

Sun Fire™ V490 Server  
with Sybase IQ 12.5 Single  
Application Server

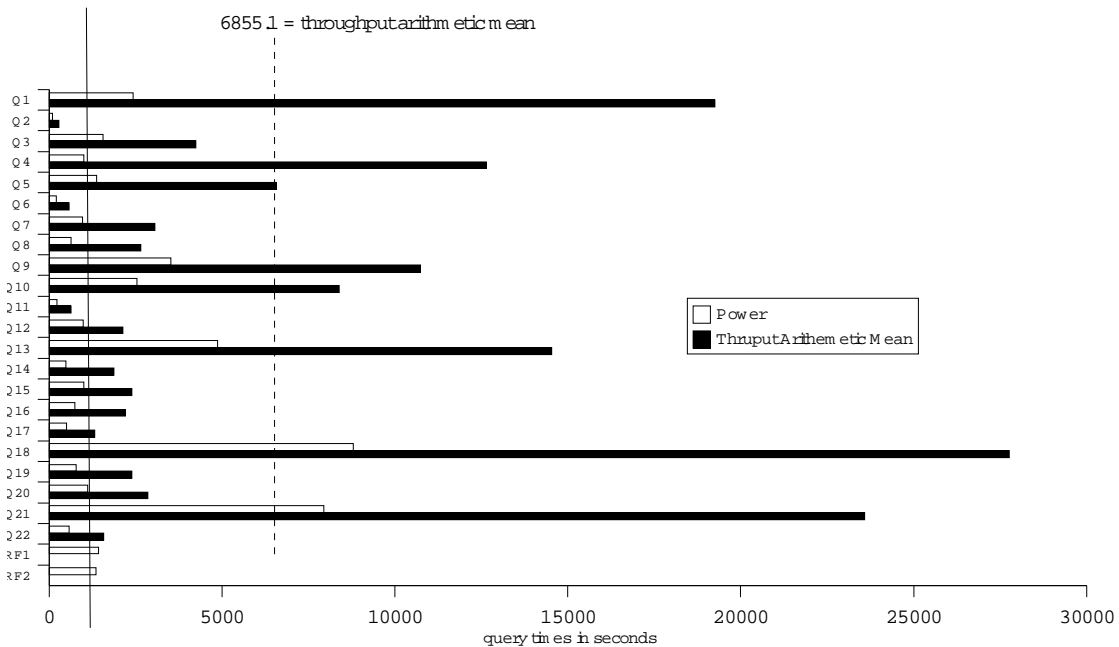
TPC-H Rev. 2.0

Report Date: May 9, 2005  
Revision Date: July 25, 2005

Total System Cost		Composite Query per Hour Metric		Price/Performance
\$142,918.15		3446.2 QphH @ 1000GB		\$41 per QphH @ 1000GB
Database Size	Database Manager	Operating System	Other Software	Availability Date
1000GB	Sybase IQ 12.5 Single Application Server	Solaris 10	Solaris Volume Manager	May 9, 2005

1094.4 = power geometric mean

6855.1 = throughput arithmetic mean



Database Load Time = 19 hrs 36 m ins    Load Includes Backup: N    Total Storage/Database Size = 2.58

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

System Configuration:

- Sun Fire V490 Server with
- 4 UltraSPARC IV 1350 MHz processors (2 cores per processor)
- 32 GB memory
- 2 x 73GB (10K RPM) internal disks
- 3 x SE3310 SCSI JBOD disk array, each with 12 x 73GB (10K RPM) disks

Total Storage: 2583 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.
<b>Server Hardware</b>						
Sun Fire V490 4x1.05GHz CPUs, 32G mem, 2x73G disk drives			1 75,995.00	1	75,995.00	
3 Year GoH Warranty Upgrade - V880 Server (includes HBAs and Internal disks)			1 10,332.00	1		10,332.00
Sun Discount			1		-12,919.15	-2,066.40
<b>Server Hardware Subtotal</b>					<b>63,075.85</b>	<b>8,265.60</b>
<b>Storage</b>						
SE3310 JBOD Disk Array (12x73GB 10,000 RPM disks)	XTA3310R01A0R876		2 11,995.00	3	35,985.00	
3 Year GoH Warranty Upgrade - SE3310 (includes all disks)	W 9D-SE3310-3G		2 4,356.00	3		13,068.00
Continental Discount			2		-9,672.00	-915.00
SCSI Cable	x1138A		1 95.00	6	570.00	
Ultra320 SCSI HBA	XG-XPC-E3CSILM320		1 510.00	3	1,530.00	
Sun Discount			1		-544.50	
<b>Storage Subtotal</b>					<b>27,868.50</b>	<b>12,153.00</b>
<b>Server Software</b>						
Sybase IQ M Single App Svr, per cpu core	11467		3 2,595.00	8	20,760.00	
Sybase IQ 3 Years Extended Support 24 x 7	98477		3 1,557.00	8		12,456.00
Sybase Discount			3		-1,660.80	
<b>Server Software Subtotal</b>					<b>19,099.20</b>	<b>12,456.00</b>
<b>Total</b>					<b>110,043.55</b>	<b>32,874.60</b>
<b>3 Yr. Cost</b>					<b>142,918.15</b>	
<b>QphH@ 1000GB</b>					<b>3,446.20</b>	
<b>\$QphH@ 100GB</b>					<b>\$41</b>	

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. Continental Resources Inc
3. Sybase Inc.
4. Price Quotes provided in Appendix G
5. The pricing of the Sybase IQ Single Application Server was found to be an "insignificant deviation" of Clause 0.2 by the General Council. This was corrected by increasing the visibility of Sybase IQ Single Application Server on the Web.

Audited by: Brad A skins, InfoSizing, Inc. (www.sizing.com)

Prices used in TPC benchmark asks 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	= 1000GB
Total Data Storage / Database Size	= 2.58
Start of database load time	= 2005-01-01 21:51:32
End of database load time	= 2005-01-02 17:27:20
Database Load Time	= 19 hrs 36 mins
Query Streams for Throughput Test	= 7
TPC-H Power	= 3289.4
TPC-H Throughput	= 3610.5
TPC-H Composite Query-per-Hour Rating (QphH @ 1000GB)	= 3446.2
Total System Price Over 3 Years	= \$142,918.15
TPC-H Price/Performance Metric (\$QphH @ 1000GB)	= \$41

Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 153,551 seconds
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Duration of Stream Execution:

Stream ID	Seed	StartDate	StartTime	EndDate	EndTime	Duration
Stream 00	102172720	Jan 2, 2005	17:32:24	Jan 3, 2005	6:05:32	12:33:08
Stream 01	102172721	Jan 3, 2005	6:05:33	Jan 4, 2005	23:34:03	41:28:30
Stream 02	102172722	Jan 3, 2005	6:05:33	Jan 4, 2005	23:45:32	41:39:59
Stream 03	102172723	Jan 3, 2005	6:05:33	Jan 4, 2005	23:39:47	41:34:14
Stream 04	102172724	Jan 3, 2005	6:05:33	Jan 5, 2005	00:04:51	41:59:18
Stream 05	102172725	Jan 3, 2005	6:05:33	Jan 4, 2005	23:53:55	41:48:22
Stream 06	102172726	Jan 3, 2005	6:05:33	Jan 5, 2005	00:44:44	42:39:11
Stream 07	102172727	Jan 3, 2005	6:05:33	Jan 5, 2005	00:11:07	42:05:34
Refresh		Jan 3, 2005	6:05:33	Jan 4, 2005	21:40:38	39:35:05



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TPC-H Timing Intervals (in seconds)

	Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9	Q 10	Q 11	Q 12
Stream 00	2429.60	104.17	1568.78	1000.86	1372.29	214.14	965.27	632.39	3514.73	2539.43	222.34	992.18
Stream 01	20803.05	307.93	4159.60	13903.95	4466.48	437.90	2182.85	2028.69	10864.18	6496.75	449.81	2246.83
Stream 02	18174.70	287.13	6218.98	12156.15	6155.37	1077.55	2991.59	2731.89	6809.16	6856.41	1122.77	2245.16
Stream 03	19615.85	180.47	3469.60	12881.34	6806.39	431.82	1411.75	4719.27	9222.49	6832.63	598.53	1689.04
Stream 04	17135.72	170.26	3520.67	12070.05	9320.52	425.33	4798.05	1338.10	8486.34	7097.84	521.97	2449.13
Stream 05	16948.20	200.98	4843.46	17194.48	6363.97	543.92	3719.29	2230.36	10552.67	7459.38	425.83	2503.26
Stream 06	25973.15	309.80	4407.98	8560.91	7761.04	493.80	3480.21	2746.66	15249.30	14484.56	754.98	2763.67
Stream 07	16095.62	503.24	3099.80	11695.50	5135.14	613.02	2874.02	2767.20	13970.04	9460.32	504.52	1064.51
Minimum	16095.62	170.26	3099.80	8560.91	4466.48	425.33	1411.75	1338.10	6809.16	6496.75	425.83	1064.51
Average	19249.47	279.97	4245.73	12637.48	6572.70	574.76	3065.39	2651.74	10736.31	8383.98	625.49	2137.37
Maximum	25973.15	503.24	6218.98	17194.48	9320.52	1077.55	4798.05	4719.27	15249.30	14484.56	1122.77	2763.67

	Q 13	Q 14	Q 15	Q 16	Q 17	Q 18	Q 19	Q 20	Q 21	Q 22	R F1	R F2
Stream 00	4876.63	489.29	1007.82	748.92	507.66	8797.69	782.09	1108.66	7938.21	580.66	1425.72	1355.02
Stream 01	12382.39	1108.93	2444.21	1719.78	1266.18	29164.76	1696	2145.36	27865.01	1166.92	4192.38	3443.28
Stream 02	12162.14	4264.56	2578.66	3224.73	2751.35	25874.7	2939.28	2139.87	25252.29	1980.67	2577.65	2842.64
Stream 03	17395.62	786.01	3464.07	2865.46	771.57	25053.58	2930.18	2192.42	23966.58	2365.12	2687.73	2278.79
Stream 04	17685.5	3068.74	2562.64	1680.16	1004.8	29319.95	3268.25	2071.81	21795.85	1360.89	2429.81	2291.51
Stream 05	13707.83	1137.35	2317.29	1833.73	889.26	25002.96	1451.56	2559.52	27656.3	958.18	2184.56	2602.83
Stream 06	10144.61	2188.07	1809.56	2140.17	916.02	25797.25	1747.56	2871.32	16745.11	2201.96	2074.6	2681.55
Stream 07	15942.07	1170.01	1290.13	1719.36	1244.84	33480.85	1561.72	4570.36	21601.09	1169.04	2621.99	2819.55
Minimum	10144.61	786.01	1290.13	1680.16	771.57	25002.96	1451.56	2071.81	16745.11	958.18	2074.60	2278.79
Average	14202.88	1960.52	2352.37	2169.06	1263.43	27670.58	2227.79	2650.09	23554.60	1600.40	2681.25	2708.59
Maximum	17685.50	4264.56	3464.07	3224.73	2751.35	33480.85	3268.25	4570.36	27865.01	2365.12	4192.38	3443.28