



HP ProLiant ML370 G5

TPC-H Rev. 2.6.0

Report Date:
Apr 23, 2007

Total System Cost

\$140,978 USD

Composite Query per Hour Metric

17,686.7
QphH@100GB

Price / Performance

\$7.98 USD
\$ / QphH@100GB

Database Size

100GB

Database Manager

Microsoft SQL Server 2005 Enterprise Edition SP2

Operating System

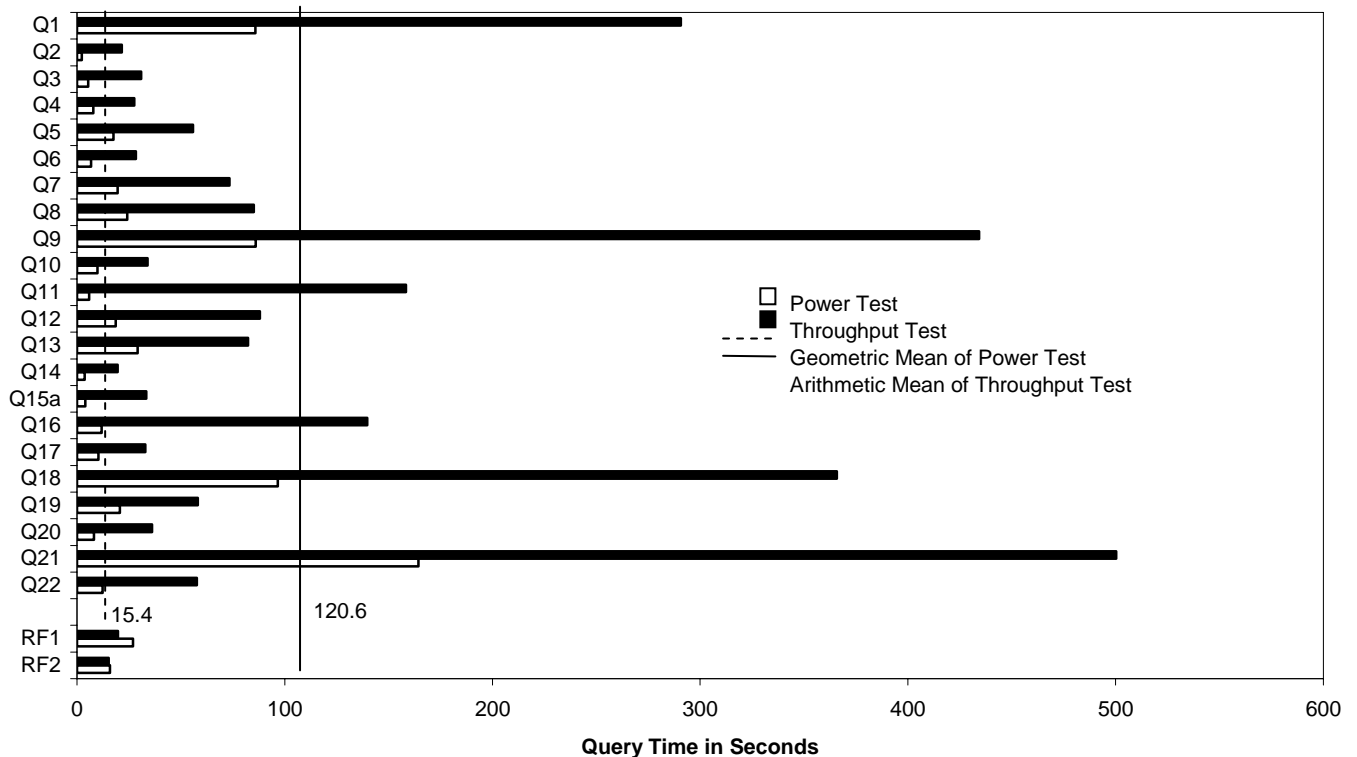
Windows Server 2003, Enterprise Edition SP2

Other Software

**Visual C++
Visual Basic**

Availability Date

Apr 23, 2007



Database Load Time = 1:03:47

Load Included Backup: Y

Total Data Storage / Database Size = 55.08

RAID (Base tables only): N

RAID (Base tables and auxiliary data structures): Y

RAID (All): N

System Configuration:

Processors : 2x 2.66 GHz Quad Core Intel X5355
Cores : 8
Threads : 8
Memory : 64 GB
OS Disk Drives : 1x 36 GB 15K rpm SFF SAS (internal)
Network : 2x on-board GigE
Disk Controllers : 6x Smart Array P800, 1x Smart Array P400
Disks : 150x 36 GB 15K rpm SFF SAS drives (external)
 3x36GB 15K rpm SFF SAS drives (internal)
Total Disk Storage: 5508 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						
HP ML370T05 SAS ModX CTO Svr	400607-B21	1	1,293	1	1,293	
HP X5355 ML370G5 FIO Kit	433104-L21	1	1,849	2	3,698	
HP ML370 G5 Mem Board Kit	403766-B21	1	179	1	179	
HP 8GB FBD PC2-5300 2x4GB Kit	397415-B21	1	5,999	8	47,992	
HP s7540 17in CRT Monitor	PF997AA#ABA	1	139	1	139	
HP 3y 4h 24x7 ProLiant ML370 HW Support	U4529E	1	853	1		853
Subtotal					53,301	853
Storage						
HP Smart Array P400/256 Controller	405132-B21	1	449	1	449	
HP SmartArray Cache Battery Kit	383280-B21	1	109	1	109	
HP Smart Array P800/512 Controller	381513-B21	1	1,099	6	6,594	
HP StgWks 70 Modular Smart Arry ALL	418800-B21	1	3,199	6	19,194	
HP 36GB 15K SAS Single Port SFF Hard Drive (internal)	431933-B21	1	369	3	1,107	
HP 36GB 15K SAS Single Port SFF Hard Drive	431933-B21	1	369	150	55,350	
HP 5642 Unassembled Rack	358254-B21	1	865	1	865	
HP StgWks 70 Modular Smart Arry ALL (10%)	418800-B21	1	3,199	2		6,398
HP 36GB 15K SAS Single Port SFF Hard Drive (10%)	431933-B21	1	369	15		5,535
Subtotal					83,668	11,933
Hardware and Maintenance Discount						
Large Purchase and Net 30 discount	16.0%	1			(\$21,915)	(\$2,046)
Hardware Subtotal					115,054	10,740
Software						
SQL Server 2005 Enterprise x64 Edition with 25 CALs	810-04779 Microsoft	2	8,487	1	8,487	
SQL Server 2005 Client License	359-01911 Microsoft	2	156	25	3,900	
Windows Server 2003 Enterprise x64 Edition	P72-00274 Microsoft	2	2,334	1	2,334	
Microsoft Problem Resolution Services	Microsoft	2	245	1		245
Microsoft Visual C++ .NET Standard 2003	254-00170 Microsoft	2	109	1	109	included
Microsoft Visual Basic .Net Standard 2003	046-00856 Microsoft	2	109	1	109	included
Subtotal					14,939	245
Total					\$129,993	\$10,985

Three-Year Cost of Ownership: \$140,978 USD**QpH @ 100GB: 17686.7****\$ / QpH @ 100GB: \$7.98 USD**

Pricing: 1=HP Direct: 800-203-6748; 2=Microsoft

Note 1 = Discount based on HP Direct guidance with large purchase and Net 30 discount. Applies to all lines with 1 in pricing column.

* = These components are not immediately orderable. See the FDR for more information.

Note: The benchmark results and test methodology were audited by Lorna Livingtree of Performance Metrics, Inc. (www.perfmetrics.com).

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	= 55.08
Start of Database Load	= 2007-04-03 20:16:55
End of Database Load	= 2007-04-03 21:20:42
Database Load Time	= 1:03:47
Query Streams for Throughput Test	= 5
TPC-H Power	= 23,378.0
TPC-H Throughput	= 13,381.0
TPC-H Composite Query-per-Hour Metric (QphH@100GB)	= 17,686.7
Total System Price Over 3 Years	= \$140,978
TPC-H Price/ Performance Metric (\$/QphH@100GB)	= \$7.98 USD

Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 2,959.4 seconds
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Duration of Stream Execution:

Stream ID	Seed	Start Date	Start time	Stop Date	Stop Time	Duration
Stream00	403212042	4/4/2007	10:39:40	4/4/2007	10:51:13	0:11:33
Stream01	403212043	4/4/2007	10:51:14	4/4/2007	11:37:31	0:46:18
Stream02	403212044	4/4/2007	10:51:14	4/4/2007	11:31:39	0:40:25
Stream03	403212045	4/4/2007	10:51:14	4/4/2007	11:37:04	0:45:50
Stream04	403212046	4/4/2007	10:51:14	4/4/2007	11:37:38	0:46:24
Stream05	403212047	4/4/2007	10:51:14	4/4/2007	11:33:26	0:42:12
Refresh00		4/4/2007	10:39:40	4/4/2007	10:51:13	0:11:33
Refresh01		4/4/2007	11:37:38	4/4/2007	11:38:16	0:00:38
Refresh02		4/4/2007	11:38:16	4/4/2007	11:38:54	0:00:38
Refresh03		4/4/2007	11:38:54	4/4/2007	11:39:29	0:00:35
Refresh04		4/4/2007	11:39:30	4/4/2007	11:40:01	0:00:32
Refresh05		4/4/2007	11:40:02	4/4/2007	11:40:32	0:00:31



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TPC-H Timing Intervals (in seconds)

Query	Q01	Q02	Q03	Q04	Q05	Q06	Q07	Q08
Stream 00	85.8	2.3	5.4	7.8	17.5	6.8	19.5	24.2
Stream 01	175.7	15.3	55.0	11.0	64.0	32.0	68.4	122.3
Stream 02	231.1	35.0	9.7	26.6	58.0	29.5	79.7	80.0
Stream 03	444.4	12.0	36.5	42.2	61.8	33.1	72.1	95.9
Stream 04	380.9	13.4	6.5	25.5	62.7	25.8	74.8	72.3
Stream 05	221.5	32.2	46.7	32.3	32.9	21.0	72.0	54.9
Min Qi	175.7	12.0	6.5	11.0	32.9	21.0	68.4	54.9
Max Qi	444.4	35.0	55.0	42.2	64.0	33.1	79.7	122.3
Avg Qi	290.7	21.6	30.9	27.5	55.9	28.3	73.4	85.1
Query	Q09	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream 00	86.0	9.9	5.8	18.6	29.2	3.7	4.0	11.8
Stream 01	503.0	23.6	251.6	76.7	62.5	15.7	24.4	212.5
Stream 02	454.8	49.1	72.4	96.3	99.8	18.9	25.7	67.1
Stream 03	381.1	32.1	123.6	39.6	100.8	23.5	43.3	103.8
Stream 04	384.0	30.6	292.7	133.3	53.0	15.9	40.0	168.6
Stream 05	448.8	34.3	51.4	94.1	95.9	23.8	33.5	146.9
Min Qi	381.1	23.6	51.4	39.6	53.0	15.7	24.4	67.1
Max Qi	503.0	49.1	292.7	133.3	100.8	23.8	43.3	212.5
Avg Qi	434.3	33.9	158.3	88.0	82.4	19.6	33.4	139.8
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	10.3	96.7	20.6	8.2	164.4	12.3	26.9	15.8
Stream 01	22.3	361.0	48.3	48.6	537.8	46.0	22.0	16.1
Stream 02	47.5	345.3	54.9	41.6	421.5	81.4	22.9	15.0
Stream 03	33.8	406.0	64.0	45.1	491.3	64.5	19.5	15.8
Stream 04	39.4	332.6	63.2	13.2	524.0	31.6	17.5	14.4
Stream 05	21.8	383.9	60.8	32.4	526.9	65.1	16.9	14.8
Min Qi	21.8	332.6	48.3	13.2	421.5	31.6	16.9	14.4
Max Qi	47.5	406.0	64.0	48.6	537.8	81.4	22.9	16.1
Avg Qi	33.0	365.8	58.2	36.2	500.3	57.7	19.8	15.2