

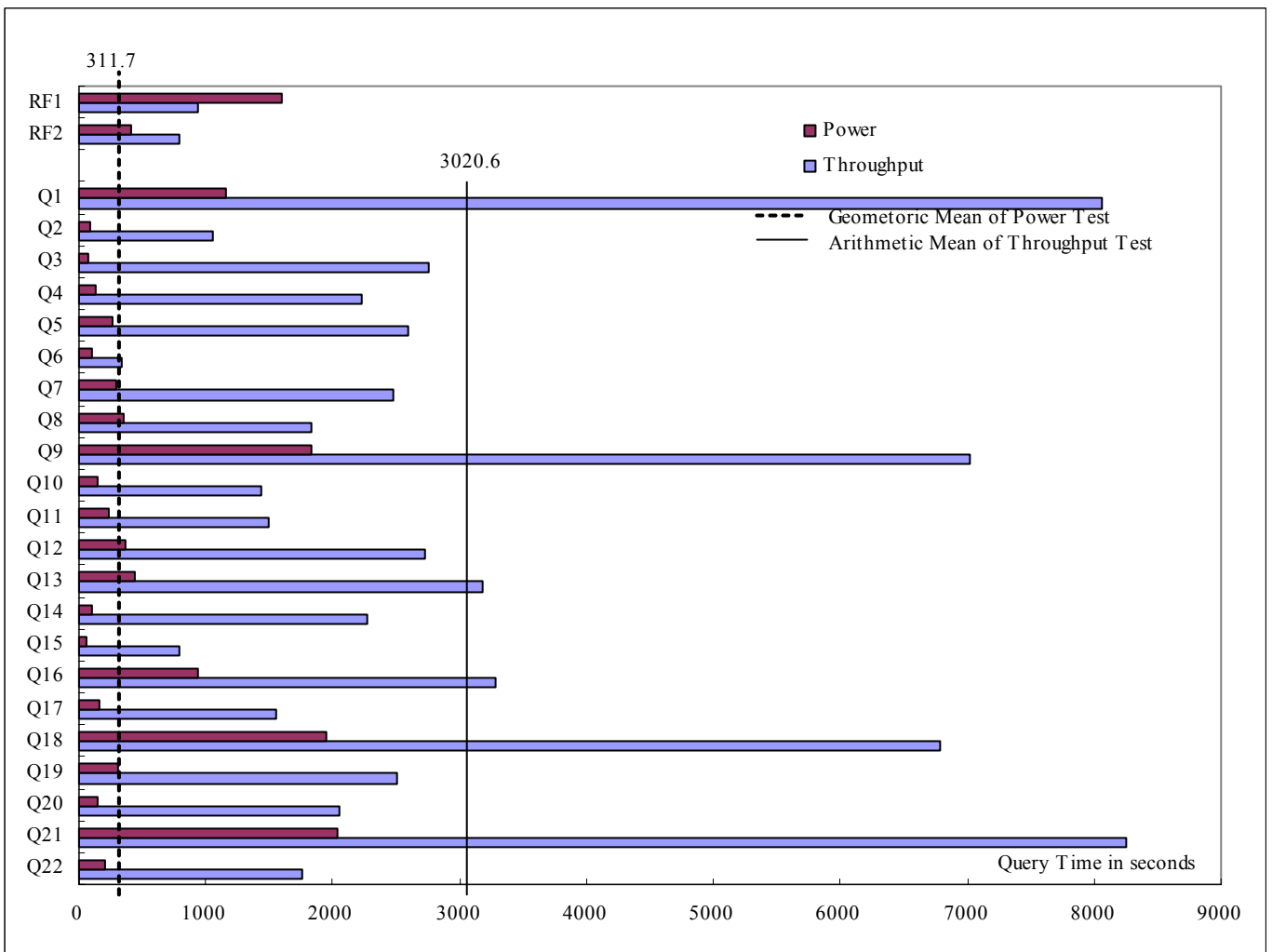


NEC Express5800/1320Xe (32 SMP)

TPC-H Rev.2.3.0

Report Date
November 7, 2005

Total System Cost	Composite Query per Hour Metric		Price/Performance	
\$1,888,276 (USD)	28,390.1 QphH@3000GB		\$66.52 / QphH@3000GB	
Database size	Database Manager	Operating System	Other Software	Availability Date
3000 GB	Microsoft SQL Server 2005 Enterprise Itanium Edition	Microsoft® Windows® Server 2003, Datacenter Edition for 64-bit Itanium-based Systems SP1	Microsoft® Visual Studio .NET 2003	May 5, 2006



Database Load Time = 36:04:45	Load include backup:Y	Disk Size/Database Size = 11.66
RAID(Base table only):N	RAID(Base tables and auxiliary data structures):N	RAID(All):N
System Configuration:		
Total Processors/Cores/Threads	32/32/32	Intel® Itanium® 2 1.6GHz 9MB L3 cache
Memory	256GB	Main Memory
Disk Controllers	1	QLogic™ QLA2340
	22	QLogic™ QLA2342
	1	SCSI HBA
Disk Drives	1050	36GB FC
	1	36GB SCSI
Total Disk Storage		34,983 GB



NEC Express5800/1320Xe (32 SMP)

TPC-H Rev.23.0

Report Date
November 7, 2005

Description	Part Number	Third Party Brand	Pricing	Unit Price	Qty	Extended Price	3-yr Mnt. Price
Server Hardware							
Express5800/1320Xe system (32way model)	850200718	NEC	1	1,133,250	1	1,133,250	223,520
Base Original 32(Express5800/1320Xe base system)					1	-	-
Itanium2 1.6GHz/9M cache					32	-	-
Cell Card Original					8	-	-
4GB Memory Option (4 x 1024MB DIMMs)					64	-	-
Core PCI box					1	-	-
Base PCI box					3	-	-
PCI Cable					8	-	-
Expansion Cabinet					1	-	-
36GB Ultra 320/m SCSI HDD 10000RPM					1	-	-
10/100/1000Mb Either card					1	-	-
Ultra160 SCSI card					1	-	-
Windows Server 2003, Data Center Edition					32	-	-
NEC Express5800/120Rg-2(for System Management)							
120Rg-2 base rack svr, one XEON processor, 3.0 GHz/1MB cache	850174001	NEC	1	3,799	1	3,799	-
1GB (2 x 512MB) interleaved memory DDR333 SDRAM	062-02466-000	NEC	1	999	1	999	-
36.4GB SCSI HDD (1")	062-02012-000	NEC	1	399	1	399	-
CD-ROM, 2 x On-board LAN, KB/MS	Included	NEC	1	-	1	-	-
3 years of warranty service to 4-hour response, 7x24	DE-0000-1095-7244	NEC	1	1,599	1	-	1,599
CTX CRT VL5103 VL510 15							
FC HBA QLA2340 (+10% spares)	408081	QLLogic	4	948	3	2,843	-
FC HBA QLA2342 (+10% spares)	QLA2342-CK-BK	QLLogic	3	1,395	25	34,875	-
					Subtotal	1,176,353	225,119
Disk Subsystem							
NEC Storage S2400 Base Model	850180001	NEC	1	53,000	1	53,000	-
2 RAID_Cntrl, 2GB Cache, 1DE, w/o drives							
S2400 Redundant Disk Expansion box w ith cables (+10% spares)	062-02616-000	NEC	1	6,200	5	31,000	-
36GB 15K rpm FC HDD for S2400 (+10% spares)	062-02620-000	NEC	1	790	66	52,140	-
NEC Storage S2300 Base Model	850171001	NEC	1	33,999	22	747,978	-
2 RAID_Cntrl, 1GB Cache, 1DE, w/o drives							
S2300 Redundant Disk Expansion box w ith cables (+10% spares)	062-02402-000	NEC	1	7,999	49	391,951	-
36GB 15K rpm FC HDD for S2300 (+10% spares)	062-02431-000	NEC	1	579	1089	630,531	-
3 yr Telephone Upgrade Hdw & Storage	IS-THSU-1095-0724	NEC	1	1,499	23	-	34,477
42U Rackframe	050-01790-000	NEC	1	1,799	7	12,593	-
FC Cable 10MLC-LC (+10% spares)	062-02304-000	NEC	1	200	50	10,000	-
					Subtotal	1,929,193	34,477
Server Software							
Microsoft SQL Server 2005 Enterprise Itanium Edition	810-04793	Microroft	2	8,487	1	8,487	-
Microsoft SQL Server 2005 Client Licenses	359-01911	Microsoft	2	156	65	10,140	-
Microsoft Window s 2003 Standard Edition	P73-00295	Microsoft	2	719	1	719	-
Visual Studio .NET 2003 Professional	659-00390	Microsoft	2	799	1	799	-
Microsot Problem Resolution Services		Microsoft	2	245	1	-	245
					Subtotal	20,145	245
TOTAL						3,125,691	259,841
NEC brand total(Pricing 1-NEC)						3,067,640	259,596
NEC brand Large Purchase Cash Prepay Discount						-45%	-1,380,438

Notes:	
Pricing: 1-NEC 2-Microsoft 3-Compuview Microsystems 4-CDW	3-Yr. Cost of Ow nership: \$1,888,276
	QpH@3TB: 28390.1
	\$ / QpH@3TB: \$66.52

Results and methodology audited by Francois Raab of 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 stated components. Individually negotiated discounts are not permitted. Special prices based on assumptions about past or future purchases are not permitted. All discounts reflects 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.



Numerical Quantities Summary

Measurement Results

Scale Factor	3000 GB
Total Data Storage / Database Size	11.66
Start of Database Load	10/24/2005 12:41:40
End of Database Load	10/26/2005 00:46:25
Database Load Time	36:04:45
Query Streams for Throughput Test	8
TPC-H Power	34652.8
TPC-H Throughput	23259.3
Composite Query per Hour Rating (QphH@3000GB)	28390.1
Total System Price Over 3 Years	\$1,888,276
TPC-H Price Performance Metric	\$66.52

Measurement Intervals

Measurement Interval in Throughput Test (Ts)	81722 seconds
--	---------------

Duration of Stream Execution:

	Seed	Query Start Date/Time	RF1 Start Date/Time	RF2 Start Date/Time	Query Duration
		Query End Date/Time	RF1 End Date/Time	RF2 End Date/Time	RF Duration
Stream 0	1026004625	10/27/2005 13:29:41	10/27/2005 13:03:10	10/27/2005 16:40:00	
		10/27/2005 16:36:59	10/27/2005 13:29:40	10/27/2005 16:46:55	
Stream 1	1026004626	10/27/2005 16:46:58	10/28/2005 11:34:58	10/28/2005 11:46:21	18:28:32
		10/28/2005 11:15:30	10/28/2005 11:46:16	10/28/2005 11:56:01	0:20:59
Stream 2	1026004627	10/27/2005 16:46:58	10/28/2005 11:56:07	10/28/2005 12:09:08	18:42:38
		10/28/2005 11:29:36	10/28/2005 12:09:05	10/28/2005 12:21:11	0:25:01
Stream 3	1026004628	10/27/2005 16:46:59	10/28/2005 12:21:20	10/28/2005 12:35:31	18:35:48
		10/28/2005 11:22:47	10/28/2005 12:35:26	10/28/2005 12:47:50	0:26:25
Stream 4	1026004629	10/27/2005 16:47:00	10/28/2005 12:48:01	10/28/2005 13:02:54	18:40:55
		10/28/2005 11:27:56	10/28/2005 13:02:48	10/28/2005 13:15:44	0:27:36
Stream 5	1026004630	10/27/2005 16:47:01	10/28/2005 13:15:58	10/28/2005 13:32:00	17:18:03
		10/28/2005 10:05:04	10/28/2005 13:31:54	10/28/2005 13:45:15	0:29:11
Stream 6	1026004631	10/27/2005 16:47:03	10/28/2005 13:45:39	10/28/2005 14:02:49	18:23:09
		10/28/2005 11:10:12	10/28/2005 14:02:42	10/28/2005 14:17:14	0:31:27
Stream 7	1026004632	10/27/2005 16:47:05	10/28/2005 14:17:57	10/28/2005 14:36:48	18:43:33
		10/28/2005 11:30:38	10/28/2005 14:36:23	10/28/2005 14:51:53	0:33:31
Stream 8	1026004633	10/27/2005 16:47:07	10/28/2005 14:52:41	10/28/2005 15:13:32	18:47:52
		10/28/2005 11:34:58	10/28/2005 15:12:58	10/28/2005 15:29:00	0:35:44



NEC Express5800/1320Xe (32 SMP)

TPC-H Rev.23.0
Reported Date
November 7, 2005

TPC-H Timing Intervals (in seconds):

Query	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Stream 0	1164.2	83.8	80.0	129.6	259.7	106.2	295.3	354.8
Stream 1	6453.1	469.9	846.3	5324.2	2896.3	278.0	2051.2	1213.9
Stream 2	7918.3	1338.6	1199.0	1301.7	2890.0	560.3	2804.6	871.1
Stream 3	7127.4	211.3	4332.9	719.7	5635.7	281.5	2984.4	991.8
Stream 4	7821.6	306.7	3626.6	1360.9	867.7	193.0	1054.7	2468.1
Stream 5	9609.0	2361.3	2292.8	887.4	1781.6	347.4	4188.8	3269.1
Stream 6	7766.5	1013.4	5247.6	3938.5	2570.1	392.9	1950.9	1977.2
Stream 7	7419.5	1935.6	2965.3	3146.7	1020.2	330.3	2025.1	1379.6
Stream 8	10395.0	843.9	1535.3	1170.6	3132.0	284.9	2742.5	2508.8
Min Qi	6453.1	211.3	846.3	719.7	867.7	193.0	1054.7	871.1
Max Qi	10395.0	2361.3	5247.6	5324.2	5635.7	560.3	4188.8	3269.1
Avg Qi	8063.8	1060.1	2755.7	2231.2	2599.2	333.5	2475.3	1835.0
Query	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream 0	1832.6	141.3	236.3	373.7	445.5	109.8	58.2	933.6
Stream 1	11824.8	1552.7	2697.0	1922.3	3708.8	867.5	1646.1	2614.4
Stream 2	9556.6	1701.9	1012.6	2767.6	2606.7	4574.4	577.8	2578.9
Stream 3	5279.1	1567.9	1917.7	3769.7	3037.5	2013.7	345.3	3846.7
Stream 4	4881.8	1744.6	1800.2	3961.8	2183.7	1232.8	1222.3	3171.3
Stream 5	4209.3	952.9	1914.2	3160.5	3104.8	686.2	754.3	3478.4
Stream 6	5077.0	1340.2	1318.3	2551.1	4019.8	1224.7	511.5	3289.6
Stream 7	7971.5	1290.3	1041.6	614.7	2801.1	5224.7	169.4	3311.3
Stream 8	7391.7	1304.7	215.8	3042.3	4015.3	2347.5	1078.8	4012.4
Min Qi	4209.3	952.9	215.8	614.7	2183.7	686.2	169.4	2578.9
Max Qi	11824.8	1744.6	2697.0	3961.8	4019.8	5224.7	1646.1	4012.4
Avg Qi	7024.0	1431.9	1489.7	2723.8	3184.7	2271.4	788.2	3287.9
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 0	163.6	1956.0	312.2	148.2	2032.9	200.0	1590.7	414.7
Stream 1	1081.2	6771.5	1357.3	3629.8	6085.8	1219.6	678.1	580.3
Stream 2	1712.6	6538.0	2925.5	1556.4	8008.7	2356.5	778.2	722.8
Stream 3	2330.0	6666.0	1551.5	543.2	9373.6	2421.0	846.7	738.6
Stream 4	1339.7	6328.3	3455.4	4781.0	12076.4	1377.0	886.2	769.7
Stream 5	1867.7	7542.2	1893.6	524.2	6080.6	1376.1	956.2	794.4
Stream 6	1171.4	7371.8	2025.8	2344.0	7627.6	1459.0	1023.2	864.2
Stream 7	538.7	6367.3	4380.3	2298.4	9645.8	1535.8	1106.0	905.0
Stream 8	2353.9	6714.3	2451.7	686.8	7108.0	2335.5	1216.8	927.7
Min Qi	538.7	6328.3	1357.3	524.2	6080.6	1219.6	678.1	580.3
Max Qi	2353.9	7542.2	4380.3	4781.0	12076.4	2421.0	1216.8	927.7
Avg Qi	1549.4	6787.4	2505.1	2045.5	8250.8	1760.1	936.4	787.8