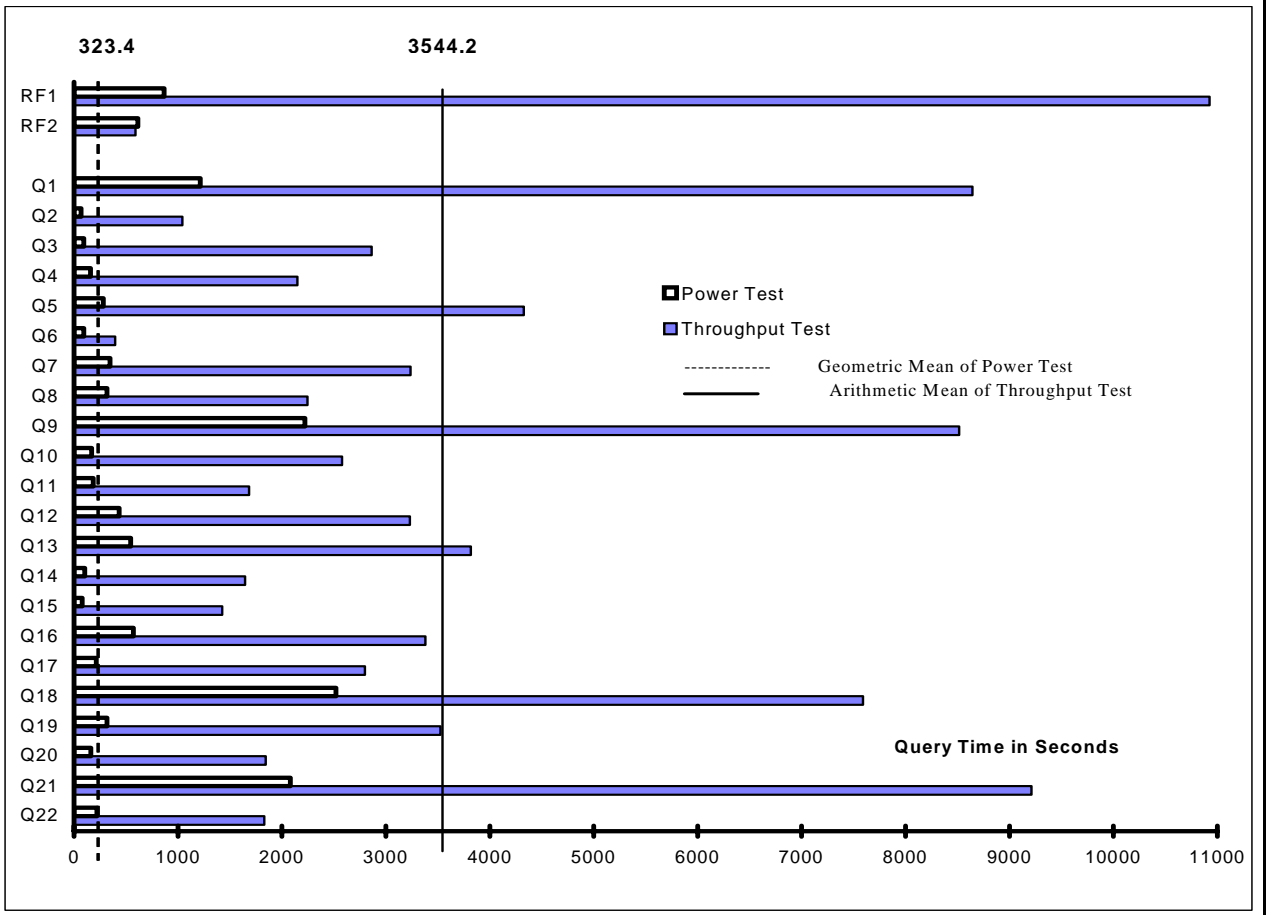


UNISYS		ES7000 Orion 440 Enterprise Server		TPC-H Rev. 2.3.0	
				Report Date November 16, 2005	
Total System Cost		Composite Query per Hour Rating		Price Performance	
\$1,169,880 USD		26,246.1 QphH @ 3000GB		\$44.58 / QphH @ 3000GB	
Database Size	Database Manager	Operating System	Other Software	Availability Date	
3000 GB*	Microsoft SQL Server 2005 Enterprise Itanium Edition	Microsoft Windows Server 2003, Datacenter Itanium Edition (SP1)	Microsoft Visual Studio .NET 2003	May 5, 2006 **	



Database Load Time = 60:20:38 Load included backup: Y Total Data Storage / Database Size = 8.13
RAID (Base tables): N RAID (Base tables and Auxilliary Data Structures): N RAID (All): N

System Configuration	
Processors	32 x 1.6 GHz Intel® Itanium2™ with 6MB Level 3 Cache
Memory	256 GB Main Memory
Disk Controllers	33 PCI Fibre Channel 1 PCI SCSI
Disk Drives	448 36GB FC 15Krpm 98 73GB FC 15Krpm 30 73GB FC 15Krpm 2 36GB SCSI 15Krpm (boot media)
Total Disk Storage	24,398 GB

* Database size includes only raw data (eg, no temp, index, redundant storage space, etc.)

** All hardware available now



ES7000 Orion 440 Enterprise Server

TPC-H Rev. 2.3.0
TPC Pricing 1.0.1

Report Date
November 16, 2005

Description	Part Number	Price Source	Unit Price	Qty.	Extended Price	3-yr.Maint. Price
Server Hardware:						
SYS: ES7000-440, 32x 1.6GHz/6MB, 64GB Mem. 1x RAID Controller, 2x 36GB Disk (boot media) Sentinel System Management S/W and Media 36Ux19"x34" cabinet and skins	ES7440327-110		\$399,952	1	\$399,952	\$13,968
MEM: 32GB Memory Package, 16x 2GB DIMMs	MEM162-32G		\$31,065	6	\$186,390	
MOD: I/F, 2-Slot IO Module, 133MHz	MOD3133-PCI		\$1,805	12	\$21,660	
CTRL: Fibre Channel HBA, 2-Port, 64-bit PCI	FCH752323-PCX		\$2,138	33	\$70,554	
CTRL: Ethernet, 1000Mb, 1-Port Cu, PCI	ETH33312-PCX		\$152	1	\$152	
CBL: Ethernet, Cat5e, RJ45 Conn's, 4m	DSH600004-TBT		\$19	1	\$19	
I/F: Monitor, 17-inch LCD, Kybrd, Mse & Cable	ES70004-UIF		\$665	1	\$665	
Server Subtotal					\$679,392	\$13,968
Storage Hardware:						
DISK: 73GB, 15Krpm, 2Gb FC	CXR7310-2GF		\$827	30	\$24,810	
CTRL: DPE, 2 RAID Cntrl, 1GB cache ea., 0 Disk	CX300-DPE		\$13,300	1	\$13,300	\$1,404
RCK: DAE Storage Enclosure, FC 2Gb Optical I/F	CXP2-FD		\$5,890	1	\$5,890	
SYS MGT: Storage, Navisphere Manager	CXN300-WRK		\$2,138	1	\$2,138	\$1,008
DISK: 3.0TB Pkg, 84x 36GB, 15Krpm FC *	JBD203615-P84		\$36,086	6	\$216,516	Spared
DISK: 6.0TB Pkg, 84x 73GB, 15Krpm FC *	JBD207315-P84		\$63,503	1	\$63,503	Spared
DISK: 1.0TB Pkg, 14x 73GB, 15Krpm FC *	JBD207315-P14		\$14,772	1	\$14,772	Spared
DISK: 73GB Drive, 15Krpm FC *	JBD207315-2F		\$1,088	10	\$10,880	Spared
RCK: Storage Enclosure, FC 2Gb Optcl/Optcl I/F	JBD2020-SA		\$3,958	45	\$178,110	\$28,080
RCK: Rack Mount Kit, Disk Enclosure	JBD2001-RMK		\$190	45	\$8,550	
CBL: FC, Optical, LC->LC Conn's, 10m *	GCFAZLL10		\$29	66	\$1,914	Spared
PWR: Distribution Strip, 9-Plug, 220V	SFR9-PWR		\$162	12	\$1,944	
CBL: Power, U.S. (Domestic), C20 - L6-20P	USE1936-LC6		\$86	12	\$1,032	
CAB: 36U x 19" x 41" Open Front Cabinet	HRT361941-OFT		\$1,425	4	\$5,700	
Storage Subtotal					\$549,059	\$30,492
Server Software:						
O/S: Windows Srvr 2003, DC Edtn., 32P, 1yr Lsub.	WND6432-TSP		\$70,224	1	\$70,224	\$31,644
O/S: Windows Server 2003, DC Lmted Sbscrptn, 1yr.	DUS200332-TSP		\$6,346	2	\$12,692	
APP: Microsoft SQL Srvr 2005 Ent. Itanium Edtn.	810-04793		\$8,487	1	\$8,487	** Inc. below
APP: Microsoft SQL Server 2005 Client License	359-01911		\$156	55	\$8,580	** Inc. below
ACC: Microsoft Visual Studio .Net 2003 Professional	659-00390		\$799	1	\$799	** Inc. below
SRVC: Microsoft Problem Resolution Services **			\$245	1	\$245	\$245
Software Subtotal					\$100,782	\$31,889
Computer Resolutions Inc. 18% Volume Cash Discount (Ext.Price where Price Source=1)					(\$235,702)	
Total USD					\$1,093,531	\$76,349

<p>Notes:</p> <ol style="list-style-type: none"> 1. * 10% or minimum 2 spares are added in place of onsite service. 2. HW & SW maintenance at 24 x 7 w/ 4 hr. max. respon 3 = GoCables 3. Price Source: 1 = CRI Product Price, Unisys Maintenance Price 2 = Microsoft 3 = GoCables 	<p>Three Year Cost of Ownership: \$1,169,880 USD QphH @ 3TB: 26,246.1 \$ / QphH@3TB: \$44.58 USD</p>
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Benchmark results and test methodology 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 assumption 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 benchmarks 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.



ES7000 Orion 440 Enterprise Server

TPC-H Rev. 2.3.0

Report Date
November 16, 2005

Numerical Quantities Summary

Measurement Results

Scale Factor	3000 GB
Total Data Storage / Database Size	8.13
Start of Database Load	11/4/2005 9:21:01
End of Database Load	11/6/2005 21:41:39
Database Load Time	60:20:38
Query Streams for Throughput Test	8
TPC-H Power	33,415.8
TPC-H Throughput	20,614.7
Composite Query per Hour Rating (QpH@3000GB)	26,246.1
Total System Price Over 3 Years	\$1,169,880 USD
TPC-H Price Performance Metric	\$44.58 USD

Measurement Intervals

Measurement Interval in Throughput Test (Ts)	92,206.0 seconds
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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 0	1106214139	11/8/05 7:18:35 11/8/05 10:45:01	11/8/05 7:04:09 11/8/05 7:18:35	11/8/05 10:45:02 11/8/05 10:55:17	03:51:08
Stream 1	1106214140	11/8/05 10:55:19 11/9/05 8:46:58	11/8/05 10:55:18 11/9/05 9:32:57	11/9/05 9:32:58 11/9/05 9:42:07	22:46:48
Stream 2	1106214141	11/8/05 10:55:20 11/9/05 9:14:43	11/9/05 9:42:11 11/9/05 9:55:35	11/9/05 9:55:37 11/9/05 10:04:32	23:09:13
Stream 3	1106214142	11/8/05 10:55:20 11/9/05 8:08:48	11/9/05 10:04:37 11/9/05 10:18:06	11/9/05 10:18:08 11/9/05 10:27:09	23:31:49
Stream 4	1106214143	11/8/05 10:55:21 11/9/05 8:45:47	11/9/05 10:27:15 11/9/05 10:40:56	11/9/05 10:40:58 11/9/05 10:50:10	23:54:50
Stream 5	1106214144	11/8/05 10:55:21 11/9/05 8:01:36	11/9/05 10:50:17 11/9/05 11:03:42	11/9/05 11:03:45 11/9/05 11:13:17	24:17:55
Stream 6	1106214145	11/8/05 10:55:22 11/9/05 8:38:05	11/9/05 11:13:26 11/9/05 11:28:04	11/9/05 11:28:07 11/9/05 11:38:32	24:43:09
Stream 7	1106214146	11/8/05 10:55:23 11/9/05 7:42:16	11/9/05 11:38:41 11/9/05 11:53:34	11/9/05 11:53:38 11/9/05 12:04:32	25:09:09
Stream 8	1106214147	11/8/05 10:55:24 11/9/05 9:21:00	11/9/05 12:05:01 11/9/05 12:20:25	11/9/05 12:20:30 11/9/05 12:32:04	25:36:40

TPC-H Timing Intervals (in seconds):

Query	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Stream 0	1215.4	66.0	93.4	156.7	280.0	92.6	346.5	316.5
Stream 1	7048.7	2017.9	1033.7	4629.9	2693.0	340.0	5137.3	2857.9
Stream 2	10043.5	728.7	1065.1	1995.7	3071.0	489.7	3508.1	2676.6
Stream 3	8193.4	248.7	5459.3	1449.2	7183.2	393.3	2896.8	980.6
Stream 4	8974.7	735.6	5974.7	3303.8	7135.7	287.9	1973.9	2592.3
Stream 5	9754.8	2060.4	2395.5	937.7	3329.5	495.1	4514.8	2596.6
Stream 6	10020.6	470.0	973.3	2088.0	3071.2	411.3	1808.8	2434.9
Stream 7	7778.3	1502.6	5170.4	1287.1	1907.6	405.5	1960.7	2059.8
Stream 8	7340.0	577.1	819.9	1493.2	6212.7	333.7	4096.6	1769.5
Min Qi	7048.7	248.7	819.9	937.7	1907.6	287.9	1808.8	980.6
Max Qi	10043.5	2060.4	5974.7	4629.9	7183.2	495.1	5137.3	2857.9
Avg Qi	8644.3	1042.6	2861.5	2148.1	4325.5	394.6	3237.1	2246.0
Query	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream 0	2221.9	168.7	183.0	433.6	544.8	103.6	79.4	572.0
Stream 1	14616.5	2732.7	1500.0	3262.3	4631.7	1076.4	1445.5	3170.8
Stream 2	6671.5	2331.4	1156.6	3194.3	3874.3	1035.8	798.5	2294.7
Stream 3	7534.3	2073.5	1190.3	2604.0	4087.6	2211.8	765.7	3255.0
Stream 4	7797.2	1014.0	1980.6	1842.4	2506.0	1857.9	4092.4	3235.5
Stream 5	6625.0	1500.1	2084.4	2277.0	5085.7	1215.1	716.2	2666.7
Stream 6	8727.6	7438.2	3166.5	3497.6	3499.4	2537.9	955.1	3994.0
Stream 7	7297.9	1453.0	2199.4	5161.1	3425.3	973.1	625.8	3298.4
Stream 8	8857.5	2091.8	176.1	4023.6	3430.6	2249.8	2005.0	5127.2
Min Qi	6625.0	1014.0	176.1	1842.4	2506.0	973.1	625.8	2294.7
Max Qi	14616.5	7438.2	3166.5	5161.1	5085.7	2537.9	4092.4	5127.2
Avg Qi	8515.9	2579.3	1681.7	3232.8	3817.6	1644.7	1425.5	3380.3
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 0	213.9	2521.5	316.8	160.6	2080.8	218.1	866.0	614.9
Stream 1	1117.4	6987.8	2362.0	1318.0	6721.9	1997.4	81458.8	548.7
Stream 2	7081.0	9278.3	4822.2	1258.1	10566.4	2422.2	804.5	535.7
Stream 3	4679.9	6141.4	2847.8	2090.5	8036.2	2085.2	809.3	540.3
Stream 4	1236.2	6440.9	2265.5	2443.3	9484.9	1451.1	821.2	551.8
Stream 5	1885.5	10967.5	3481.5	1978.5	7321.5	2086.1	804.3	571.9
Stream 6	1536.9	7206.4	1502.2	2891.0	8579.6	1351.5	878.2	624.2
Stream 7	3665.8	6314.7	2429.2	1108.6	13650.2	1138.2	892.8	654.0
Stream 8	1176.4	7375.6	8480.2	1654.6	9340.6	2103.9	924.7	694.2
Min Qi	1117.4	6141.4	1502.2	1108.6	6721.9	1138.2	804.3	535.7
Max Qi	7081.0	10967.5	8480.2	2891.0	13650.2	2422.2	81458.8	694.2
Avg Qi	2797.4	7589.1	3523.8	1842.8	9212.7	1829.5	10924.2	590.1