



Aquanta QS/2 (4 way)

TPC-D Rev. 1.3.1

Report Date: 29 June 1998

Total System Cost
\$325,034

TPC-D Power
1560.9 QppD @ 100 GB

TPC-D Throughput
529.7 QthD @ 100 GB

Price / Performance
357 \$ / QphD @ 100 GB

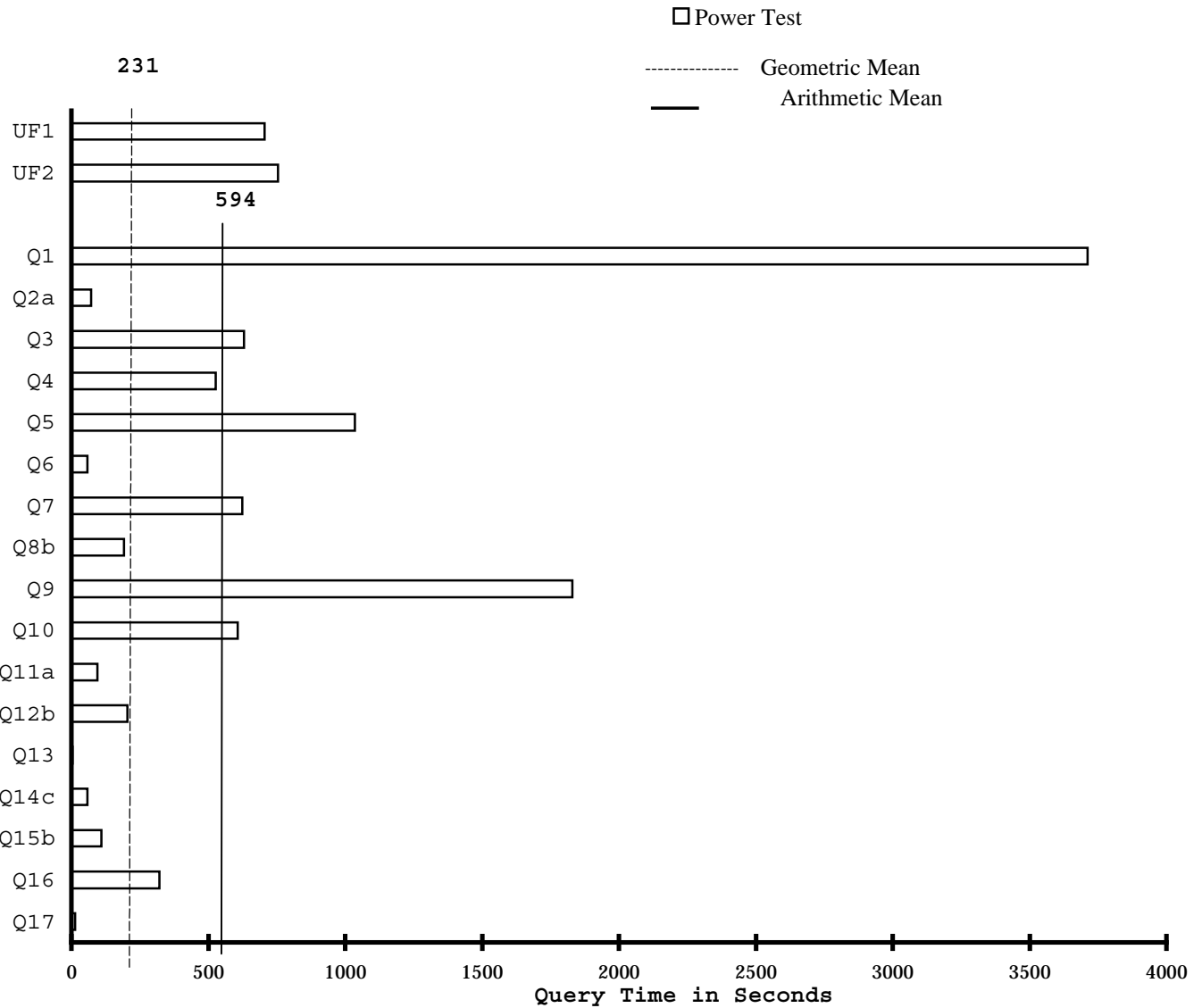
Database Size
100 Gigabytes

Database Manager
Oracle 8.0.4 for NT 4.0

Operating System
**Microsoft NT 4.0
Enterprise Server SP3**

Other Software
**Visual C++
MKS Toolkit**

Availability Date
17 Jul 1998



Database Load Time = 22:08:57

Total Data Storage / Database Size = 4.25

RAID = N

System Components

Number of nodes 1
 Processors 4 Xeon @ 400MHz
 Memory 4 GB
 Disk Drives 45 x 8.9 GB and 5 x 4.0 GB
 Controllers 4 Emulex LP7000-T1 PCI cards and 1 SCSI differential PCI card
 Total Disk Storage 425 GB
 Network Interface 1 Network Interface Card
 Tape Drives 1 4 GB DAT tape
 CD Rom 1 14-32x CD Rom Drive



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QS/2 Configuration for TPCD 100GB		Unit		Extended		Five Years							
Server Hardware	Style number	Source	Price	Qty	Disc.	Price	Maint. Cost						
SYS: Aquanta QS/2, w/ CDROM, 0 Proc, 0MB Mem	QS2000111-BAS	1	\$8,125	1		\$8,125	\$864						
PROC: 1x400MHz Pentium II /1MB Cache	XEO2400-1MB	1	\$4,375	4		\$17,500	\$11,040						
ACC: Voltage Regulator Module, Processor	XEO24001-VRM	1	\$50	6		\$300	\$288						
MEM:ECC Memory Board, 0MB Mem	MEM241-MBD	1	\$519	2		\$1,038	\$144						
MEM: 128 MB Memory Upgrade	DIM5072-128	1	\$1,281	32		\$40,992	\$6,144						
ETHERNET: 100Mbit/sec, PCI 32-bit	ETH1010051-PCI	1	\$150	1		\$150	\$48						
CDROM: 14-32x Speed, SCSI	CDR1432-SI	1	\$178	1		\$178	\$120						
MONITOR:15-inch Color	EVG2000-E	1	\$300	1		\$300							
KEYBD: 104 Key Spacesaver	PCK104-SKB	1	\$34	1		\$34							
MOUSE: 2 Button PS2	PWM1-PS2	1	\$25	1		\$25							
CTRL: Dual Ultra wide SCSI	PCI300-DUW	1	\$425	1		\$425	\$192						
DISK: 4GB Drive, Ultra SCSI SCA	HDS417-CX1	1	\$825	5		\$4,125	\$144						
TAPE: 4GB/8GB DDS-2 DAT Drive	PCT4000-DAT	1	\$876	1		\$876	\$144						
Subtotal:						\$74,068	\$19,128						
Storage													
Cabinet	USE3600-II	1	\$2,795	1		\$2,795							
Power Cord, Rack Mount cabinet	USE1936-LC1	1	incl.	1		\$0							
Emulex Light Pulse PCI interface card	[LP7000-T1]	2	\$1,200	6		\$7,200	spared						
Power	USR31000-PDU	1	\$2,303	1		\$2,303							
FC Data DOD W/Loop Resil. (dual loop, 1 pwr. s.)	OSM3000-FLR	1	\$1,379	7		\$9,653							
9GB UF 3.5" disk drive	OSD9101-F65	1	\$1,716	50		\$85,800	spared						
UPG USE Cab. mounting kit	OSM3000-RMK	1	\$150	7		\$1,050							
OSM IEC 320 Power Cable	OSM1000-PRC	1	incl	7		\$0							
2 meter (copper loop) fibre cable	CBL135-2	1	\$120	7		\$840							
Subtotal:						\$109,641	\$0						
Hardware Subtotal:						\$183,709	\$19,128						
Server Software													
Windows NT Server Enterprise Edition 4.0, incl 25 CALs	NTE4008-L	1	\$3,999	1		\$3,999							
Oracle 8.0 License for 4 CPU Server	N/A	3	\$50,160	1		\$50,160							
Oracle Silver Support for five years	N/A	3					\$66,640						
Win 4.0 NT Res. Kit	N/A	4	\$499	1		\$499							
MKS Toolkit for NT	N/A	4	\$399	1		\$399							
MS Visual C++ v. 5.0	N/A	4	\$500	1		\$500							
Subtotal:						\$55,557	\$66,640						
Sources:						Configuration total:	\$239,266	\$85,768					
1. Unisys Price Book						<table border="1"> <tr> <td>5 Year Cost of Ownership</td> <td>\$325,034</td> </tr> <tr> <td>QphD @ 100GB</td> <td>909.3</td> </tr> <tr> <td>\$/QphD@100GB</td> <td>\$357</td> </tr> </table>		5 Year Cost of Ownership	\$325,034	QphD @ 100GB	909.3	\$/QphD@100GB	\$357
5 Year Cost of Ownership	\$325,034												
QphD @ 100GB	909.3												
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2. Emulex quote (attached)													
3. Oracle quote (attached)													
4. General over-the-counter price													

The benchmark results and test methodology were audited by Lorna Livingtree of Performance Metrics and Francois Raab of Information Paradigm.

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 base 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 section 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.



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Numerical Quantities Summary

Measurement Results

Scale Factor	=	100
Total Data Storage / Database Size	=	4.25
Database Load Time	=	22:08:57
Query Streams for Throughput Test	=	1
TPC-D Power Metric (QppD@100GB)	=	1560.9
TPC-D Throughput Metric (QthD@100GB)	=	529.7
Composite QphD@100GB	=	909.3
Total System Price Over 5 Years	=	\$325,034
TPC_D Price Performance Metric	=	\$357

Measurement Intervals

Measurement Interval in Throughput Test (Ts) = 11553 seconds

Duration of Stream Execution:

Stream ID	Seed	Start Date	Start Time	End Date	End Time
Stream 00	354721521	6/9/98	8:56:33	6/9/98	11:44:45
UF1		6/9/98	8:44:46	6/9/98	8:56:31
UF2		6/9/98	11:44:45	6/9/98	11:57:19

TPC-D Timing Intervals in Seconds

Q1	Q2a	Q3	Q4	Q5	Q6	Q7	Q8b
3711.7	72.1	630.8	527.0	1035.3	58.3	624.1	191.7
Q9	Q10	Q11a	Q12b	Q13	Q14c	Q15b	Q16
1828.9	607.9	94.3	203.6	3.8	58.5	109.5	321.1
Q17	UF1	UF2					
13.8	705.3	754.1					