



HP ProLiant DL580G2 4P

TPC-H Rev. 2.0

Report Date:
Aug 15, 2003

Total System Cost

\$97,498

Composite Query per Hour Metric

2,605.6
QphH@100GB

Price / Performance

\$38
\$ / QphH@100GB

Database Size

100GB

Database Manager

Microsoft SQL Server 2000 Enterprise Edition

Operating System

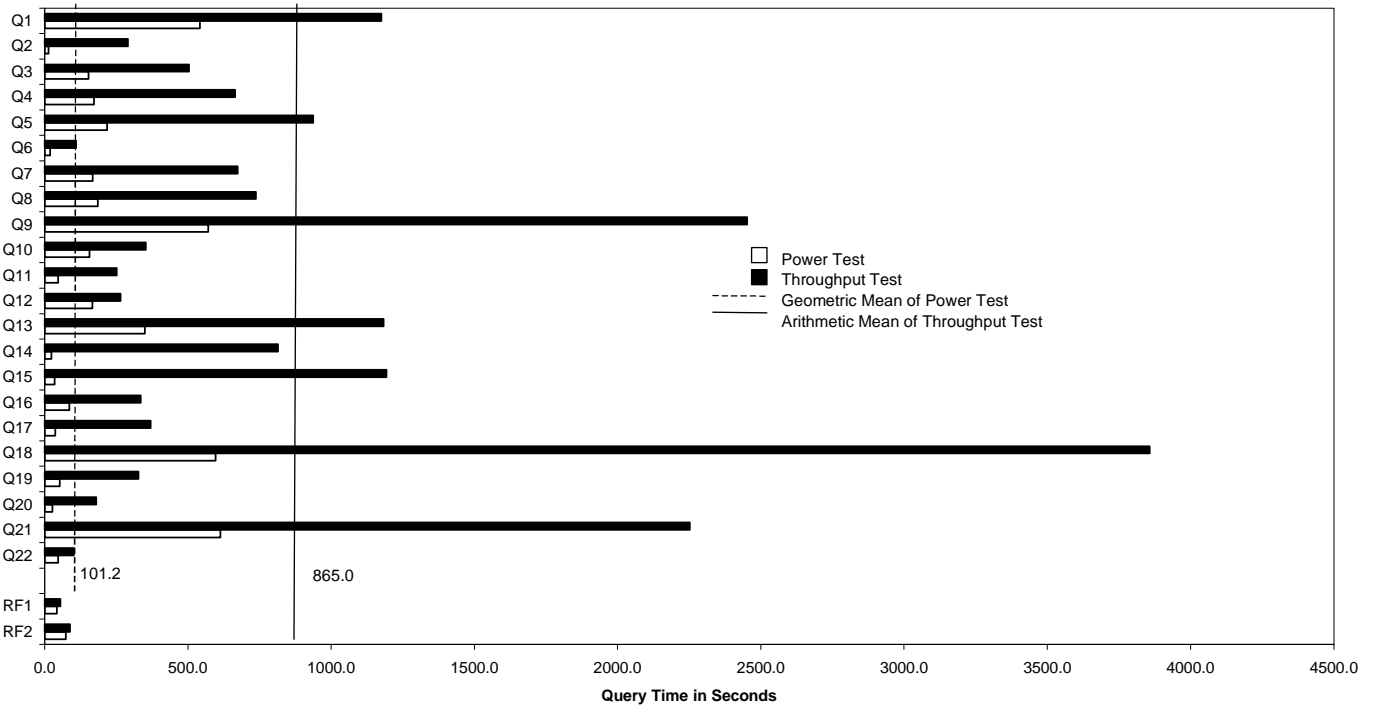
Windows Server 2003, Enterprise Edition

Other Software

Visual C++ .Net Standard

Availability Date

Aug 15, 2003



Database Load Time = 2:54:23

Load Included Backup: Y

Total Data Storage / Database Size = 12.52

RAID (Base tables only): N

RAID (Base tables and auxiliary data structures): N

RAID (All): N

System Configuration:

Processors : 4 x Intel Xeon MP 2.8 GHz with 2MB L2 cache

Memory : 4 GB memory

Disk Controllers : 5x Smart Array 5312

Disks : 74 x 18.2 GB 15K RPM drives

Total Disk Storage: 1252.1 GB

Note: Database Size includes only raw data (e.g., no temp, index, redundant storage space, etc).

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Description	Part Number	Third Party	Unit Price	Qty	Extended Price	3 yr. Maint. Price
Server Hardware						
		Brand Pricing				
ProLiant DL580 G2 2P 2.8GHz/2M/2GB	325134-001	1	17,299	1	17,299	
2.8GHz/2MB processor (ML580 G2)	325254-B21	1	5,899	2	11,798	
2GB (4x512MB) DDR ECC 200MHz Memory	202171-B21	1	1,299	1	1,299	
\$5500 15" Monitor	261602-001	1	129	1	129	
Scroll Mouse-Carbon	231947-B21	1	5	1	5	
PS/2 Easy Access Internet Keyboard	265977-001	1	12	1	12	
Rack Model 9142 (42U - Opal) - Flat Pallet	120663-B21	1	1,321	1	1,321	
Rack Sidewall Kit	120670-B21	1	207	1	207	
UPS T1500 XR	204155-002	1	621	1	621	
Servers 500 Series CarePak, 3yr 7x24, 4hr resp.	401782-002	1	1,795	1		1,795
Subtotal					32,691	1,795
Storage						
Smart Array 5312 Controller	238633-B21	1	1,349	5	6,745	
StorageWorks Enclosure Model 4354R - Rack-mountable	190211-001	1	3,523	5	17,615	
18.2GB 15Krpm U320 UNI HDD - internal	286775-B22	1	359	4	1,436	
18.2GB 15Krpm U320 UNI HDD - external	286775-B22	1	359	70	25,130	
18.2GB 15Krpm U320 UNI HDD - 10% spares	286775-B22	1	359	7	2,513	
CarePak 43xx Enclosure, 3yr, 7x24, 4hr resp.	171242-002	1	157	5		785
Subtotal					53,439	785
Hardware and Maintenance Discount						
Large Purchase and Net 30 discount	14.0%	1			(\$12,058)	(\$361)
Hardware Subtotal					74,072	2,219
Software						
Microsoft SQL Server 2000 Enterprise Edition	810-00652	Microsoft	2	5,549	1	5,549
Database Server Support Package	PRO-PRORS-16U-01	Microsoft	2	1,950	3	5,850
Microsoft SQL Server 2000 Client Licenses	359-00532	Microsoft	2	146	50	7,300
Microsoft Windows Server 2003 - Enterprise Edition	P72-00264	Microsoft	2	2,399	1	2,399
Microsoft Visual C++ .NET Standard	254-00170	Microsoft	2	109	1	109
Subtotal					15,357	5,850
Total					\$89,429	\$8,069

3-Year Cost of Ownership: \$97,498**QphH Rating: 2605.6****\$ / QphH@100GB: \$38**

Pricing: 1=HP; 2= Microsoft

Note: The benchmark results and test methodology were audited by Lorna Livingtree of Performance Metrics

Audited by: Lorna Livingtree of Performance Metrics 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 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.



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Numerical Quantities

Measurement Results:

Database Scale Factor	= 100
Total Data Storage / Database Size	= 12.52
Start of Database Load	= 2003-07-03 21:05:35
End of Database Load	= 2003-07-03 23:59:58
Database Load Time	= 2:54:23
Query Streams for Throughput Test	= 5
TPC-H Power	= 3558.5
TPC-H Throughput	= 1907.8
TPC-H Composite Query-per-Hour Metric (QphH@100GB)	= 2605.6
Total System Price Over 3 Years	= \$97,498
TPC-H Price/ Performance Metric (\$/QphH@100GB)	= \$38

Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 20757.4 seconds
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Duration of Stream Execution:

Stream ID	Seed	Start Date	Start time	Stop Date	Stop Time	Duration
Stream00	703235958	7/4/2003	7:46:46	7/4/2003	9:00:06	1:13:19
Stream01	703235959	7/4/2003	9:00:06	7/4/2003	14:13:21	5:13:15
Stream02	703235960	7/4/2003	9:00:06	7/4/2003	14:26:53	5:26:46
Stream03	703235961	7/4/2003	9:00:06	7/4/2003	14:34:09	5:34:03
Stream04	703235962	7/4/2003	9:00:06	7/4/2003	14:30:19	5:30:13
Stream05	703235963	7/4/2003	9:00:06	7/4/2003	13:41:42	4:41:35
Refresh00		7/4/2003	7:46:46	7/4/2003	9:00:06	1:13:19
Refresh01		7/4/2003	14:34:09	7/4/2003	14:36:21	0:02:12
Refresh02		7/4/2003	14:36:21	7/4/2003	14:38:46	0:02:25
Refresh03		7/4/2003	14:38:46	7/4/2003	14:41:12	0:02:26
Refresh04		7/4/2003	14:41:12	7/4/2003	14:43:39	0:02:27
Refresh05		7/4/2003	14:43:39	7/4/2003	14:46:04	0:02:25



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TPC-H Timing Intervals (in seconds)

Query	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Stream 00	542.0	13.1	153.0	172.3	218.8	19.9	167.5	185.4
Stream 01	1069.7	87.9	644.8	509.7	1113.6	171.0	763.3	744.0
Stream 02	1231.9	148.0	781.9	783.7	1000.4	39.4	638.6	732.8
Stream 03	1103.3	395.2	152.1	648.1	972.9	102.6	750.1	1511.5
Stream 04	1172.3	424.3	409.7	709.2	836.7	93.6	591.4	423.2
Stream 05	1297.2	401.2	529.4	672.6	762.7	145.1	625.8	277.6
Min Qi	1069.7	87.9	152.1	509.7	762.7	39.4	591.4	277.6
Max Qi	1297.2	424.3	781.9	783.7	1113.6	171.0	763.3	1511.5
Avg Qi	1174.9	291.3	503.6	664.7	937.3	110.3	673.8	737.8
Query	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream 00	570.6	156.5	47.3	166.5	349.4	23.8	34.9	86.5
Stream 01	2917.5	277.0	264.3	335.2	1170.6	587.4	1155.2	284.5
Stream 02	1626.3	376.0	324.5	294.8	1144.3	1738.1	1216.5	399.6
Stream 03	2453.8	423.8	331.6	176.2	1049.6	642.3	1428.4	239.5
Stream 04	2976.6	335.0	205.3	271.3	1394.9	635.0	1434.0	425.5
Stream 05	2284.4	352.0	129.9	248.2	1154.2	471.2	734.5	325.1
Min Qi	1626.3	277.0	129.9	176.2	1049.6	471.2	734.5	239.5
Max Qi	2976.6	423.8	331.6	335.2	1394.9	1738.1	1434.0	425.5
Avg Qi	2451.7	352.8	251.1	265.1	1182.7	814.8	1193.7	334.8
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	37.8	596.9	52.4	26.9	613.5	47.4	42.9	74.5
Stream 01	368.7	3481.2	164.3	87.3	2482.3	116.2	42.5	89.2
Stream 02	594.3	4307.8	384.8	98.0	1625.5	119.5	57.8	87.5
Stream 03	474.5	4052.7	397.0	437.0	2195.5	104.7	57.8	88.1
Stream 04	255.5	3954.8	540.2	146.0	2482.9	95.3	57.8	89.1
Stream 05	158.1	3490.9	153.2	131.7	2473.5	77.1	56.5	88.4
Min Qi	158.1	3481.2	153.2	87.3	1625.5	77.1	42.5	87.5
Max Qi	594.3	4307.8	540.2	437.0	2482.9	119.5	57.8	89.2
Avg Qi	370.2	3857.5	327.9	180.0	2251.9	102.6	54.5	88.5