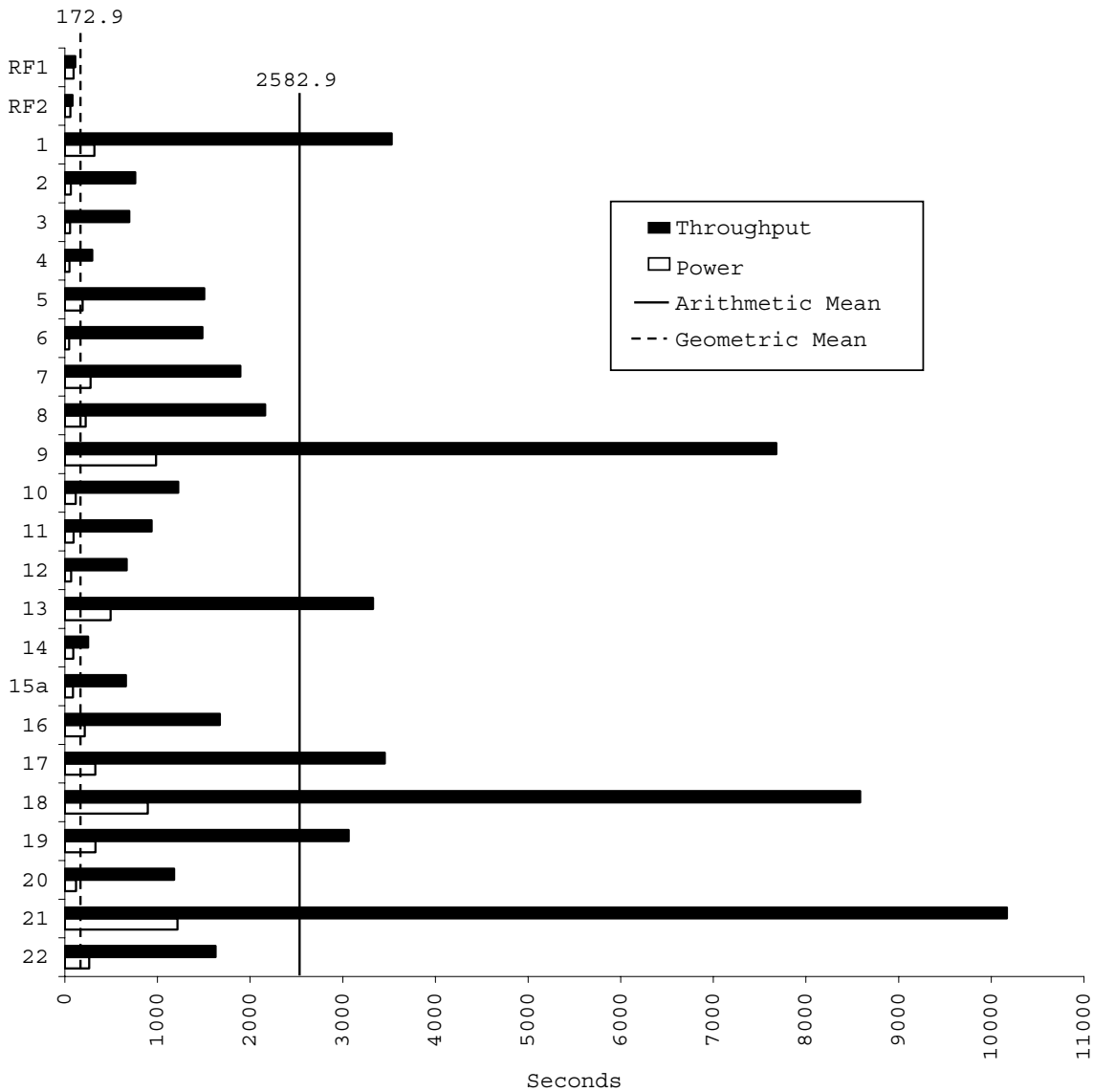


IBM System p5 575 with DB2 UDB 8.2

TPC-H Rev. 2.3.0

Report Date: July 14, 2006

Total System Cost	Composite Query per Hour Rating			Price/Performance
8,467,124 USD	180,108.1 QphH@10000GB			47 USD Price/QphH@10000GB
Database Size	Database Manager	Operating System	Other Software	Availability Date
10000GB	DB2 UDB 8.2	AIX 5L V5.3	None	August 30, 2006

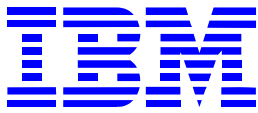


Database Load Time: 2:44:34	Load included backup: N	Total Data Storage/Database Size: 11.78
RAID (base tables): Y	RAID (Base Tables and Auxiliary Data Structures): Y	RAID (All): N

System Configurations

16 IBM System p5 575 servers, each server with

Processors	8 x 2.2GHz POWER5+ with 8 x 36MB L3 Cache
Memory	64GB
Disk Controllers	9 x 2Gigabit Fibre Channel PCI-X Adapters & 1+1/8 IBM TotalStorage DS4800 dual controllers
Disk Drives	216 x 36.4GB 15K 4Gb FC drives ; 2 x 73.4GB 15K Ultra4 SCSI drives, with 2 additional on server1
Network	3 Integrated dual Gigabit Ethernet
Total Disk Storage	117,754.356 GB (GB is defined as 1024 * 1024 * 1024 bytes)

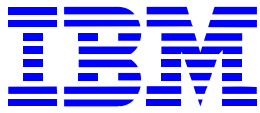


IBM System p5 575 with DB2 UDB 8.2

TPC-H Rev. 2.3.0

Report Date: July 14, 2006

Description	Part No.	SRC	Unit Price	Qty	Ext Price	Maint Price
Server Hardware						
9118 Model 575	9118-575	1	5,311	16	84,976	85,440
RIO-2(Remote I/O-2)Cbl, 1.2M	3146	1	463	4	1,852	
RIO-2 (Remote I/O-2) Cbl, 2.5M	3168	1	596	28	16,688	
73.4 GB 10,000 RPM Ultra320 SCSI Disk Drive Assembly	3274	1	599	34	20,366	
Pwr.Cbl.Grp, 09U(or 09U Lft)	3800	1	75	2	150	
Pwr.Cbl.Grp, 11U(or 09U Rt)	3810	1	75	6	450	
2 Gigabit Fibre Channel PCI-X Adapter	5716	1	1,999	144	287,856	
System Rack	5793	1	10,000	2	20,000	16,800
I/O Drawer, 20 Slots, 8 Disk Bays	5794	1	30,000	8	240,000	31,680
Bulk Power Regulator	6186	1	4,000	12	48,000	
Power Distribution Jumper Assembly, High Current	6267	1	2,500	2	5,000	
Weight Distribution Plate	6855	1	750	2	1,500	
Slim Line Doors	6861	1	3,585	2	7,170	
I/O Assembly with PCI-X and RIO-2 capability	7210	1	4,300	16	68,800	
8 Way 2.2GHz POWER5+ CPU	7675	1	40,000	16	640,000	141,312
Ethernet Cable, 15M, Hardware Management	7802	1	34	2	68	
Bulk Power Controller Assembly	7803	1	4,000	4	16,000	
Bulk Power Distribution Assembly	7837	1	2,500	4	10,000	
Pwr.Cbl.Grp, 07U(or 05U Rt)	7845	1	650	2	1,300	
Pwr.Cbl.Grp, 05U(or 05U Lft)	7846	1	650	6	3,900	
Power Cables, 4x, 01U	7853	1	650	2	1,300	
Power Cables, 4x, 19U	7857	1	400	6	2,400	
4096MB (4x1024MB) DDR2 DIMM Memory	7893	1	9,318	256	2,385,408	
Ethernet Cables, Node to Hubs, EIA01 through EIA17	7920	1	100	16	1,600	
Line Cord, 6AWG, 6ft, IEC309 100A Plug	8687		1,000	4	4,000	
HMC 1:7310-C04 Desktop Hardw.Mgmt.Console	7310-C04	1	1,830	1	1,830	1,344
IBM T541H /L150p 15 inch TFT Color Monitor	3637	1	508	1	508	
Power Cord (6-foot), To Wall (125V, 15A), Plug Type #4	6470	1	18	1	18	
Ethernet Cable, 6M, Hardware Management	7801	1	15	1	15	
Quiet Touch Keyboard - USB, Business Black,	8800	1	104	1	104	
Mouse - Business Black with Keyboard Attachment	8841	1	78	1	78	
				Subtotal	3,871,337	276,576
Storage						
DS4800 Disk System Model 82 (4 GB Cache)	1815-82A	1	53,995	18	971,910	
DS4800 8-Storage Partitions	8870	1	10,000	18	180,000	
(22R4255) DS4800 AIX Host Kit	7711	1	7,000	18	126,000	
DS4000 EXP810 Enclosure	1812-81A	1	6,000	216	1,296,000	
2Gb FC, 36.4GB/15K Drive	5231	1	1,115	3456	3,853,440	
Short Wave SFP	2410	1	998	216	215,568	
Fiber Cable 5m	5605	1	129	144	18,576	
Fiber Cable 1m	5601	1	79	480	37,920	
IBM 42U S2 standard rack	93074RX	1	1,489	20	29,780	included
3 Year Warranty Service Upgrade 1812-81A 24x7x4		1	960	216		207,360
3 Year Warranty Service Upgrade 1815-82A 24x7x4		1	3,200	18		57,600
				Subtotal	6,729,194	264,960



IBM System p5 575 with DB2 UDB 8.2

TPC-H Rev. 2.3.0

Report Date: July 14, 2006

Server Software

CD-ROM Process Charge	5692-A5L-1004	1	50	1	50	
Per Processor F5 AIX 5L V5.3	5765-G03-5	1	1,225	128	156,800	
F5 3 Yr SWMA for AIX per Processor Reg/Ren	5773-SM3-466	1	1,958	128		250,624
F5 3 yr Services 7x24 Support per Processor	5773-SM3-468	1	496	128		63,488
9118-575 24x7x4 WSU	6942-25B-4705	1	2,820	16		45,120
HMC Software SUB (3Y)	5773-0570	1	236	1		236
HMC Software Support (3Y)	5773-0569	1	675	1		675
C for AIX user Lic+SW maint 12 MO	D5A1DLL	1	515	1	515	
C for AIX user annual SW maint renewal	E1A1FLL	1	103	2		206
DB2 UDB ESE License/1-yr. Maint.		1	23,902	128	3,059,456	
DB2 UDB ESE Support 1Yr/Proc		1	1,138	256		291,328
DB2 UDB ESE DPF License/1-yr. Maint.		1	7,180	128	919,040	
DB2 UDB ESE DPF Support 1Yr/Proc		1	342	256		87,552

Subtotal 4,135,861 739,229

Third Party Hardware/Software

Cisco Catalyst 2960G-24TC 20 port Switch	850884	2	2,013	5	10,065	
--	--------	---	-------	---	--------	--

Subtotal 10,065

Total 14,746,457 1,280,765

IBM Total System Discounts* -7,560,098

Three-Year Cost of Ownership 8,467,124

iphH@10,000 180,108

\$/QpH@10,000 47.01

Notes:

For pricing details and contact information please see appendix E

Pricing Sources: 1) IBM 2) CDW

*Discounts are based on US list prices for similar quantities & configurations including pre-payment for maintenance. The discount applies to the totality of all items with price source of "1".

Audited by: Bradley J. Askins of Infosizing (www.infosizing.com)

The system as configured for the test will be available August 30, 2006.

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 reflect standard pricing policies for the listed components. For complete details see the pricing sections of the TPC benchmark specifications. If you find the stated prices are not available according to these terms, please notify the TPC at pricing@tpc.org. Thank You.



IBM System p5 575 with DB2 UDB 8.2

TPC-H Rev. 2.3.0

Report Date: July 14, 2006

Numerical Quantities Summary

Measurement Results

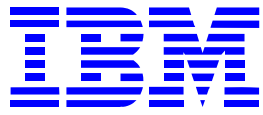
Database Scaling (SF/Size)	=	10000
Total Data Storage/Database Size	=	11.78
Start of Database Load	=	6/13/2006 18:37:42
End of Database Load	=	6/13/2006 21:22:16
Database Load Time	=	2:44:34
Query Streams for Throughput Test	=	12
TPC-H Power Metric (QppH@10000GB)	=	208,102.0
TPC-H Throughput Metric (QthH@10000GB)	=	155,879.9
Composite Query-per-Hour Rating (QphH@10000GB)	=	180,108.1
Total System Price over 3 years	=	8,467,124 USD
TPC-H Price/Performance Metric (\$/QphH@10000GB)	=	47 USD

Measurement Intervals

Measurement Interval in Throughput Test (Ts) = 60,970 seconds

Duration of Stream Execution

Stream ID	Seed Used	Date and Time Stamps						Duration
		Query Start		RF1 Start		RF2 Start		Queries
		Query End		RF1 End		RF2 End		RFs
Stream 00	613212216	6/13/2006	23:34:05	6/13/2006	23:32:30	6/14/2006	1:23:16	1:49:11
		6/14/2006	01:23:16	6/13/2006	23:34:05	6/14/2006	1:24:16	0:02:34
Stream 01	613212217	6/14/2006	01:25:04	6/14/2006	17:42:36	6/14/2006	17:44:08	16:17:31
		6/14/2006	17:42:35	6/14/2006	17:44:08	6/14/2006	17:45:55	0:03:19
Stream 02	613212218	6/14/2006	1:25:04	6/14/2006	17:45:55	6/14/2006	17:47:52	15:25:54
		6/14/2006	16:50:58	6/14/2006	17:47:52	6/14/2006	17:49:19	0:03:24
Stream 03	613212219	6/14/2006	1:25:04	6/14/2006	17:49:19	6/14/2006	17:51:11	15:43:17
		6/14/2006	17:08:21	6/14/2006	17:51:11	6/14/2006	17:52:29	0:03:10
Stream 04	613212220	6/14/2006	1:25:04	6/14/2006	17:52:29	6/14/2006	17:54:23	15:51:55
		6/14/2006	17:16:59	6/14/2006	17:54:23	6/14/2006	17:55:41	0:03:12
Stream 05	613212221	6/14/2006	1:25:04	6/14/2006	17:55:41	6/14/2006	17:57:32	15:57:31
		6/14/2006	17:22:35	6/14/2006	17:57:32	6/14/2006	17:58:53	0:03:12
Stream 06	613212222	6/14/2006	1:25:04	6/14/2006	17:58:53	6/14/2006	18:00:49	16:11:28
		6/14/2006	17:36:32	6/14/2006	18:00:49	6/14/2006	18:02:07	0:03:14
Stream 07	613212223	6/14/2006	1:25:04	6/14/2006	18:02:07	6/14/2006	18:04:03	15:00:13
		6/14/2006	16:25:17	6/14/2006	18:04:03	6/14/2006	18:05:22	0:03:15
Stream 08	613212224	6/14/2006	1:25:04	6/14/2006	18:05:22	6/14/2006	18:07:18	15:33:25
		6/14/2006	16:58:29	6/14/2006	18:07:18	6/14/2006	18:08:34	0:03:12
Stream 09	613212225	6/14/2006	1:25:04	6/14/2006	18:08:34	6/14/2006	18:10:20	15:41:58
		6/14/2006	17:07:02	6/14/2006	18:10:20	6/14/2006	18:11:36	0:03:02
Stream 10	613212226	6/14/2006	1:25:04	6/14/2006	18:11:36	6/14/2006	18:13:26	15:59:59
		6/14/2006	17:25:03	6/14/2006	18:13:26	6/14/2006	18:14:47	0:03:11
Stream 11	613212227	6/14/2006	1:25:04	6/14/2006	18:14:47	6/14/2006	18:16:37	15:37:29
		6/14/2006	17:02:33	6/14/2006	18:16:37	6/14/2006	18:17:58	0:03:11
Stream 12	613212228	6/14/2006	1:25:04	6/14/2006	18:17:58	6/14/2006	18:19:56	16:04:03
		6/14/2006	17:29:07	6/14/2006	18:19:56	6/14/2006	18:21:14	0:03:16



IBM System p5 575 with DB2 UDB 8.2

TPC-H Rev. 2.3.0

Report Date: July 14, 2006

Timing Interval (in seconds)

Stream ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Stream 0	318.6	66.3	55.9	50.9	191.9	48.4	279.4	223.3	983.9	118.1	95.1	69.4
Stream 01	318.5	595.2	442.7	35.4	1760.9	12747.9	1443.0	2113.8	4502.1	876.7	946.2	708.5
Stream 02	3876.6	498.5	435.7	345.7	1263.4	549.8	2132.8	1999.5	8022.6	919.0	1219.3	531.2
Stream 03	3694.2	2335.8	382.0	347.9	1768.6	387.1	1718.5	2038.9	7079.0	948.0	1069.9	667.5
Stream 04	3996.5	328.2	391.2	218.6	1781.2	522.1	1759.5	1598.4	7610.4	3222.5	920.2	839.0
Stream 05	3998.0	558.8	3903.6	435.8	1705.8	641.7	2165.9	1889.7	6201.9	887.7	1004.6	769.7
Stream 06	3988.7	504.6	505.2	319.4	1785.8	363.7	1836.3	1824.4	8206.0	1129.1	946.0	649.7
Stream 07	3562.6	368.8	444.1	271.4	1410.0	305.4	2231.5	2238.4	5894.5	923.7	933.0	615.5
Stream 08	3968.5	508.0	454.2	345.8	1735.7	397.2	2177.0	1912.4	8742.3	748.2	788.9	550.3
Stream 09	3935.0	447.8	472.4	429.9	1289.2	599.6	1837.7	2915.7	8561.8	2537.7	943.6	732.7
Stream 10	3621.6	584.0	404.3	348.9	515.1	573.5	1906.1	4313.9	9511.3	557.2	1136.5	692.0
Stream 11	3473.0	577.7	347.3	290.7	1568.8	483.6	1707.5	1571.2	7761.4	1067.9	767.8	717.1
Stream 12	3904.4	1819.4	146.4	152.8	1489.9	242.6	1838.8	1515.7	10048.7	875.8	564.5	533.1
Minimum	318.5	328.2	146.4	35.4	515.1	242.6	1443.0	1515.7	4502.1	557.2	564.5	531.2
Average	3528.1	760.6	694.1	295.2	1506.2	1484.5	1896.2	2161.0	7678.5	1224.5	936.7	667.2
Maximum	3998.0	2335.8	3903.6	435.8	1785.8	12747.9	2231.5	4313.9	10048.7	3222.5	1219.3	839.0
Stream ID	Q13	Q14	Q15a	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 0	494.0	92.1	89.6	216.6	329.0	895.9	331.9	122.7	1214.7	263.8	94.8	60.0
Stream 01	2972.2	259.9	761.1	1873.0	3956.0	8616.5	2798.3	995.4	9656.3	271.5	93.3	106.4
Stream 02	3512.7	275.8	617.8	1986.9	3645.2	6450.0	2818.8	1193.8	11435.5	1823.6	117.8	86.3
Stream 03	3460.4	248.8	701.3	1472.5	2534.0	7910.9	3718.8	1001.7	11368.2	1743.5	112.0	78.0
Stream 04	3489.5	304.1	794.8	1681.4	3104.7	8335.6	2814.1	1054.4	10945.4	1403.0	114.4	77.5
Stream 05	3349.4	284.2	642.9	1800.1	4160.2	7581.9	2764.8	1190.9	9541.3	1972.2	111.7	80.4
Stream 06	3768.5	258.8	682.2	1736.3	2639.5	14558.7	3519.9	1444.6	5894.9	1725.7	116.4	77.3
Stream 07	3046.1	313.9	618.0	1711.7	3119.6	8485.8	3609.8	1535.8	10508.9	1865.1	116.2	79.2
Stream 08	2293.6	250.7	636.4	1741.9	3593.9	7945.0	3680.5	855.8	11003.6	1675.7	116.0	76.3
Stream 09	3970.3	205.4	772.4	962.3	3582.9	7475.2	2411.4	1017.2	9963.4	1454.1	106.2	76.0
Stream 10	3527.0	196.6	777.8	1450.7	4015.0	8507.8	3520.3	1378.3	8284.5	1776.2	109.3	80.8
Stream 11	3122.6	310.0	729.8	1806.9	4082.1	8643.8	2769.3	1065.3	11238.5	2146.6	110.9	80.3
Stream 12	3410.9	101.2	196.1	1852.2	3011.9	8506.4	2344.2	1427.5	12193.4	1667.1	118.5	77.4
Minimum	2293.6	101.2	196.1	962.3	2534.0	6450.0	2344.2	855.8	5894.9	271.5	93.3	76.0
Average	3326.9	250.8	660.9	1673.0	3453.8	8584.8	3064.2	1180.1	10169.5	1627.0	111.9	81.3
Maximum	3970.3	313.9	794.8	1986.9	4160.2	14558.7	3718.8	1535.8	12193.4	2146.6	118.5	106.4