



**SPC BENCHMARK 1™
EXECUTIVE SUMMARY**

**HUAWEI SYMANTEC TECHNOLOGIES CO., LTD.
HUAWEI SYMANTEC OCEANSPACE S5600**

SPC-1 V1.12

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EXECUTIVE SUMMARY

Test Sponsor and Contact Information

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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

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SPC-1 Specification revision number	V1.12
SPC-1 Workload Generator revision number	V2.1.0
Date Results were first used publicly	March 18, 2010
Date the FDR was submitted to the SPC	March 18, 2010
Date the priced storage configuration is available for shipment to customers	currently available
Date the TSC completed audit certification	March 17, 2010

Tested Storage Product (TSP) Description

Targeting the mid-range and high-end storage markets, the Huawei Symantec Oceanspace S5600 is the first end-to-end fiber channel network storage system with exclusive intellectual property rights in China. With high density storage, dual plane, modular interface design, and multi-layer data protection, the S5600 satisfies various applications' storage requirements including large databases, high-end computing, online transaction processing (OLTP), centralized storage, disaster backup and recovery, and data migration. The S5600 effectively guarantees the safety, security and continuity of enterprise activities.

Summary of Results

SPC-1 Results	
Tested Storage Product (TSC) Name: Huawei Symantec Oceanspace S5600	
Metric	Reported Result
SPC-1 IOPS™	34,002.20
SPC-1 Price-Performance	CNY 21.75/SPC-1 IOPS™
Total ASU Capacity	7,200.000 GB
Data Protection Level	Protected (<i>Mirroring</i>)
Total TSP Price (including three-year maintenance)	CNY 739,605

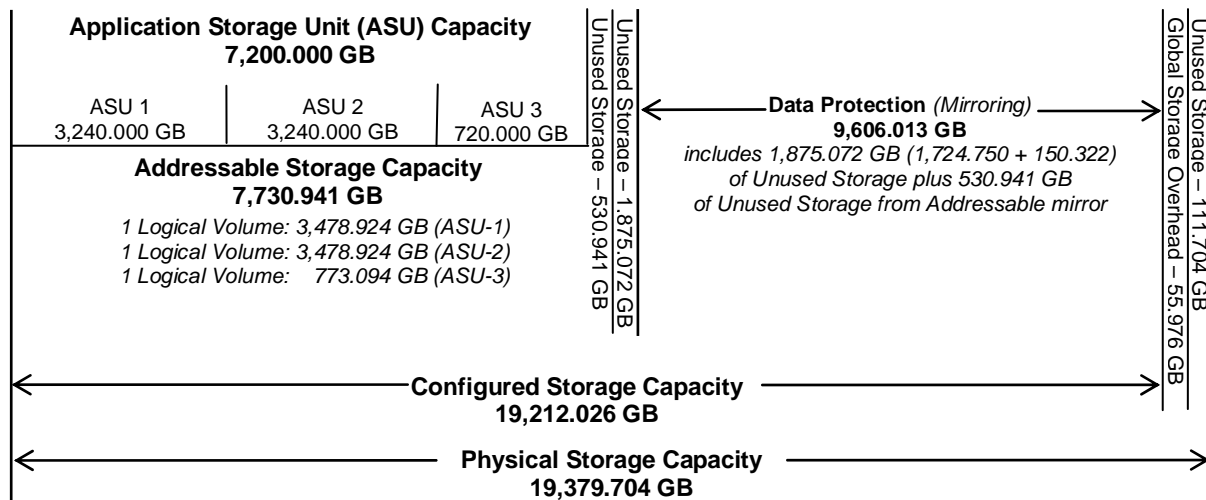
SPC-1 IOPS™ represents the maximum I/O Request Throughput at the 100% load point.

Total ASU (Application Storage Unit) Capacity represents the total storage capacity read and written in the course of executing the SPC-1 benchmark.

A **Data Protection Level of Protected** using *Mirroring* configures two or more identical copies of user data.

Storage Capacities and Relationships

The following diagram and table document the various storage capacities, used in this benchmark, and their relationships, as well as the storage utilization values required to be reported.



SPC-1 Storage Capacity Utilization	
Application Utilization	37.15%
Protected Application Utilization	74.30%
Unused Storage Ratio	25.41%

Application Utilization: Total ASU Capacity (7,200.000 GB) divided by Physical Storage Capacity (19,397.704 GB)

Protected Application Utilization: (Total ASU Capacity (7,200.000 GB) plus total Data Protection Capacity (9,606.013 GB) minus unused Data Protection Capacity (2,406.013 GB) divided by Physical Storage Capacity (19,397.704 GB)

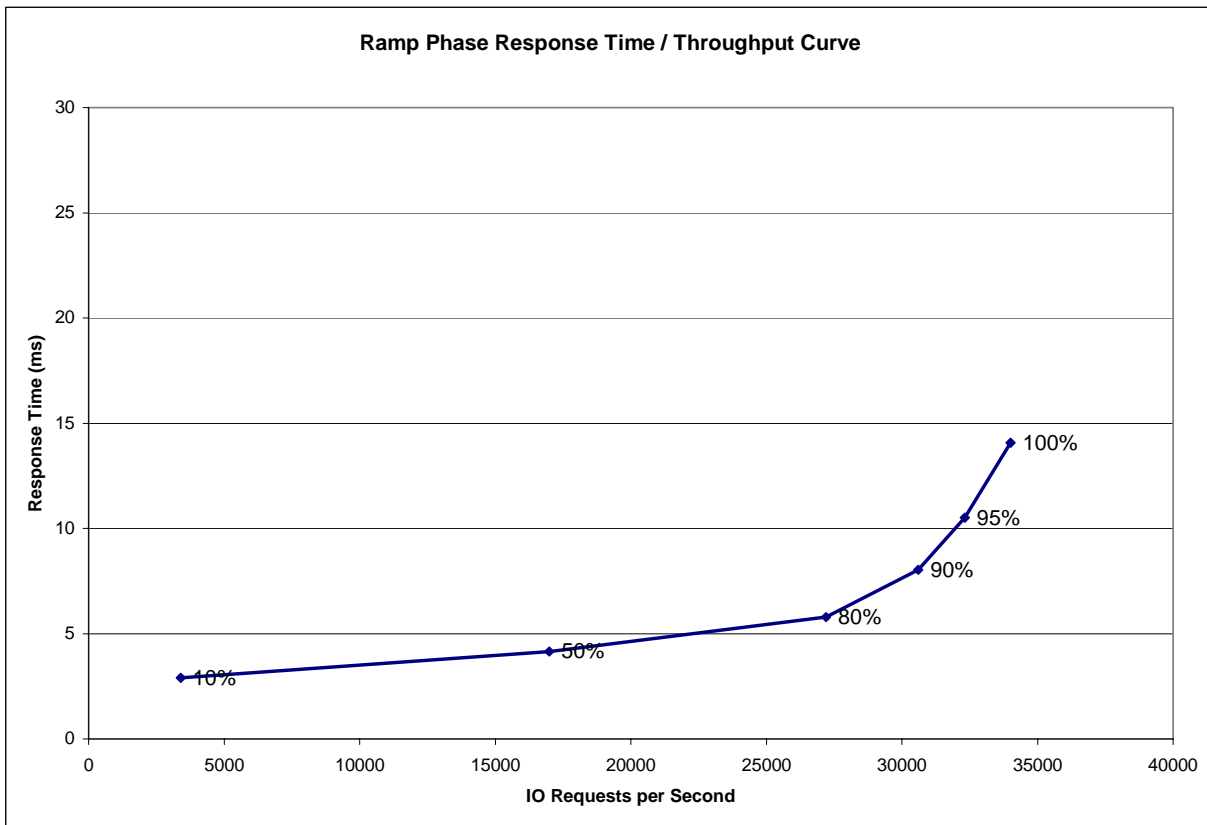
Unused Storage Ratio: Total Unused Capacity (4,923.728 GB) divided by Physical Storage Capacity (19,397.704GB) and may not exceed 45%.

Detailed information for the various storage capacities and utilizations is available on pages 20-21 in the Full Disclosure Report.

Response Time - Throughput Curve

The Response Time-Throughput Curve illustrates the Average Response Time (milliseconds) and I/O Request Throughput at 100%, 95%, 90%, 80%, 50%, and 10% of the workload level used to generate the SPC-1 IOPS™ metric.

The Average Response Time measured at the any of the above load points cannot exceed 30 milliseconds or the benchmark measurement is invalid.



Response Time - Throughput Data

	10% Load	50% Load	80% Load	90% Load	95% Load	100% Load
I/O Request Throughput	3,402.11	17,001.25	27,206.46	30,606.79	32,318.73	34,002.20
Average Response Time (ms):						
All ASUs	2.91	4.16	5.78	8.03	10.51	14.07
ASU-1	3.83	5.31	7.00	9.04	11.21	14.29
ASU-2	3.43	5.56	7.88	10.54	13.13	16.84
ASU-3	0.72	1.10	2.28	4.77	7.88	12.39
Reads	6.29	8.91	11.27	13.21	14.82	17.00
Writes	0.70	1.06	2.20	4.65	7.71	12.17

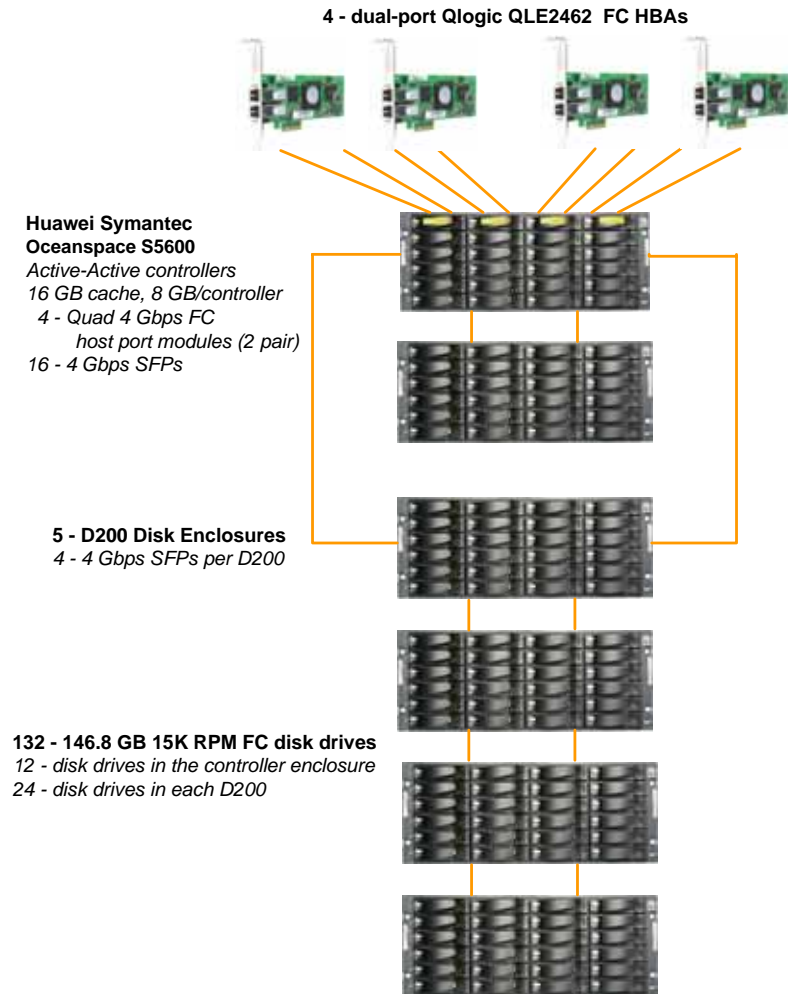
Priced Storage Configuration Pricing

Product Name	Quantity	Unit list Price in CNY	Total list Price in CNY	Discount	Unit price after discount in CNY	Total price after discount in CNY
Oceanspace S5600 Controller Enclosure * Active-Active controllers ** 16 GB of memory, 8 GB per controller ** 4 - Quad 4 Gbps FC host port modules, 2 modules per controller ** 16 - 4 Gbps SFPs	1	1,037,000.00	1,037,000.00	85.00%	155,550.00	155,550.00
D200 Disk Enclosure * 4 - 4 Gbps SFPs * 2 - 5-Meter Fiber Optic Cable	5	137,500.00	687,500.00	85.00%	20,625.00	103,125.00
146 GB 15K RPM FC Disk	132	21,500.00	2,838,000.00	85.00%	3,225.00	425,700.00
Blank panel	12	70.00	840.00	0.00%	70.00	840.00
Dual-port Qlogic QLE2462 Fiber Channel HBA	4	11,060.00	44,240.00	0.00%	11,060.00	44,240.00
5-Meter Fiber Optic Cable	8	90.00	720.00	0.00%	90.00	720.00
Maintenance/Support: 3 years, 24*7, with 4-hour acknowledgement and 4-hour onsite response	1	9,430.00	9,430.00	0.00%	9,430.00	9,430.00
Total			4,617,730.00			739,605.00

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

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

Priced Storage Configuration Diagram



Priced Storage Configuration Components

Priced Storage Configuration:
4 – dual-port Qlogic 2462 FC HBAs
Huawei Symantec Oceanspace™ S5600
Active-Active controllers with:
16 GB cache total (8 GB per controller)
4 – Quad 4 Gbps FC host port modules (2 pair of modules, 1 pair per controller)
16 – 4 Gbps Fibre Channel host ports (8 per controller)
4 – 4 Gbps Fibre Channel expander ports (2 per controller)
16 – 4 Gbps SFPs
5 – D200 Disk Enclosures each with four 4 Gbps SFPs
132 – 146.8 GB 15K RPM FC disk drives