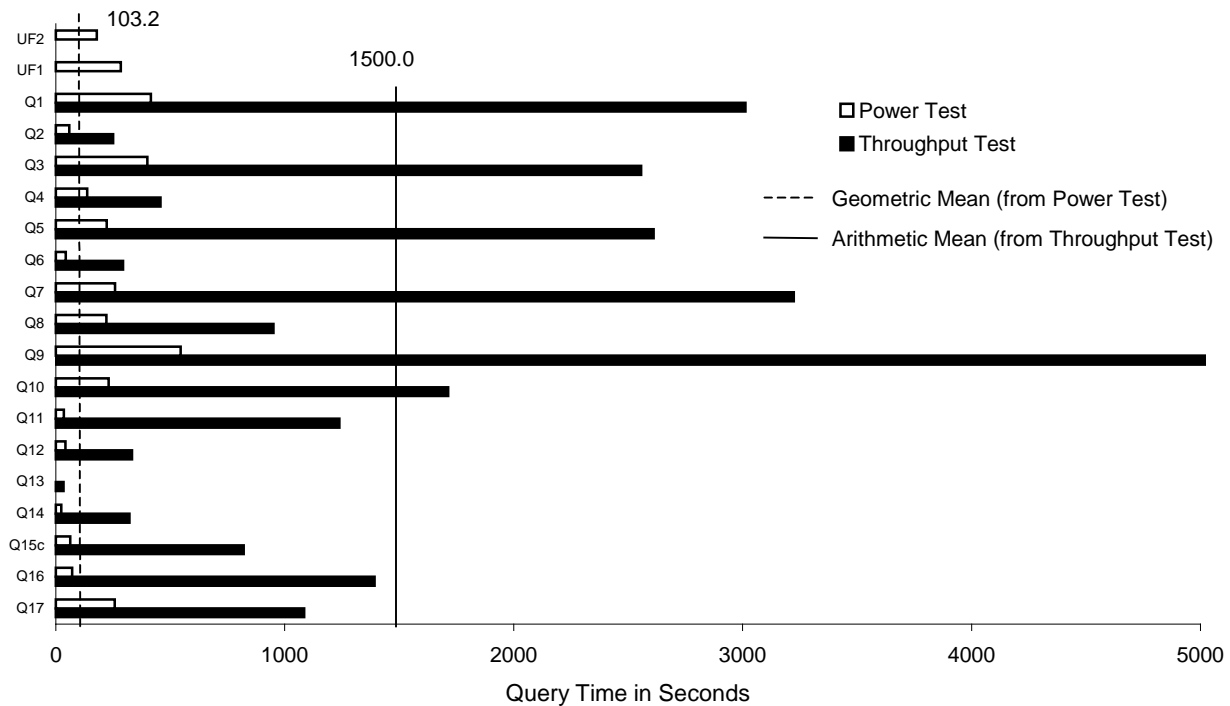


RS/6000 SP Model 550
With
DB2 UDB 5.2.0

TPC-D Rev. 1.3.1

Report Date: Aug. 17, 1998
 Modified: October 9, 1998

Total System Cost	TPC-D Power	TPC-D Throughput	Price/Performance
\$5,795,128	10469.6 <i>QppD@300GB</i>	6166.5 <i>QthD@300GB</i>	\$721 per <i>QphD@300GB</i>
Database Size	Database Manager	Operating System	Other Software
300 GB	IBM DB2 Universal Database 5.2.0	AIX 4.2.1	None
			Availability Date
			October 31, 1998 See note in page 8



Database Load Time:
8:21:56

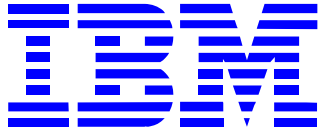
Total Data Storage/Database Size: 11.69

RAID: Y

System Components

24 RS/6000 SP nodes, each node with:
 4 x 332MHz PowerPC 604e CPUs (256K L2)
 3GB memory
 2 x 4.5GB SCSI Disk
 2 x SSA disk adapters/controllers
 1 x SP Switch MX Adapter

External Disk Storage:
 Total Storage: 768 x 4.5GB SSA disks

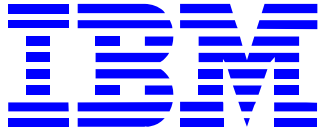


RS/6000 SP Model 550
With
DB2 UDB 5.2.0

TPC-D Rev. 1.3.1

Report Date: Aug. 17, 1998
Modified: October 9, 1998

Description	Part No.	Source	Ref. Price	Qty	Discount	Ext. Price	5-Yr. Maint.
Server Hardware							
RS/6000 SP - Tall Frame	9076-550	IBM	50,000	1		50,000	12,000
Short Expansion Frames	1500	IBM	18,700	1		18,700	4,800
332 MHz Thin Node	2050	IBM	24,000	24		576,000	253,440
4.5 GB Disk Drive – F/W 1 In High	3000	IBM	1,300	48		62,400	0
SP Switch	4011	IBM	70,000	2		140,000	40,320
SP Switch MX Adapter	4022	IBM	12,500	24		300,000	0
Memory Cards	4093	IBM	1,038	48		49,824	0
256MB DIMM Memory Modules	4110	IBM	3,840	288		1,105,920	0
PowerPC 604e, 332 MHz, 2-Way Processor Card	4320	IBM	12,000	48		576,000	276,480
PCI SSA Adapter	6215	IBM	3,000	48		144,000	0
						3,022,844	587,040
Control Workstation							
RS/6000 Model F30	7025-F30	IBM	12,995	1		12,995	6,720
GXT110P Graphics Adapter (PCI)	2839	IBM	340	1		340	0
8port Async Adapter	2931	IBM	1,195	1		1,195	0
Auto LANstreamer Token Ring Adapter	2979	IBM	795	1		795	0
Ethernet BNC/RJ-45 Adapter, PCI	2985	IBM	195	1		195	0
4.5 GB SCSI-2 Hard Disk Drive	3092	IBM	830	2		1,660	0
P50 Color Monitor	3612	IBM	800	1		800	0
32 MB DIMM Memory	4132	IBM	640	1		640	0
Display Cable	4217	IBM	105	1		105	0
Mouse	6041	IBM	75	1		75	0
Keyboard – English (US)	6900	IBM	140	1		140	0
						18,940	6,720



**RS/6000 SP Model 550
With
DB2 UDB 5.2.0**

TPC-D Rev. 1.3.1

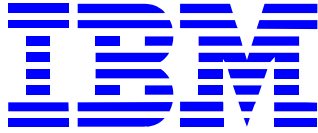
Report Date: Aug 17, 1998

Description	Part No.	Source	Ref. Price	Qty	Discount	Ext. Price	5-Yr. Maint.
Storage							
SSA Disk Subsystem with (4) 4.5 GB Drives	7133-020	IBM	19,350	48		928,800	460,800
4.5GB SSA Disk Drive Modules	3401	IBM	2,100	576		1,209,600	0
Power/Cooling	3003	IBM	1,600	48		76,800	0
10.0m SSA Copper Cable	5100	IBM	75	192		14,400	0
Expansion Rack	7015-R00	IBM	3,110	8		24,880	11,904
Subtotal						2,254,480	472,704
Hardware Subtotal						5,296,264	1,066,464
Server Software							
AIX 4.2 unlimited users	5765-C34	IBM	3,660	1		3,660	0
C for AIX	5756-423	IBM	615	1		615	0
AIX 4.2.1 SP License	5756-030	IBM	0	24		0	0
AIX Parallel System Support	5765-296	IBM	0	24		0	0
DB2 UDB V5 4-way Base Program Package	5801-AAR	IBM	69,998	1		69,998	0
DB2 UDB V5 4-way Add'l Servers	5802-AAR	IBM	69,898	23		1,607,654	0
Software Subtotal						1,681,927	0
Total						6,978,191	1,066,464
Discounts							
Hardware Discount				27%		(1,429,991)	
Software Discount				29%		(487,759)	
MidRange Service Agreement Discount				17%			(181,299)
Extended Maint. Option Discount				17%			(150,478)
Total						5,060,441	734,687
5 Year Cost of Ownership						\$5,795,128	
QphD @ 300 GB						8035.0	
\$/QphD @ 300 GB						\$721	

Audited By: Francois Raab, Information Paradigm Inc.

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 section 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.

Note: Hardware and system software available now; DB2 UDB 5.2.0 software available by October 31, 1998.



**RS/6000 SP Model 550
With
DB2 UDB 5.2.0**

TPC-D Rev. 1.3.1

Report Date: Aug 17, 1998
Modified: October 9, 1998

Numerical Quantities Summary

Measurement Results:

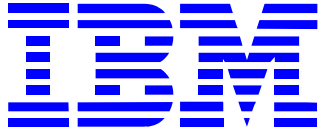
Database Scaling (SF/Size)	=	300
Total Data Storage/Database Size	=	11.69
Database Load Time	=	8:21:56
Query Streams for Throughput Test	=	16
TPC-D Power Metric (QppD@300GB)	=	10469.6
TPC-D Throughput Metric (QthD@300GB)	=	6166.5
Composite Query-per-hour Rating (QphD@300GB)	=	8035.0
Total System Price over 5 years	=	\$5,795,128
TPC-D Price/Performance Metric (\$/QphD@300GB)	=	\$721

Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	=	47,638 seconds
--	---	----------------

Duration of Stream Execution:

Stream ID	Seed	Start Date	Start Time	End Date	End Time	Total Time
stream00	1072184321	8/7/98	2:47:59	8/7/98	3:46:04	0:58:05
stream01	37878652	8/7/98	4:27:26	8/7/98	11:37:15	7:09:49
stream02	104652212	8/7/98	4:27:26	8/7/98	11:29:34	7:02:08
stream03	1071440916	8/7/98	4:27:26	8/7/98	11:37:33	7:10:07
stream04	112043412	8/7/98	4:27:26	8/7/98	11:26:53	6:59:27
stream05	119804400	8/7/98	4:27:26	8/7/98	11:41:59	7:14:33
stream06	1047328657	8/7/98	4:27:27	8/7/98	11:35:09	7:07:42
stream07	131088845	8/7/98	4:27:27	8/7/98	11:42:13	7:14:46
stream08	1400438265	8/7/98	4:27:28	8/7/98	11:41:09	7:13:41
stream09	1081501558	8/7/98	4:27:28	8/7/98	11:40:05	7:12:37
stream10	1179991013	8/7/98	4:27:29	8/7/98	11:26:08	6:58:39
stream11	1995916397	8/7/98	4:27:31	8/7/98	11:39:58	7:12:27
stream12	225662656	8/7/98	4:27:33	8/7/98	11:20:01	6:52:28
stream13	275088178	8/7/98	4:27:34	8/7/98	11:35:19	7:07:45
stream14	325839625	8/7/98	4:27:41	8/7/98	11:18:19	6:50:38
stream15	506089141	8/7/98	4:27:41	8/7/98	11:38:24	7:10:43
stream16	1017312636	8/7/98	4:28:03	8/7/98	11:32:38	7:04:35
Updates	n/a	8/7/98	4:28:14	8/7/98	17:41:24	13:13:10



RS/6000 SP Model 550
With
DB2 UDB 5.2.0

TPC-D Rev. 1.3.1

Report Date: Aug 17, 1998
Modified: October 9, 1998

Timing Intervals (in seconds):

Stream ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Stream0	415.0	58.3	400.4	137.1	222.2	42.7	259.0	220.2	545.7	231.0
Stream1	2904.7	350.3	2382.4	421.1	2570.3	184.7	2263.6	1068.0	4364.5	2184.8
Stream2	2791.3	242.4	2737.3	316.3	2222.4	299.8	3018.6	938.3	4933.4	1861.6
Stream3	2912.9	256.9	2341.2	1018.8	2367.0	212.7	3824.0	906.3	4992.0	2179.3
Stream4	3553.5	310.4	2584.3	299.1	2719.3	198.9	2812.7	871.1	5902.0	1183.1
Stream5	3219.0	293.4	2990.2	818.1	3330.3	399.5	3437.3	977.2	5770.4	1235.3
Stream6	3084.1	272.3	2610.0	237.3	2170.2	470.3	3172.1	1125.1	5986.9	1721.1
Stream7	1972.5	256.9	2591.0	246.4	3688.4	304.8	3562.5	1013.6	4971.6	1605.7
Stream8	3189.6	157.7	2274.9	213.3	2766.1	464.6	3554.0	1156.2	4040.8	1893.3
Stream9	2347.1	161.1	2666.5	452.4	2750.2	500.0	2842.2	1098.1	5586.4	2444.6
Stream10	3122.9	238.0	2655.7	386.0	2437.4	208.0	3854.8	1035.4	4698.3	2073.0
Stream11	2975.0	49.0	2177.6	635.7	2413.7	253.2	3092.2	868.0	6128.9	1357.3
Stream12	2474.7	241.9	2743.8	327.1	2296.8	214.4	3048.2	1035.2	5045.5	790.8
Stream13	3194.6	404.1	2919.6	435.8	2674.8	206.3	3123.3	688.2	5993.8	1429.8
Stream14	3540.0	286.2	2466.3	304.3	2371.0	309.0	3247.0	687.7	5254.3	1530.1
Stream15	3219.1	304.5	2259.9	802.3	2835.2	199.9	3872.2	997.2	4584.3	1784.4
Stream16	3700.3	171.2	2507.3	407.6	2172.6	277.8	2852.0	741.1	5035.9	2155.5
Minimum	1972.5	49.0	2177.6	213.3	2170.2	184.7	2263.6	687.7	4040.8	790.8
Average	3012.6	249.8	2556.7	457.6	2611.6	294.0	3223.5	950.4	5205.6	1714.4
Maximum	3700.3	404.1	2990.2	1018.8	3688.4	500.0	3872.2	1156.2	6128.9	2444.6

Stream ID	Q11	Q12	Q13	Q14	Q15c	Q16	Q17	UF1	UF2
Stream0	35.4	42.2	1.0	23.2	62.4	71.0	256.5	283.2	178.6
Stream1	2669.2	387.7	67.2	354.0	1147.2	1375.9	1057.0	26354.6	578.3
Stream2	1126.1	366.5	4.7	433.9	916.6	1836.8	1242.1	749.6	605.4
Stream3	1075.6	278.3	21.5	154.2	984.5	1261.6	999.1	760.3	576.8
Stream4	653.5	335.8	15.7	364.6	969.1	1221.4	1010.9	771.7	596.2
Stream5	969.0	377.9	32.0	90.0	144.1	817.4	1028.0	768.3	588.1
Stream6	360.6	330.1	42.6	390.1	637.9	1731.6	1280.2	783.0	581.0
Stream7	2004.0	42.7	32.7	339.8	962.3	1475.5	878.0	781.9	588.8
Stream8	2264.1	292.1	3.5	325.7	856.9	1176.3	1299.4	773.4	600.8
Stream9	1617.6	322.1	28.0	220.9	377.5	1567.7	919.1	785.7	591.1
Stream10	731.0	348.3	18.8	302.5	930.9	1237.8	804.0	785.5	586.0
Stream11	2000.4	364.1	14.2	326.0	951.0	1394.8	890.9	795.4	598.9
Stream12	2519.9	451.9	77.5	348.3	916.8	816.0	1281.2	785.9	591.9
Stream13	628.6	397.9	30.9	345.9	590.5	1208.0	1257.3	809.4	599.1
Stream14	333.6	311.2	36.2	458.0	889.1	1602.7	960.1	799.1	600.1
Stream15	366.9	170.5	36.1	359.6	903.9	1794.1	1222.5	797.3	592.9
Stream16	500.6	544.5	73.6	320.7	949.2	1758.7	1237.2	808.9	596.2
Minimum	333.6	42.7	3.5	90.0	144.1	816.0	804.0	749.6	576.8
Average	1238.8	332.6	33.5	320.9	820.5	1392.3	1085.4	2381.9	592.0
Maximum	2669.2	544.5	77.5	458.0	1147.2	1836.8	1299.4	26354.6	605.4