



PARACCEL

Sun Fire™ X4540 Server with ParAccel Analytic Database™

TPC-H Rev. 2.8.0

Report Date: June 21, 2009

Total System Cost

Composite Query per Hour Metric

Price/Performance

\$3,006,861.06

1,050,556.2
QphH@30000GB

\$2.86
per QphH@30000GB

Database Size

Database Manager

Operating System

Other Software

Availability Date

30000GB

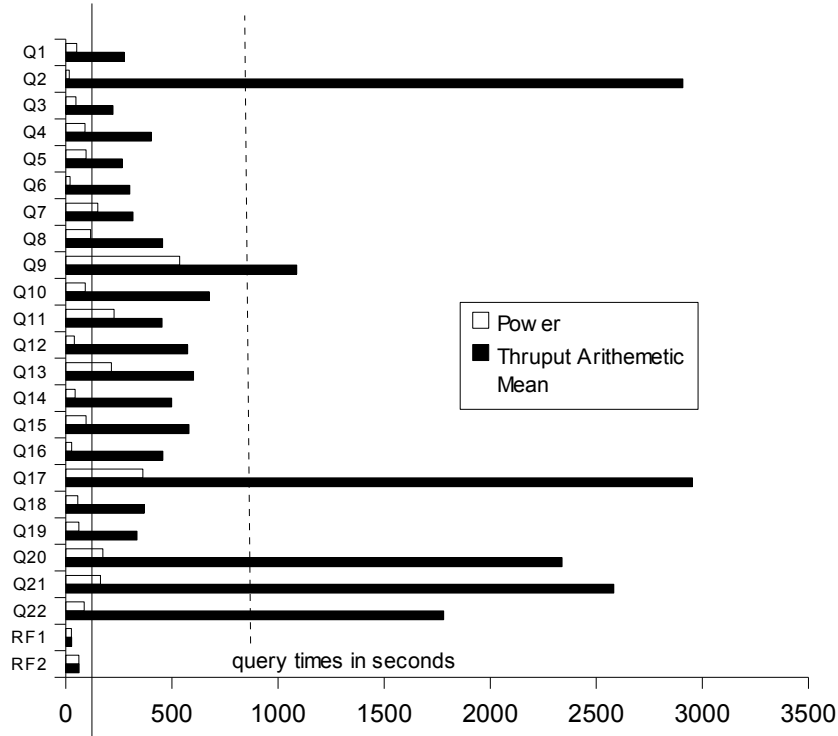
**ParAccel Analytic
Database™**

OpenSolaris2009

SVM

June 21, 2009

geometric mean = 81.4 arithmetic mean = 870.4



Database Load Time = 3H28M44Sec

Load Includes Backup: N

Total Storage/Database Size=32.04

RAID (Base tables): Y

RAID (Base tables and auxiliary data structures): Y

RAID (All): Y

System Configuration:

- 43 x SunFire X4540 Server, each server with
 - 2 x AMD Opteron model 2356 2.3GHz processors (each processor is 1 chip, 4 cores, 4 threads)
 - 64 GB memory
 - 48 x 500,000,000,000 bytes (7.5K RPM) internal SATA disks

Total Storage: 961,124.9 GB

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



Sun Fire™ X4540 Server with ParAccel Analytic Database™

TPC-H Rev. 2.8.0

Report Date: June 21, 2009

Description	Part Number	Source	Unit Price	Qty	Ext. Price	3 Yr. maint
Server Hardware						
SunFire X4540 M2 x64 Server						
2 X AMD Opteron Model 2220 (2.8GHz) processor						
64 X 2GB DDR2-667 Memory, 48 X 500 GB HDD						
	B24-FSZ2-64G-HMH	2	41,995.00	43	1,805,785.00	
Server Discount (18%)		2			-325,041.30	
Sun GOLD Support.						
24x7 hardware only support with 4 hour response						
	B24-FSZ2-64G-HMH	2	2,766.60	43		118,963.80
Cisco Catalyst 3750-24TS 48-port switch	CIS-WS-C3750G-24T-S	3	8,450.00	3	25,350.00	
Cisco Catalyst 3750-24TS 24-port switch	CIS-WS-C3750G-24T-S	3	3,615.00	4	14,460.00	
Belkin Cat5E 7' cable	BEL-A3L781-07BL-CDW	3	1.25	172	215.00	
Cisco premium support for 48 port switch	CD1-CON-OSP-3750G48T	3	1,750.00	9		15,750.00
Cisco premium support for 24 port switch	CD1-CON-OSP-3750G24TS	3	825.00	12		9,900.00
Minuteman Pro1500	CWD-682296	3	266.22	43		11,447.46
Minuteman Pro1500 (10% spares)	CWD-682296	3	266.22	5		1,331.10
Server Hardware Subtotal					1,520,768.70	157,392.36
External Storage						
None						
Server Software						
ParAccel Analytic Database, per TB data	PAR-ADB	1	100,000.00	30	3,000,000.00	
ParAccel Support, per TB data per year	PAR-SUP-B	1	1,000.00	90		90,000.00
ParAccel Discount 57%		1			-1,710,000.00	-51,300.00
Server Software Subtotal					1,290,000.00	38,700.00
Total					2,810,768.70	196,092.36
3 Yr. Cost					3,006,861.06	
QpH @30000GB					1,050,556	
\$/QpH @30000GB					\$2.86	

Service for Sun products from Sun Microsystems, Inc.
 Service for ParAccel products is from ParAccel, Inc.
 Service for APC Smart-UPS is from cdw.com

Sources

1. ParAccel, Inc.
2. Agilysys
3. cdw.com

Audited by: Francois Raab, 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.



**Sun Fire™ X4540 Server
with ParAccel Analytic
Database™
Numerical Quantities**

TPC-H Rev. 2.8.0

Report Date: June 21, 2009

Measurement Results:

Database Scale Factor	= 30000GB
Total Data Storage / Database Size	= 32.04
Start of database load time	= 16:53:55
End of database load time	= 20:22:39
Database Load Time	= 3H28M44Sec
Query Streams for Throughput Test	= 10
TPC-H Power	= 1,326,910.4
TPC-H Throughput	= 831,758.0
TPC-H Composite Query-per-Hour Rating (QpH@30000GB)	= 1,050,556.2
Total System Price Over 3 Years	= \$3,006,861.06
TPC-H Price/Performance Metric (\$/QpH@30000GB)	= \$2.86

Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 28,566 seconds
--	------------------

Duration of Stream Execution:

Stream ID	Seed	Start Date	Start Time	End Date	End Time	Duration (secs)
Stream 0	606202239	6/7/2009	5:08:41 AM	6/7/2009	5:56:23 AM	2774.1
Stream 1	606202240	6/7/2009	5:56:24 AM	6/7/2009	12:44:47 PM	24503.2
Stream 2	606202241	6/7/2009	5:56:24 AM	6/7/2009	1:03:47 PM	25643.5
Stream 3	606202242	6/7/2009	5:56:24 AM	6/7/2009	12:21:25 PM	23101.3
Stream 4	606202243	6/7/2009	5:56:24 AM	6/7/2009	1:24:30 PM	26886.3
Stream 5	606202244	6/7/2009	5:56:24 AM	6/7/2009	11:25:21 AM	19736.9
Stream6	606202245	6/7/2009	5:56:24 AM	6/7/2009	12:29:02 PM	23558.2
Stream7	606202246	6/7/2009	5:56:24 AM	6/7/2009	1:37:15 PM	27651.2
Stream8	606202247	6/7/2009	5:56:24 AM	6/7/2009	11:36:23 AM	20399.2
Stream9	606202248	6/7/2009	5:56:24 AM	6/7/2009	1:12:20 PM	26156.7
Stream10	606202249	6/7/2009	5:56:24 AM	6/7/2009	11:26:56 AM	19832.7



Sun Fire™ X4540 Server
with ParAccel Analytic
Database™

TPC-H Rev. 2.8.0

Report Date: June 21, 2009

TPC-H Timing Intervals (in seconds)

Stream ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
00	51.4	16.7	47.6	90.2	95.4	20.0	151.4	117.1	537.2	91.9	227.5	40.2
01	246.2	7,011.0	566.5	163.9	111.4	930.9	515.4	401.0	992.1	891.3	448.9	768.1
02	132.0	3,974.6	120.2	158.0	222.1	20.1	213.8	260.8	2,316.3	145.8	304.1	1,165.4
03	613.8	1,701.9	235.6	528.7	606.1	329.4	228.2	654.0	604.0	301.3	542.8	554.2
04	569.0	2,376.5	287.2	913.1	249.7	489.1	237.4	596.0	1,201.2	1,912.8	858.4	740.3
05	39.3	2,371.2	79.2	568.2	312.3	21.1	552.7	705.1	881.0	709.5	334.9	178.8
06	38.8	3,675.7	762.6	235.8	103.2	25.6	458.8	248.9	2,343.8	92.4	571.4	431.8
07	81.2	4,115.0	48.5	227.8	95.5	19.9	151.6	1,298.0	625.1	71.5	322.9	46.8
08	536.7	1,967.6	391.2	340.9	435.2	882.8	210.6	338.0	823.1	200.9	390.2	176.2
09	130.1	5,164.5	56.5	768.1	132.7	1,042.2	468.4	544.7	524.3	295.0	479.9	106.3
10	439.4	2,161.9	106.6	266.7	853.3	711.1	395.0	199.1	658.2	138.7	368.0	122.2
Minimum	39.3	16.7	47.6	90.2	95.4	20.0	151.4	117.1	537.2	91.9	227.5	40.2
Average	275.3	2,908.6	222.7	403.7	266.2	301.8	316.5	455.7	1,088.6	675.4	452.8	574.5
Maximum	613.8	7,011.0	566.5	913.1	606.1	930.9	552.7	705.1	2,316.3	1,912.8	858.4	1,165.4

Stream ID	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
00	214.5	43.8	95.8	27.3	363.5	56.6	61.5	174.1	163.8	86.6	26.8	61.8
01	392.2	128.7	638.5	826.2	2,070.0	61.5	101.1	3,634.7	2,335.4	1,268.3	31.5	61.2
02	452.7	1,054.5	1,302.7	922.6	6,397.8	139.6	366.8	2,622.6	1,552.1	1,798.7	30.6	61.9
03	693.5	83.5	691.2	123.7	4,285.8	439.9	604.3	3,262.0	2,299.8	3,717.6	30.8	61.5
04	1,546.2	789.9	436.0	28.3	3,270.2	507.7	664.3	1,809.5	6,167.6	1,235.7	11.2	62.5
05	314.3	890.4	319.4	817.3	1,334.9	1,007.5	216.4	2,531.2	2,976.3	2,576.0	31.5	64.0
06	384.5	541.0	1,091.6	357.1	2,754.6	356.8	716.0	2,876.2	2,943.0	2,548.7	30.8	61.6
07	315.1	44.6	94.6	28.3	1,854.4	1,416.7	61.7	5,495.3	8,295.4	2,941.4	30.9	61.9
08	783.6	89.8	665.4	246.4	4,195.4	171.3	154.1	2,021.9	2,672.4	2,705.5	30.7	62.3
09	616.3	48.1	310.3	335.7	4,743.2	331.7	246.9	4,997.1	3,455.1	1,359.5	30.3	62.0
10	333.2	1,065.8	453.3	362.1	5,312.8	685.1	203.6	1,407.9	1,590.5	1,998.0	30.0	67.4
Minimum	214.5	43.8	95.8	27.3	363.5	56.6	61.5	174.1	163.8	86.6	11.2	61.2
Average	602.2	498.5	580.6	457.6	2,953.7	368.8	335.7	2,339.0	2,582.5	1,780.5	27.1	62.1
Maximum	1,546.2	1,054.5	1,302.7	922.6	6,397.8	1,007.5	664.3	3,634.7	6,167.6	3,717.6	31.5	64.0