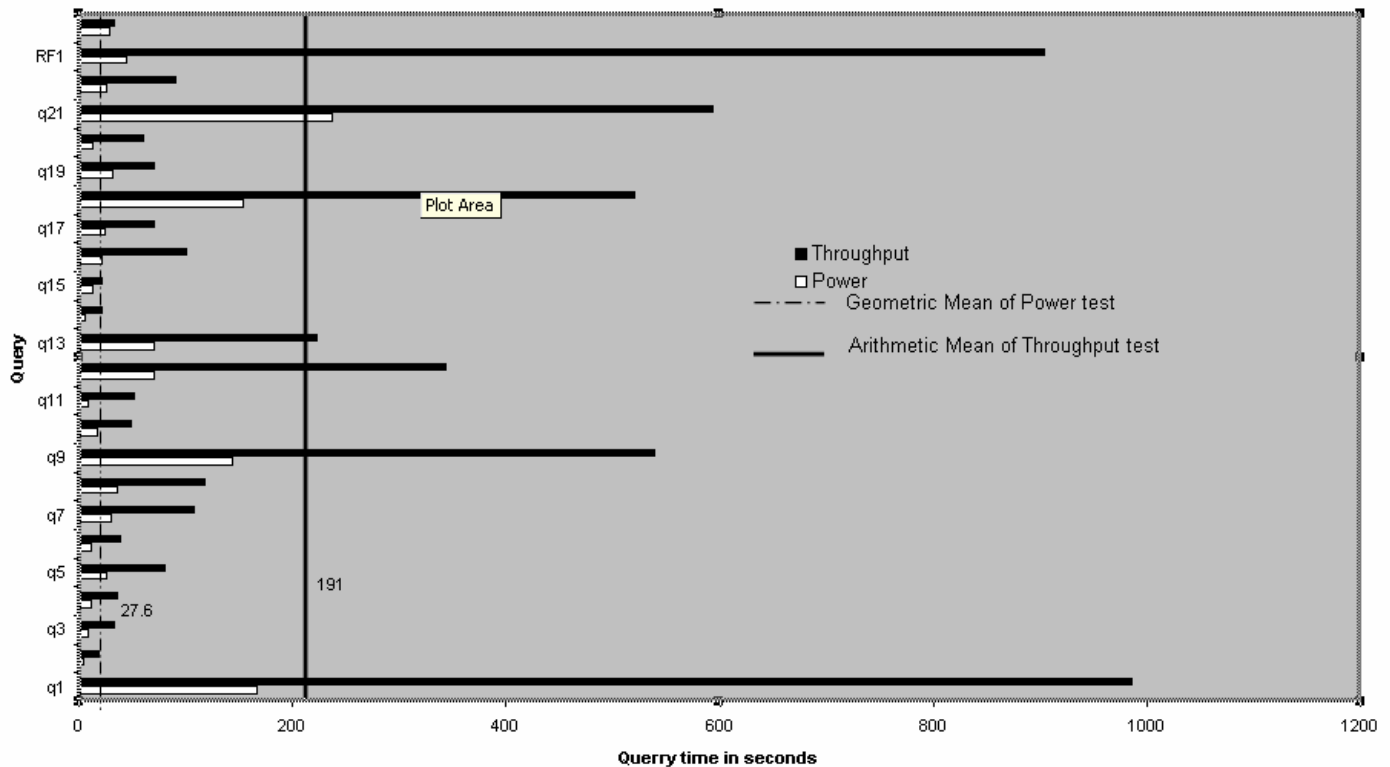
Database Size
100GB

Database Manager
 SQL Server 2005 Enterprise (x64)
 Edition™

Operating System
 Microsoft Windows Server
 2003 Enterprise x64
 Edition™

Other Software
 Visual C++ Standard Edition
 Visual Basic 2003 .Net
 Professional

Availability Date
July 17, 2006



Database Load Time
 1:34:49

Total Disk/Database Size
 41.38

Load Includes Backup
 Y

RAID (Base tables only)
 N

RAID (Base tables and auxiliary data structures)
 N

RAID (Everything)
 N

System Configuration : 1 node
Processors (per node) : 2x Dual-Core Intel® Xeon™ 5160/3.0GHz 4MB L2 Cache
Memory: (per node) : 48GB RAM
Disk Drives: 120 – 36GB 15k HDD & 8 – 36GB 15k HDD

“Database Size includes only raw data (e.g., no temp, index, redundant storage space, etc.)”

Dell		PowerEdge PE2900			TPC-H REV 2.3 EXECUTIVE SUMMARY		
		Server			Report Date: 10-Jul-06		
					Revision Date: 11-Jul-06		
Description	Part Number	Third Party	Unit Price	Qty	Extended Price	3 yr. Maint. Price	
		Brand	Pricing				
Server Hardware							
Dell PowerEdge 2900 3.0GHz Dual Core XEON w/4MB L2 cache, 1333MHZ FSB, 2 onboard Gigabit NICs	222-3395		\$1,052.00	1	\$1,052.00	\$320.00	
5160,4MB/3.00GHz,1333FSB	311-6232		\$1,149.00	1	\$1,149.00		
48GB, 633MHZ(12X4GB), 2R	311-5738		\$44,998.00	1	\$44,998.00		
PERC5/i, X4, Integrated	341-3068		\$299.00	1	\$299.00		
PERC5E, SAS, 2x4, PCIe, ADPTR	341-3023		\$799.00	2	\$1,598.00		
36GB, 3GBPS, SAS, 3.5IN, 15K (OS+LOG)	341-2816		\$249.00	8	\$1,992.00		
E773s 17-inch Color CRT Monitor	E7733YR		\$149.00	1	\$149.00		
				Subtotal	\$51,237.00	\$320.00	
PowerVault Disk Subsystem							
PV MD1000, RACK, 3U, 15 BAY, LBZL	222-2299		\$3,180.00	8	\$25,440.00	\$13,184.00	
TWO ENCL MGT MODULES, SAS/SATA	420-6220		\$500.00	8	\$4,000.00		
36GB, 3GBPS, SAS, 3.5IN, 15K	341-2816		\$249.00	120	\$29,880.00		
RACK-111/24U/Dell	A0213544		\$479.95	1	\$479.95		
				Subtotal	\$59,799.95	\$13,184.00	
Server Software							
SQL Server 2005 Enterprise x64 Edition **	810-04793	Microsoft	1	\$8,487.00	\$8,487.00		
SQL Server 2005 Client Licence **	359-01911	Microsoft	1	156	\$3,900.00		
Windows Server 2003 Enterprise x64 Server **	P72-00274	Microsoft	1	\$2,334.00	\$2,334.00		
Visual C++ Standard Edition **	254-00170	Microsoft	1	\$109.00	\$109.00		
Visual Basic 2003 Standard	046-00856	Microsoft	1	\$109.00	\$109.00		
Professional Support (1 Incident)		Microsoft	1	\$245.00		\$245.00	
				Subtotal	\$14,939.00	\$245.00	
All components from Dell are discounted 16% based on total dollar volume of this configuration.				Other Discounts (16%)	\$19,926.55		
				Total	\$106,049	\$13,749	
Notes: * Maint. included in PowerVault MD1000 disk pod				Three-Year Cost of Ownership:	\$119,799	USD	
** All Microsoft maintenance is covered by the maintenance costs of Microsoft SQL Server							
Pricing: 1 = Microsoft, all others are Dell				QphH@100G	10,476.7		
Pricing may be verified by calling 1-800-BUY-DELL and referencing quote # 304465831 as a complex quote.							
Audited by Lorna Livingtree, Performance Metrics Inc.				\$ / QphH@100G:	\$11.44	USD	
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 the stated prices are not available according to these items, please inform the TPC at pricing@tpc.org.							



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Numerical Quantities Summary

Measurement Results:

Database Scale Factor	100
Total Data Storage/Database Size	41.38
Start of Database Load	2006-06-22 12:59:12
End of Database Load	2006-06-22 14:34:00
Database Load Time	1:34:49
Query Streams for Throughput Test	5
TPC-H Power	13,052.3
TPC-H Throughput	8,409.4
TPC-H Composite Query-per-Hour Metric (QphH@100GB)	10,476.7
Total System Price Over 3 Years	\$119,799
TPC-H Price Performance Metric (\$/QphH@100GB)	\$11.44

Measurement Interval:

Measurement Interval in Throughput Test (Ts) = 4,709 seconds

Duration of stream execution:

	Seed	Start Date/Time	End Date/Time	Duration
Stream00	622143400	6/23/06 1:56:25	6/23/06 2:14:56	00:18:31
Stream01	622143401	6/23/06 2:15:27	6/23/06 3:25:12	01:09:45
Stream02	622143402	6/23/06 2:15:27	6/23/06 3:27:08	01:11:41
Stream03	622143403	6/23/06 2:15:27	6/23/06 3:26:54	01:11:27
Stream04	622143404	6/23/06 2:15:27	6/23/06 3:23:55	01:08:28
Stream05	622143405	6/23/06 2:15:27	6/23/06 3:24:10	01:08:43
Refresh00		6/23/06 1:55:39	6/23/06 1:56:24	0:00:45
		6/23/06 2:14:57	6/23/06 2:15:25	0:00:28
Refresh01		6/23/06 2:15:27	6/23/06 3:28:32	1:13:05
Refresh02		6/23/06 3:28:34	6/23/06 3:29:57	0:01:22
Refresh03		6/23/06 3:30:00	6/23/06 3:31:18	0:01:18
Refresh04		6/23/06 3:31:22	6/23/06 3:32:34	0:01:12
Refresh05		6/23/06 3:32:39	6/23/06 3:33:55	0:01:16



Numerical Quantities Summary

Timing Intervals in Seconds:

Query	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Stream00	166.7	4.4	9.1	11.2	25.3	11.6	29.8	35.5
Stream01	823.4	23.1	26.1	22.4	81.8	25.9	105.1	107.3
Stream02	900.4	19.8	75.2	26.3	79.5	55.0	97.9	115.3
Stream03	1211.3	20.0	9.8	36.8	83.3	35.5	101.0	121.8
Stream04	888.7	14.6	28.8	45.2	83.1	39.0	117.3	136.7
Stream05	1102.0	15.4	22.9	47.4	76.1	39.9	114.5	111.2
Min Qi	823.4	14.6	9.8	22.4	76.1	25.9	97.9	107.3
Max Qi	1211.3	23.1	75.2	47.4	83.3	55.0	117.3	136.7
Avg Qi	985.2	18.6	32.6	35.6	80.8	39.1	107.2	118.5
Query	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream00	143.6	16.7	9.3	70.5	50.0	6.1	12.7	22.2
Stream01	406.7	59.2	58.2	366.3	339.8	19.0	63.9	94.9
Stream02	845.0	47.1	56.2	282.5	182.4	21.2	54.0	104.0
Stream03	600.7	39.5	48.7	299.8	202.3	26.2	36.3	88.3
Stream04	510.2	58.2	46.6	402.6	148.1	20.3	49.2	103.2
Stream05	334.9	43.2	47.1	363.2	241.6	17.9	41.7	115.0
Min Qi	334.9	39.5	46.6	282.5	148.1	17.9	36.3	88.3
Max Qi	845.0	59.2	58.2	402.6	339.8	26.2	63.9	115.0
Avg Qi	539.5	49.4	51.4	342.9	222.8	20.9	49.0	101.1
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream00	24.6	154.0	31.5	12.4	237.5	26.5	45.1	28.5
Stream01	105.5	577.0	64.3	72.5	657.1	85.7	4351.6	33.1
Stream02	75.3	571.2	88.7	56.9	460.4	87.0	48.3	32.9
Stream03	70.1	441.8	58.4	48.8	609.6	97.1	43.0	33.6
Stream04	53.7	543.1	72.7	67.1	583.6	95.8	38.7	31.6
Stream05	45.3	471.3	71.0	57.6	659.1	84.8	41.5	33.3
Min Qi	45.3	441.8	58.4	48.8	460.4	84.8	38.7	31.6
Max Qi	105.5	577.0	88.7	72.5	659.1	97.1	4351.6	33.6
Avg Qi	70.0	520.9	71.0	60.6	594.0	90.1	904.6	32.9