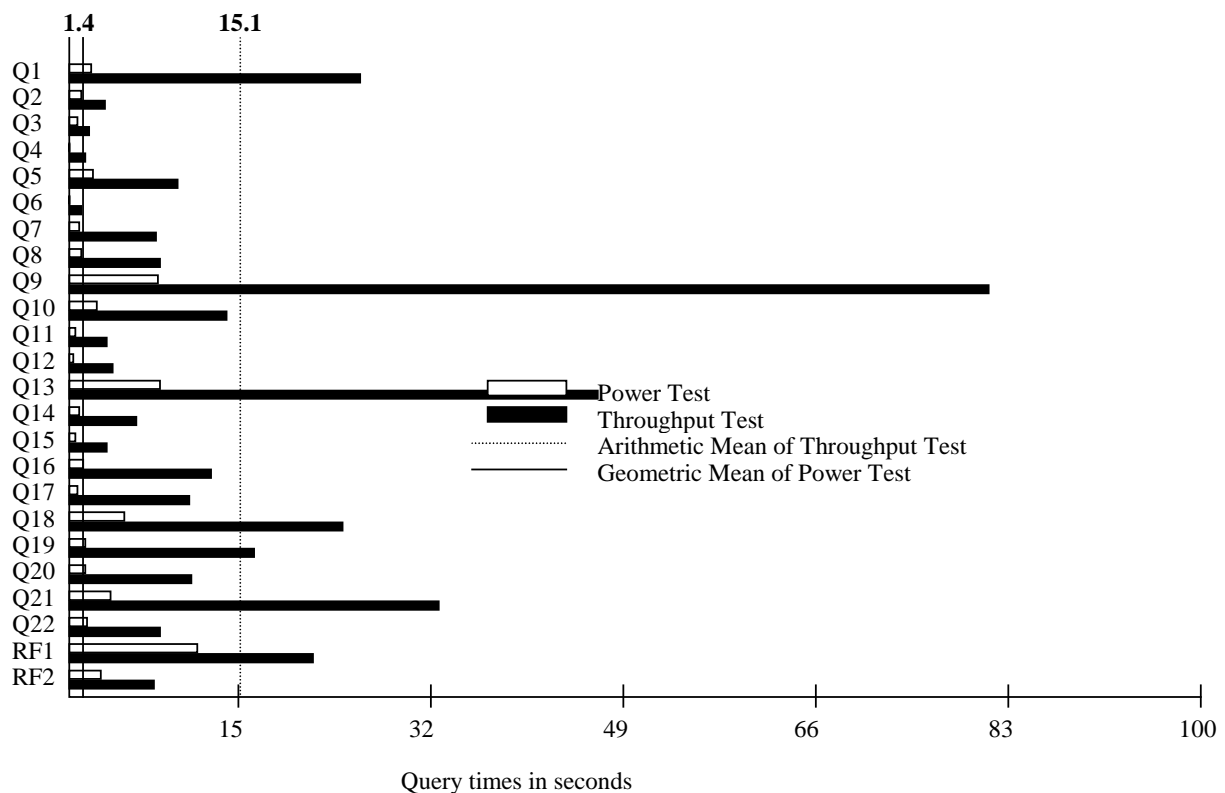


INGRES	HP ProLiant DL380 G7		TPC-H Rev 2.13.0 TPC Pricing Rev 1.5.0	
			Report Date:Feb. 9, 2011 Revision Date:Mar. 1, 2011	
Total System Cost	Composite Query per Hour Metric		Price/Performance	
\$94,667 USD	251,561.7 QphH@100GB		\$0.38 USD Price/QphH@100GB	
Database Size	Database Manager	Operating System	Other Software	Availability Date
100 GB	VectorWise 1.5	Red Hat Enterprise Linux 6.0	None	3/31/2011



Database Load Time = 03:16:48	Load Includes Backup: N
Total Data Storage/Database Size = 23.36	Memory/Database Size Percentage = 144.%
Storage Redundancy Level 5+0 for Base Tables, Auxiliary Data Structures, DBMS temporary space, and OS and DBMS Software	

System Configuration

Number of Nodes:	1
Processors/Cores/Threads/Type:	2/12/12/ Intel Xeon X5680 3.3 Ghz (hyperthreading disabled),
Memory:	144 GB
Disk Drives:	16 X 146 GB SAS Disk Drives at 15K RPM 2 HP P410 Smart Arrays w/1G Flash Back Cache Controller (1 built in)
Total Disk Storage	2336 GB
Lan Controllers	4 X 1GB Ethernet Connctions



HP ProLiant DL380 G7

TPC-H Rev 2.13.0
 TPC Pricing Rev 1.5.0

Report Date:Feb. 9, 2011
 Revision Date:Mar. 1, 2011

Description	Part Number	Source	Reference Price	Qty	Extended Price	3 yr Maint Price	
Server Hardware							
HP DL380G7 SFF CTO Chassis	HPDL380C6147-CM-S	2	24,467	1	24,467		
HP X5680 DL380G7 FIO Kit	included in pkg	2	0	1	0		
HP X5680 DL380G7 Kit	included in pkg	2	0	1	0		
HP 8GB 2Rx4 PC3-10600R-9 Kit	included in pkg	2	0	18	0		
HP 8SFF Cage 380G6/G7 Kit	included in pkg	2	0	1	0		
HP P410 w/1G Flash Back Cache Ctrlr	included in pkg	2	0	1	0		
HP 1G Flash Backed Cache Upgrade	included in pkg	2	0	1	0		
HP 750W CS HE Power Supply Kit	included in pkg	2	0	2	0		
HP LA1751G 17-Inch Monitor	included in pkg	2	0	1	0		
HP PS/2 Keyboard And Mouse Bundle	included in pkg	2	0	1	0		
HP 3y 4h 24x7 ProLiant DL38x HW Support	included in pkg	2	0	1		(included)	
					Subtotal	24,467	0
Storage							
HP 146GB 6G SAS 15K 2.5in DP ENT HDD	included in pkg	2	0	16	0		
					Subtotal	0	0
Hardware and Maintenance Discount							
Large Purchase and Net 30 Discount*		0%			0	0	
					Hardware Subtotal	24,467	0
Server Software							
Ingres VectorWise release 1.5 3-year 1 core license**	ING-VW-3Y	1	5,000	12	60,000		
Ingres VectorWise 1-year maintenance for 1 core**	ING-VW-3Y-MNT	1	500	36		18,000	
Ingres discount for 10 or more cores*		10%			(6,000)	(1,800)	
RHEL 1-2 SKT 24x7 3 Year RHN SW	included in pkg	2	0	1	0	(included)	
					Subtotal	54,000	16,200
					Total	78,467	16,200

*All discounts are based on US list prices and for similar quantities and configurations

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

Source 1=Ingres sales@ingres.com; 2=Trivad 650-286-1086

Audited By: Lorna Livingtree and Steve Barrish for Performance Metrics, Inc. (www.perfmetrics.com)

3-yr Cost of Ownership: 94,667

QphH@100GB: 251,562

\$/QphH@100GB: 0.38

Prices used in TPC benchmarks reflect 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 the stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.



HP ProLiant DL380 G7

TPC-H Rev 2.13.0
TPC Pricing Rev 1.5.0

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Measurement Results

Database Scaling (SF/size)	100
Total Data Storage/Database Size	23.36
Memory/Database Size Percentage	144.00%
Start of Database Load Time	02/04/11 00:51:31
End of Database Load Time	02/04/11 04:08:19
Database Load Time	3:16:48
Query Streams for Throughput Test (S)	11
TPC-H Power	257,142.9
TPC-H Throughput	246,101.7
TPC-H Composite Query-per-Hour Metric (QpH@100GB)	251,561.7
Total System Price Over 3 Years	94,667
TPC-H Price/Performance Metric (\$/QpH@100GB)	0.38

Measurement Intervals

Measurement Interval in Throughput Test (Ts) 354

Duration of Stream Execution:

Power Run	Seed	Query Start Time	Duration (sec)	RF1 Start Time	RF2 Start Time
		Query End Time		RF1 End Time	RF2 End Time
	204040819	02/04/11 10:48:02	44	02/04/11 10:47:50	02/04/11 10:48:46
		02/04/11 10:48:45		02/04/11 10:48:02	02/04/11 10:48:49

Throuput Stream	Seed	Query Start and End Times	Duration (sec)
1	204040820	02/04/11 10:48:50 02/04/11 10:54:44	354
2	204040821	02/04/11 10:48:50 02/04/11 10:54:11	321
3	204040822	02/04/11 10:48:50 02/04/11 10:54:19	329
4	204040823	02/04/11 10:48:50 02/04/11 10:54:26	336
5	204040824	02/04/11 10:48:50 02/04/11 10:54:29	339
6	204040825	02/04/11 10:48:50 02/04/11 10:54:25	335
7	204040826	02/04/11 10:48:50 02/04/11 10:54:26	336
8	204040827	02/04/11 10:48:50 02/04/11 10:54:24	334
9	204040828	02/04/11 10:48:50 02/04/11 10:53:43	293
10	204040829	02/04/11 10:48:50 02/04/11 10:54:28	338



HP ProLiant DL380 G7

TPC-H Rev 2.13.0
TPC Pricing Rev 1.5.0

Report Date:Feb. 9, 2011
Revision Date:Mar. 1, 2011

Duration of Stream Execution (Continued):

Throuput Stream	Seed	Query Start and End Times	Duration (sec)
11	204040830	02/04/11 10:48:50 02/04/11 10:54:29	339
RFs		02/04/11 10:48:50 02/04/11 10:54:12	322



HP ProLiant DL380 G7

TPC-H Rev 2.13.0
TPC Pricing Rev 1.5.0

Report Date:Feb. 9, 2011
Revision Date:Mar. 1, 2011

TPC-H Timing Intervals (in seconds)

Duration of stream execution:

Stream ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Stream 00	1.9	1.1	0.7	0.1	2.2	0.1	0.9	1.1	7.9	2.5	0.6	0.4
Stream 01	20.4	3.1	2.1	0.1	6.7	0.7	13.0	8.5	86.9	21.9	2.2	2.3
Stream 02	28.0	2.3	2.0	1.3	13.1	0.4	7.0	10.1	78.7	9.3	4.2	4.5
Stream 03	22.5	3.0	0.9	1.2	10.3	1.7	7.8	7.3	75.6	9.7	4.4	2.1
Stream 04	33.1	2.6	1.2	1.1	8.8	1.5	8.6	6.9	81.6	19.1	3.6	4.4
Stream 05	24.7	2.9	1.9	1.2	10.8	1.5	6.8	8.8	88.8	13.0	4.2	4.3
Stream 06	24.8	10.3	1.5	1.3	9.3	1.2	10.2	3.9	77.0	6.4	3.6	4.6
Stream 07	25.1	0.8	1.2	0.9	13.1	0.5	8.4	7.0	85.7	15.6	7.9	0.6
Stream 08	24.7	1.9	2.9	5.4	8.6	1.4	8.4	11.9	85.4	18.6	1.1	4.9
Stream 09	28.4	2.3	1.9	1.4	11.8	1.2	8.8	7.3	71.9	16.2	2.1	7.6
Stream 10	26.5	2.1	1.7	1.0	1.9	0.4	4.3	6.9	81.4	12.1	1.9	4.5
Stream 11	24.7	4.3	1.7	1.1	12.0	1.3	1.0	9.0	80.9	12.0	2.2	2.4
Min	1.9	0.8	0.7	0.1	1.9	0.1	0.9	1.1	7.9	2.5	0.6	0.4
Max	33.1	10.3	2.9	5.4	13.1	1.7	13.0	11.9	88.8	21.9	7.9	7.6
Average	23.7	3.1	1.6	1.3	9.1	1.0	7.1	7.4	75.2	13.0	3.2	3.6

Stream ID	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	8.0	0.9	0.6	1.3	0.8	4.9	1.5	1.4	3.7	1.6	11.3	2.9
Stream 01	59.7	6.6	4.6	13.4	13.1	22.9	14.6	12.2	31.6	7.1	20.7	6.6
Stream 02	28.1	6.6	2.6	13.8	13.6	21.7	15.7	13.1	38.3	6.7	18.4	6.2
Stream 03	67.2	6.7	5.4	4.2	6.3	23.5	16.9	12.9	32.4	7.2	17.5	6.3
Stream 04	26.7	7.3	5.7	15.9	11.2	32.0	14.8	8.0	33.1	8.9	21.5	6.6
Stream 05	39.8	4.6	2.1	11.8	10.2	25.9	27.2	9.8	30.4	8.0	20.6	10.8
Stream 06	46.8	8.1	2.0	12.4	13.3	22.8	20.4	13.5	30.3	11.4	23.0	6.7
Stream 07	64.6	1.1	0.6	3.5	13.6	27.2	9.4	8.6	33.2	7.4	19.5	7.3
Stream 08	25.2	3.6	5.5	21.3	11.5	19.4	15.8	13.6	37.3	6.0	24.6	6.5
Stream 09	28.2	7.0	4.5	10.5	3.3	18.7	15.4	7.6	27.1	10.0	25.4	8.5
Stream 10	59.1	7.1	3.0	20.0	10.3	24.4	15.2	11.4	36.6	6.6	24.4	8.7
Stream 11	68.3	7.1	1.5	12.2	9.8	27.5	14.8	8.3	28.9	8.3	22.2	7.7
Min	8.0	0.9	0.6	1.3	0.8	4.9	1.5	1.4	3.7	1.6	11.3	2.9
Max	68.3	8.1	5.7	21.3	13.6	32.0	27.2	13.6	38.3	11.4	25.4	10.8
Average	43.5	5.6	3.2	11.7	9.8	22.6	15.1	10.0	30.2	7.4	20.8	7.1