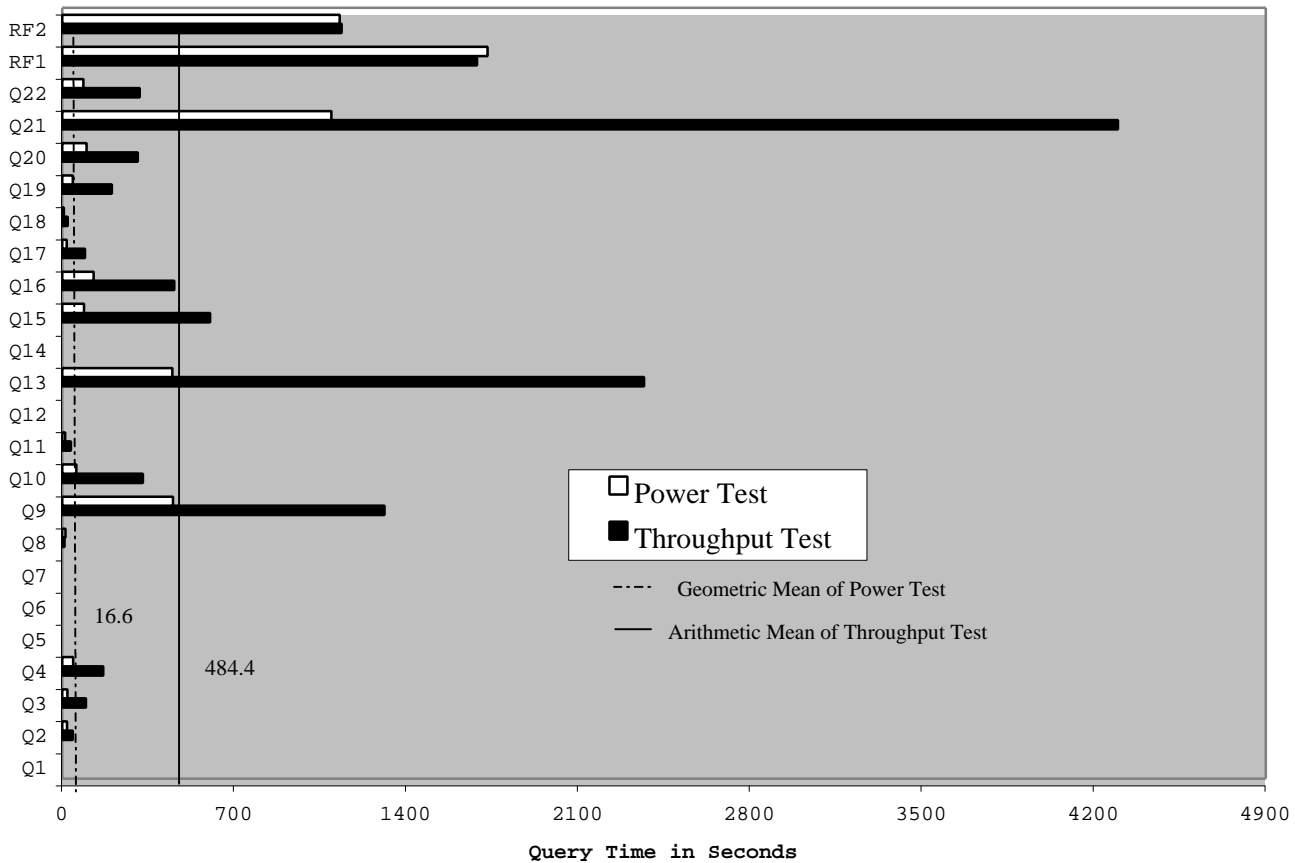
	PowerEdge 6600/1.6GHz Using Oracle9i Database Enterprise Edition Release 2 with Partitioning	TPC-R Revision 2.0
		Report Date: October 11, 2002
Total System Cost \$154,726	TPC-R Composite Query per Hour 4452.5 QphR@100GB	Price/Performance \$35.00/QphR@100GB
Database Size 100GB	Database Manager Oracle9i Database Enterprise Edition Release 2 with Partitioning	Operating System Red Hat Linux Advanced Server 2.1
Other Software None		Availability Date April 4, 2003



Database Load Time 14:08:14	Total Disk/Database Size 29.84	Load Includes Backup N
RAID (Base tables only) N	RAID (Base tables and auxiliary data structures) N	RAID (Everything) Y

System Configuration

Processors: 4 – 1.6GHz/256kB L2/1MB L3 Intel Xeon MP
Memory: 4GB RAM
Disk Drives: 2 – 18GB 10k HDDs
4 – 36GB 10k HDDs
84 – 36GB 15k HDDs

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

DELL	PowerEdge 6600/1.6GHz using Oracle9i Database Enterprise Edition Release 2 with Partitioning		TPC-R Revision 2.0.0				
			Report Date 10/11/02				
Price/Performance	Performance		Availability Date				
\$35.00 / QphR@100GB	4452.5 QphR@100GB		4/4/2003				
			Third Party	Extended Price	3 Yr Maintenance Price		
Description	Part No.	Brand	Price	Unit Price	Quantity		
Database Server Hardware:							
SYSTEM: PowerEdge 6600 1.6GHz/1MB L3	220-8304	1	1	\$7,158	1	\$7,158	
PROC: Quad Procs, 1.6GHz/1MB Xeon	311-1528	1	1	\$14,999	1	\$14,999	
MEM: 4GB (4x1GB)	311-1549	1	1	\$2,599	1	\$2,599	
DISK: 1x18GB 10k SCSI	340-3767	1	1	\$249	2	\$498	
DISK: 4x36GB 10k SCSI	340-3784	1	1	\$996	1	\$996	
NIC: Dual Integrated Broadcom Gigabit NIC Adapters	Included in SYSTEM.					\$0	
CONTROLLER: LSI MegaRAID Elite 1650	1930472	3	3	\$979	7	\$6,853	
SPARES: LSI MegaRAID Elite 1650	Spares priced to spec.	3	3	\$979	2		\$1,958
ACCESSORY: Rapid Rail Racks	310-1436	1	1	\$349	1	\$349	
MAINT: 3 Years 4Hour-7x24, SILVER Support (Initial/2Yr Ext.)	900-6370/900-6352	1	1	\$1,783	1		\$1,783
POWER: AC Switch (Dual Power Cords)	310-1446	1	1	\$299	1	\$299	
MONITOR: DELL E551 15"	320-0960	1	1	\$149	1	\$149	
Database Server Software:							
			Database Server			\$33,900	\$3,741
			Hardware Subtotal:				
OS: Red Hat Linux Advanced Server 2.1	420-1069*	1	1	\$2,499	1	\$2,499	
MAINT: PESS Gold for Advanced Software Support, 3 years	950-0117*	1	1	\$300	1		\$300
MAINT: PESS Gold 1st year Premium Services	950-0128*	1	1	\$1,151	1		\$1,151
MAINT: PESS Gold years 2 & 3 Premium Services	950-0119*	1	1	\$666	1		\$666
DBMS: Oracle9i Database Enterprise Edition Release 2, Named User Plus for 3 years	** Please see below.	2	2	\$10,000	4	\$40,000	
DBMS: Oracle Partitioning, Named User Plus for 3 years	** Please see below.	2	2	\$2,500	4	\$10,000	
DBMS MAINT: Oracle Database Server Support Package for 3 years	** Please see below.	2	2	\$2,000	1		\$6,000
			Database Server			\$52,499	\$8,117
			Software Subtotal:				
Storage Hardware:							
SYSTEM: PowerVault 220S - 12 HDD Storage System	220-4476	1	1	\$1,256	6	\$7,536	
ACCESSORY: PowerVault 220 Locking Bezel	313-1308	1	1	\$39	6	\$234	
CTRL: Ultra3 SCSI Redundant Enclosure Management Module	340-3090	1	1	\$634	6	\$3,804	
POWER: Redundant Power Option	310-0677/310-0682	1	1	\$299	6	\$1,794	
ACCESSORY: Rapid Rails	310-0684	1	1	\$114	6	\$684	
DISK: 7x36GB 15k SCSI	340-3555	1	1	\$4,893	6	\$29,358	
DISK: 36GB, 15k SCSI	340-3088	1	1	\$599	42	\$25,158	
DOCUMENTATION: Storage Documentation Hard Copy	310-1321	1	1	\$49	6	\$294	
CBL: 2 Cables,PERC,12M, PV220S	310-1686	1	1	\$99	6	\$594	
MAINT: 3 Years 4Hr/7x24, SILVER Support (Initial/2Yr Ext.)	900-6790/900-6792	1	1	\$1,099	6		\$6,594
RACK: PE4210,DOORS,GRND,42U,PS	220-4493	1	1	\$1,079	1	\$1,079	
RACK ACCESSORY: 42U Rack, Interconnect Kit, PS to TS	310-1283	1	1	\$119	1	\$119	
RACK POWER: Power Strip, 6 Socket	310-0081	1	1	\$69	1	\$69	
RACK MAINT: 3 Years BRONZE Support (Initial/2Yr Ext.)	900-6220/900-6222	1	1	\$283	1		\$283
			Storage Subtotal:			\$70,723	\$6,877
			Total:			\$157,122	\$18,735
			DBMS Discount: Oracle				
			Mandatory E-Business				
			Discount (license and			(\$5,600)	
			support)**				
			Dell Discounts:***			(\$15,531)	
3 Year Cost of Ownership			\$154,726				
QphR@100GB			4452.5				
\$/ QphR@100GB			\$35.00				
* Red Hat pricing contact: Anthony Kotecki, tony_kotecki@dell.com, 512-728-1207. (See Appendix H)							
** Oracle pricing contact: MaryBeth Pierantoni, mary.beth.pierantoni@oracle.com, 650-506-2118. (See Appendix H)							
*** Dell discount is based upon total system cost as purchased by a regular customer. Pricing may be verified by calling 1-800-BUY-DELL and referencing quote number 91268948 as the complex quote.							
1 Dell		2 Oracle		3 www.buylsilologic.com			
Independently Audited by:		Lorna Livingtree		Performance Metrics			
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 the stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you."							

Numerical Quantities Summary

Measurement Results:

Database Scale Factor	100
Total Data Storage/Database Size	29.84
Start of Database Load	9/29/2002 14:55:24
End of Database Load	9/30/2002 05:03:38
Database Load Time	14:08:14
Query Streams for Throughput Test	5
TPC-R Power	12802.6
TPC-R Throughput	1548.5
TPC-R Composite Query-per-Hour Metric (QphR@100GB)	4452.5
Total System Price Over 3 Years	\$154,726
TPC-R Price Performance Metric (\$/QphR@100GB)	\$35.00

Measurement Interval:

Measurement Interval in Throughput Test (Ts) = 25573 seconds

Duration of stream execution:

	Seed	Start Date/Time	End Date/Time	Duration
Stream00	930050338	9/30/2002 14:20:06	9/30/2002 15:51:37	1:31:31
Stream01	930050339	9/30/2002 15:52:09	9/30/2002 19:02:51	3:10:42
Stream02	930050340	9/30/2002 15:52:09	9/30/2002 18:47:04	2:54:55
Stream03	930050341	9/30/2002 15:52:09	9/30/2002 18:39:00	2:46:51
Stream04	930050342	9/30/2002 15:52:09	9/30/2002 18:43:34	2:51:25
Stream05	930050343	9/30/2002 15:52:09	9/30/2002 18:56:20	3:04:11
Refresh		9/30/2002 15:52:09	9/30/2002 22:58:22	7:06:13

Numerical Quantities Summary

Timing Intervals in Seconds:

Query	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Stream00	0.1	19.2	20.3	43.8	0.2	0.1	0.3	12.4
Stream01	0.1	51.0	122.7	46.6	0.2	0.1	0.5	7.2
Stream02	0.1	56.4	43.8	260.6	0.2	0.6	0.6	7.4
Stream03	0.1	30.2	119.7	113.3	0.1	0.1	0.4	10.9
Stream04	0.2	38.4	86.8	219.3	6.4	0.1	0.5	9.3
Stream05	0.1	41.1	106.2	196.5	0.2	0.1	0.6	11.5
Min Qi	0.1	30.2	43.8	46.6	0.1	0.1	0.4	7.2
Max Qi	0.2	56.4	122.7	260.6	6.4	0.6	0.6	11.5
Avg Qi	0.1	43.4	95.8	167.3	1.4	0.2	0.5	9.3
Query	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream00	451.1	57.9	11.7	0.1	448.6	0.1	88.3	127.3
Stream01	1070.1	447.3	45.0	0.1	2362.1	0.1	638.1	494.2
Stream02	1604.7	257.2	27.4	0.1	2642.8	0.1	803.0	410.3
Stream03	1689.0	286.0	31.6	0.1	2266.5	0.1	532.2	448.2
Stream04	1580.0	358.5	35.5	0.1	2342.8	0.1	514.6	467.5
Stream05	617.0	294.7	38.7	0.1	2226.8	1.7	522.3	457.9
Min Qi	617.0	257.2	27.4	0.1	2226.8	0.1	514.6	410.3
Max Qi	1689.0	447.3	45.0	0.1	2642.8	1.7	803.0	494.2
Avg Qi	1312.2	328.7	35.6	0.1	2368.2	0.4	602.0	455.6
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream00	18.7	7.0	43.4	98.8	1095.5	86.0	1731.0	1129.0
Stream01	62.2	35.5	232.6	285.8	5453.0	88.0	1680.0	1138.0
Stream02	42.5	15.2	309.7	292.1	3372.7	347.3	1658.0	1150.0
Stream03	93.7	48.3	123.2	395.9	3514.0	307.8	1676.0	1126.0
Stream04	138.6	10.5	170.9	272.3	3599.2	434.1	1739.0	1146.0
Stream05	126.0	1.5	172.6	288.5	5549.0	397.5	1689.0	1128.0
Min Qi	42.5	1.5	123.2	272.3	3372.7	88.0	1658.0	1126.0
Max Qi	138.6	48.3	309.7	395.9	5549.0	434.1	1739.0	1150.0
Avg Qi	92.6	22.2	201.8	306.9	4297.6	314.9	1688.4	1137.6