

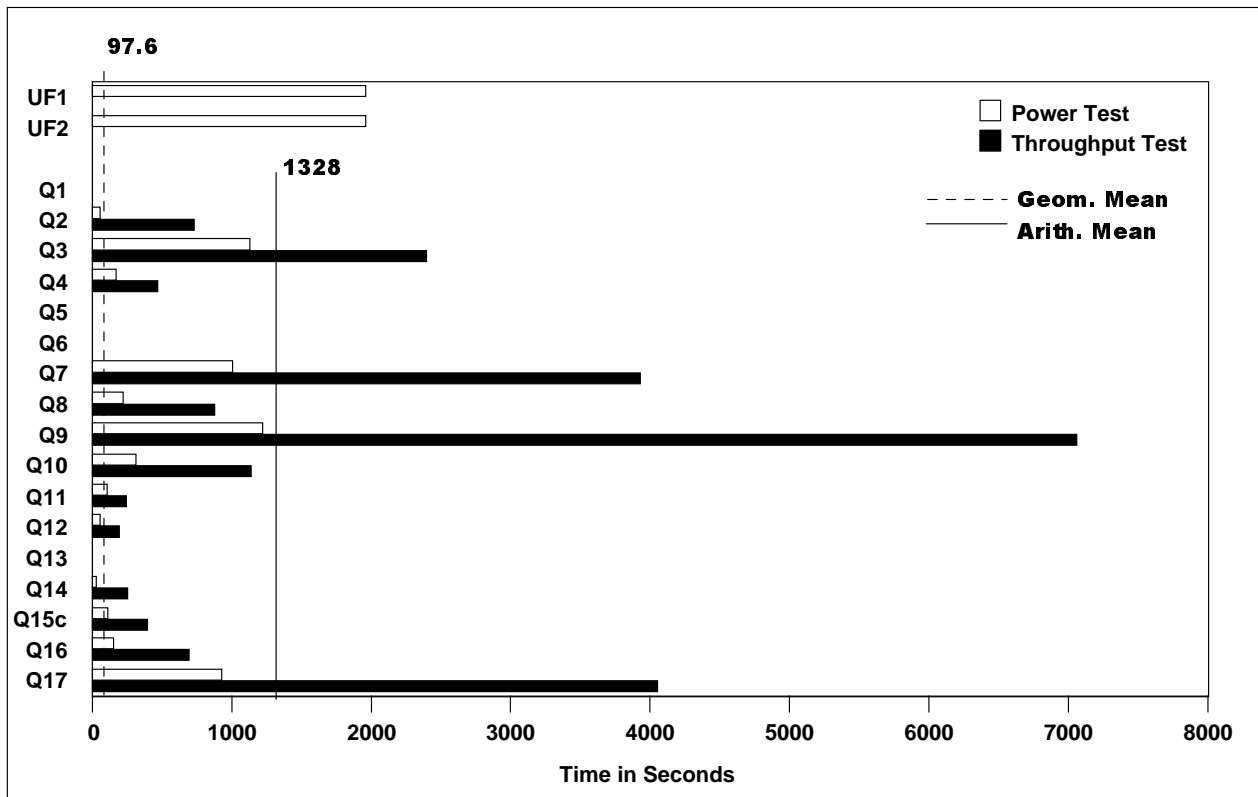


**IBM Netfinity 7000 M10
with DB2 UDB 5.2.0**

TPC-D Rev 1.3.1

Report Date: 11 Jan. 1999

Total System Cost		TPC-D Power	TPC-D Throughput	Price/Performance
\$6,104,897		36,872.0 QppD@1000GB	8,166.9 QthD@1000GB	\$352 per QphD@1000GB
Database Size	Database Manager	Operating System	Other Software	Availability Date
1000GB	DB2 UDB 5.2.0	Windows NT Server 4.0	Visual C++ 5.0	June 30, 1999



Database Load Time:
21h 38m

**Total Data Storage/Database
Size: 8.30**

RAID: Y (RAID-5)

System Components

Processors	32 x 4 x 450MHz Pentium II Xeon with 2MB L2 Cache
Memory	32 x 2GB
Disk Controllers	32 x 2 PCI Serial Storage Architecture (SSA)
Disk Drives	32 x 1 x 4.51GB SCSI Hot-Pluggable 32 x 28 x 9.1GB SSA Hot-Pluggable
Total Storage	8298GB
Interconnect	32 x GigaNet PCI NIC and 12 x GigaNet cLAN Switch



**IBM Netfinity 7000 M10
with DB2 UDB 5.2.0**

TPC-D Revision 1.3.1

Report Date: 11 Jan. 1999

	Part Number	Source	Unit Price	Qty	Ext. Price	5-Yr.Maint.*
Server Hardware						
IBM Netfinity 7000 M10 / 450MHz / 2MB L2 Cache Pentium II Xeon (Rack Model)	8680-5RU	1	16,939	32	542,048	205,280
450MHz / 2MB L2 Cache Processor Upgrade	10L5897	1	7,700	96	739,200	0
512MB (4x128) 50ns DIMM Memory Kit	01K8045	2	2,683	128	343,424	0
4.51GB Wide Ultra SCSI Hot-Swap Drive	94G7429	2	464	32	14,848	0
10/100 Ethernet Fault Tolerant Adapter	08L3341	2	98	32	3,136	0
10 / 20GB NS Internal SCSI Tape Drive	01K1319	2	622	1	622	0
Netfinity Rack	9306900	2	1,655	16	26,480	0
Side Panel Kit	94G6669	2	196	2	392	0
GigaNet 64/32-Bit PCI NIC (incl. 10% spares)	GNN-1000	3	795	35	27,825	63,787
GigaNet cLAN 8-Port Switch (incl. 10% spares)	GNX-5000	3	6,250	14	87,500	0
GigaNet 10m Copper Cable (incl. 10% spares)	GNC-1011	3	175	35	6,125	0
GigaNet 2m Copper Cable (incl. 10% spares)	GNC-0211	3	175	35	6,125	0
Cybox AutoView Commander	CYB-AV-8B	2	542	5	2,710	0
Cybox Cable	CYB-CUFC-15	2	53	32	1,696	0
AsanteFast 100 Hub 12-Port (incl. 10% spares)	ASA-99-00352-00	2	609	5	3,045	0
IBM G42 14" (13.2" Viewable) Color Monitor	654000N	2	204	1	204	215
				Subtotal	\$1,805,380	\$269,282
Server Software						
DB2 UDB EEE 5.2.0 4-Way Base Program Pkg	31L0286,31L0300	1	69,998	1	69,998	0
DB2 UDB EEE 5.2.0 4-Way Additional Servers	31L0294,31L0300	1	69,948	31	2,168,388	0
Microsoft Windows NT Server 4.0	MIC-227-01025	2	660	32	21,120	0
Microsoft Visual C++ and Subscription Service	MIC-048-056V400	2	424	1	424	0
Microsoft Database Server Support		4	2,095	5		10,475
				Subtotal	\$2,259,930	\$10,475
Storage Devices						
SSA Disk Subsystem (incl. 10% Spares)	7133020	1	19,350	71	1,373,850	0
4 x 9.1GB Disk Drives (upgrade from 4.51GB)	7133904	1	7,600	64	486,400	0
12 x 9.1GB Disk Drives (incl. 2 hot spares)	7133901	1	36,000	64	2,304,000	0
Rail Kit	7133093	1	250	64	16,000	0
SSA RAID Adapter for PC Server	4011	1	2,900	64	185,600	0
5.0M SSA Copper Cable	5050	1	55	256	14,080	0
				Subtotal	\$4,379,930	0
				Total	\$8,445,240	\$279,757
Discounts						
IBM Software Revenue Discount - DB2		1	29%		-649,132	0
IBM Hardware Revenue Discount - SSA		1	45%		-1,970,969	0
				Grand total	\$5,825,140	\$0

Pricing: 1 - IBM Corp.; 2 - CDW Computer Centers, Inc; 3 - GigaNet; 4 - Microsoft Corp.
*** The standard 3-year warranty and the extended warranty on all hardware are for 7x24, on site same day coverage.**
Audited by Francois Raab of Information Paradigm, Inc.

Five-Year Cost of Ownership: \$6,104,897
QppD @ 1000GB: 36,872.0
QthD @ 1000GB: 8,166.9
QphD @ 1000GB: 17,353.1
\$/ QphD @ 1000GB: 352

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 specification. If you find that stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.



**IBM Netfinity 7000 M10
with DB2 UDB 5.2.0**

TPC-D Rev 1.3.1

Report Date: 11 Jan. 1999

Numerical Quantities Summary

Measurement Results:

Database Scaling (SF/Size)	1,000
Total Data Storage/Database Size	8.30
Database Load Time	21:38
Query Streams for Throughput Test	8
TPC-D Power Metric (QppD@1000GB)	36,872.0
TPC-D Throughput Metric (QthD@1000GB)	8,166.9
Composite Query-per-Hour Rating (QphD@1000GB)	17,353.1
Total System Price over 5 Years	\$6,104,897
TPC-D Price/Performance Metric (\$/QphD@1000GB)	\$352

Measurement Intervals:

Measurement Intervals in Throughput Test (Ts) = 59,949 s

Duration of Stream Execution

Stream ID	Seed Used	Start Date	Start Time	End Date	End Time
Stream 00	32245	01/01/99	13:08:18	01/01/99	15:47:35
Stream 01	28904	01/01/99	15:55:02	01/01/99	22:10:38
Stream 02	29221	01/01/99	15:55:02	01/01/99	22:01:02
Stream 03	29086	01/01/99	15:55:03	01/01/99	21:17:13
Stream 04	30038	01/01/99	15:55:03	01/01/99	22:02:28
Stream 05	182	01/01/99	15:55:03	01/01/99	22:08:47
Stream 06	1068	01/01/99	15:55:03	01/01/99	22:24:34
Stream 07	3449	01/01/99	15:55:03	01/01/99	23:13:46
Stream 08	26939	01/01/99	15:55:04	01/01/99	22:12:01
Updates		01/01/99	15:55:05	01/02/99	08:34:11

Timing Intervals (in seconds):

Stream ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Stream 00	1.2	65.5	1139.8	181.9	0.8	0.9	1016.4	231.7	1232.0
Stream 01	1.3	1166.8	2107.9	374.2	6.4	3.2	3967.9	962.6	5185.5
Stream 02	5.3	631.3	2544.7	394.4	1.5	2.0	4158.9	801.3	5950.0
Stream 03	2.8	553.7	2436.6	465.2	1.2	3.3	5297.9	930.0	4867.2
Stream 04	3.4	624.9	2520.2	663.6	2.0	1.4	3635.0	578.3	6942.5
Stream 05	9.3	586.7	2659.4	544.0	0.3	2.7	5287.6	742.4	6125.8
Stream 06	4.9	825.6	2658.6	260.4	2.9	3.0	3661.3	1,073.8	7621.0
Stream 07	0.8	655.2	1081.7	630.9	0.8	0.9	1059.2	1,049.7	15334.2
Stream 08	4.1	874.4	3194.5	488.0	5.8	5.1	4409.3	961.2	4519.4
Minimum	0.8	553.7	1081.7	260.4	0.3	0.9	1059.2	578.3	4519.4
Average	4.0	739.8	2400.5	477.6	2.6	2.7	3934.6	887.4	7068.2
Maximum	9.3	1166.8	3194.5	663.6	6.4	5.1	5297.9	1073.8	15334.2

Stream ID	Q10	Q11	Q12	Q13	Q14	Q15c	Q16	Q17	UF1	UF2
Stream 00	322.7	110.7	61.3	1.7	36.3	118.0	160.8	937.9	1970.0	1967.5
Stream 01	1959.7	267.1	285.4	6.4	382.4	720.5	505.5	4632.9	1972.0	2028.3
Stream 02	2095.4	204.5	218.9	7.8	384.0	431.2	651.4	3477.9	2237.3	2007.1
Stream 03	738.2	446.0	199.3	5.4	181.5	493.5	612.7	2095.5	2213.8	2012.1
Stream 04	1084.7	250.5	132.5	9.1	185.1	357.4	595.1	4459.5	2220.3	2002.5
Stream 05	972.8	219.6	291.0	5.0	130.0	296.8	601.2	3949.2	2177.6	2004.5
Stream 06	750.4	250.8	150.9	2.6	257.6	277.9	1482.7	4086.0	2212.3	2054.7
Stream 07	330.4	114.9	58.7	6.5	343.5	127.7	171.6	5355.9	2268.5	2026.0
Stream 08	1248.7	310.1	328.0	1.5	246.5	515.0	1040.5	4464.7	2174.6	2012.7
Minimum	330.4	114.9	58.7	1.5	130.0	127.7	171.6	2095.5	1972.0	2002.5
Average	1147.5	257.9	208.1	5.5	263.8	402.5	707.6	4065.2	2184.6	2018.5
Maximum	2095.4	446.0	328.0	9.1	384.0	720.5	1482.7	5355.9	2268.5	2054.7