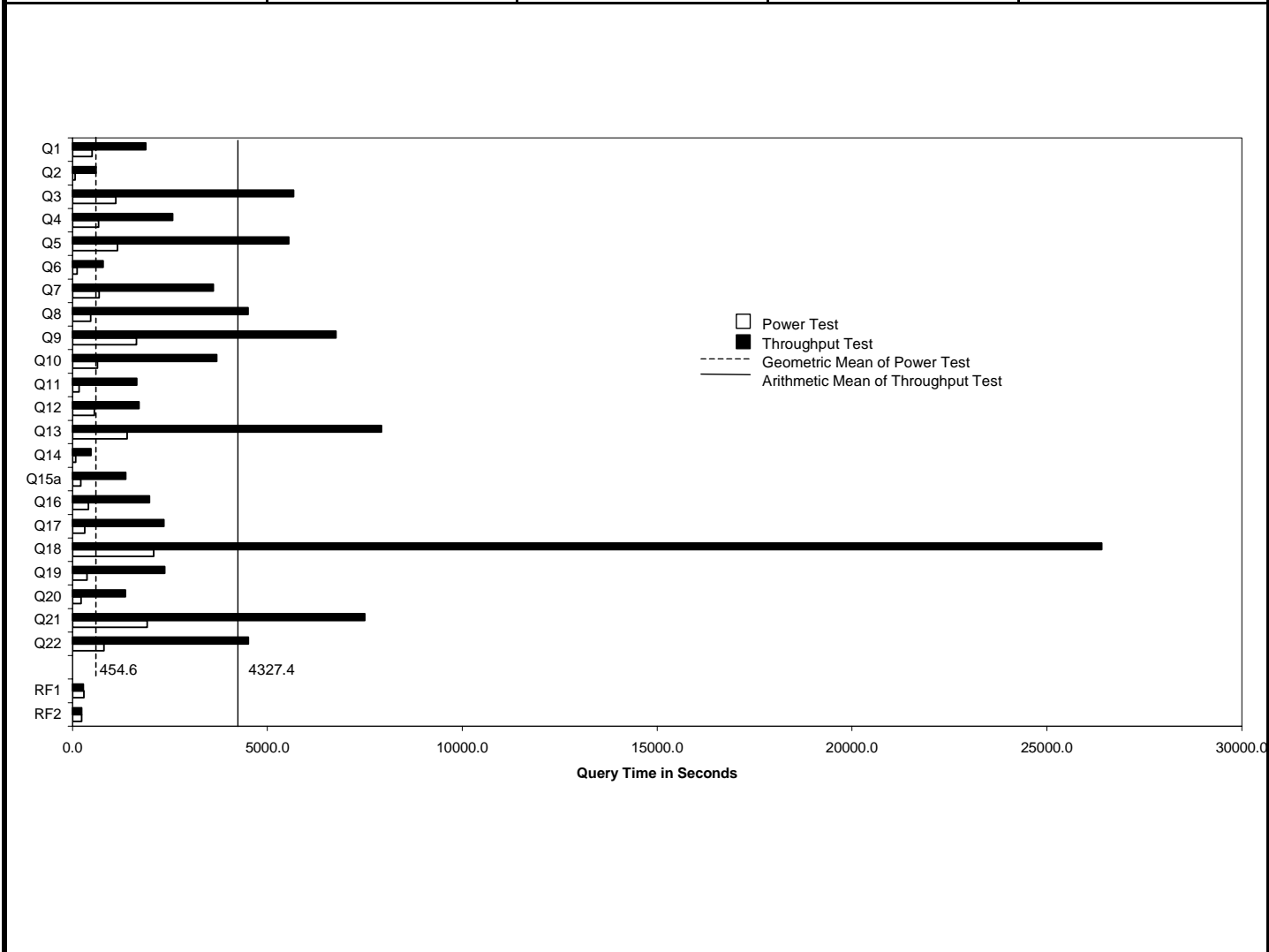


Hewlett Packard Company	HP ProLiant DL760 X900- 128P	TPC-H Rev. 2.0
		Report Date: February 6, 2002

Total System Cost		Composite Query per Hour Metric		Price / Performance	
\$5,955,754		21,053.5 QphH@3000GB		\$283 \$/QphH@3000GB	
Database Size	Database Manager	Operating System	Other Software	Availability Date	
3000GB	IBM DB2 UDB 7.2	Microsoft Windows 2000 Advanced Server	Microsoft Visual C++ 6.0	June 20, 2002	



Database Load Time = 5:58:40	Load Included Backup: N	Total Data Storage / Database Size = 10.29
RAID (Base tables only): Y	RAID (Base tables and auxiliary data structures): Y	RAID (All): Y

System Configuration: 32 nodes

Processors (per node) : 4 x 900MHz Intel Pentium III Xeon Processors w/ 2MB cache

Memory (per node) : 4 GB memory

Disks (per node) : 2 x 9GB 15K RPM drives
56 x 18GB 15K RPM drives

Servers interconnect : 32 ports Gigabit Ethernet Switch

Total Disk Storage: 30862.1 GB

Hewlett Packard Company

ProLiant DL760 X900

TPC-H Rev. 2.0

Report Date:

6-Feb-02

Description	Part Number	Third Party	Unit Price	Qty	Extended Price	3 yr. Maint. Price
Server Hardware						
Brand Pricing						
ProLiant DL760 X900-2M 4P 2G - 4 Pentium III Xeon/900MHz 2MB Cache - 2 GB SD RAM Memory - CD-ROM 24X - 10/100 Ethernet Controller	212692-001	1	44,400	32	1,420,800	
1G-Memory Kit SDRAM (2 x 512MB)	328808-B21	1	1,436	64	91,904	
NC6136 Gigabit Server Adapter, 64-bit/66MHz, PCI, 1000 SX	203539-B21	1	621	32	19,872	
\$5500 15" Monitor	261602-169	1	169	32	5,408	
Scroll Mouse Carbon	231947-B21	1	5	32	160	
PS/2 Easy Access Internet Keyborad	265977-001	1	44	32	1,408	
Rack Model 9142 (42U - Opal) - Flat Pallet	120663-B21	1	1,321	16	21,136	
Rack Coupling Kit	120669-B21	1	83	15	1,245	
Rack Sidewall Kit	120670-B21	1	207	1	207	
UPS Model T2000	242688-005	1	897	32	28,704	
CarePaq 3YR 24X7 4HR 700 SERIES SVR (FM-HE724-36)	401784-002	1	3,390	32		108,480
Subtotal					1,590,844	108,480
Storage						
HP SMART Array Controller 5304 - 4SCSI channels	158939-B21	1	2,052	128	262,656	
StorageWorks Enclosure Model 4314R - Rack-mountable	190209-001	1	2,955	128	378,240	
18.2GB Pluggable Ultra3 SCSI 10K 1" Universal HDD	142673-B22	1	311	64	19,904	
18.2-GB Pluggable 1" Universal WideUltra3 15K HDD	188122-B22	1	390	1792	698,880	
18.2-GB Pluggable 1" Universal WideUltra3 15K HDD (10%)	188122-B22	1	390	180	70,200	
CarePaq 3YR 24X7/4HR EMPTY DISK ENCL. (FM-4E724-36)	FM-4D724-60	1	157	128		20,096
Subtotal					1,429,880	20,096
Hardware and Maintenance Discount						
Large Purchase and Net 30 discount	16.0%	1			(\$483,316)	(\$20,572)
Hardware Subtotal					2,537,408	108,004
Software						
DB2 EE Edi. Lic. with 1Y support per processor	D5B5RLL IBM	3	22,153	128	2,835,584	included
DB2 EE Edi. Support per processor per year (Y2 and Y3)	E1B5ULL IBM	3	1,081	256		276,736
Microsoft Windows 2000 Advanced Server	C10-00475 Microsoft	2	2,399	32	76,768	included
Microsoft Visual Studio Professional 6.0 Win32	659-00390 Microsoft	2	1,079	1	1,079	included
Subtotal					2,913,431	276,736
Connectivity						
Cisco Caty1st 6500 Gigabit ethernet switch, 2x16 port modules		Cisco	88,975	1	88,975	31,200
Connectivity Subtotal					88,975	31,200
Total					\$5,539,814	\$415,940
Three-Year Cost of Ownership:						\$5,955,754
QphH Rating:						21053.5
\$ / QphH:						\$283

Pricing: 1=HP; 2= Microsoft; 3=IBM; 4=Cisco

Note: The benchmark results and test methodology were audited by Francois Raab of InfoSizing (www.sizing.com); Rev. 1.3 submission on 2/6/2002; Rev 2.0 upgrade on 3/12/2003.

Audited by: Francois Raab of Infosizing (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 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 at pricing@tpc.org. Thank you.

**Hewlett Packard
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**HP
ProLiant DL760 X900-
128P**

TPC-H Rev. 2.0

Report Date:
February 6, 2002

Numerical Quantities

Measurement Results:

Database Scale Factor	= 3000
Total Data Storage / Database Size	= 10.29
Start of Database Load	= 1/30/2002 18:04:48
End of Database Load	= 1/31/2002 00:03:28
Database Load Time	= 5:58:40
Query Streams for Throughput Test	= 8
TPC-H Power	= 23756.8
TPC-H Throughput	= 18657.8
TPC-H Composite Query-per-Hour Metric (QphH@3000GB)	= 21053.5
Total System Price Over 5 Years	= \$5,955,754
TPC-H Price/ Performance Metric (\$/QphH@3000GB)	= \$283

Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 101877 seconds
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Duration of Stream Execution:

Stream ID	Seed	Start Date	Start time	Stop Date	Stop Time	Duration
Stream00	131000328	1/31/2002	1:19:40	1/31/2002	5:44:11	4:24:32
Stream01	131000329	1/31/2002	5:48:09	2/1/2002	8:32:49	26:44:40
Stream02	131000330	1/31/2002	5:48:09	2/1/2002	8:58:15	27:10:05
Stream03	131000331	1/31/2002	5:48:09	2/1/2002	8:25:08	26:36:59
Stream04	131000332	1/31/2002	5:48:10	2/1/2002	7:19:51	25:31:41
Stream05	131000333	1/31/2002	5:48:10	2/1/2002	8:33:33	26:45:23
Stream06	131000334	1/31/2002	5:48:10	2/1/2002	7:21:02	25:32:52
Stream07	131000335	1/31/2002	5:48:11	2/1/2002	8:39:31	26:51:20
Stream08	131000336	1/31/2002	5:48:11	2/1/2002	8:08:54	26:20:43

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TPC-H Rev. 2.0

Report Date:
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TPC-H Timing Intervals (in seconds)

Query	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Stream 00	498.7	67.3	1106.8	665.3	1156.7	117.7	681.0	465.9
Stream 01	1444.0	476.7	6886.3	1914.3	5017.1	599.8	3158.0	2730.8
Stream 02	2200.5	714.2	5169.2	3323.4	5587.7	840.9	3681.4	6965.2
Stream 03	3076.3	499.5	4854.2	2605.3	6576.2	840.1	4620.8	5621.9
Stream 04	1600.6	563.6	6369.1	4309.0	6387.9	712.0	3348.9	3928.6
Stream 05	1475.5	672.4	5192.2	2002.1	5006.4	924.3	3941.4	2432.5
Stream 06	1022.9	671.4	5854.3	1481.2	4681.2	939.6	3142.9	7759.4
Stream 07	1531.0	537.4	6230.5	2595.2	5200.1	825.2	3410.5	2789.1
Stream 08	2704.0	688.2	4819.9	2310.5	5929.6	576.5	3586.2	3833.7
Min Qi	1022.9	476.7	4819.9	1481.2	4681.2	576.5	3142.9	2432.5
Max Qi	3076.3	714.2	6886.3	4309.0	6576.2	939.6	4620.8	7759.4
Avg Qi	1881.9	602.9	5672.0	2567.6	5548.3	782.3	3611.3	4507.7
Query	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream 00	1638.9	634.6	169.9	557.9	1400.0	85.0	210.5	408.9
Stream 01	6769.2	3076.1	2735.9	1957.5	8420.3	623.1	1115.6	2154.8
Stream 02	7097.6	4320.5	1112.9	2106.8	6443.0	331.7	1182.1	2201.6
Stream 03	6244.5	3415.9	866.9	1671.4	8578.4	364.8	1281.8	1723.7
Stream 04	6016.2	3109.5	830.0	1253.7	7739.7	857.4	1823.3	2212.0
Stream 05	4788.8	4071.9	3103.1	2912.0	8579.3	187.5	1590.8	1930.2
Stream 06	6607.0	5597.2	949.4	956.0	8562.4	522.9	1392.0	2459.5
Stream 07	9048.8	3783.9	2668.8	1519.1	8210.5	421.5	972.9	1724.9
Stream 08	7504.4	2214.2	918.7	1278.5	6852.8	492.1	1583.4	1367.6
Min Qi	4788.8	2214.2	830.0	956.0	6443.0	187.5	972.9	1367.6
Max Qi	9048.8	5597.2	3103.1	2912.0	8579.3	857.4	1823.3	2459.5
Avg Qi	6759.6	3698.7	1648.2	1706.9	7923.3	475.1	1367.7	1971.8
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	316.2	2081.7	373.6	217.2	1915.4	806.6	295.7	230.8
Stream 01	1794.6	26568.7	1491.9	1191.9	11864.3	4289.1	280.0	228.1
Stream 02	4208.4	27763.0	3290.9	1456.3	3077.0	4731.2	270.9	231.6
Stream 03	2273.6	27225.6	1663.2	1315.0	6408.9	4090.9	270.2	227.4
Stream 04	1484.8	21378.9	2031.5	1272.8	8639.0	6032.4	275.0	235.5
Stream 05	1488.4	26157.6	3100.5	1594.1	11987.8	3184.0	271.4	231.4
Stream 06	2668.4	22385.0	1598.1	1356.8	7127.2	4237.1	290.3	223.0
Stream 07	1703.0	31030.8	1489.0	1494.7	5120.9	4372.4	283.5	231.6
Stream 08	3136.0	28712.3	4262.5	1158.6	5745.2	5168.4	291.4	229.2
Min Qi	1484.8	21378.9	1489.0	1158.6	3077.0	3184.0	270.2	223.0
Max Qi	4208.4	31030.8	4262.5	1594.1	11987.8	6032.4	291.4	235.5
Avg Qi	2344.7	26402.7	2366.0	1355.0	7496.3	4513.2	279.1	229.7