

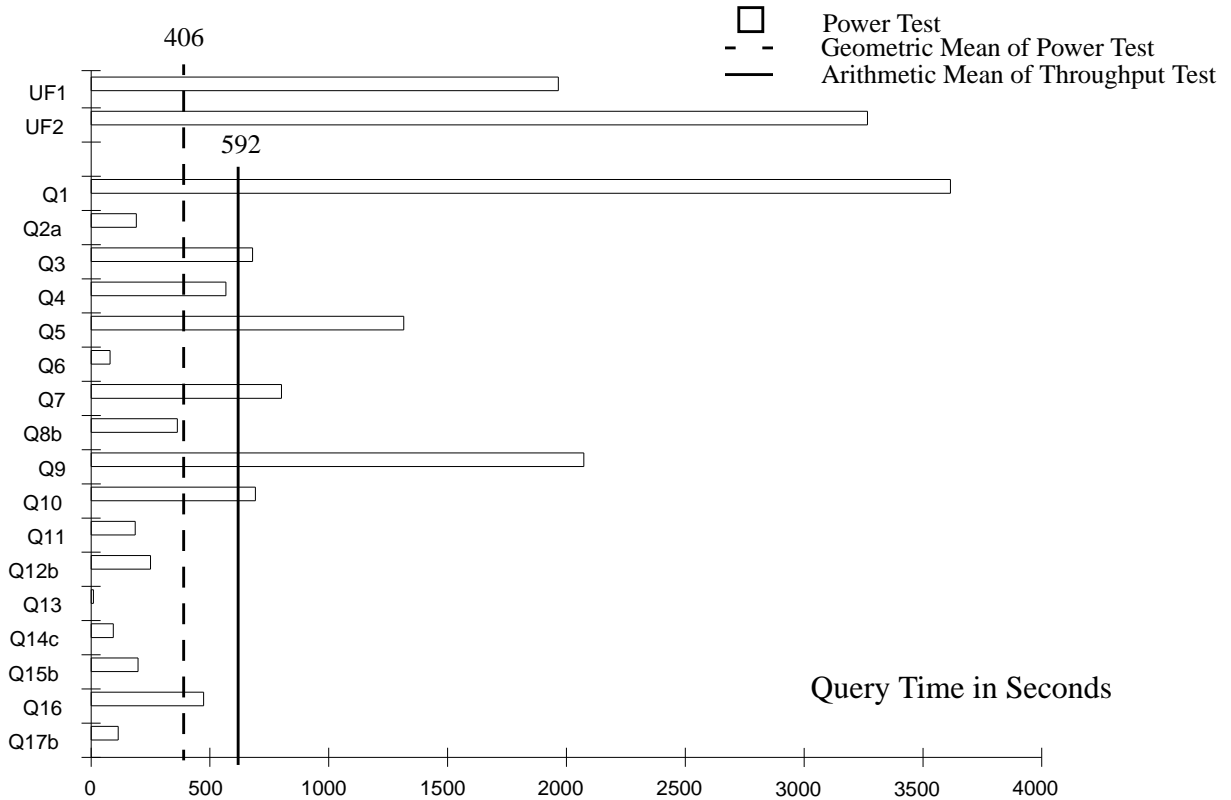


# Sun Starfire Ultra Enterprise 10000 using Oracle8

TPC-D 1.3.1

Report Date:  
April 18, 1998

Total System Cost	TPC-D Power	TPC-D Throughput	Price/Performance	
<b>\$8,536,522</b>	<b>8870.6</b> QppD@1000GB	<b>3612.1</b> QthD@1000GB	<b>\$1,508</b> QphD@1000GB	
Database Size	Database Manager	Operating System	Other Software	Availability Date
<b>1,000GB</b>	<b>Oracle8 v8.0.4.2</b>	<b>Solaris 2.6</b>	<b>Veritas Volume Manager 2.5</b>	<b>June 1, 1998</b> See Note on next page



Database Load Time = 27:02:02 hours

Disk Size/Database Size = 5.59

RAID : Y

**System Configuration:**

- 64 336 Mhz UltraSPARC 64-bit CPUs each with 4MB Cache
- 64 GBytes memory
- 23 SPARCStorage A3000 with 25 x 9.1 GB drives each
- 4 SPARCStorage Array 112 with 18 x 2.1 GB drives each
- 2 SPARCStorage RSM with 7 x 4.2GB drives each, 1 SPARCStorage RSM with 7 x 9.1GB drives each
- 1 (2 x 9 Gbyte) Differential/Wide Disk Tray with 2 x 9 GB drives



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Description	Part Number	Source	Unit Price	Qty Disc	Ext. Price	5 Yr. Maint.
<b>Server Hardware</b>						
E10000 Base Cabinet	E10000-3	2	165,000	1	165,000	466,330
System Board, unpopulated	2760A	2	48,750	16	780,000	802,299
CPU, 336MHz, 4MB L2\$	2560A	2	14,250	64	912,000	
Memory Board, unpopulated	7025A	2	7,500	16	120,000	
1GB for Ex000	7023A	2	12,000	64	768,000	
Dual SBus I/O daughter card	2730A	2	5,625	16	90,000	
System Service Proc	2750A	2	7,500	1	7,500	7,286
AC input module	3875A	2	2,250	4	9,000	
48 volt power supply	9685A	2	3,000	8	24,000	
Power Control Module	9681A	2	750	1	750	
Fan tray	9671A	2	1,500	16	24,000	
Control Board w/ Enet Cable	2720A	2	15,000	1	15,000	
Power Cord for System	3850A	2	0	4	0	
12 Meter SCSI cable	979A	2	265	3	795	
SBus Fast/Wide SCSI-2 (Diff)	1062A	2	971	4	3,885	
SBus Fibre Channel Host Adapter	1057A	2	1,200	4	4,800	
SBus Ultra Diff F/W SCSI	1065A	2	971	46	44,678	
Symmetra 16kva UPS	SX-SY16k	1	15,845	4	63,380	1,315
Subtotal					3,032,788	1,277,230
<b>Storage</b>						
StorEdge A3000 (15 X 9GB)	6534A	2	72,938	23	1,677,563	335,174
9.1 GByte Drive Module	X6516A	2	1,313	230	301,875	
Power Cord for A3000	3800A	2	0	23	0	
SPARCstorage Array 112	6591A	2	25,050	4	100,200	43,718
RSM Tray (7 X 9.1GB Disk)	6515AR4	2	13,950	3	41,850	
Elite 9 Tray, 2 X 9 GB Disk	783A	2	7,050	1	7,050	
Subtotal					2,128,538	378,893
SunService Discount (10% Volume + 5% yearly prepayment)						(248,418)
<b>Hardware Subtotal</b>			<b>376,628</b>		<b>5,161,325</b>	<b>1,407,704</b>
<b>Software</b>						
Solaris 2.6 Media	SOLS-2.6MAR98	1	100	1	100	
S/W for SSP Version 3.1	SW-SSP-3.1	1	0	1	0	
S/W for Alt Pathing	SW-AP	1	0	1	0	
SPARC Compiler, Single User License	WCC-4.2-S	1	995	1	995	1,126
Sun Enterprise Vol Mgr. Base Pkg	EVM-2.5-B	1	100	1	100	
RTU for E10000	EVM-2.5-E10-L	1	42,995	1	42,995	62,994
Oracle8 License (Version 8.0.4)		3	802,560	1	802,560	1,066,240
Subtotal					846,750	1,130,360
SunService Discount (10% Volume + 5% yearly prepayment)						(9,618)
<b>Software Subtotal</b>					<b>846,750</b>	<b>1,120,742</b>
Notes (Source):						
1. Sun Microsystems Inc.						
2. CAT Technology Inc						
3. Oracle Corp.						
Service for all hardware and software (except for Oracle Server) is from Sun Microsystems Inc.			<b>Total</b>		<b>6,008,075</b>	<b>2,528,447</b>
			<b>5Yr. cost</b>		<b>\$8,536,522</b>	
			<b>QphD@1TB</b>		<b>5,661</b>	
			<b>\$/QphD@1TB</b>		<b>\$1,508</b>	

Audited by: Francois Raab, Information Paradigm, 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 assumptions about past or future purchase 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.

Note: Hardware Available Now; Sun Software Available Now; Oracle Software Available June 1,1998



**Sun Starfire  
Ultra Enterprise 10000  
using Oracle 8**

TPC-D 1.3.1

**Report Date:**  
April 18, 1998

**Numerical Quantity Summary**

**Measurement Results:**

Database Scaling Factor (SF/Size)	= 1,000 GB
Total Data Storage / Database Size	= 5.59
Database Load Time	= 27 hours 2 minutes 2 seconds
Query Streams for Throughput Test	= 0
TPC-D Power Metric (QppD@1000GB)	= 8,870.6
TPC-D Throughput Metric (QthD@1000GB)	= 3612.1
Composite QphD@1000GB	= 5660.5
Total System Price Over 5 Years	= \$8,536,522
TPC-D Price/Performance Metric	= \$1,508

**Measurement Intervals:**

Measurement Interval in Throughput Test (Ts)	= 16,943 seconds
Duration of Stream Execution:	

Stream ID	Seed	Start Date	Start Time	End Date	End Time
Stream00	1485484130	Saturday April 4	16:41:25 PDT	Saturday April 4	21:23:48 PDT
UF1		Saturday April 4	16:41:25 PDT	Saturday April 4	17:14:12 PDT
UF2		Saturday April 4	20:29:21 PDT	Saturday April 4	21:23:48 PDT

**TPC-D Timing Intervals (in seconds)**

Q1	Q2a	Q3	Q4	Q5	Q6	Q7	Q8b	Q9	Q10
3616.1	191.3	679.6	567.3	1315.5	80.0	801.8	363.3	2073.4	692.1

Q11	Q12b	Q13	Q14c	Q15b	Q16	Q17b	UF1	UF2
185.9	250.4	10.2	94.2	198.6	473.8	114.1	1966.5	3267.0