

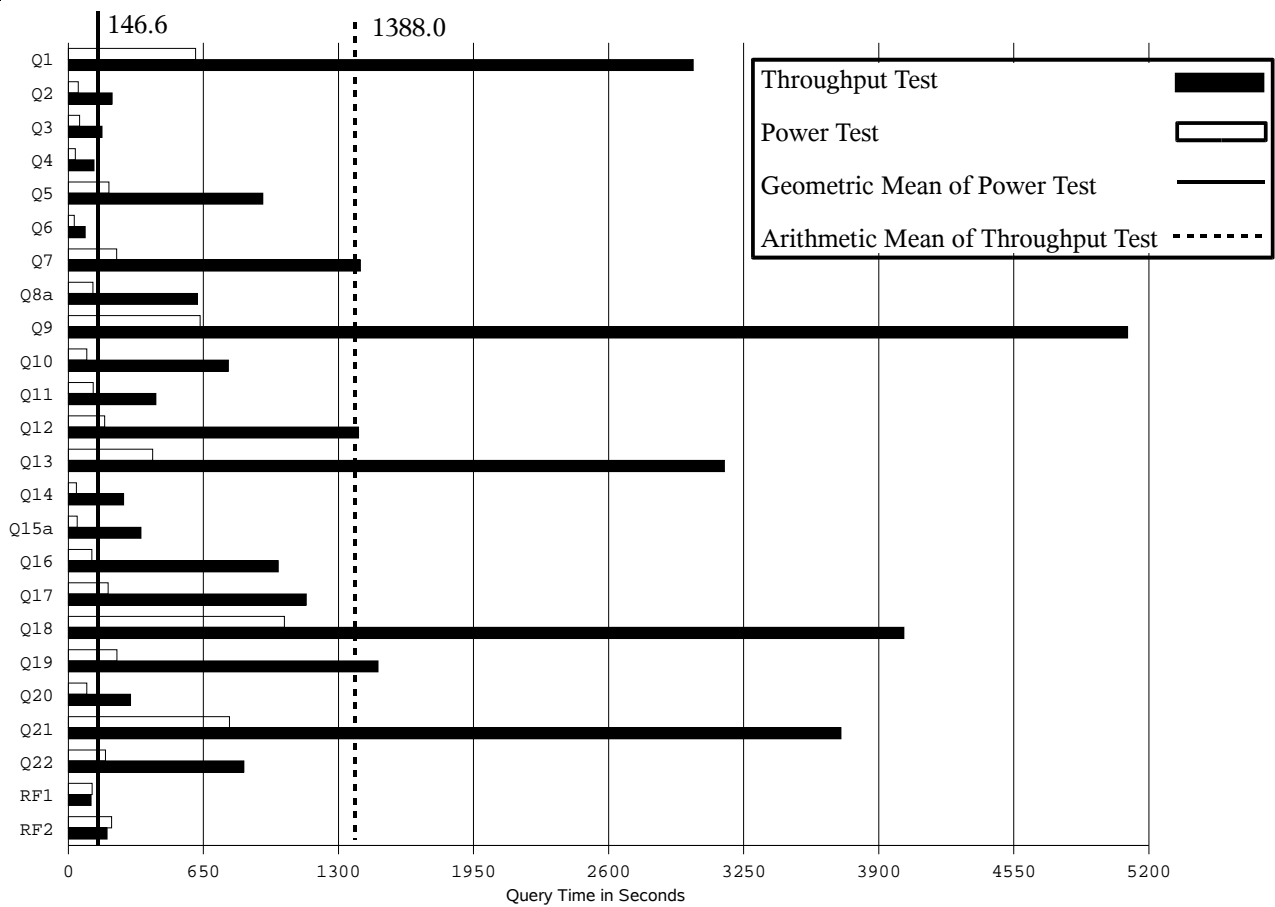


**Sun Fire™ E25K Server
with Oracle Database 10g**

TPC-H Rev. 2.1

Reported January 27, 2005
Revised April 25, 2005

Total System Cost	Composite Query per Hour Metric	Price/Performance		
\$5,982,737	59,435.7 QphH@3000GB	\$101 \$/QphH@3000GB		
Database Size	Database Manager	Operating System	Other Software	Availability Date
3000GB	Oracle Database 10g Enterprise Edition with Partitioning And Automatic Storage Manager	Solaris 10		July 27, 2005



Database Load Time = 4:01

Load Includes Backup: N

Total Data Storage/Database Size=28.8

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 1200 MHz processors
 Memory: 288GB memory
 Disks: 96 StorEdge 3510 FC Arrays (12x73.4GB), 1 SE6120 (14x73.4GB), 4 S1 (3x73.4GB)
 Total Storage: 86,465.2 (in this calculation one GB is defined as 1024*1024*1024 bytes)



Sun Fire™ E25K Server with Oracle Database 10g

TPC-H Rev. 2.1

Reported January 27, 2005
Revised April 25, 2005

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
UNIBRD 4 USIV @ 1.2GHz w/16GB	US4BRD-482-1200		1	153,000	18	2,754,000	277,344
Opt QFE PCI card w/SW	RFBX1034A		1	915	1	915	
PCI Dual GigE + Dual SCSI	X4422A		1	995	1	995	
Cable, SCSI, SCSI-3/SCSI-3, 2.0m	X1139A		1	95	1	95	
hsPCI+ IO Assembly	X4576A		1	15,000	17	255,000	
Opt Pwr Cord For Enterpr.(US)	X3800A		1	0	12	0	
2GB PCI Dual FC Network Adapter	RFBX6768A		1	3,875	48	186,000	
15M Fibre Channel Cable	X9724A		1	190	96	18,240	
<i>Server Hardware Subtotal</i>						3,530,245	474,588
Storage							
876 GB StorEdge 3510 2 RAID Controllers	TA3510M01A2R876		1	41,995	96	4,031,520	708,480
StorEdge S1 3x73GB	NS-XDSKS1-373GAC		1	4,695	4	18,780	7,632
1022 GB StoreEdge 6120	XTA6120R11A1T1022		1	36,995	1	36,995	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	96	33,600	
Power Cord for StorEdge	X3858A		1	0	14	0	
<i>Storage Subtotal</i>						4,166,395	722,844
Server Software							
Solaris 10			3	0	1	0	
Sun One Studio 7	FDEIS-T999-3ST		1	2,376	1	2,376	612
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	144	1,440,000	
Partitioning, Named User Plus for 3 years			2	2,500	144	360,000	
Oracle Server Support Package for 3 years			2	6,000	1	6,000	
<i>Server Software Subtotal</i>						1,802,376	6,612
Sun Volume Discounts (50%) and Support Prepayment (35%)			1			-3,849,508	-419,315
Oracle Mandatory E-Business Discount (25%)			2			-451,500	
Total						5,198,008	784,729
Service for all Sun products is from Sun Microsystems, Inc. and is based on SunSpectrum Instant Upgrade Gold 7x24						3 Yr. Cost	5,982,737
Service for Oracle products is from Oracle Corp.						QpH@3000GB	59,435.70
						\$/QpH@3000GB	\$100.66

Notes (Source):

1. Sun Microsystems, Inc. (see Appendix G)
2. Oracle Corp. (see Appendix G)
3. Download from SunSolve

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.



**Sun Fire™ 15K Server
with Oracle Database 10g**

TPC-H Rev. 2.1

Reported January 27, 2005
Revised April 25, 2005

Numerical Quantities

Measurement Results:

Database Scale Factor	= 3000GB
Total Data Storage / Database Size	= 28.8
Start of database load time	= 01-06-2005 21:26:30
End of database load time	= 01-07-2005 01:27:29
Database Load Time	= 4:01
Query Streams for Throughput Test	= 8
TPC-H Power	= 73,686.8
TPC-H Throughput	= 47,940.7
TPC-H Composite Query-per-Hour Rating (QphH@3000GB)	= 59,435.7
Total System Price Over 3 Years	= \$5,982,737
TPC-H Price/Performance Metric (\$/QphH@3000GB)	= \$101

Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 39,649 seconds
--	------------------

Duration of Stream Execution:

Stream ID	Seed	Start Date	Start Time	End Date	End Time	Duration
Stream 00	107012729	1/7/05	01:35:39	1/7/05	03:11:49	01:36:10
Stream 01	10701230	1/7/05	03:12:12	1/7/05	11:06:09	07:53:57
Stream 02	107012731	1/7/05	03:12:12	1/7/05	13:02:06	09:49:54
Stream 03	107012732	1/7/05	03:12:12	1/7/05	10:03:17	06:51:05
Stream 04	107012733	1/7/05	03:12:12	1/7/05	13:33:33	10:21:21
Stream 05	107012734	1/7/05	03:12:12	1/7/05	09:42:19	06:30:07
Stream 06	107012735	1/7/05	03:12:13	1/7/05	11:11:35	07:59:22
Stream 07	107012736	1/7/05	03:12:13	1/7/05	12:00:46	08:48:33
Stream 08	107012737	1/7/05	03:12:13	1/7/05	12:49:28	09:37:15
Refresh		1/7/05	13:33:33	1/7/05	14:13:01	00:39:28



Sun Fire™ 15K Server
with Oracle Database 10g

TPC-H Rev. 2.1

Reported January 27, 2005
Revised April 25, 2005

TPC-H Timing Intervals (in seconds)

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8a	Q9	Q10	Q11	Q12
Stream 00	613.1	47.3	53.6	33.5	195.8	28.8	232.1	117.8	633.8	89.1	119.3	174.6
Stream 01	2228.7	244.5	208.4	114.4	607.1	55.3	701.2	913.2	1850.1	1141.7	582.1	1650.0
Stream 02	1326.7	280.1	77.6	53.1	2667.1	57.9	2693.6	1016.6	7929.1	1146.5	213.6	1531.7
Stream 03	2083.4	100.4	250.5	173.8	267.9	110.6	786.9	238.5	1954.9	396.5	350.3	2222.2
Stream 04	618.6	302.0	58.6	317.7	1859.0	178.9	237.9	958.3	8380.4	1221.5	886.3	2010.8
Stream 05	1807.4	101.4	189.9	98.6	555.3	64.4	3032.5	259.0	1931.4	348.6	466.0	455.3
Stream 06	1627.1	223.2	97.0	96.9	569.7	60.2	679.8	331.4	7955.6	160.3	351.5	454.3
Stream 07	6408.2	324.8	230.4	78.1	460.6	54.0	617.8	972.7	2276.8	252.3	324.3	639.7
Stream 08	7962.4	111.5	180.2	58.3	502.8	66.4	2490.6	279.0	8499.4	1499.8	200.4	2210.4
Minimum	618.6	100.4	58.6	53.1	267.9	54.0	237.9	238.5	1850.1	160.3	200.4	454.3
Average	3007.8	211.0	161.6	123.9	936.2	81.0	1405.0	621.1	5097.2	770.9	421.8	1396.8
Maximum	7962.4	324.8	250.5	317.7	2667.1	178.9	3032.5	1016.6	8499.4	1499.8	886.3	2222.2

	Q13	Q14	Q15a	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	405.4	38.9	42.1	112.7	191.1	1040.3	233.9	88.9	775.9	178.1	115.0	208.5
Stream 01	4631.3	395.0	625.2	1125.2	1274.3	3715.6	1813.5	247.0	3784.6	528.3	110.4	181.6
Stream 02	4150.1	668.9	611.1	1801.1	1055.4	3467.4	2028.1	143.3	806.8	1668.1	101.2	180.0
Stream 03	4702.6	97.5	144.4	1097.7	3337.5	3474.7	591.2	213.7	1593.5	476.4	105.4	188.8
Stream 04	401.8	309.0	636.9	1148.5	1080.1	6135.7	1740.9	98.4	8525.3	173.8	102.7	179.6
Stream 05	1337.4	94.8	182.7	1210.0	325.6	3436.5	2699.1	232.8	3847.4	730.9	104.7	182.0
Stream 06	7727.1	92.3	269.7	993.6	379.4	3434.6	451.2	219.6	1953.3	635.1	115.5	195.7
Stream 07	1138.0	129.6	189.2	347.4	1357.6	6124.5	673.8	910.2	7451.6	752.1	121.6	196.4
Stream 08	1171.2	343.4	135.1	355.7	352.7	2383.8	1922.7	329.1	1786.9	1793.4	118.9	181.6
Minimum	401.8	92.3	135.1	347.4	325.6	2383.8	451.2	98.4	806.8	173.8	101.2	179.6
Average	3157.4	266.3	349.3	1009.9	1145.3	4021.6	1490.1	299.3	3718.7	844.8	110.1	185.7
Maximum	7727.1	668.9	636.9	1801.1	3337.5	6135.7	2699.1	910.2	8525.3	1793.4	121.6	196.4