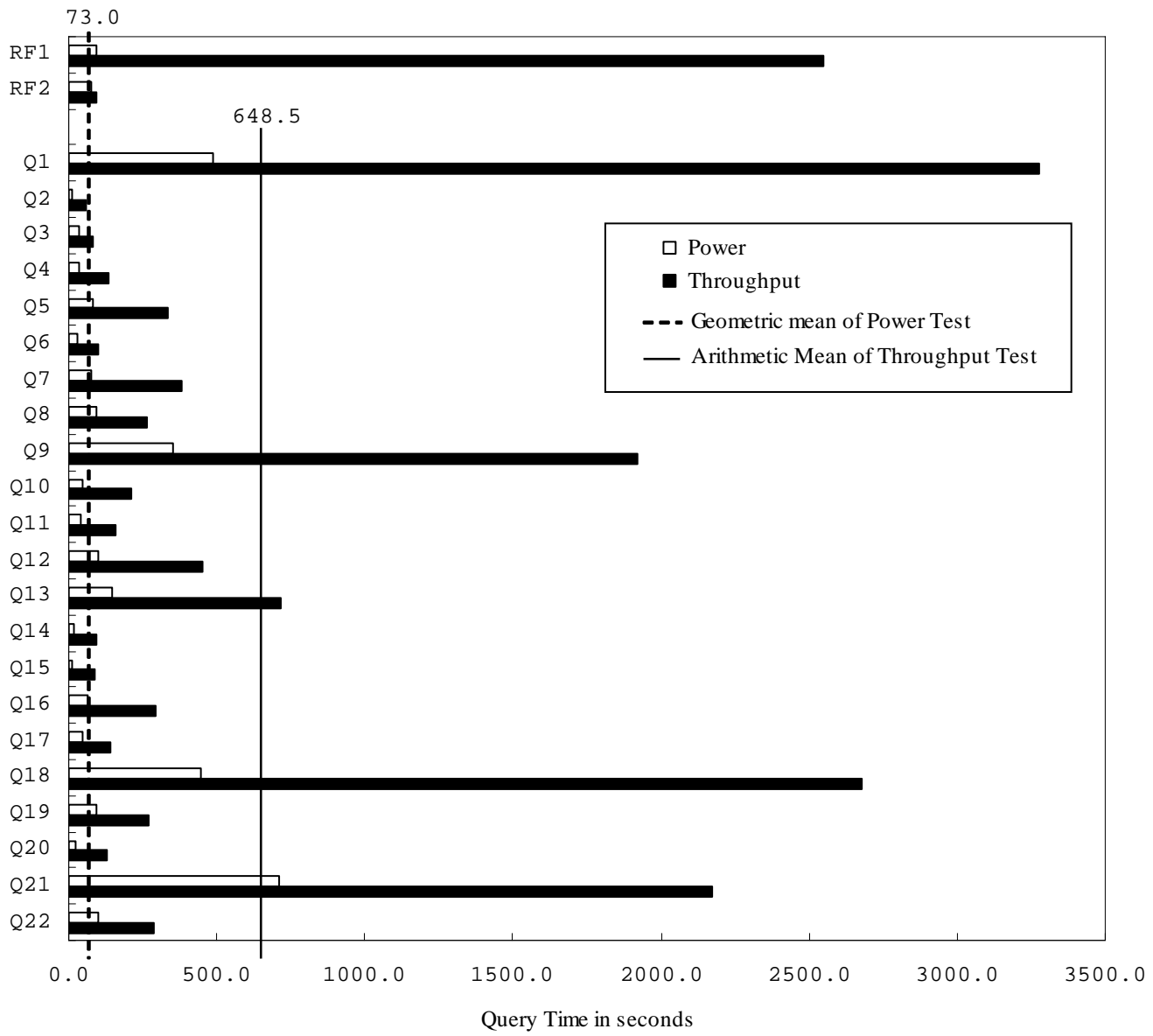


HITACHI Inspire the Next	Hitachi BladeSymphony BS1000	TPC-H Rev.2.3.0
		Report Date: May. 17, 2006 Revision Date: Jul. 21, 2006
Total System Cost	Composite Query per Hour Metric	Price/Performance
\$810,428 (USD)	11,527.4 QphH@300GB	\$70.30 / QphH@300GB

Database Size	Database Manager	Operating System	Other Software	Availability Date
300GB	Microsoft® SQL Server™ 2005 Enterprise Edition for Itanium-Based Systems SP1	Microsoft® Windows Server™ 2003, Enterprise Edition for Itanium-based Systems SP1	Microsoft® Visual C++® Standard Edition, Microsoft® Visual Basic® 2003 .Net™ Professional	May 9, 2006



Database Load Time = 07:25:45	Load included Backup: Y	Total Data Storage/Database Size = 34.80
RAID(Base Table Only): N	RAID(Base tables and auxiliary data structures): N	RAID(All): N

System Configuration	
Processors/Cores/Threads	8/8/8 1.66GHz Intel® Itanium®2 with 9MB L3 cache
Memory	128GB main memory
Disk Controllers	16x 4Gb FC HBA
Disk Drives	290x 36GB 15krpm FC
Total Disk Storage	10,440GB

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

Description	Part Number	Third Party		Unit Price	Qty	Extended Price	3-Yr.Maint. Price	
		Brand	Pricing					
Server Hardware								
Chassis BS1000B (A2)	GVX-SREA2B51N	HAL		1	6,545	1	6,545	
IPF 2-way Server Module Itanium2 1.66GHz/9MB x2, FSB667	GVAX75A2-7NN0N5X	HAL		1	16,147	4	64,588	
8 GB Memory (DDR2)	GVX-MJ908GAEX	HAL		1	3,790	16	60,640	
IPF SMP Upgrade License (2way to 4way) (Itanium2 1.66GHz/9MB)		HAL		1	1,808	1	1,808	
IPF SMP Upgrade License (4way to 8way) (Itanium2 1.66GHz/9MB)		HAL		1	155,676	1	155,676	
I/O Module TYPE-1	GVX-BE9SLT1BX	HAL		1	1,558	2	3,116	
4-Gbps FC Adapter (2 Ch)	GVX-CC64G2BX	HAL		1	590	16	9,440	
Power Supply Module	GVX-BP9200VBX	HAL		1	265	2	530	
Dummy Server Module	GVX-BE9BLDMYBX	HAL		1	39	3	117	
Dummy SVP Module	GVX-BE9SVPDMYBX	HAL		1	82	1	82	
Xeon Server Module Xeon 3.D GHz/1MB x1	GVAX51A2-1NN0N4X	HAL		1	2,407	1	2,407	
1 GB Memory (DDR1)	GVX-MJ701GTEX	HAL		1	277	1	277	
HDD 160 GB	GVX-UH7160NEX	HAL		1	129	2	258	
16 U Rack Cabinet Set	GVX-SRK7165BK	HAL		1	1,046	1	1,046	
16 U Front Door BY	GVX-RD9166BK	HAL		1	384	1	384	
16 U Rack Side Panel	GVX-RS7165BK	HAL		1	147	1	147	
Blank Panel	GVX-RP7011BK	HAL		1	6	2	12	
Outlet Box 3N	GVX-AG9203A	HAL		1	675	1	675	
KVM Cable	GVX-LY7201	HAL		1	70	1	70	
17" SXGA Console Drawer FD-1000 series	NC14010-B452/US	HAL		1	2,493	1	2,493	
KVM Cascade Cable (USB)	NC14000-B102	HAL		1	35	1	35	
Guide Rail	NC14003-T591	HAL		1	52	1	52	
Floppy Drive External USB Floppy Drive	DC361B	HAL		1	73	1	73	
24X External DVD/CDRW USB2.0	EZ-WTR-DVD-C24	HAL		1	158	1	158	
3 year maintenance service(Express)		HAL		1	210,733	1	210,733	
Subtotal						310,629	210,733	
Server Storage								
9500V Storage Expansion Unit (RKA)	DF600-RKA	HDS		2	6,300	22	138,600	
9585V Base Unit(RKHE) w/2 controllers 4 FC ports	DF600-RKHE	HDS		2	38,000	2	76,000	
9500V 72GB FC 15K RPM HDD	DF-F600-AEH72	HDS		2	1,410	328	462,480	
9580V 2GB Cache Memory Module 2x1024MB	DF-F600-C1GX2H	HDS		2	4,830	8	38,640	
9580V Fibre Channel Intfc 2Gbps w/2 FC ports	DF-F600-DH2G2	HDS		2	3,800	4	15,200	
LC/LC Duplex FibreOptic Plenum Cable 5M	JZ-050LL005PC.P	HDS		2	185	16	2,960	
9570/85V Resource Manager License	044-210195-03.P	HDS		2	3,500	2	7,000	
9500V 125V AC 15A Power Cord	DF-F600-J1H	HDS		2	39	48	1,872	
Filler Panel 1.0U perf. for HDS Rack	122296-1-P.P	HDS		2	37	4	148	
19inch Rack for HDS-US	7846400.P	HDS		2	4,924	2	9,848	
Universal Rails (Kit)	7846406.P	HDS		2	84	24	2,016	
Installation		HDS		2	2,350	1	2,350	
3 year maintenance service(Standard support)		HDS		2	53,265	1	53,265	
Subtotal						757,114	53,265	
Server Software								
SQL Server 2005 Enterprise Itanium Edition SP1	810-04793	Microsoft		3	8,487	1	8,487	
SQL Server 2005 Client License	359-01911	Microsoft		3	156	35	5,460	
Windows Server 2003 Enterprise Edition for 64bit Itanium	P72-00284	Microsoft		3	2,334	1	2,334	
Windows Server 2003 Standard Edition	P73-00295	Microsoft		3	719	1	719	
Visual C++ Standard Edition	254-00170	Microsoft		3	109	1	109	included
Visual Basic 2003 .Net Professional	046-00856	Microsoft		3	109	1	109	included
Microsoft Problem Resolution Services		Microsoft		3	245	1	245	
Subtotal						17,218	245	
Total System Discounts						419,601	119,175	
Total						665,360	145,068	

Notes:

Pricing: 1-Hitachi America, Ltd (HAL), 2-Hitachi DATA Systems Corporation (HDS), 3-Microsoft
Results and methodology audited by Francois Raab of InfoSizing, Inc. (www.sizing.com)

Three-Year Cost of Ownership: 810,428
QphH @ 300GB: 11,527.4
\$/ QphH @ 300GB: 70.30

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 reflects 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 the TPC at pricing@tpc.org. Thank you.

Numerical Quantities Summary

Measurement Results

Scale Factor	300 GB
Total Data Storage/Database Size	34.80
Start of Database Load	4/19/06 16:35:33
End of Database Load	4/20/06 00:01:18
Database Load Time	07:25:45
Query Streams for Throughput Test	6
TPC-H Power	14,799.0
TPC-H Throughput	8,979.0
Composite Query per Hour Rating(QpH@300GB)	11,527.4
Total System Price Over 3 Years	\$810,428
TPC-H Price Performance Metric	\$70.30

Measurement Intervals

Measurement Interval in Throughput Test(Ts)	15,877.0 seconds
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Duration of Stream Execution

	Seed	Query Start Date/Time		RF1 Start Date/Time		RF2 Start Date/Time		Query Duration
		Query End Date/Time	RF1 End Date/Time	RF2 End Date/Time	RF Duration			
Stream0	420000118	04/20/2006 10:00:22	04/20/2006 09:58:48	04/20/2006 10:51:22	0:53:52			
		04/20/2006 10:51:21	04/20/2006 10:00:22	04/20/2006 10:52:40				
Stream1	420000119	04/20/2006 10:52:41	04/20/2006 10:52:41	04/20/2006 14:57:48	3:55:55			
		04/20/2006 14:48:36	04/20/2006 14:57:47	04/20/2006 14:59:11	4:06:30			
Stream2	420000120	04/20/2006 10:52:41	04/20/2006 14:59:13	04/20/2006 15:01:00	4:00:46			
		04/20/2006 14:53:27	04/20/2006 15:01:00	04/20/2006 15:02:22	0:03:09			
Stream3	420000121	04/20/2006 10:52:41	04/20/2006 15:02:24	04/20/2006 15:04:12	3:54:38			
		04/20/2006 14:47:19	04/20/2006 15:04:11	04/20/2006 15:05:44	0:03:21			
Stream4	420000122	04/20/2006 10:52:41	04/20/2006 15:05:47	04/20/2006 15:07:39	4:00:28			
		04/20/2006 14:53:09	04/20/2006 15:07:38	04/20/2006 15:09:19	0:03:32			
Stream5	420000123	04/20/2006 10:52:42	04/20/2006 15:09:22	04/20/2006 15:11:16	3:51:26			
		04/20/2006 14:44:08	04/20/2006 15:11:14	04/20/2006 15:13:04	0:03:42			
Stream6	420000124	04/20/2006 10:52:42	04/20/2006 15:13:08	04/20/2006 15:15:24	4:03:28			
		04/20/2006 14:56:10	04/20/2006 15:15:22	04/20/2006 15:17:18	0:04:10			

TPC-H Timing Intervals(in seconds):

Query	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Stream0	485.2	10.3	37.2	37.6	80.6	32.0	79.0	95.2
Stream1	3457.2	74.2	87.9	101.8	507.3	85.2	397.7	247.5
Stream2	3184.5	61.0	98.0	128.8	286.5	115.2	633.8	271.6
Stream3	3178.5	59.8	70.0	173.3	365.4	114.2	327.1	290.4
Stream4	3286.1	67.9	50.4	140.7	278.3	90.3	294.0	234.5
Stream5	3354.3	54.1	114.7	142.1	269.6	96.5	308.3	229.5
Stream6	3197.8	44.7	85.7	138.4	314.7	114.8	318.8	322.3
Min Qi	3178.5	44.7	50.4	101.8	269.6	85.2	294.0	229.5
Max Qi	3457.2	74.2	114.7	173.3	507.3	115.2	633.8	322.3
Avg Qi	3276.4	60.3	84.5	137.5	337.0	102.7	380.0	266.0
Query	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream0	354.1	44.4	42.9	102.2	145.5	17.9	14.1	64.4
Stream1	1518.2	194.5	222.4	380.0	651.0	94.3	118.6	279.0
Stream2	1679.7	249.8	172.1	639.7	693.1	99.5	80.4	357.1
Stream3	2105.4	157.2	152.8	399.3	714.2	98.9	65.4	303.3
Stream4	1797.1	213.1	129.7	467.4	752.9	90.6	75.7	269.8
Stream5	1930.3	204.5	159.3	394.5	654.3	99.1	83.1	281.4
Stream6	2496.0	251.1	127.8	446.1	833.9	84.9	89.7	269.8
Min Qi	1518.2	157.2	127.8	380.0	651.0	84.9	65.4	269.8
Max Qi	2496.0	251.1	222.4	639.7	833.9	99.5	118.6	357.1
Avg Qi	1921.1	211.7	160.7	454.5	716.6	94.6	85.5	293.4
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream0	44.2	447.0	91.7	25.2	709.6	99.2	94.1	77.9
Stream1	144.8	2448.6	241.3	135.9	2482.9	284.6	14706.3	83.2
Stream2	174.8	2614.3	303.6	140.8	2169.5	292.2	107.0	81.3
Stream3	156.9	2690.5	248.0	90.1	1996.4	320.7	106.9	92.8
Stream4	126.9	3009.5	296.7	162.4	2339.6	253.8	110.5	100.9
Stream5	101.9	2194.4	268.1	107.0	2481.9	356.9	112.1	108.6
Stream6	137.5	3127.4	280.0	151.8	1558.9	216.5	134.3	114.3
Min Qi	101.9	2194.4	241.3	90.1	1558.9	216.5	106.9	81.3
Max Qi	174.8	3127.4	303.6	162.4	2482.9	356.9	14706.3	114.3
Avg Qi	140.5	2680.8	273.0	131.3	2171.5	287.5	2546.2	96.9