



**SPC BENCHMARK 2™
EXECUTIVE SUMMARY**

**SUN MICROSYSTEMS, INC.
SUN STOREEDGE™ 3510 FC
ARRAY**

SPC-2™ V1.0

Submitted for Review: December 14, 2005

Submission Identifier: B00005

Revised: February 7, 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: (512) 266-2523 FAX: (512) 266-2523
Test Sponsor Alternate Contact	Sun Microsystems, Inc. – http://www.sun.com Tom Sheffield – tom.sheffield@sun.com 500 Eldorado Blvd. BRM05 Broomfield, CO 80021 Phone: (303) 272-8804 FAX: (303) 272-7491
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	V1.0
SPC-2 Workload Generator revision number	spc2rc9f
Date Results were first used publicly	December 14, 2005
Date FDR was submitted to the SPC	December 14, 2005
Date revised FDR was submitted to the SPC Revised pricing	February 7, 2006
Date the TSC will be available for shipment to customers	currently available
Date the TSC completed audit certification	December 5 2005

SPC-2 Reported Data

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

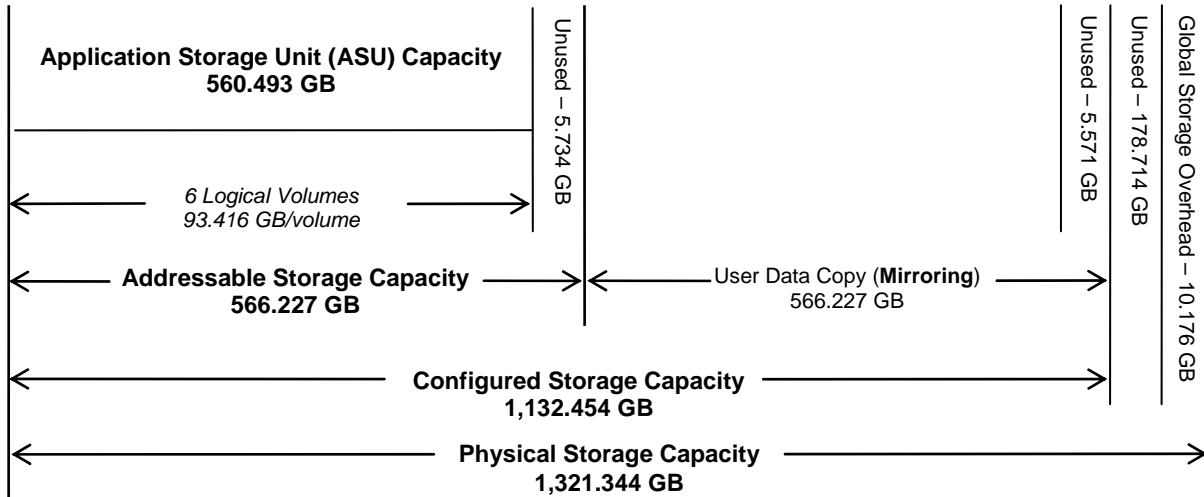
- The following SPC-2 Primary Metrics, which characterize the overall benchmark result:
 - SPC-2 MBPS™
 - SPC-2 Price Performance
 - Application Storage Unit (ASU) Capacity
- Supplemental data to the SPC-2 Primary Metrics.
 - Total Price
 - Data Protection Level

Reported Data for each SPC Test: Large File Processing (LFP), Large Database Query (LDQ), and Video on Demand Delivery (VOD) Test.

Sun StorEdge 3510 Array				
SPC-2 MBPS™	SPC-2 Price-Performance	ASU Capacity (GB)	Total Price	Data Protection Level
343.72	\$126.05	560.493	\$43,327.00	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	248.33			\$174.47
Write Only:				
1024 KiB Transfer	138.85	24	5.79	
256 KiB Transfer	126.23	24	5.26	
Read-Write:				
1024 KiB Transfer	221.94	24	9.25	
256 KiB Transfer	204.08	24	8.50	
Read Only:				
1024 KiB Transfer	403.33	24	16.81	
256 KiB Transfer	395.56	24	16.48	
<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	389.60			\$111.21
1024 KiB Transfer Size				
4 I/Os Outstanding	404.74	18	22.49	
1 I/O Outstanding	404.02	18	22.45	
64 KiB Transfer Size				
4 I/Os Outstanding	374.96	30	12.50	
1 I/O Outstanding	374.69	30	12.49	
<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
	393.22	500	0.79	\$110.19

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)

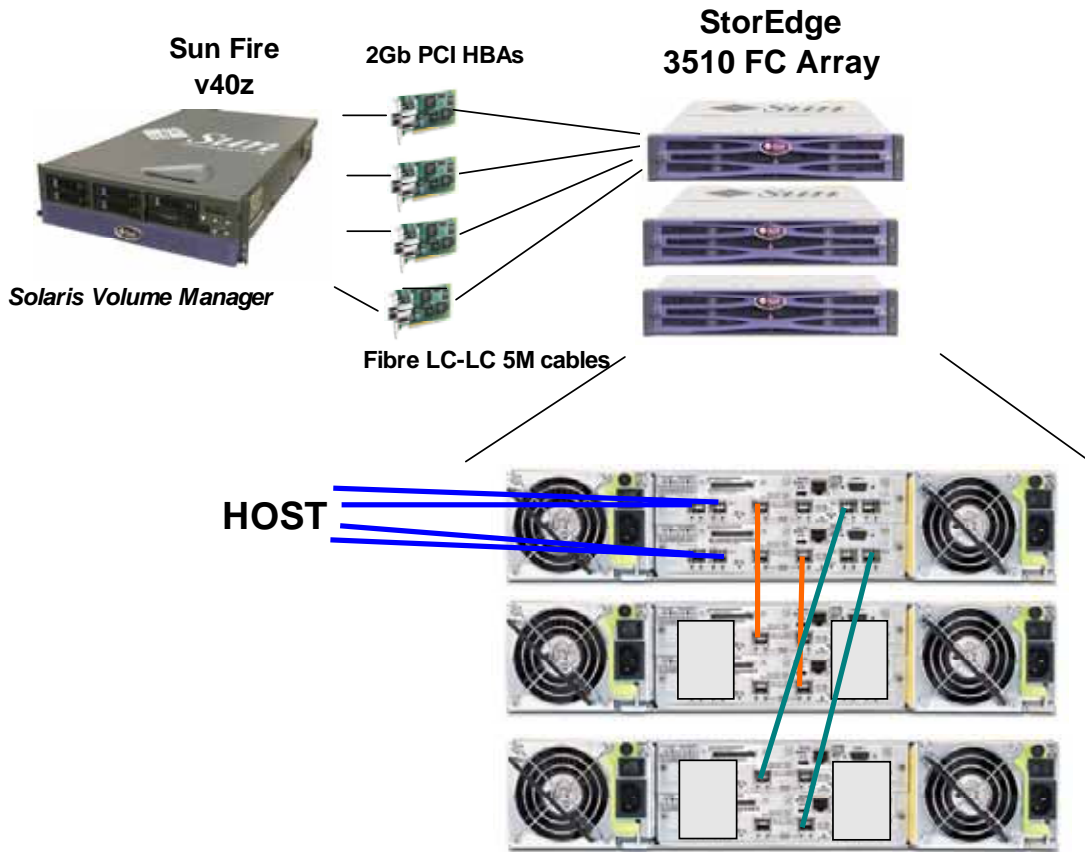
Part Number	Description	Quantity	US List	Extended	Disc.	Ave. Price
XTA3510R01A2S436	Sun StorEdge 3510 Fibre Channel Array	1	\$26,995	\$26,995	38%	\$16,737
	2 FC-AL HW RAID Controllers					
	1GB Std cache per Controller					
	2 AC power supplies					
	Sun StorEdge Configuration Service					
	Rack Ready					
XTA3510R01A0S436	12 36GB/15K Drives					
	Sun StorEdge 3510 Fibre Channel Array JBOD	2	\$12,995	\$25,990	38%	\$16,114
	Rack Ready					
	2 AC power supplies					
	12 36GB/15K Drives					
W9D-6120-2-2403G	3-Year Maintenance Agreement	1	\$13,464	\$13,464	50%	\$6,732
X6767A	2Gb PCI Single FC Host Based Adapter	4	\$1,560	\$6,240	40%	\$3,744
Total			\$55,014	\$72,689		\$43,327

The above pricing (*three year Gold maintenance*) provides maintenance/support for 24 hours per day, 7 days per week for three years with four hour acknowledgement and four hour subsequent response (support engineer onsite or customer replaceable part available).

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 Systems:	Tested Storage Configuration (TSC):
UID=HS-1	4 – 2Gbs single FC PCI HBAs
SunFire V40 4 – AMD Opteron 2.4 GHz CPUs 1 MB Level 2 cache per CPU	UID=SC-1
4 GB main memory	Sun StorEdge 3510 FC Array
Solaris 10 FCS	2 FC-AL HW RAID Controllers each with 1 GB cache
PCI	8 Fibre Channel ports
WG	2 JBOD Expansion Units
	36 – 36 GB, 15K RPM FC disk drives