



**DELL
PowerEdge 6600
with Oracle Database 10g**

TPC-H Revision 2.1.0

**Report Date:
Sep 10, 2004
Revision Date:
Jan 11, 2005**

**Total System Cost
\$267,228**

**TPC-H Composite Query per Hour
6795.5 QphH@300GB**

**Price/Performance
\$39/QphH@300GB**

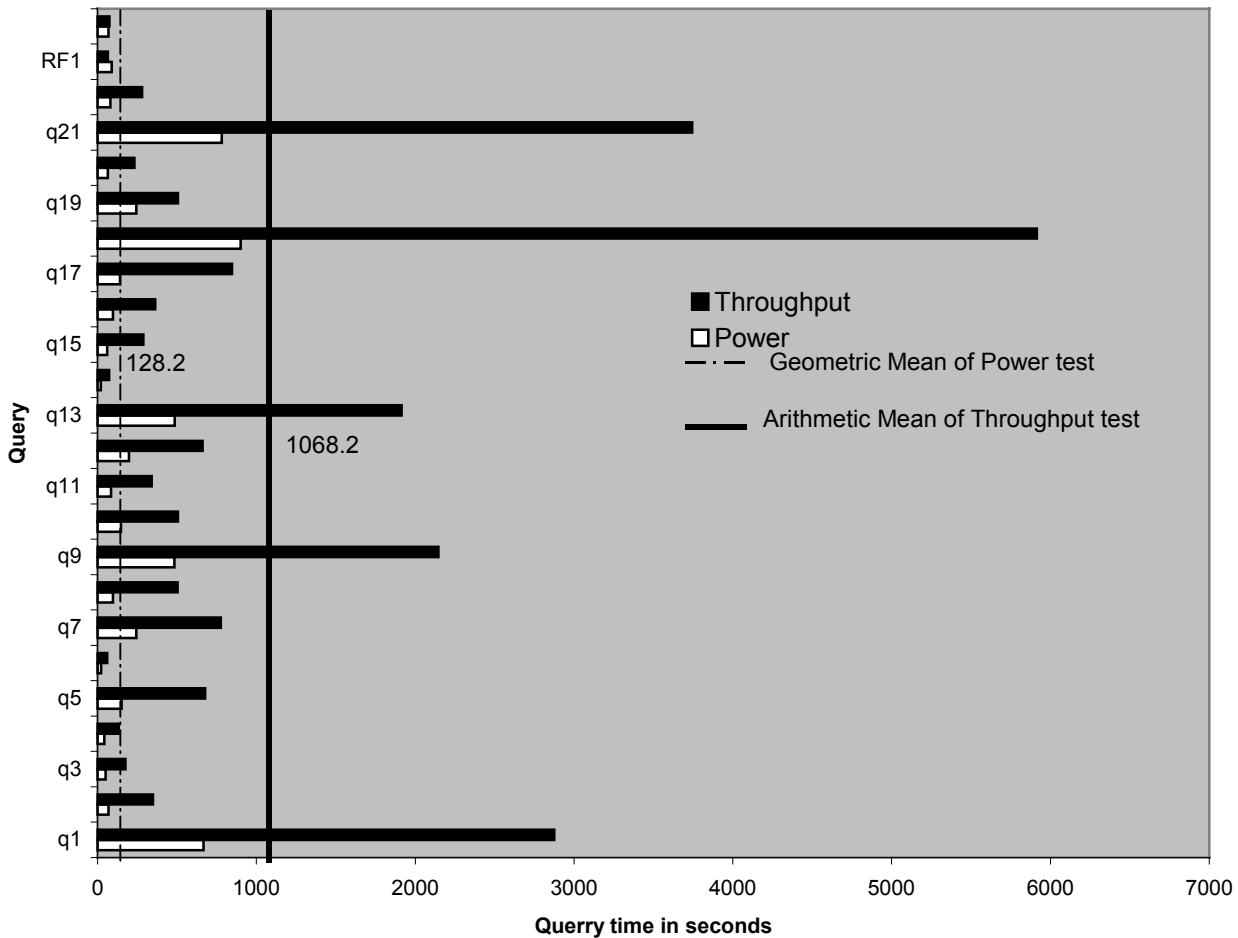
**Database Size
300GB**

Database Manager
Oracle Database 10g Enterprise
Edition with RAC and Partitioning

Operating System
Red Hat Enterprise Linux
AS v3.0

Other Software

**Availability Date
Sep 10, 2004**



Database Load Time
7:07:29

Total Disk/Database Size
9.45

Load Includes Backup
N

RAID (Base tables only)
N

RAID (Base tables and auxiliary data structures)
N

RAID (Everything)
Y

System Configuration : 2 nodes
Processors (per node) : 4x 3.0GHz/512kB L2/4MB L3 Intel Xeon MP
Memory: (per node): 16GB RAM
Disk Drives: 4 – 36GB 15k HDD
 160 – 18GB 15k HDD

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

Dell		PowerEdge 6600			TPC-H EXECUTIVE SUMMARY PAGE 2 OF 4		
					Report Date: 10-Sep-04		
		Client/Server			Revision Date: 11-Jan-05		
Description	Part Number	Third Party	Unit Price	Qty	Extended Price	3 yr. Maint. Price	
Server Hardware				Brand Pricing			
Dell PowerEdge 6600	220-4646	1	6,366	2	12,732	1,299	
Intel Xeon MP 3.0GHz / 4MB L2 - 4 processors	311-3526	1	14,999	2	29,998	-	
16 GB,DDR	311-3852	1	8,799	2	17,598	-	
36 GB U320M SCSI 10K RPM Hard Drive	340-7919	1	249	4	996	-	
Dual on-board NICs	430-8991	1	0	0	-	-	
Cross-over cable	E5DD-C407	3	2	3	5	-	
Dell 15" Monitor	320-2907	1	135	2	270	-	
PERC4-DC 128MB U320 SCSI RAID controller	340-8157	1	879	16	14,064	0	
Subtotal					75,663	1,299	
PowerVault Disk Subsystem							
PV220S, U3 SCSI, PS, Rack mount	220-4476, etc.	1	1,717	16	27,472	9,600	
2x4M,PERC/39160 SCSI Cables	310-0679	1	99	16	1,584	-	
18 GB SCSI 15K RPM Hard Drive *	340-9472	1	249	160	39,840	-	
42U Rack	220-4492	1	964	2	1,928	-	
Subtotal					70,824	9,600	
Server Software							
Oracle Database 10g Enterprise Ed., 3yrs, Named User Plus		2	10,000	8	80,000		
Partitioning for 3yrs, Named User Plus		2	2,500	8	20,000		
Real Application Clusters for 3yrs, Named User Plus		2	5,000	8	40,000		
Oracle Database server support package per server for 3yrs		2	6,000	2		12,000	
Oracle Mandatory E-Business Discount		2			(\$22,800)	0	
Red Hat Enterprise Linux Advanced Server, 3yrs SUB NFI	420-4250	1	2,699	2	5,398	0	
Subtotal					122,598	12,000	
Other Discounts					(24,756)	-	
Total					244,329	22,899	
Notes: * Maint. included in PowerVault 220S disk pod or PV650F/630F fibre channel disk pod					Three-Year Cost of Ownership: \$267,228		
*** 10% or minimum 2 spares are added in place of onsite service (products have a five year return-to-vendor warranty) Pricing: 1 - Dell 2 - Oracle 3 - GreatCables.com					QphH Rating: 6795.50		
**** Discount based upon total system cost as purchased by a regular customer. Pricing may be verified by calling 1-800-BUY-DELL referencing quote numbers 173447236 as complex quotes.							
Audited by Lorna Livingtree, Performance Metrics Inc.					\$ / QphH: 39		
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							



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Numerical Quantities Summary

Measurement Results:

Database Scale Factor	300
Total Data Storage/Database Size	9.45
Start of Database Load	8/31/2004 21:22:31
End of Database Load	9/01/2004 04:27:51
Database Load Time	7:05:20
Query Streams for Throughput Test	6
TPC-H Power	8422.2
TPC-H Throughput	5483.3
TPC-H Composite Query-per-Hour Metric (QpH@300GB)	6795.5
Total System Price Over 3 Years	\$267,228
TPC-H Price Performance Metric (\$/QpH@300GB)	\$39

Measurement Interval:

Measurement Interval in Throughput Test (Ts) = 25999.1 seconds

Duration of stream execution:

	Seed	Start Date/Time	End Date/Time	Duration
Stream00	901042751	9/01/2004 21:50:38	9/01/2004 23:16:06	1:25:28
Stream01	901042752	9/01/2004 23:17:16	9/02/2004 05:19:29	6:02:13
Stream02	901042753	9/01/2004 23:17:16	9/02/2004 06:16:06	6:58:50
Stream03	901042754	9/01/2004 23:17:16	9/02/2004 05:58:27	6:41:11
Stream04	901042755	9/01/2004 23:17:16	9/02/2004 06:15:37	6:58:21
Stream05	901042756	9/01/2004 23:17:16	9/02/2004 04:33:29	5:16:13
Stream06	901042757	9/01/2004 23:17:16	9/02/2004 06:16:41	6:59:25
Refresh00		9/01/2004 21:49:10	9/01/2004 21:50:38	0:01:28
		9/01/2004 23:16:06	9/01/2004 23:17:14	0:01:08
Refresh01		9/02/2004 06:16:41	9/02/2004 06:18:55	0:02:14
Refresh02		9/02/2004 06:18:55	9/02/2004 06:21:22	0:02:27
Refresh03		9/02/2004 06:21:22	9/02/2004 06:23:38	0:02:16
Refresh04		9/02/2004 06:23:38	9/02/2004 06:25:58	0:02:20
Refresh05		9/02/2004 06:25:58	9/02/2004 06:28:17	0:02:19
Refresh06		9/02/2004 06:28:17	9/02/2004 06:30:35	0:02:18



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Timing Intervals in Seconds:

Query	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Stream00	666.1	68.9	50.2	42.4	150.1	22.1	244.1	96.9
Stream01	2327.2	381.6	86.1	122.9	714.0	33.4	852.3	517.9
Stream02	3348.2	376.5	106.8	73.3	654.8	109.8	891.2	551.8
Stream03	3225.7	344.4	74.3	172.7	836.6	116.7	939.0	598.5
Stream04	2746.6	342.6	53.4	131.6	545.2	43.2	325.0	499.8
Stream05	2848.7	375.7	128.2	142.6	610.6	33.2	665.7	411.7
Stream06	2761.1	274.4	604.1	155.9	699.2	27.2	985.5	442.7
Min Qi	2327.2	274.4	53.4	73.3	545.2	27.2	325.0	411.7
Max Qi	3348.2	381.6	604.1	172.7	836.6	116.7	985.5	598.5
Avg Qi	2876.2	349.2	175.5	133.2	676.7	60.6	776.4	503.7
Query	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream00	482.9	148.1	83.7	197.5	486.3	20.1	60.5	96.8
Stream01	1945.1	463.1	353.9	702.5	1967.0	42.2	192.6	381.2
Stream02	2459.1	532.7	217.5	1085.8	1847.0	238.8	203.9	279.6
Stream03	1934.5	505.6	348.8	636.8	1225.8	52.8	185.4	283.7
Stream04	2758.2	543.3	333.7	387.5	1462.6	36.4	151.2	474.1
Stream05	1891.9	494.6	305.0	714.1	1919.0	38.5	286.4	371.6
Stream06	1882.0	492.1	490.1	437.8	3066.6	27.1	714.5	382.1
Min Qi	1882.0	463.1	217.5	387.5	1225.8	27.1	151.2	279.6
Max Qi	2758.2	543.3	490.1	1085.8	3066.6	238.8	714.5	474.1
Avg Qi	2145.1	505.2	341.5	660.7	1914.7	72.6	289.0	362.1
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream00	140.9	900.6	244.2	63.8	781.0	81.0	88.3	68.3
Stream01	301.6	6754.2	432.6	291.8	2676.1	194.3	60.9	72.8
Stream02	2327.5	5822.3	403.1	197.9	3033.0	370.0	73.1	74.0
Stream03	1680.0	6197.9	748.1	241.9	3431.5	291.0	62.8	73.2
Stream04	219.2	6775.9	669.4	96.0	6395.6	110.9	64.0	75.7
Stream05	290.5	3843.0	389.9	295.3	2573.2	343.3	66.7	72.5
Stream06	254.8	6085.7	386.4	272.1	4348.2	375.7	64.1	73.7
Min Qi	219.2	3843.0	386.4	96.0	2573.2	110.9	60.9	72.5
Max Qi	2327.5	6775.9	748.1	295.3	6395.6	375.7	73.1	75.7
Avg Qi	845.6	5913.1	504.9	232.5	3743.0	280.9	65.3	73.7