

		HP Integrity Superdome		TPC-H Rev. 2.3.0	
Total System Cost		Composite Query per Hour Rating		Report Date November 07, 2005 Revision Date November 28, 2005	
2,326,457 USD		30,956.6 QphH @ 3000GB		75.16 USD / QphH @3000GB	
Database size	Database Manager	Operating System	Other Software	Availability Date	
3000 GB	Microsoft SQL Server 2005 Enterprise Edition for Itanium-based systems SP1	Microsoft Windows Server 2003, Datacenter Edition (64-bit) SP1	MS Visual Studio MS Visual C++ MS Resource Kit	May 05 2006	

258.5

3166.8

RF2

RF1

Q22

Q21

Q20

Q19

Q18

Q17

Q16

Q15

Q14

Q13

Q12

Q11

Q10

Q9

Q8

Q7

Q6

Q5

Q4

Q3

Q2

Q1

Query Times in seconds

□ Power Run

■ Throughput Run

----- Geometric Mean of Power Test

———— Arithmetic Mean of Throughput Test

0

1000

2000

3000

4000

5000

6000

7000

8000

9000

10000

11000

12000

Database Load Time = 41h33min14sec			Load included backup: Y	Total Data Storage / Database Size = 6.70	
RAID(Base Tables): Y		RAID(Base Tables and Auxiliary Data Structure): Y		RAID(All)= Y	
System configuration					
Processors	32	Intel Itanium 2 1.6GHz with 9MB L3 Cache			
Memory	256 GB Main Memory				
Disk Controllers	49	SmartArray 6402			
	1	U320 Dual SCSI Controller			
Disk Drives	7	36 GB SCSI (local)			
	8	146GB SCSI (Log)			
	672	36GB SCSI (DB)			
Total Disk Storage	20,086GB				



HP Integrity Superdome

TPC-H Rev. 2.3.0
TPC Pricing 1.0.1

Report Date: November 07 , 2005

Revision Date: November 28 , 2005

Availability Date: May 5, 2006

Description	Price Key	Part Number	Unit Price	Qty.	Extended Price	3 Yr Maint Price
HP Superdome 32-way cabinet	1	A5201A, Opt. 429	\$236,716	1	\$236,716	
Superdome 32 way add-on cabinet	1	A5202A, Opt. 006	\$251,200	1	\$251,200	
IPF Superdome Cell Board (sx1000)	1	A6866A	\$19,200	16	\$307,200	
HP 12 Slot PCI-X Chassis for sx1000	1	A6864A	\$16,805	8	\$134,440	
3 Year Svc & Support Price (Hardware and Software)	1			1		\$535,718
HP Superdome Itanium2 1.6 GHz 9M 2 CPU	1	AD003A	\$41,800	16	\$668,800	
Superdome 128GB Memory Pack	1	AB547A	\$282,880	2	\$565,760	
I/O chassis enclosure for PCI chassis	1	A5862A	\$25,725	4	\$102,900	
Graphite I/O expansion power subsystem	1	A5861D	\$34,860	2	\$69,720	
12 Slot PCI-X Chassis for rack system E	1	A6864AZ	\$16,805	8	\$134,440	
HP ProCurve Switch2124	1	J4868A	\$279	1	\$279	\$212
Core I/O card	1	A6865A	\$1,045	1	\$1,045	
HP Superdome Rack System Mgmt. Station	1	A9802B	\$6,500	1	\$6,500	
1U RackMT Display/Keyboard/Mouse	1	AB243AZ	\$3,046	1	\$3,046	
1000Base-T Gigabit Eth Adp	1	A7061A	\$270	2	\$540	
FC-HBA 2GB, 1 Channel	1	AB467A	\$1,520	2	\$3,040	
HP Smart Array Controller 6402 (incl. boot)	1	A9890A	\$1,669	49	\$81,781	
HP Dual Channel U320 SCSI Adapter	1	A7173	\$795	1	\$795	
36GB, 15krpm Ultra3 Wide disk	1	286776-B22	\$299	679	\$203,021	
36GB, 15krpm Ultra3 Wide disk 10% spares	1	286776-B22	\$299	68	\$20,332	
Storageworks MSA30 SB (incl. boot)	1	302969-B21	\$2,829	49	\$138,621	
Storageworks MSA30 SB 10% spares	1	302969-B21	\$2,829	5	\$14,145	
SW 4000 39FT Cable All	1	150214-B21	\$114	49	\$5,586	
HP Rack System / E, 41U	1	A4902D	\$1,910	6	\$11,460	
Rear Door for 41U rack	1	A5213DZ	\$334	6	\$2,004	
4 Bay Rack Support	1	HA1103A Opt 6EC	\$1,558	1		\$1,558
PDCA Redundant Power Source	1	A5800A	\$578	2	\$1,156	
HP Power Distribution Unit 200-240V / Opt. AW4	1	A5137AZ	\$239	21	\$5,019	
Modular Storage Array 1000	1	201723-B22	\$6,995	1	\$6,995	
MSA1000 controller	1	218231-B22	\$4,290	1	\$4,290	
MSA1000 Fibre Channel I/O Module	1	218960-B21	\$375	1	\$375	
Storage MAS1000 Support 3yrs 24x7 4hr incl disks	1	HA110A3 #6FG	\$3,222	1		\$3,222
146GB, 10krpm U320 disk	1	286716-B22	\$499	8	\$3,992	
5M LC to LC Cable Kit	1	221692-B22	\$82	4	\$328	
SCSI Cable 10m VHDS68 / HDTS68 Multimd	1	C2363B	\$335	1	\$335	
SCSI Terminator LVD/SE HDTS68 Multimd	1	C2364A	\$100	1	\$100	
HP C13/C14 Jumper Cord 2.5M	1	E7742A	\$25	1	\$25	
5300 Tape Array	1	C7508AZ	\$1,045	1	\$1,045	
DVD Rom drive	1	Q1592A	\$649	1	\$649	
Server Subtotal					\$2,987,680	\$540,710



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Description	Price Key	Part Number	Unit Price	Qty.	Extended Price	3 Yr Maint Price
Microsoft Windows Server 2003 DC Edition 64-bit Service Pack 1	1	T2372A opt032	\$64,000	1	\$64,000	
Microsoft SQL Server 2005 Enterprise Edition 64-bit	2	810-04794	\$8,487	1	\$8,487	\$245
Microsoft SQL Server Client License	2	359-01911	\$156	45	\$7,020	
Microsoft Visual C++ Standard	2	254-00170	\$109	1	\$109	
Microsoft Visual Basic	2	046-00856	\$109	1	\$109	
Server Software Subtotal					\$79,725	\$245
Total Extended Price					\$3,608,360	
*Total Discounts					\$1,281,904	
HP's Large Configuration Discount *						
* All discounts are based on US list prices and for similar quantities and configurations. An approximate 35.68 % discount was based on the overall specific components and support pricing from vendor 1 in this single quotation. Discounts for similarly sized configurations will be similar to those quoted here, but may vary based on the components in the configuration. Price Key: 1-HP, 2-Microsoft Audited by Lorna Livingtree of Performance Metrics Inc.	3 year cost of ownership:				\$2,326,457	
	QphH				30,956.6	
	\$/QphH:				\$75.16	
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 stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.						
Sales contact Vendor 1: HP Sales Development, 19111 Pruneridge Ave., Cupertino, CA 95014 (408) 447 2320 Sales contact Vendor 2: Jamie Reding (425) 703-0510 jamiere@microsoft.com						



HP Integrity Superdome

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Numerical Quantities

Measurement Results

Database Scale Factor	3000GB
Total Data Storage / Database Size	6.70
Start of Database Load	10-20-05 21:16:54
End of Database Load	10-22-05 14:50:08
Database Load Time	41h 33min 14sec
Query Streams for Throughput Test	8
TPC-H Power	41,779.5
TPC-H Throughput	22,937.4
TPC-H Composite Query-per-Hour (QphH@3000GB)	30,956.6
Total System Price over 3 Years	2,326,457 USD
TPC-H Price/Performance Metric (USD/QphH@3000GB)	75.16 USD/QphH@3000GB

Measurement Interval

Measurement Interval in Throughput Test (Ts) = seconds 82869 seconds

Duration of Stream Execution

	Seed	Query Start Date/Time		RF1 Start Date/Time		RF2 Start Date/Time		Duration
		Query End Date/Time		RF1 End Date/Time		RF2 End Date/Time		
Stream 00	1021145008	10/22/05	20:58:16	10/22/05	20:46:39	10/22/05	23:42:26	3:03:21
		10/22/05	23:42:25	10/22/05	20:58:15	10/22/05	23:50:00	
Stream 01	1021145009	10/22/05	23:50:02	10/23/05	19:41:23	10/23/05	19:51:57	20:10:51
		10/23/05	19:16:20	10/23/05	19:51:56	10/23/05	20:00:53	
Stream 02	1021145010	10/22/05	23:50:03	10/23/05	20:00:56	10/23/05	20:14:25	20:34:07
		10/23/05	19:30:12	10/23/05	20:14:24	10/23/05	20:24:10	
Stream 03	1021145011	10/22/05	23:50:03	10/23/05	20:24:14	10/23/05	20:39:30	20:58:35
		10/23/05	18:20:19	10/23/05	20:39:29	10/23/05	20:48:38	
Stream 04	1021145012	10/22/05	23:50:04	10/23/05	20:48:43	10/23/05	21:03:49	21:22:59
		10/23/05	19:41:20	10/23/05	21:03:47	10/23/05	21:13:02	
Stream 05	1021145013	10/22/05	23:50:05	10/23/05	21:13:09	10/23/05	21:28:21	21:47:54
		10/23/05	18:16:04	10/23/05	21:28:18	10/23/05	21:37:59	
Stream 06	1021145014	10/22/05	23:50:05	10/23/05	21:38:06	10/23/05	21:53:44	22:13:08
		10/23/05	19:10:35	10/23/05	21:53:41	10/23/05	22:03:13	
Stream 07	1021145015	10/22/05	23:50:06	10/23/05	22:03:22	10/23/05	22:18:30	22:37:26
		10/23/05	19:37:04	10/23/05	22:18:27	10/23/05	22:27:32	
Stream 08	1021145016	10/22/05	23:50:07	10/23/05	22:27:42	10/23/05	22:41:30	23:01:04
		10/23/05	19:37:49	10/23/05	22:41:26	10/23/05	22:51:11	



HP Integrity Superdome

TPC-H Rev. 2.3.0

Report Date: November 07, 2005

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TPC-H Timing Intervals (in seconds):

Query	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Stream 0	1205.3	47.9	81.1	126.2	248.3	75.8	278.4	224.8
Stream 1	7034.3	840.9	1070.4	4960.8	3192.7	143.2	3187.1	1482.3
Stream 2	5921.4	2620.6	1845.4	2684.9	2646.0	572.6	3648.8	2956.6
Stream 3	5903.0	1766.0	2214.5	812.4	5739.2	287.0	3335.3	939.4
Stream 4	6277.7	1442.7	73.3	3706.7	883.9	324.2	4743.7	1082.8
Stream 5	4608.8	3009.0	1315.1	1890.9	1802.5	543.7	2676.9	2391.5
Stream 6	7041.0	1120.0	5243.0	1228.5	2347.3	350.9	2721.6	2751.1
Stream 7	3750.7	986.9	648.2	3650.5	4598.0	459.5	2682.6	2476.5
Stream 8	10781.8	592.7	3539.5	3145.5	3465.2	567.9	1972.2	3544.7
Min Qi	3750.7	592.7	73.3	812.4	883.9	143.2	1972.2	939.4
Max Qi	10781.8	3009.0	5243.0	4960.8	5739.2	572.6	4743.7	3544.7
Avg Qi	6414.8	1547.4	1993.7	2760.0	3084.3	406.1	3121.0	2203.1
Query	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream 0	1503.7	125.6	164.5	276.1	483.4	96.8	76.0	463.3
Stream 1	7561.0	4926.6	2010.2	1985.5	2981.7	1594.7	1883.9	2854.9
Stream 2	6969.6	3173.0	2088.1	2433.8	4629.4	5060.2	1705.3	1761.3
Stream 3	4836.7	3253.6	866.4	3331.3	2127.5	2456.8	3331.7	2036.7
Stream 4	15114.1	1857.4	2096.1	4177.5	2611.5	1890.2	1005.3	1979.4
Stream 5	13429.7	2915.9	1920.5	1704.0	2237.0	2608.2	764.3	2162.1
Stream 6	13046.2	1417.2	2535.6	1604.2	4088.8	1920.1	536.8	3880.2
Stream 7	11200.8	2292.7	2692.7	4602.5	3247.7	1419.4	2053.9	2961.8
Stream 8	7360.2	1339.5	304.1	1786.5	5618.1	2488.2	1279.9	3002.3
Min Qi	4836.7	1339.5	304.1	1604.2	2127.5	1419.4	536.8	1761.3
Max Qi	15114.1	4926.6	2692.7	4602.5	5618.1	5060.2	3331.7	3880.2
Avg Qi	9939.8	2647.0	1814.2	2703.1	3442.7	2429.7	1570.1	2344.6
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 0	108.9	1910.8	236.1	98.9	1712.1	305.2	695.8	454.3
Stream 1	3268.6	6016.4	1944.4	1965.3	6107.2	2966.2	632.3	536.2
Stream 2	1251.1	6221.9	1741.7	1888.2	7397.1	1592.6	807.7	584.4
Stream 3	2112.1	7566.7	3473.4	723.4	8246.8	1255.8	914.3	547.6
Stream 4	665.8	6534.6	2573.5	112.5	11792.7	531.0	903.9	553.2
Stream 5	1410.2	7424.2	2669.2	482.9	6432.4	1960.7	908.9	577.9
Stream 6	1065.0	4820.2	1336.1	1660.6	6396.3	2519.3	934.3	569.9
Stream 7	1666.9	5581.1	1193.4	1588.5	8005.6	3458.4	905.2	542.0
Stream 8	1120.3	6163.9	1817.2	1038.9	7550.8	2782.6	823.9	581.2
Min Qi	665.8	4820.2	1193.4	112.5	6107.2	531.0	632.3	536.2
Max Qi	3268.6	7566.7	3473.4	1965.3	11792.7	3458.4	934.3	584.4
Avg Qi	2200.5	6291.1	2093.6	1182.5	7741.1	2133.3	853.8	561.6