



Sun Fire™ X4100 M2 Server with Sybase IQ 12.6 Single Application Server

TPC-H Rev. 2.6.0

Report Date: May 25, 2007

Total System Cost

Composite Query per Hour Metric

Price/Performance

\$45,001.35

7641
QphH@300GB

\$5.89
per QphH@300GB

Database Size

Database Manager

Operating System

Other Software

Availability Date

300GB

**Sybase IQ 12.6
Single Application
Server**

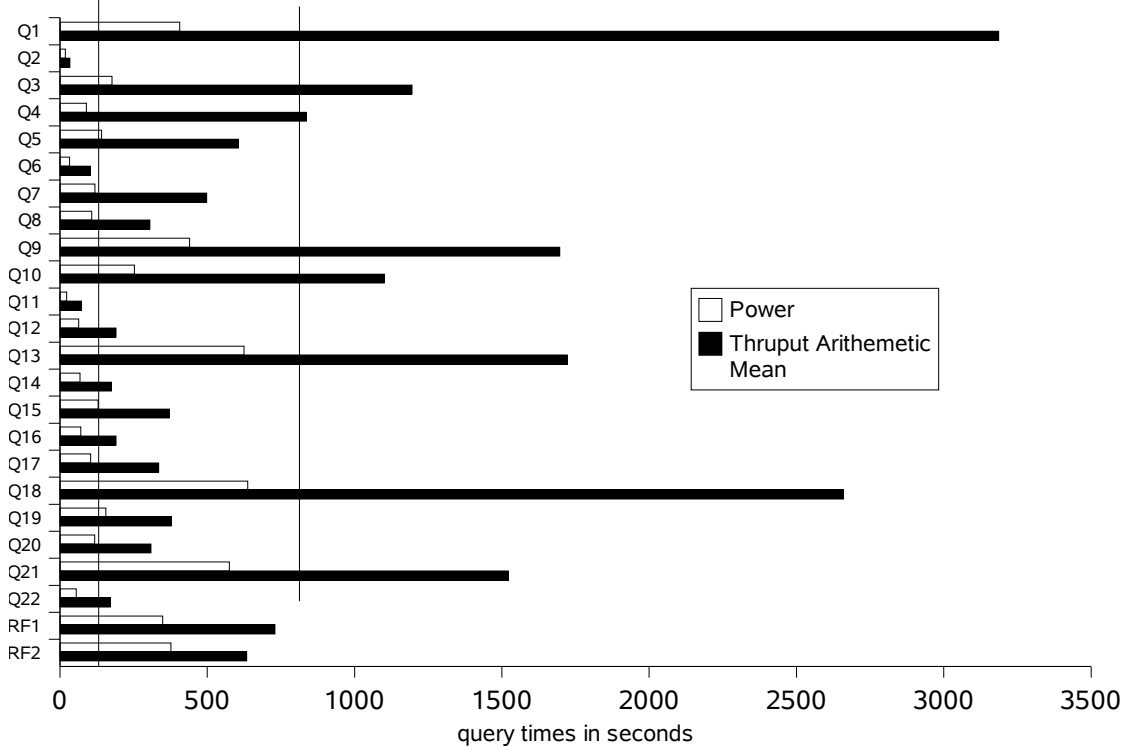
Solaris 10

**Solaris Volume
Manager**

May 25, 2007

137.6 = power geometric mean

802.3 = throughput arithmetic mean



Database Load Time = 04:22:53

Load Includes Backup: N

Total Storage/Database Size=3.17

RAID (Base tables): RAID 1

RAID (Base tables and auxiliary data structures): RAID 1

RAID (All): N

System Configuration:

SunFire X4100 M2 Server with

2 AMD Opteron 3.0GHz processors (each processor contains 2 cores with 1 thread per core)

16 GB memory

2 x 73 GB (10K RPM) internal SAS disks

2 x STK3320 SCSI JBOD (6 x 73GB 15krpm disk on each array)

Total Storage: 951 GB

(in this calculation 1 GB is defined as 1024 * 1024 * 1024)



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Description	Part Number	Source	Unit Price	Qty	Ext. Price	3 Yr. maint.
Server Hardware						
SunFire X4100 x64 Server: XATO base chassis	A86-ZD	1	1,450.00	1	1,450.00	
73GB 10K RPM 2.5" SAS hard disk drive	RA-SS2CD-73G10KZ	1	365.00	2	730.00	
AMD Opteron 2222SE (3.0 Ghz/1MB dual-core) processor	4081A-Z	1	1,395.00	2	2,790.00	
4GB Memory kit DDR2-667	4226A-Z	1	940.00	4	3,760.00	
Powersupply unit	8052A-Z	1	295.00	1	295.00	
X4100 Server upgrade to 3 year Gold Warranty Upgrade	W9D-A86-3G	1	2,772.00	1		2,772.00
Sun Discount		1			-631.75	-970.20
<i>Server Hardware Subtotal</i>					8,393.25	1,801.80
External Storage						
Sun StorEdge 3320 JBOD Chassis, no drives	TA3320R00N00DISK	1	2,297.00	2	4,594.00	
Sun StorEdge 3000 AC Power Kit	TA-3000-2UAC-KIT	1	900.00	2	1,800.00	
73GB 15k rpm, U320 SCSI LVD disk	TB-SC1NC-73G15K	1	945.00	12	11,340.00	
PCI-E x4 dual channel Ultra320 SCSI HBA	SG-PCIE2SCSIU320Z	1	510.00	2	1,020.00	
SCSI cable, VHDCI/VHDCI, 68pin, 2m	X1138A-Z	1	95.00	4	380.00	
Sun StorEdge 3320 JBOD array upgrade to 3 year Gold support	W9D-SE3320-3G	1	4,212.00	2		8,424.00
Sun Discount		1			-6,411.30	-2,948.40
<i>Storage Subtotal</i>					12,722.70	5,475.60
Server Software						
Sybase IQ-M Single App Svr, per cpu core	12841	2	2,595.00	4	10,380.00	
Sybase IQ 3 Years Extended Support 24 x 7	98480	2	1,557.00	4		6,228.00
Sybase Discount		2			0.00	
<i>Server Software Subtotal</i>					10,380.00	6,228.00
Total					31,495.95	13,505.40
3 Yr. Cost					45,001.35	
QphH@ 300GB					7,641.00	
\$/QphH@ 300GB					\$5.89	

Service for all Sun products is from Sun Microsystems, Inc.

Service for Sybase products is from Sybase Inc.

Notes (Source):

1. Sun Microsystems Inc.

2. Sybase Inc.

PriceQuotes provided in Appendix G

Audited by: Brad Askins, 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	= 300GB
Total Data Storage / Database Size	= 3.17
Start of database load time	= 2007-04-11 08:48:21
End of database load time	= 2006-04-11 13:11:14
Database Load Time	= 04:22:53
Query Streams for Throughput Test	= 6
TPC-H Power	= 7847
TPC-H Throughput	= 7440.5
TPC-H Composite Query-per-Hour Rating (QphH@300GB)	= 7641
Total System Price Over 3 Years	= \$45,001.35
TPC-H Price/Performance Metric (\$/QphH@300GB)	= \$5.89

Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 19,160 seconds
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Duration of Stream Execution:

Stream ID	Seed	Start Date	Start Time	End Date	End Time	Duration
Stream 0	411131114	2007-04-11	13.11.41	2007-04-11	14.37.15	1hr:25mins:34secs
Stream 1	411131115	2007-04-11	14.37.17	2007-04-11	19.42.11	5hrs:4mins:54secs
Stream 2	411131116	2007-04-11	14.37.17	2007-04-11	19.40.55	5hrs:3mins:38secs
Stream 3	411131117	2007-04-11	14.37.17	2007-04-11	18.51.40	4hrs:14mins:23secs
Stream 4	411131118	2007-04-11	14.37.17	2007-04-11	19.37.03	4hrs:59mins:46secs
Stream 5	411131119	2007-04-11	14.37.17	2007-04-11	19.20.53	4hrs:43mins:36secs
Stream 6	411131120	2007-04-11	14.37.17	2007-04-11	19.56.37	5hrs:19mins:20secs
Refresh		2007-04-11	14.37.17	2007-04-11	17.39.30	3hrs:2mins:13secs



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TPC-H Timing Intervals (in seconds)

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Stream 00	406.7	17.9	176.5	89.8	141.5	32.6	118.6	107.8	439.8	252.7	23	63.3
Stream 01	3226.4	29.6	832.4	574.6	701.7	94.5	478.4	188.3	1242.6	716.6	101.9	268.6
Stream 02	3802.4	34.9	268.7	639.1	642.5	182.3	569.8	290.4	2113.3	1061	32.9	345.1
Stream 03	2619.3	28.3	277	890.7	786.7	61.2	656	752.8	1653.8	718.7	48.8	88.8
Stream 04	3740.1	65	367.5	826.7	981.2	80.9	211	225.7	2098.2	1494.9	90	235
Stream 05	2387.1	22.7	2246.9	1280.7	235.2	102.8	351	119.4	725.2	491.4	113.5	73.2
Stream 06	3340.85	19.69	3174.98	804.75	286.92	94.99	722.61	255.02	2342.91	2119.9	48.72	130.84
Minimum	2387.1	19.7	268.7	574.6	235.2	61.2	211.0	119.4	725.2	491.4	32.9	73.2
Average	3186.0	33.4	1194.6	836.1	605.7	102.8	498.1	305.3	1696.0	1100.4	72.6	190.3
Maximum	3802.4	65.0	3175.0	1280.7	981.2	182.3	722.6	752.8	2342.9	2119.9	113.5	345.1

	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	624.8	67.6	129.1	70.6	103.9	637.5	155.6	117.8	574.9	54.9	348.7	376.9
Stream 01	1842	181.6	370.3	290.2	544.5	2583.8	349.7	677.9	2776.6	221	907.7	646
Stream 02	2323.9	382.8	506.8	278.8	661.6	2311.6	564.3	212.6	764.4	226.9	907.7	786
Stream 03	953	105	175.9	92.8	215.1	3538.7	277.8	373.3	848.2	99.9	585.2	556
Stream 04	1195.3	149.3	411.8	231.6	369.4	2515.8	645	319.2	1655.1	75.8	615.2	671.1
Stream 05	2062.5	154.7	302.8	130	112.2	2936.4	285.7	138.2	2516.5	227	806.7	567.1
Stream 06	1952.05	73.35	458.49	115.86	105.11	2068.93	144.9	131.71	570.83	170.19	557.21	573.85
Minimum	953.0	73.4	175.9	92.8	105.1	2068.9	144.9	131.7	570.8	75.8	557.2	556.0
Average	1721.5	174.5	371.0	189.9	334.7	2659.2	377.9	308.8	1521.9	170.1	730.0	633.3
Maximum	2323.9	382.8	506.8	290.2	661.6	3538.7	645.0	677.9	2776.6	227.0	907.7	786.0