

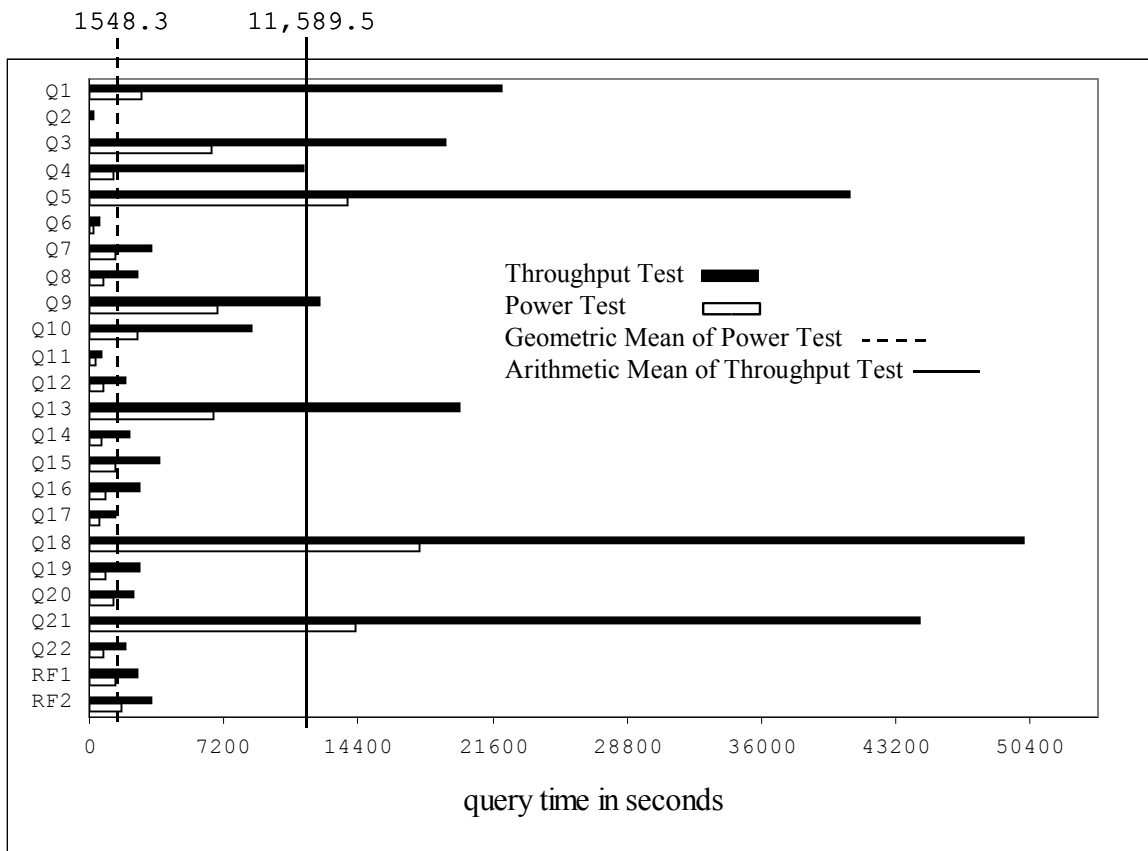


**Sun Fire™ V880 Server
with Sybase IQ 12.5**

TPC-H Rev. 2.0

June 3 2003

Total System Cost		Composite Query per Hour Metric		Price/Performance
\$232,206		2240.9 QphH@1000GB		\$104 \$/QphH@1000GB
Database Size	Database Manager	Operating System	Other Software	Availability Date
1000GB	Sybase IQ 12.5	Solaris 9	Solaris Volume Manager	June 3 2003



Database Load Time = 22:24

Load Includes Backup: N

Total Data Storage/Database Size=3.69

RAID (Base tables): Y

RAID (Base tables and auxiliary data structures): Y

RAID (All): N

System Configuration: Sun Fire™ V880 Server
 Processors: 8 UltraSPARC™ III Cu 1050 MHz processors
 Memory: 32GB memory
 Disks: 6 internal disks (6x73.4 GB), 4 SE3310 (12x73.4GB)
 Total Storage: 3,689.1 GB (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.
Server Hardware						
Sun Fire V880 (8*1050MHz, 32GB mem, 6*73GB disks priced (2*18GB + 4*36GB disks measured))	A30-WTF8-323GRF		109,995	1	109,995	11,088
2M-SCSI-Cable	X1138A		95	8	760	
Dual-Ultra-3-SCSI-HBA	X6758A		800	4	3,200	
Server Hardware discount				1	-17,519	-3,548
<i>Server Hardware Subtotal</i>					96,436	7,540
Storage						
SE3310-12x73GB-JBOD Disk Array 10k rpm	XTA3310R01A0R876		14,995	4	59,980	
73GB-10KRPM-Disk (10)% spares	XTA-3310-73GB-10K		1,595	5	7,975	
Storage discount				1	-19,432	
<i>Storage Subtotal</i>					48,523	
Server Software						
Solaris 9 CD SPARC Edition	SOLZS-090C9A		50	1	50	
Solaris discount				1	-23	
Sybase IQ-M Single App Svr - 8 cpu's	12841		60,000	1	60,000	
Sybase IQ 3 Years Extended Support 24 x 7	98480			1		31,680
Sybase discount (licence and support)				2	-12,000	
<i>Server Software Subtotal</i>					48,028	31,680
					Total	39,220
Service for all Sun products is from Sun Microsystems, Inc.					3 Yr. Cost	232,206
Service for Sybase products is from Sybase Inc.					QphH@1000GB	2,240.90
					\$/QphH@1000GB	\$104

Notes (Source):

1. Sun Microsystems, Inc.
 2. Sybase Inc.
 3. Continental Resources, Inc.
- Price Quotes 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	= 1000GB
Total Data Storage / Database Size	= 3.69
Start of database load time	= 2003-05-10 09:41:00
End of database load time	= 2003-05-11 08:04:47
Database Load Time	= 22:24
Query Streams for Throughput Test	= 7
TPC-H Power	= 2325.1
TPC-H Throughput	= 2159.7
TPC-H Composite Query-per-Hour Rating (QphH@1000GB)	= 2240.9
Total System Price Over 3 Years	= \$232,206
TPC-H Price/Performance Metric (\$/QphH@1000GB)	= \$104

Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 256,698 seconds
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Duration of Stream Execution:

Stream ID	Seed	Start Date	Start Time	End Date	End Time	Duration
Stream 00	511080447	May 15, 2003	07:17:28	May 16, 2003	06:33:07	23:15:39
Stream 01	511080448	May 16, 2003	06:33:10	May 19, 2003	05:51:28	71:18:18
Stream 02	511080449	May 16, 2003	06:33:14	May 19, 2003	05:05:55	70:32:41
Stream 03	511080450	May 16, 2003	06:33:18	May 19, 2003	05:32:37	70:59:19
Stream 04	511080451	May 16, 2003	06:33:23	May 19, 2003	05:39:32	71:06:09
Stream 05	511080452	May 16, 2003	06:33:26	May 19, 2003	04:48:59	70:15:33
Stream 06	511080453	May 16, 2003	06:33:31	May 19, 2003	05:17:11	70:43:40
Stream 07	511080454	May 16, 2003	06:33:35	May 19, 2003	05:25:05	70:51:30
Refresh		May 16, 2003	06:33:35	May 19, 2003	02:45:20	68:11:45



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TPC-H Timing Intervals (in seconds)

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Stream 00	2,749.6	123.4	6,487.5	1,290.0	13,857.9	239.2	1,339.9	749.9	6,806.1	2,595.6	284.5	747.4
Stream 01	26,551.2	233.0	20,902.2	5,819.0	34,284.0	533.8	3,274.4	2,032.2	17,740.3	6,896.4	874.3	1,907.5
Stream 02	22,531.1	185.6	19,989.7	10,763.8	42,802.0	1,156.6	3,631.4	1,643.7	8,744.2	10,371.2	706.6	2,206.1
Stream 03	24,413.1	201.1	16,762.4	13,997.2	42,198.3	358.0	2,693.7	6,215.0	12,045.6	6,698.7	676.9	2,000.9
Stream 04	18,336.4	195.5	20,022.9	10,683.6	45,405.3	450.8	2,490.5	1,826.8	8,963.9	7,702.4	497.0	1,950.7
Stream 05	21,644.4	169.5	16,459.3	13,286.5	41,424.3	429.2	2,262.8	1,032.8	13,086.2	6,520.7	657.3	1,350.4
Stream 06	18,745.9	265.3	20,500.1	14,471.6	38,126.8	489.5	5,556.2	2,807.3	13,542.4	13,651.7	749.3	2,380.2
Stream 07	17,591.3	215.0	18,893.0	9,671.8	42,637.0	383.1	3,612.3	2,139.6	12,103.3	8,908.6	1,062.4	1,066.2
Minimum	17,591.3	169.5	16,459.3	5,819.0	34,284.0	358.0	2,262.8	1,032.8	8,744.2	6,520.7	497.0	1,066.2
Average	22,037.0	208.4	19,106.1	11,503.6	40,706.8	569.7	3,318.2	2,593.0	12,353.8	8,640.2	693.6	1,966.0
Maximum	26,551.2	265.3	20,902.2	14,471.6	45,405.3	1,156.6	5,556.2	6,215.0	17,740.3	13,651.7	1,062.4	2,380.2

	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	6,687.9	594.5	1,406.3	805.9	529.8	17,727.1	813.0	1,277.6	14,241.8	715.1	1,364.3	1,661.6
Stream 01	17,037.3	1,629.3	4,491.0	3,646.9	1,035.9	54,946.6	1,994.6	2,053.3	46,678.3	2,130.1	4,812.7	3,111.4
Stream 02	20,739.6	3,751.2	2,734.5	3,621.1	3,308.0	45,978.8	2,799.2	1,983.6	42,213.7	2,092.4	2,190.9	3,101.9
Stream 03	19,189.3	1,227.5	3,633.5	2,053.3	811.9	48,314.1	3,390.3	2,903.3	44,335.2	1,430.7	2,450.5	3,397.2
Stream 04	25,027.5	1,686.0	3,864.9	1,644.2	967.5	50,837.7	3,085.0	2,617.1	46,471.6	1,236.3	2,287.0	2,976.5
Stream 05	18,518.3	1,079.5	4,480.5	2,948.6	785.8	54,236.9	2,131.1	2,152.0	46,594.4	1,677.9	2,064.7	3,587.7
Stream 06	18,234.3	3,438.7	3,013.1	2,174.6	1,328.1	45,823.2	2,867.6	2,686.3	40,673.0	3,082.3	1,924.4	3,766.7
Stream 07	16,675.9	1,235.9	2,080.5	1,608.5	1,593.2	59,060.2	2,065.9	5,360.9	45,935.4	1,184.4	2,302.4	3,428.4
Minimum	16,675.9	1,079.5	2,080.5	1,608.5	785.8	45,823.2	1,994.6	1,983.6	40,673.0	1,184.4	1,924.4	2,976.5
Average	19,791.1	2,135.3	3,702.9	2,681.5	1,372.9	50,022.9	2,711.3	2,399.3	44,494.4	1,941.6	2,621.7	3,323.6
Maximum	25,027.5	3,751.2	4,491.0	3,646.9	3,308.0	59,060.2	3,390.3	5,360.9	46,678.3	3,082.3	4,812.7	3,766.7