



**Sun Fire™ E25K Server
with Oracle Database 10g
Release 2**

TPC-H Rev. 2.3

January 27, 2006

Total System Cost

Composite Query per Hour Metric

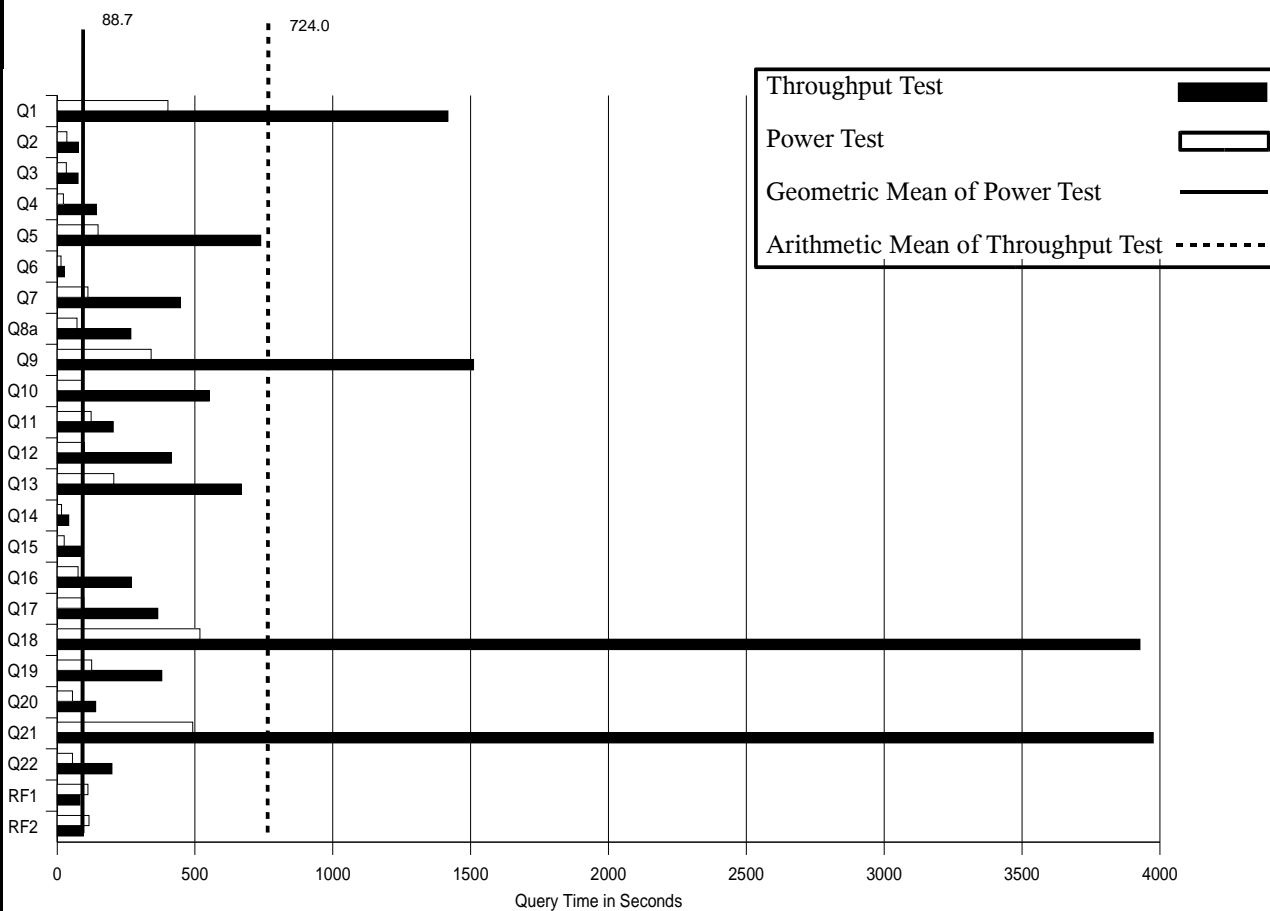
Price/Performance

\$5,784,902

105,430.9
QphH@3000GB

\$54.87
\$/QphH@3000GB

Database Size	Database Manager	Operating System	Other Software	Availability Date
3000GB	Oracle Database 10g Enterprise Edition Release 2 with Partitioning and Automatic Storage Management	Solaris 10		January 27, 2006



Database Load Time = 5:42

Load Includes Backup: N

Total Data Storage/Database Size=32.3

RAID (Base tables): N

RAID (Base tables and auxiliary data structures): N

RAID (All): Y

System Configuration: Sun Fire™ E25K Server
 Processors: 72 UltraSPARC™ IV+ 1500 MHz processors on 72 chips, 144 cores, 144 threads
 Memory: 288GB memory
 Disks: 108 StorEdge 3510 FC Arrays (12x73.4GB), 1 SE6130 (14x73.4GB), 4 S1 (3x73.4GB)
 Total Storage: 97,034.8 (in this calculation one GB is defined as 1024*1024*1024 bytes)



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Description	Part Number	Source	Unit Price	Qty	Ext. Price	3 Yr. Maint.	Unit 3 Yr Maint.
Server Hardware							
Sun Fire E25K base	E25K-BASE		1 315,000	1	315,000	197,244	197,244
UNIBRD 4 US-IV+ @1.5GHz w/16GB	US4BRD-482-1500		1 170,000	18	3,060,000	252,720	14,040
Opt QFE PCI card w/SW	RFBX1034A		1 775	1	775		
PCI Dual GigE + Dual SCSI	RFBX4422A		1 995	1	995		
Cable,SCSI,SCSI-3/SCSI-3, 2.0m	X1139A		1 95	1	95		
hsPCI+ IO Assembly	X4576A		1 15,000	18	270,000		
Opt Pwr Cord For Enterpr.(US)	X3800A		1 0	12	0		
2GB PCI Dual FC Network Adapter	RFBX6768A		1 2,500	54	135,000		
15M Fibre Channel Cable	X9724A		1 190	108	20,520		
<i>Server Hardware Subtotal</i>					3,802,385	449,964	
Storage							
876 GB StorEdge 3510 2 RAID Controllers	TA3510M01A2R876		1 36,495	108	3,941,460	797,040	7,380
StorEdge S1 3x73GB	NS-XDSKS1-373GAC		1 4,695	4	18,780	7,632	1,908
1022 GB StoreEdge 6130	TA6130M11A2T1022		1 46,695	1	46,695	6,732	6,732
72" StorEdge Expansion Rack	RSG-SG-XARY030A		1 6,500	7	45,500		
Exp Cab 2U Universal Rack Mount Kit	TA-3000-2URK-19U		1 350	108	37,800		
Power Cord for StorEdge	X3858A		1 0	14	0		
<i>Storage Subtotal</i>					4,090,235	811,404	
Server Software							
Solaris 10			3 0	1	0		
Sun One Studio 7	FDEIS-T999-3ST		1 2,376	1	2,376	792	792
Sun StorEdge Comp Mgr	SCMMS-210-R99R		1 0	1	0		
Oracle Database 10g Enterprise Edition, Named User Plus for 3 years			2 10,000	108‡	1,080,000		
Partitioning, Named User Plus for 3 years			2 2,500	108‡	270,000		
Oracle Server Support Package for 3 years			2 6,000	1		6,000	
<i>Server Software Subtotal</i>					1,352,376	6,792	
Sun Volume Discounts (50%) and Support Prepayment (35%)			1		-3,947,498	-441,756	
Oracle Mandatory E-Business Discount (25%)			2		-339,000		
				Total	4,958,498	826,404	
Service for all Sun products is from Sun Microsystems, Inc. and is based on SunSpectrum Instant Upgrade Gold 7x24				3 Yr. Cost	5,784,902		
Service for Oracle products is from Oracle Corp.				QphH@3000GB	105,430.9		
				\$/QphH@3000GB	\$54.87		

Notes (Source):

1. Sun Microsystems, Inc. (see Appendix G) ‡108 = 0.75 * 144. Explanation: For the purposes of counting the number of processors which
2. Oracle Corp. (see Appendix G) require licensing, a multicore chip with "n" cores shall be determined by multiplying "n" cores
3. Download from SunSolve by a factor of .75

Audited by: François 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 standard components. Individually negotiated discounts are not permitted. Special prices based on assumptions about past or future purchase 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 terms, please inform the TPC at pricing@tpc.org. Thank you.



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Numerical Quantities

Measurement Results:

Database Scale Factor	= 3000GB
Total Data Storage / Database Size	= 32.3
Start of database load time	= 01-04-2006 18:16:35
End of database load time	= 01-04-2006 23:58:42
Database Load Time	= 5:42
Query Streams for Throughput Test	= 8
TPC-H Power	= 121,805.8
TPC-H Throughput	= 91,257.4
TPC-H Composite Query-per-Hour Rating (QphH@3000GB)	= 105,430.9
Total System Price Over 3 Years	= \$5,784,902
TPC-H Price/Performance Metric (\$/QphH@3000GB)	= \$54.87

Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 20,829 seconds
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Duration of Stream Execution:

Stream ID	Seed	Start Date	Start Time	End Date	End Time	Duration
Stream 00	104235842	01/05/06	00:03:24	01/05/06	00:59:54	00:56:30
Stream 01	104235843	01/05/06	01:00:10	01/05/06	05:54:49	04:54:39
Stream 02	104235844	01/05/06	01:00:10	01/05/06	03:16:16	02:16:06
Stream 03	104235845	01/05/06	01:00:10	01/05/06	04:52:21	03:52:11
Stream 04	104235846	01/05/06	01:00:10	01/05/06	06:23:35	05:23:25
Stream 05	104235847	01/05/06	01:00:10	01/05/06	05:49:57	04:49:47
Stream 06	104235848	01/05/06	01:00:10	01/05/06	04:45:31	03:45:21
Stream 07	104235849	01/05/06	01:00:10	01/05/06	06:09:56	05:09:46
Stream 08	104235850	01/05/06	01:00:10	01/05/06	06:12:39	05:12:29
Refresh		01/05/06	06:23:35	01/05/06	06:47:19	00:23:44



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TPC-H Timing Intervals (in seconds)

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Stream 0	401.9	35.2	33.6	22.8	148.9	14.2	112.3	72.6	341.4	88.2	122.9	99.2
Stream 1	590.5	60.1	83.1	71.3	1,114.3	15.4	305.9	171.7	807.9	268.3	280.1	179.9
Stream 2	831.9	48.0	54.3	56.9	266.5	53.9	264.1	120.5	702.6	795.1	199.5	210.9
Stream 3	2,595.4	52.7	50.3	177.8	1,683.6	32.5	849.7	428.8	753.6	200.1	155.4	192.5
Stream 4	425.6	87.5	30.8	134.2	536.8	20.8	117.0	318.7	3,685.4	685.9	200.1	695.1
Stream 5	825.5	49.3	56.7	150.7	277.1	29.5	699.9	137.7	736.1	344.2	276.1	270.3
Stream 6	710.7	80.3	58.5	68.3	290.1	26.7	262.7	132.6	889.8	620.2	169.6	828.9
Stream 7	2,415.5	146.2	154.7	295.9	270.5	15.0	204.92	436.63	1937.45	154.59	225.78	142.64
Stream 8	2948.3	94.1	120.5	184.0	1,473.1	22.7	877.14	389.78	2572.46	1349.4	123.14	795.96
Minimum	425.6	48.0	30.8	56.9	266.5	15.0	117.0	120.5	702.6	154.6	123.1	142.6
Average	1417.9	77.3	76.1	142.4	739.0	27.1	447.7	267.1	1510.7	552.2	203.7	414.5
Maximum	2948.3	146.2	154.7	295.9	1683.6	53.9	877.1	436.6	3685.4	1349.4	280.1	828.9

	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 0	205.3	15.9	25.8	76.5	97.9	518.1	125.5	56.0	491.8	55.7	112.4	115.9
Stream 1	402.8	31.7	57.4	200.7	157.0	4651.4	276.9	64.3	7753.3	135.6	88.0	114.8
Stream 2	484.9	60.6	52.1	705.6	757.2	996.8	270.7	108.3	1036.1	90.3	81.4	92.6
Stream 3	438.0	38.9	49.7	135.3	225.9	4479.0	223.4	87.0	976.2	105.9	80.2	92.2
Stream 4	216.8	47.2	140.4	195.2	186.3	7634.1	324.9	53.0	3616.0	53.5	81.6	92.6
Stream 5	939.7	44.7	150.0	143.6	215.4	4169.1	243.8	111.5	7203.7	312.9	82.9	92.8
Stream 6	374.4	44.1	53.8	173.1	178.0	4673.4	255.8	259.5	2992.5	378.0	82.2	91.4
Stream 7	1145.5	23.9	42.0	125.4	558.2	3923.6	689.6	253.0	5169.5	255.7	82.8	91.9
Stream 8	1340.6	50.7	131.2	479.4	646.1	894.7	753.6	185.3	3061.9	255.2	83.6	92.0
Minimum	216.8	23.9	42.0	125.4	157.0	894.7	223.4	53.0	976.2	53.5	80.2	91.4
Average	667.8	42.7	84.6	269.8	365.5	3927.8	379.8	140.2	3976.1	198.4	82.8	95.0
Maximum	1340.6	60.6	150.0	705.6	757.2	7634.1	753.6	259.5	7753.3	378.0	88.0	114.8