



PARACCEL

Sun Fire™ X4100 Server with ParAccel Analytic Database™

TPC-H Rev. 2.6.0

Report Date: Oct 29, 2007

Revision Date: Nov. 8, 2007

Total System Cost

Composite Query per Hour Metric

Price/Performance

\$624,770.12

198,578.1
QphH@300GB

\$3.15
per QphH@300GB

Database Manager

Operating System

Other Software

Availability Date

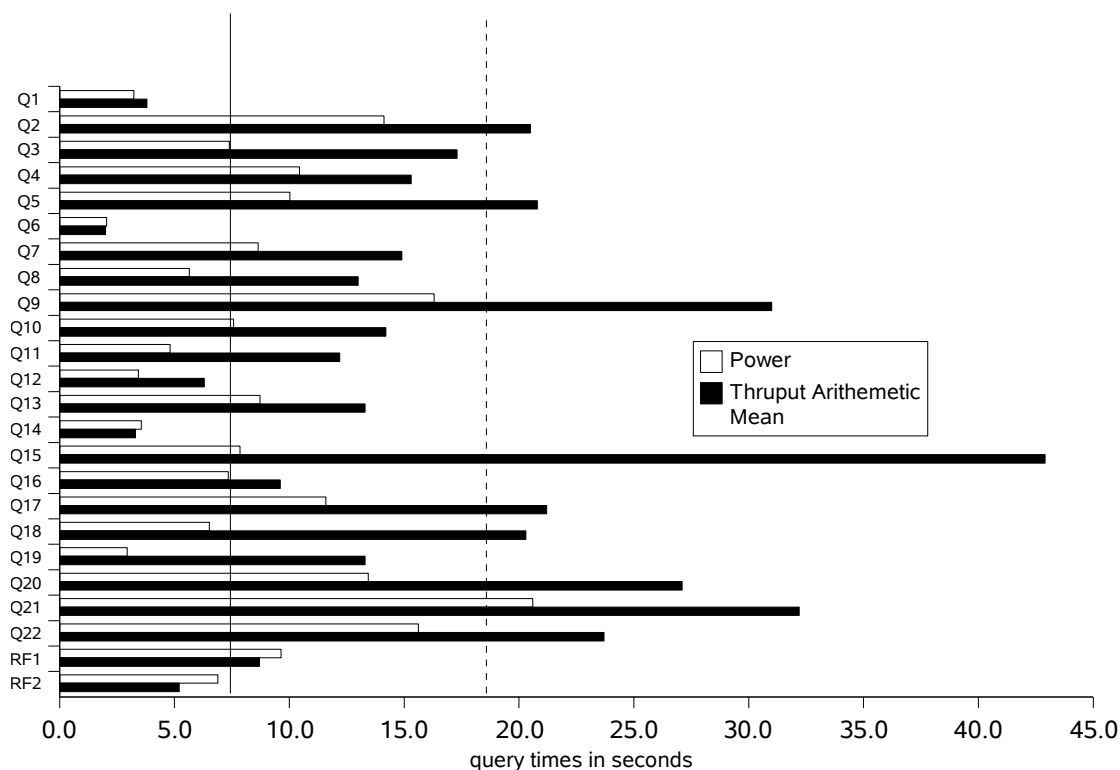
300GB

**ParAccel Analytic
Database™**

**Linux Red Hat
RHEL 4.4
Enterprise Server**

October 29, 2007

geometric mean = 7.4 arithmetic mean = 18.6



RAID (Base tables): Y

RAID (Base tables and auxiliary data structures): Y

RAID (All): Y

Database Load Time = 0Hrs15Min05sec

Load Includes Backup: N

Total Storage/Database Size=27.19

System Configuration:

30 x SunFire X4100 Server, each server with

2 AMD Opteron 2.8GHz processors (each processor is 1 chip, 2 cores, 2 threads)

16 GB memory

2 x 146 GB (10K RPM) internal SAS disks

Total Storage: 8,158 GB (in this calculation 1 GB is defined as 1024 * 1024 * 1024) bytes



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Description	Part Number	Source	Unit Price	Qty	Ext. Price	3 Yr. maint
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Server Hardware

SunFire X4100 M2 x64 Server

2 X AMD Opteron Model 2220 (2.8GHz) processor

4 X 2GB DDR2-667 Memory

2 X 146 GB HDD

A86-FPZ2BH8GKBA

2

6,590.00

30

197,700.00

4 GB Memory Kit DDR2-667 DIMMS (2 X 2GB) for SunFire X4100 M2

4226A-Z

2

750.00

60

45,000.00

Server Discount (14%)

2

-33,978.00

SunFire X4100 M2 Server upgrade to 3 years.

24x7 hardware only support with 4 hour response

W9D-A87-24-3H

2

792.00

30

23,760.00

Support Discount (10%)

2

-2,376.00

Cisco Catalyst 3750-24TS 24-port switch

WS-C3750-24TS-E

2

5,990.00

4

23,960.00

3750 Discount

2

-2,239.47

4

-8957.88

Cisco Catalyst 3750-24TS 24-port switch 1 year premium service

CON-OSP-375024TE

2

1,006.00

12

12,072.00

3750 Support Discount

2

-111.78

12

-1341.36

Ethernet 100Base-TX cable

A3L791-05-GRN

2

5.99

60

359.40

Cable discount

2

-1.13

60

-67.80

APC Smart-UPS 3000VA USB

592679

3

1,182.99

6

7,097.94

1 Year PC/Peripheral Extended Service \$701-\$1200

54439

3

53.99

18

971.82

Server Hardware Subtotal

231,113.66

33,086.46

External Storage

None

Server Software

ParAccel Analytic Database, per GB data

PAR-ADB

1

1,000.00

300

300,000.00

ParAccel Support \$10 per Gb data per year

PAR-SUP-B

1

10.00

300

9,000.00

ParAccel Discount 5%

1

-15,000.00

-450.00

RHEL 4.4 24x7 Support per node 3 years (up to 2 sockets)

2

3,702.00

30

111,060.00

RHEL Discount

2

-1,468.00

30

-44,040.00

Server Software Subtotal

285,000.00

75,570.00

Total

516,113.66

108,656.46

3 Yr. Cost

624,770.12

QpH @ 300GB

198,578.1

\$/QpH @ 300GB

\$3.15

Service for Sun products from Sun Microsystems, Inc.

Service for ParAccel products is from ParAccel, Inc.

Service for RHEL is from Red Hat Inc.

Service for APC Smart-UPS is from cdw.com

Sources

1. ParAccel, Inc.

2. Continental Resources, Inc.

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.



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Numerical Quantities

Measurement Results:

Database Scale Factor	= 300GB
Total Data Storage / Database Size	= 27.19
Start of database load time	= 21:29:16
End of database load time	= 21:44:21
Database Load Time	= 0Hrs15Min05sec
Query Streams for Throughput Test	= 6
TPC-H Power	= 145,219.3
TPC-H Throughput	= 271,542.9
TPC-H Composite Query-per-Hour Rating (QphH@300GB)	= 198,578.1
Total System Price Over 3 Years	= \$624,770.12

TPC-H Price/Performance Metric (\$/QphH@300GB) = \$3.15

Measurement Intervals:

Measurement Interval in Throughput Test (Ts) = 525 seconds

Duration of Stream Execution:

Stream ID	Seed	Start Date	Start Time	End Date	End Time	Duration
Stream 0	1021214421	2007-10-21	22:08:47	2007-10-21	22:12:15	3mins:28secs
Stream 1	1021214422	2007-10-21	22:12:15	2007-10-21	22:19:40	7mins:25secs
Stream 2	1021214423	2007-10-21	22:12:15	2007-10-21	22:18:49	6mins:34secs
Stream 3	1021214424	2007-10-21	22:12:15	2007-10-21	22:19:45	7mins:10secs
Stream 4	1021214425	2007-10-21	22:12:15	2007-10-21	22:18:32	6mins:17secs
Stream 5	1021214426	2007-10-21	22:12:15	2007-10-21	22:18:28	6mins:13secs
Stream 6	1021214427	2007-10-21	22:12:15	2007-10-21	22:19:36	7mins:21secs
Refresh		2007-10-21	22:19:40	2007-10-21	22:21:00	1mins:20secs



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TPC-H Timing Intervals (in seconds)

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Stream 00	3.2	14.1	7.4	10.4	10.0	2.0	8.6	5.6	16.3	7.6	4.8	3.4
Stream 01	2.8	17.1	19.5	8.8	22.4	3.8	19.8	9.9	22.5	14.6	12.7	7.5
Stream 02	3.9	31.3	19.8	12.6	19.8	1.5	14.3	14.4	26.2	10.6	12.5	5.3
Stream 03	5.5	23.4	8.7	18.3	39.8	1.1	15.3	17.0	27.0	15.6	12.9	7.0
Stream 04	3.8	25.1	23.5	15.0	19.6	1.9	15.0	14.9	58.1	7.3	15.2	7.0
Stream 05	3.7	20.6	23.1	26.8	16.4	1.0	19.1	12.5	30.0	13.4	12.8	5.0
Stream 06	4.0	11.5	19.4	15.0	17.5	2.6	12.4	16.8	36.9	30.2	14.3	9.0
Minimum	2.8	11.5	7.4	8.8	10.0	1.0	8.6	5.6	16.3	7.3	4.8	3.4
Average	3.8	20.5	17.3	15.3	20.8	2.0	14.9	13.0	31.0	14.2	12.2	6.3
Maximum	5.5	31.3	23.5	26.8	39.8	3.8	19.8	17.0	58.1	30.2	15.2	9.0

	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	8.7	3.6	7.9	7.3	11.6	6.5	2.9	13.4	20.6	15.6	9.6	6.9
Stream 01	11.9	2.3	82.5	9.5	24.4	10.5	2.9	78.2	42.3	18.3	8.8	5.0
Stream 02	17.0	3.1	72.1	16.3	29.7	6.5	7.6	19.4	28.0	21.9	8.6	3.4
Stream 03	12.7	1.9	26.7	7.0	25.3	11.1	70.5	18.6	33.2	31.2	7.8	5.5
Stream 04	14.6	4.8	26.3	7.9	19.0	6.9	3.8	22.8	40.3	23.9	10.2	6.5
Stream 05	14.6	3.4	41.4	10.9	22.4	10.6	3.1	15.9	44.8	20.4	6.7	2.7
Stream 06	13.5	3.9	43.5	8.5	16.1	90.0	2.4	21.4	16.5	34.4	9.0	6.5
Minimum	8.7	1.9	7.9	7.0	11.6	6.5	2.4	13.4	16.5	15.6	6.7	2.7
Average	13.3	3.3	42.9	9.6	21.2	20.3	13.3	27.1	32.2	23.7	8.7	5.2
Maximum	17.0	4.8	82.5	16.3	29.7	90.0	70.5	78.2	44.8	34.4	10.2	6.9