

Sun Fire™ V490 Server with Sybase IQ 12.6 Single Application Server

TPC-H Rev. 2.3.0

Report Date: Oct 14, 2005

Total System Cost

\$143,470.70

Composite Query per Hour Metric

6,433.4
QphH@100GB

Price/Performance

\$ 22.30
per QphH@100GB

Database Size

100GB

Database Manager

**Sybase IQ 12.6
Single Application
Server**

Operating System

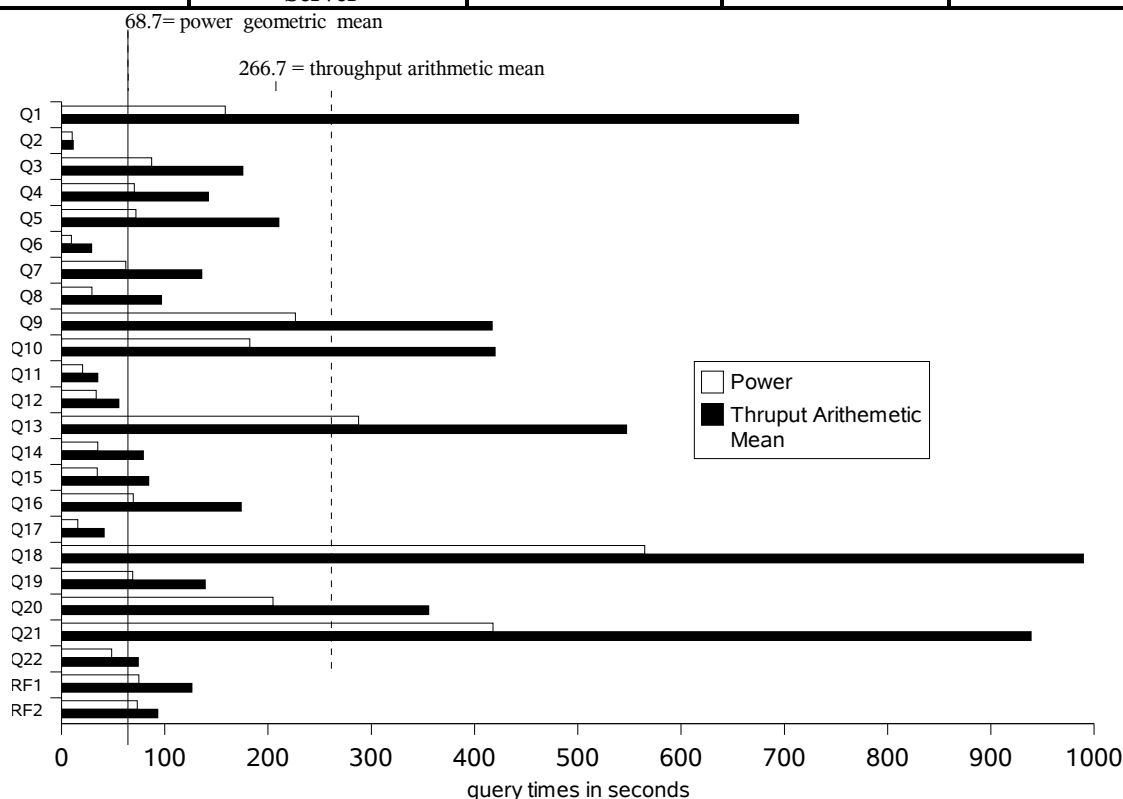
Solaris 10

Other Software

**Solaris Volume
Manager**

Availability Date

Oct 14, 2005



Database Load Time = 82 min

Load Includes Backup: N

Total Storage/Database Size= 27.2

RAID (Base tables): RAID 1

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

RAID (All): N

System Configuration:

SunFire V490 Server each with
4 UltraSPARC IV+ 1.5 GHz processors
32 GB memory
2 X 146GB internal disks (10K RPM)

3 X SE3310 SCSI JBOD disk arrays (each with 12 X 73 GB 15K RPM disks)

Total Storage: 2.72 TB

(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 V490 4x1.5GHz CPUs, 32GB memory, 2x146GB disk drives	A53-JNG8C264GTF	1	80,995.00	1	80,995.00	
3 Year Gold Warranty Upgrade – V490 Server (includes internal disks & HBAs)	W9D-A53-8P-24-3G	1	27,648.00	1		10,332.00
Sun Server Discount					16,199.00	3,616.20
Server Hardware Subtotal					64,796.00	6,715.80
External Storage						
Sun StoEdge 3310 FC JBOD array (12 X 73 GB 15 RPM)		1	14,495.00	3	43,485.00	
3 Year Gold Warranty Upgrade for SE3510	W9D-SE3510-3G	1	4,356.00	3		13,068.00
SCSI cable	X9730A	1	95.00	6	570.00	
Ultra320 SCSI HBA	XG-XPC12SCSILM320	1	510.00	3	1,530.00	
Sun Storage Discount					13,675.50	4,573.80
Storage Subtotal					31,909.50	8,494.20
Server Software						
Sybase IQ-M Single App Svr – per cpu core	11467	2	2,595.00	8	20,760.00	
Sybase IQ 3 Years Extended Support 24 x 7	98477	2	1,557	8		12,456.00
Sybase discount					-1,660.80	
Server Software Subtotal					19,099.20	12,456.00
Total					115,804.70	27,666.00
3 Yr. Cost					143,470.70	
QphH@ 100GB					6,433.4	
S/QphH@ 100GB					22.30	

Service for 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	= 100GB
Total Data Storage / Database Size	= 27.2
Start of database load time	= 2005-9-24 7:04:58
End of database load time	= 2005-9-24 8:26:26
Database Load Time	= 82 min
Query Streams for Throughput Test	= 6
TPC-H Power	= 5,243.2
TPC-H Throughput	= 7,893.7
TPC-H Composite Query-per-Hour Rating (QphH@100GB)	= 6,433.4
Total System Price Over 3 Years (\$US)	= 143,470.70
TPC-H Price/Performance Metric (\$/QphH@100GB)	= 22.30

Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 6020 seconds
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Duration of Stream Execution:

Stream ID	Seed	Start Date	Start Time	End Date	End Time	Duration
Stream 00	924082626	Sept 24 05	10:55:22	Sept 24 05	11:43:03	0:47:41
Stream 01	924082627	Sept 24 05	11:43:06	Sept 24 05	13:23:26	1:40:20
Stream 02	924082628	Sept 24 05	11:43:06	Sept 24 05	13:20:45	1:37:39
Stream 03	924082629	Sept 24 05	11:43:06	Sept 24 05	13:20:12	1:37:06
Stream 04	924082630	Sept 24 05	11:43:06	Sept 24 05	13:19:17	1:36:11
Stream 05	924082631	Sept 24 05	11:43:06	Sept 24 05	13:22:01	1:38:55
Stream 06	924082632	Sept 24 05	11:43:06	Sept 24 05	13:19:39	1:36:33
Refresh			11:43:06	Sept 24 05	12:05:04	0:21:58



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TPC-H Timing Intervals (in seconds)

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Stream 00	158.64	10.26	87.24	70.52	72.16	9.47	62.22	29.38	226.62	182.28	20.53	33.62
Stream 01	407.52	9.59	132.52	71.38	96.82	13.95	111.84	58.21	457.46	433.82	31.67	44.61
Stream 02	845.48	17.52	160.57	142.04	127.89	86.12	90.80	65.58	396.70	450.93	37.73	47.51
Stream 03	826.92	11.35	111.26	248.72	311.92	29.19	212.83	238.52	387.74	260.63	40.08	55.53
Stream 04	684.30	10.58	171.29	140.89	372.92	13.98	134.60	77.98	429.08	228.10	39.26	59.92
Stream 05	843.08	8.12	191.36	131.23	118.34	16.53	110.86	68.47	362.75	307.34	33.02	45.67
Stream 06	675.76	10.65	287.16	119.39	235.20	15.09	153.49	71.71	468.44	838.24	29.75	80.77
Minimum	407.52	8.12	111.26	71.38	96.82	13.95	90.80	58.21	362.75	228.10	29.75	44.61
Average	713.84	11.30	175.69	142.27	210.51	29.14	135.73	96.74	417.03	419.84	35.25	55.67
Maximum	845.48	17.52	287.16	248.72	372.92	86.12	212.83	238.52	468.44	838.24	40.08	80.77



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	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	287.64	35	34.51	69.48	15.7	564.76	68.95	204.81	417.89	48.63	74.93	73.47
Stream 01	703.4	44.58	79.41	97.36	26.75	1049.74	126.26	388.28	1547.93	87.26	155.05	103.94
Stream 02	467.66	178.1	84.48	383.69	62.76	1019.52	242.27	447.92	428.11	74.98	123.38	99.47
Stream 03	534.95	62.21	133.77	127.58	112.57	965.96	134	328.91	616.56	73.94	126.12	90.34
Stream 04	553.39	59.81	70.79	154.09	13.67	1011.03	135.16	361.22	985.15	64.16	113.37	86.48
Stream 05	465.72	68.8	70.23	135.04	23.64	963.58	85.69	252.72	1555.26	76.98	123.83	88.45
Stream 06	558.4	62.21	68.66	146.55	8.88	927.6	111.31	354.48	500.48	68.82	116.62	90.85
Minimum	465.72	44.58	68.66	97.36	8.88	927.60	85.69	252.72	428.11	64.16	113.37	86.48
Average	547.26	79.29	84.55	174.05	41.38	989.57	139.11	355.59	938.91	74.36	126.39	93.26
Maximum	703.40	178.10	133.77	383.69	112.57	1049.74	242.27	447.92	1555.26	87.26	155.05	103.94