



**SPC BENCHMARK 2™
EXECUTIVE SUMMARY**

**SUN MICROSYSTEMS, INC.
SUN STORAGE TEK® 6140 ARRAY (*MIRRORED*)**

SPC-2™ V1.2

**Submitted for Review: August 10, 2006
Submission Identifier: B00008
Revised: August 30, 2006**

EXECUTIVE SUMMARY**Test Sponsor and Contact Information**

Test Sponsor and Contact Information	
Test Sponsor Primary Contact	Sun Microsystems, Inc. – http://www.sun.com Leah Schoeb – leah.schoeb@sun.com 5300 Riata Park Court AUS08 Austin, TX 78721 Phone: (877) 319-0457 FAX: (512) 266-2523
Test Sponsor Alternate Contact	Sun Microsystems, Inc. – http://www.sun.com Jason Schaffer – jason.schaffer@sun.com 500 Eldorado Blvd. Broomfield, CO 80021 Phone: (303) 272-4743 FAX: (512) 266-2523
Auditor	Storage Performance Council – http://www.storageperformance.org Walter E. Baker – AuditService@StoragePerformance.org 643 Bair Island Road, Suite 103 Redwood City, CA 94063 Phone: (650) 556-9384 FAX: (650) 556-9385

Revision Information and Key Dates

Revision Information and Key Dates	
SPC-2 Specification revision number	V1.2
SPC-2 Workload Generator revision number	spc2rc9g
Date Results were first used publicly	August 10, 2006
Date FDR was submitted to the SPC	August 10, 2006
Date revised FDR was submitted to the SPC Updated Letter of Good Faith with correct date Added "Mirrored" annotation	August 30, 2006
Date the TSC will be available for shipment to customers	August 10, 2006
Date the TSC completed audit certification	August 9, 2006

SPC-2 Reported Data

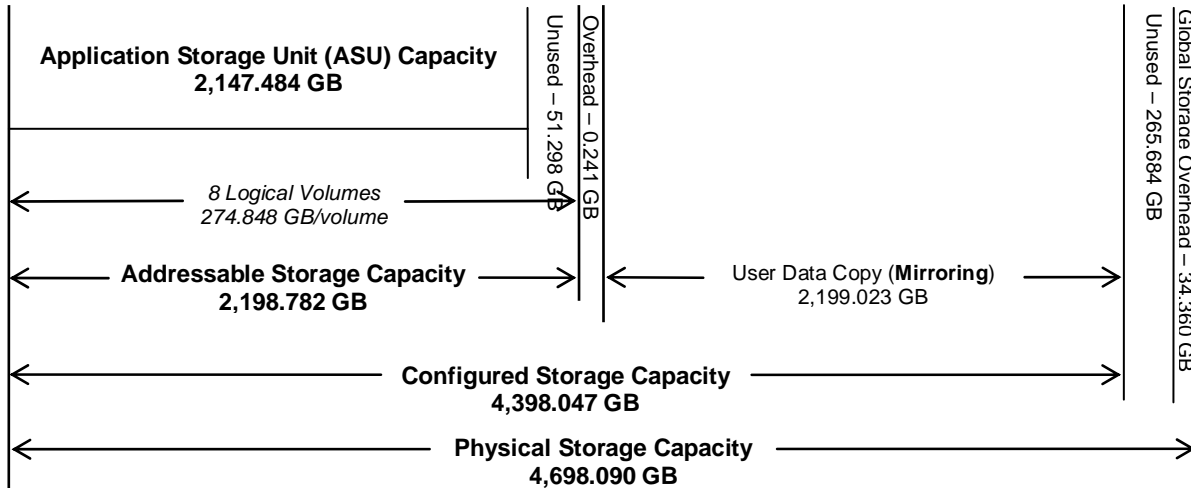
SPC-2 Reported Data consists of three groups of information:

- The following SPC-2 Primary Metrics, which characterize the overall benchmark result:
 - SPC-2 MBPS™
 - SPC-2 Price Performance
 - Application Storage Unit (ASU) Capacity
- Supplemental data to the SPC-2 Primary Metrics.
 - Total Price
 - Data Protection Level
- Reported Data for each SPC Test: Large File Processing (LFP), Large Database Query (LDQ), and Video on Demand Delivery (VOD) Test.

Sun StorageTek® 6140 System				
SPC-2 MBPS™	SPC-2 Price-Performance	ASU Capacity (GB)	Total Price	Data Protection Level
686.90	\$124.36	2,147.484	\$85,424	Mirroring
<i>The above SPC-2 MBPS™ value represents the aggregate data rate of all three SPC-2 workloads: Large File Processing (LFP), Large Database Query (LDQ), and Video On Demand (VOD)</i>				
SPC-2 Large File Processing (LFP) Reported Data				
	Data Rate (MB/second)	Number of Streams	Data Rate per Stream	Price-Performance
LFP Composite	500.22			\$170.77
Write Only:				
1024 KiB Transfer	283.93	30	9.46	
256 KiB Transfer	269.17	34	7.92	
Read-Write:				
1024 KiB Transfer	416.40	36	11.57	
256 KiB Transfer	401.99	34	11.82	
Read Only:				
1024 KiB Transfer	951.86	30	31.73	
256 KiB Transfer	678.00	34	19.94	
<i>The above SPC-2 Data Rate value for LFP Composite represents the aggregate performance of all three LFP Test Phases: (Write Only, Read-Write, and Read Only).</i>				
SPC-2 Large Database Query (LDQ) Reported Data				
	Data Rate (MB/second)	Number of Streams	Data Rate per Stream	Price-Performance
LDQ Composite	695.40			\$122.84
1024 KiB Transfer Size				
4 I/Os Outstanding	943.61	32	29.49	
1 I/O Outstanding	933.15	32	29.16	
64 KiB Transfer Size				
4 I/Os Outstanding	558.38	40	13.96	
1 I/O Outstanding	346.48	38	9.12	
<i>The above SPC-2 Data Rate value for LDQ Composite represents the aggregate performance of the two LDQ Test Phases: (1024 KiB and 64 KiB Transfer Sizes).</i>				
SPC-2 Video On Demand (VOD) Reported Data				
	Data Rate (MB/second)	Number of Streams	Data Rate per Stream	Price-Performance
	865.08	1,100	0.79	\$98.75

Storage Capacities and Relationships

The following diagram documents the various storage capacities, used in this benchmark, and their relationships.



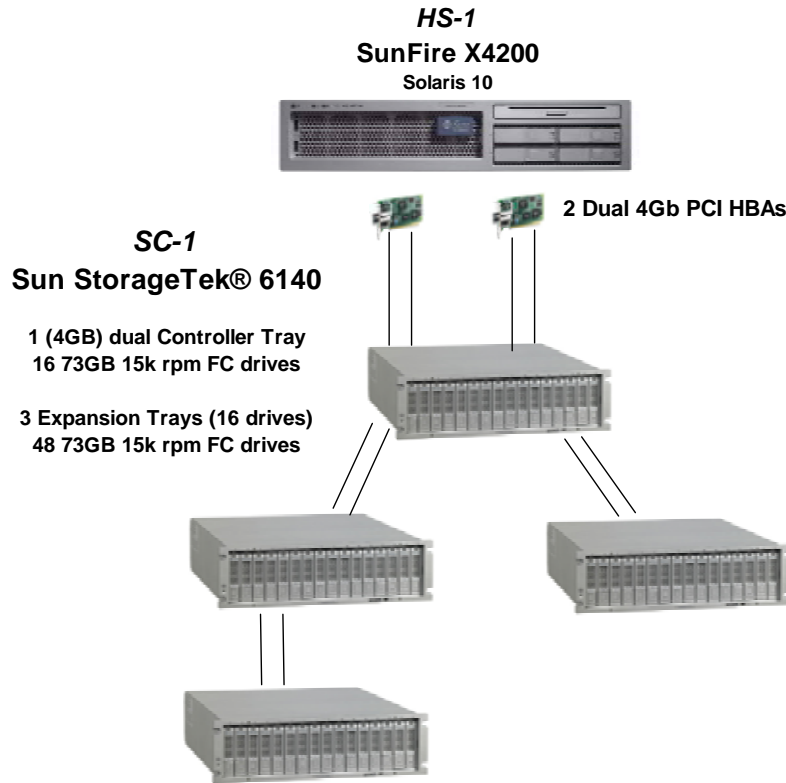
Tested Storage Configuration Pricing (Priced Storage Configuration)

Part Number	Description	Quantity	US List	Total	discount	Ave. Price
XTA6140R11A2B1168	Dual Controller with 1x1x16x73G15K	1	\$52,495	\$52,495	39%	\$32,022
	- 2 Controllers w/ 2GB cache each					
	- 16 73GB 15k rpm drives					
	- All required cables included					
XTACSM2R01A0B1168	FC Expansion tray 0x1x16x73G15K	3	\$27,495	\$82,485	39%	\$50,316
	- 16 73GB 15k rpm drives					
	- All required cables included					
SG-XPCI2FC-QF4	4Gb PCI-X Dual FC Host Based Adapter	2	\$2,530	\$5,060	39%	\$3,087
	3-year Gold Service Maintenance	1	\$0	\$0		\$0
	- 24 hour per day/7 days per week					
	- 4 hr response time					
	- 4 hour resolution					
Total			\$82,520	\$140,040		\$85,424

Differences between the Tested Storage Configuration (TSC) and Priced Storage Configuration

There were no differences between the Tested Storage Configuration (TSC) and the Priced Storage Configuration.

Benchmark Configuration/Tested Storage Configuration Diagram



Host System(s) and Tested Storage Configuration Components

Host System:	Tested Storage Configuration (TSC):
UID=HS-1 SunFire X4200	2 – 4 Gb dual port FC PCI HBAs
2 – Dual Core AMD Opteron™ Processor 275 (2.2 MHz), 512 KB L1 cache per core, 1 MB L2 cache per core	UID=SC-1: Sun StorageTek® 6140 Array
8 GB main memory	1 Dual Controller 2 GB cache per controller (4 GB total)
Solaris 10 FCS	4 host connections (<i>front end</i>)
PCI Express	2 drive connections (<i>backend</i>)
WG	3 – FC Expansion Trays
	64 – 73 GB 15K RPM disk drives