



Sun Fire™ V890 Server
with Sybase IQ 12.6 Single
Application Server

TPC-H Rev.2.1.0

Report Date: Aug 15, 2005

Total System Cost

Composite Query per Hour Metric

Price/Performance

\$485,448.70

10487.9
QphH@ 100GB

\$46.29
per QphH@ 100GB

Database Size

Database Manager

Operating System

Other Software

Availability Date

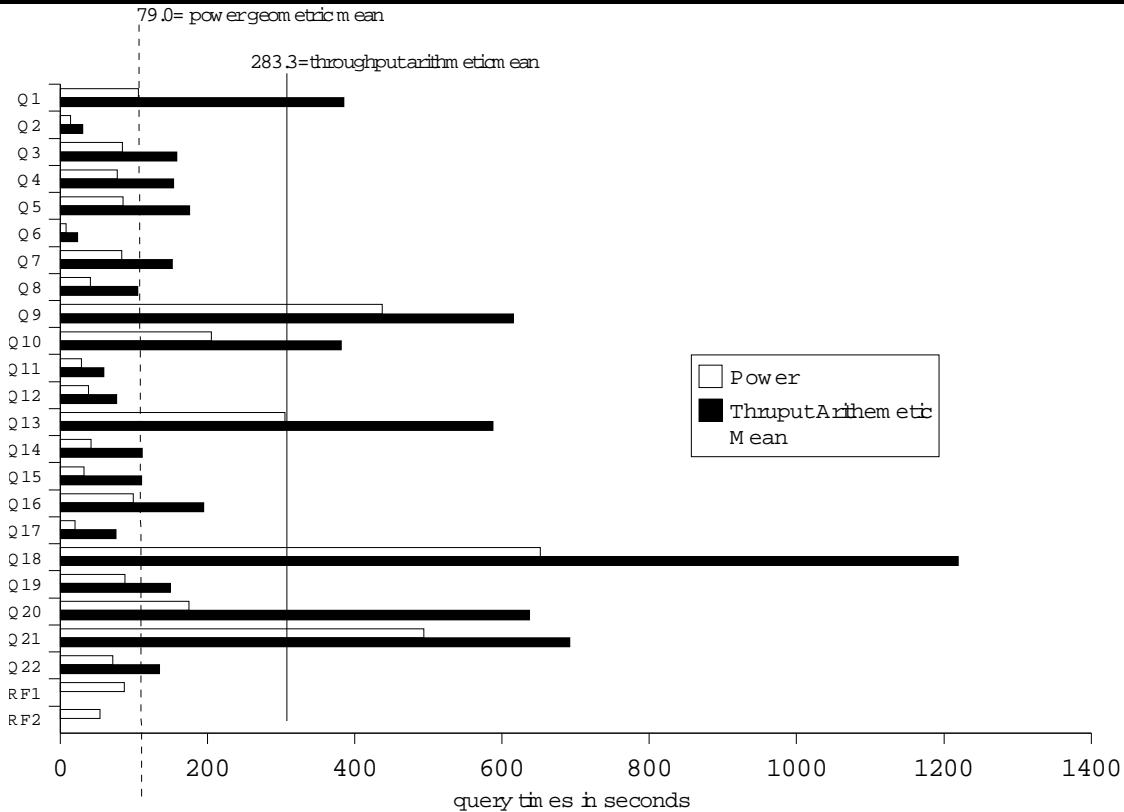
100GB

Sybase IQ 12.6
Single Application
Server

Solaris 10

Solaris Volume
Manager

Aug 15, 2005



Database Load Time = 57 min

Load Includes Backup: N

Total Storage/Database Size = 32.6

RAID (Base tables): RAID 1

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

RAID (All): N

System Configuration:

- 2 X Sun Fire V890 Server each with
- 8 UltraSPARC IV 1.35 GHz processors
- 64 GB memory
- 6 X 146GB internal disks

Plus 2 X SE3510 FCAL JBOD disk arrays (each with 12 X 73 GB disks) shared by the the 2 V890s

Total Storage: 3.26 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						
Sun Fire V890 8x1.35GHz CPUs, 64GB memory, 6x146GB disk drives	A53-JNG8C264GTF		155,995.00	2	311,990.00	
3 Year Gold Warranty Upgrade - V890 Server (includes internal disks & HBAs)	W9D-A53-8P-24-3G		27,648.00	2		55,296.00
Sun Server Discount					46,798.50	19,353.60
Server Hardware Subtotal					265,191.50	35,942.40
External Storage						
Sun StorageEdge 3510 FC JBOD array (12 X 73 GB 15 RPM)	TA3510M01A0V876		30,495.00	2	60,990.00	
3 Year Gold Warranty Upgrade for SE3510	W9D-SE3510-3G		5,796.00	2		11,592.00
8m LC to LC FC optical cable	X9730A		60.00	8	480.00	
PCI Dual FC 2Gb HBA	SG-XPC12FC-QF2		3,050.00	4	12,200.00	
Sun Storage Discount					16,467.60	4,057.20
Storage Subtotal					57,202.40	7,534.80
Server Software						
Sybase IQ M Single App Svr - per cpu core	11467		2,595.00	32	83,040.00	
Sybase IQ 3 Years Extended Support 24 x 7	98477		1,557	32		49,824.00
Sybase discount					-13,286.40	
Server Software Subtotal					69,753.60	49,824.00
Total					392,147.50	93,301.20
3 Yr. Cost					485,448.70	
QphH@ 100GB					10,487.9	
\$QphH@ 100GB					46.29	

Service for Sun products is from Sun Microsystems, Inc.

Service for Sybase products is from Sybase Inc.

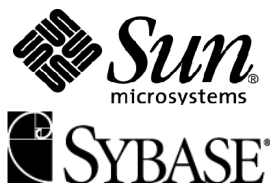
Notes (Source):

1. Sun Microsystems Inc.
2. Sybase Inc.

Price quotes provided in Appendix G

Audited by: Brad A skins, 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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Num erical Q uantities

M easurem ent R esults:

Database Scale Factor	= 100GB
Total Data Storage / Database Size	= 32.6
Start of database load time	= 2005-6-14 10:11:18
End of database load time	= 2005-6-14 11:08:14
Database Load Time	= 57 min
Query Streams for Throughput Test	= 20
TPC-H Power	= 4556.8
TPC-H Throughput	= 24139.0
TPC-H Composite Query-per-Hour Rating (QphH @ 100GB)	= 10487.9
Total System Price Over 3 Years	= 485,448.70
TPC-H Price/Performance Metric (\$/QphH @ 100GB)	= 46.29

M easurem ent Intervals:

Measurement Interval in Throughput Test (Ts)	= 6,562 seconds
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D uration of Stream Execution :

Stream ID	Seed	StartDate	StartTime	End Date	End Time	Duration
Stream 00	614110814	14-Jun-05	13:56:31	14-Jun-05	14:52:17	0:55:46
Stream 01	614110815	14-Jun-05	14:52:19	14-Jun-05	16:39:09	1:46:50
Stream 02	614110816	14-Jun-05	14:52:16	14-Jun-05	16:37:52	1:45:36
Stream 03	614110817	14-Jun-05	14:52:21	14-Jun-05	16:31:58	1:39:37
Stream 04	614110818	14-Jun-05	14:52:16	14-Jun-05	16:33:46	1:41:30
Stream 05	614110819	14-Jun-05	14:52:24	14-Jun-05	16:28:38	1:36:14
Stream 06	614110820	14-Jun-05	14:52:16	14-Jun-05	16:33:23	1:41:07
Stream 07	614110821	14-Jun-05	14:52:24	14-Jun-05	16:34:59	1:42:35
Stream 08	614110822	14-Jun-05	14:52:16	14-Jun-05	16:41:37	1:49:21
Stream 09	614110823	14-Jun-05	14:52:24	14-Jun-05	16:36:00	1:43:36
Stream 10	614110824	14-Jun-05	14:52:15	14-Jun-05	16:32:55	1:40:40
Stream 11	614110825	14-Jun-05	14:52:24	14-Jun-05	16:38:33	1:46:09
Stream 12	614110826	14-Jun-05	14:52:16	14-Jun-05	16:40:47	1:48:31
Stream 13	614110827	14-Jun-05	14:52:24	14-Jun-05	16:36:08	1:43:44
Stream 14	614110828	14-Jun-05	14:52:16	14-Jun-05	16:39:35	1:47:19
Stream 15	614110829	14-Jun-05	14:52:16	14-Jun-05	16:39:45	1:47:29
Stream 16	614110830	14-Jun-05	14:52:24	14-Jun-05	16:40:45	1:48:21
Stream 17	614110831	14-Jun-05	14:52:16	14-Jun-05	16:35:28	1:43:12
Stream 18	614110832	14-Jun-05	14:52:24	14-Jun-05	16:38:26	1:46:02
Stream 19	614110833	14-Jun-05	14:52:16	14-Jun-05	16:35:28	1:43:12
Stream 20	614110834	14-Jun-05	14:52:16	14-Jun-05	15:52:06	1:38:10
Refresh		14-Jun-05	14:52:24	14-Jun-05	15:52:06	0:59:42



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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	106.69	14.38	84.79	77.93	85.3	8.17	83.87	41.41	437.52	204.97	28.86	38.73
Stream 01	157.43	25.39	200.62	80.57	157.66	22.19	201.51	78.34	578.85	305.36	49.69	61.57
Stream 02	360.66	36.84	141.13	148.89	154.3	46.95	201.05	124.92	839.33	451.84	44.99	129.3
Stream 03	364.45	20.16	111.97	204.84	371.44	21.86	103.48	227.12	450.26	461.5	62.42	43.52
Stream 04	574.7	29	137.07	153.38	260.84	24.65	142.08	79.94	492.84	422.88	84.41	85.21
Stream 05	356.2	32.24	109.8	129.93	129.09	12.55	163.55	54.36	355.97	403.7	44.78	44.7
Stream 06	537.36	22.59	200.01	151.46	219.67	33.59	126.18	150.66	510.71	537.03	86.76	62.22
Stream 07	346.7	36.09	112.36	131.61	149.75	16.51	114.09	90.86	537.19	249.28	51.24	43.57
Stream 08	452.04	14.26	168.23	157.69	196.42	16.18	155	84.53	599.37	430.33	30.15	80.97
Stream 09	289.13	33.97	159.13	106.51	112.55	15.69	152.33	241.8	362.77	324.1	65.71	57.63
Stream 10	371.1	39.23	143.68	125.4	157.84	46.93	122.45	81.05	907.4	282.13	37.94	125.34
Stream 11	347.7	14.8	112.28	116.75	153.5	9.93	93.55	81.52	553.67	392.66	70.93	80.98
Stream 12	302.3	21.9	87.25	116.6	120.86	27.88	181.81	162.26	762.01	300.06	62.63	90.87
Stream 13	405.31	73.05	126.61	185.23	167.65	22.29	127.87	81.34	597.99	274.15	72.77	114.65
Stream 14	422.09	34.78	88.4	163.91	142.02	8.97	188.8	75.97	934.62	271.21	55.71	41.34
Stream 15	576.34	16.98	231.68	139.97	177.6	16.82	195.31	86.12	830.02	445.05	59.91	86.38
Stream 16	489.06	53.29	280.23	119.31	134.44	53.1	90.79	74.35	636.16	484.72	55.65	81.51
Stream 17	346.33	28.42	262.93	122.86	261.31	13.52	179.71	110.96	827.66	459.77	85.01	53.78
Stream 18	366.21	25.06	137.18	333.97	135.57	13.45	100.5	84.1	523.57	377	74.11	52.14
Stream 19	276.7	38.5	158.39	245.83	196.92	32.61	190.28	68.89	552.12	393.19	53.72	136.81
Stream 20	362.86	14.16	200.66	148.22	126.59	16.21	211.86	76.13	451.93	375.33	42.26	56.93
Minimum	157.43	14.16	87.25	80.57	112.55	8.97	90.79	54.36	355.97	249.28	30.15	41.34
Average	385.23	30.54	158.48	154.15	176.30	23.59	152.11	105.76	615.22	382.06	59.54	76.47
Maximum	576.34	73.05	280.23	333.97	371.44	53.10	211.86	241.80	934.62	537.03	86.76	136.81



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	Q 13	Q 14	Q 15	Q 16	Q 17	Q 18	Q 19	Q 20	Q 21	Q 22	RF1	RF2
Stream 00	305.65	42.06	32.9	99.11	20.04	651.86	87.97	174.92	494.16	71.79	87.39	54.4
Stream 01	567.29	84.37	111.54	166.94	49.92	1024.14	164.9	1000.2	1240.58	80.07	116.24	58.89
Stream 02	636.8	133.96	112.09	226.48	50.97	1340.45	195.02	362.28	441.76	152.17	62.87	64.86
Stream 03	557.46	119.71	120.35	120.08	126.16	1041.71	114.01	378.32	821.36	131.23	69.69	58.21
Stream 04	571.32	152.31	113.99	201.29	63.5	1180.25	179.63	374.84	614.34	147.74	60.65	63.43
Stream 05	763.84	50.04	140.38	235.57	22.77	959.25	165.01	211.48	1243.91	141.82	60.26	64.28
Stream 06	576.73	56.12	141.55	194.27	16.16	1213.37	119.9	437.7	539.85	130.12	67.33	64.86
Stream 07	536.05	55.7	65.64	131.1	132.13	1698.23	164.9	871.61	425.26	193.17	62.66	104.66
Stream 08	738.37	100.55	169.53	145.16	215.41	899.74	188.77	1042.75	573.7	94.64	103.36	56.98
Stream 09	856.91	70.39	73.64	125.45	58.91	1236.36	189.88	1097.17	488.44	83.21	145.52	84.72
Stream 10	633.13	89.49	163.62	180.72	96.42	1351.95	134.95	296.16	518.56	131.11	135.77	74.84
Stream 11	387.14	213.19	161.83	250.33	63.79	1321.06	121.64	1184.18	456.29	179.51	59.94	70.09
Stream 12	562.98	47.91	32.17	205.15	143.91	1375.4	69.03	641.1	1057.1	132.11	133.98	78.51
Stream 13	474.29	84.61	70.01	223.18	120.54	1049.7	110.11	438.73	1241.19	157.72	146.04	90.42
Stream 14	590.38	75.46	83.77	193.1	13.83	1364.82	118.08	749.23	695.84	126.97	120.22	103.28
Stream 15	612.83	131.41	115.53	317.42	74.4	1011.18	121.93	508.49	542.5	146.61	125.99	102.58
Stream 16	440.28	66.42	101	152.62	76.73	1219.39	111.08	1008.13	573.46	190.37	146.1	66.71
Stream 17	600.21	104.85	105.83	221.85	22.78	1171.04	204.8	311.48	583.58	109.22	62.03	65.21
Stream 18	579.65	233.54	72.39	116.48	50.99	1083.68	224.61	1101.67	573.11	101.47	122.81	72.55
Stream 19	483.31	193.71	123.9	168.29	59.71	1610.17	114.45	308.49	640.39	141.35	98.76	94.11
Stream 20	593.24	166.33	132.81	318.1	53.25	1244.05	185.04	422.28	564.13	124.06	140.8	93.79
Minimum	387.14	47.91	32.17	116.48	13.83	899.74	69.03	211.48	425.26	80.07	59.94	56.98
Average	588.11	111.50	110.58	194.68	75.61	1219.80	149.89	637.31	691.77	134.73	102.05	76.65
Maximum	856.91	233.54	169.53	318.10	215.41	1698.23	224.61	1184.18	1243.91	193.17	146.10	104.66