



SPC BENCHMARK 1™

EXECUTIVE SUMMARY

MACROSAN TECHNOLOGIES CO., LTD MACROSAN MS5580G2

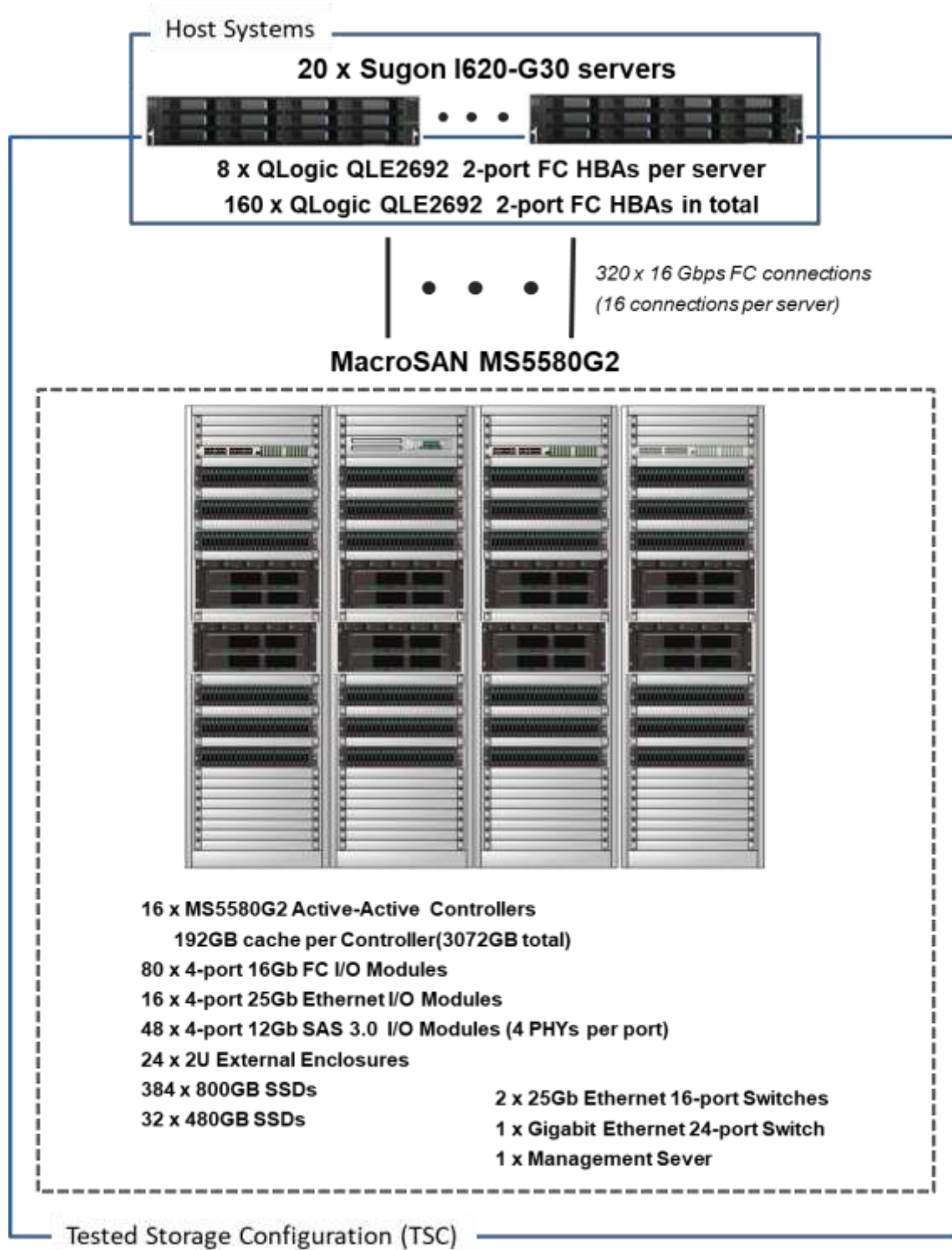
SPC-1 IOPS™	6,100,329
SPC-1 Price-Performance™	\$395.85/SPC-1 KIOPS™
SPC-1 IOPS™ Response Time	0.454 ms
SPC-1 Overall Response Time	0.307 ms
SPC-1 ASU Capacity	141,240.0 GB
SPC-1 ASU Price	\$17.10/GB
SPC-1 Total System Price	\$2,414,802.90
Data Protection Level	Protected 2 (RAID-10 and full redundancy)
Physical Storage Capacity	299,968 GB
Pricing Currency / Target Country	U.S. Dollars / People's Republic of China

SPC-1 V3.8.0

SUBMISSION IDENTIFIER: A31022

SUBMITTED FOR REVIEW: JULY 16, 2019

Benchmark Configuration Diagram



Tested Storage Product Description

MacroSAN MS5580G2 is a storage product which is aimed at large and medium size data centers. It integrates many advanced design concept and architecture technology to provide a safe, reliable and flexible storage platform. The MS5580G2 supports a maximum of 32 controllers with a maximum of 1,536GB cache per dual controllers.

The MS5580G2 can guarantee data safety by symmetric dual-active, replication, mirror image and snapshots. Furthermore, based on open data storage platform (ODSP), the MS5580G2 can realize interface development, customized function development and function migration. The MS5580G2 delivers leadership levels of reliability, functionality and manageability.

For more details, visit:

http://www.macrosan.com/en/product_detail.aspx?k1=2&k2=10&id=207

Priced Storage Configuration Components

160 x QLogic QLE2692 2-port FC HBAs
16 x MS5580G2 Active-Active Controllers, each with: 192GB cache (3072GB total)
80 x 4-port 16Gb FC I/O modules
16 x 4-port 25Gb Ethernet I/O modules
48 x 4-port 12Gb SAS 3.0 I/O modules (4 PHYs per port)
8 x 2U External Enclosures, each with: 4 x 480GB SSDs 16 x 800GB SSDs
16 x 2U External Enclosures, each with: 16 x 800GB SSDs
2 x 25Gb Ethernet 16-port switches
1 x Gigabit Ethernet 24-port switch
1 x Management Sever

Storage Configuration Pricing

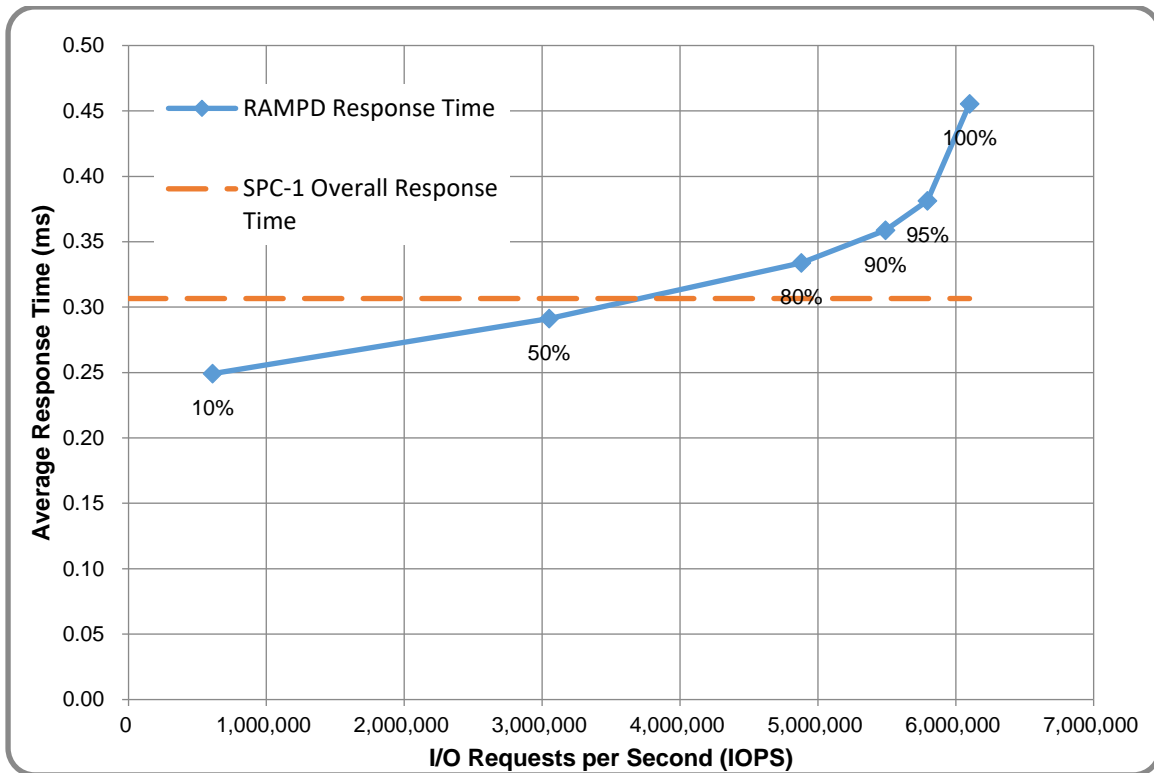
	Description	Qty	Unit Price	Ext. Price	Disc.	Disc. Price
Hardware & Software						
MS5580G2-384GB	MS5580G2 Storage Controllers Unit (Dual Controllers, 5U, 384GB cache, 3Y 7x9xND Basic Svc&Warranty)	8	77,826.09	622,608.70	50%	311,304.35
SSU2225B	SSU2225B SAS Switch Unit (Support 25 2.5 inch Disks, SAS 3.0)	8	6,130.43	49,043.48	50%	24,521.74
SSU2225	SSU2225 SAS Switch Unit (Support 25 2.5 inch Disks, SAS 3.0)	16	5,217.39	83,478.26	50%	41,739.13
MS2M1SD480G0M2AEB	480GB MLC SSD Drive(2.5") for SSU2225B	32	1,623.19	51,942.03	50%	25,971.01
MS2M2SD800GAM2AEA	800GB MLC SSD Drive(2.5") for SSU2225	384	7,826.09	3,005,217.39	50%	1,502,608.70
IOA6014A	4*48Gb SAS 3.0 IO Module	48	1,507.25	72,347.83	50%	36,173.91
IOA4014A	4*16Gb FC IO Module	80	3,478.26	278,260.87	50%	139,130.43
IOAC014A	4*25Gb Ethernet IO Module	16	1,855.07	29,681.16	50%	14,840.58
LIS_MS5580_BASE_STD	MacroSAN ODSP for Multi Control - MS5580G2 Storage Management Software (Basic Storage Management, CRAID, support FC&iSCSI, System Monitoring and Warning)-English Version	1	9,275.36	9,275.36	50%	4,637.68
LIS_MS5580_2C_EXPAND	MacroSAN ODSP-MS5580G2 Storage System Management Software - 2 Controllers EXPAND	7	9,971.01	69,797.10	50%	34,898.55
LC10-LC10-MI2-L5	10M Fiber Cable (Multimode, LC-LC)	320	20.29	6,492.75	50%	3,246.38
05020024	2*25Gb Multimode Optical Module QSFP+, AOC Fiber Cable-5M	32	753.62	24,115.94	50%	12,057.97
05020012	SAS Cable (1M, miniSAS HD-miniSAS HD)	192	0.00	0.00	0%	0.00
Qlogic QLE2692	Qlogic QLE2692 HBA Card, PCIE, 16Gbps 4-Ports, Fiber Channel Multimode LC Optic Interface	160	2,347.83	375,652.17	50%	187,826.09
Management Suite	Management Suite (1Gb Ethernet 24-port Switch*1, Management Sever*1, Network Cable 1Gbps-3M*17)	1	5,362.32	5,362.32	50%	2,681.16
Ethernet Switch	25Gb Ethernet 16-Port Switch	2	7,669.57	15,339.13	50%	7,669.57
Hardware & Software Subtotal						2,349,307.25
Support & Maintenance						
MS-5000-SV-BS-SPU	MS5580G2 Installation Service - Per Node	8	1,793.48	14,347.83	20%	11,478.26
MS-5000-SV-BS-DSU	MS5580G2 Installation Service - Per SSU	24	543.48	13,043.48	20%	10,434.78
MS-5000-SV-SS-1Y-SPU	MS5580G2 Svc&Warranty Upgrade - 7x24x4 Premium - Per Year Per Node	8	3,043.48	24,347.83	20%	19,478.26
MS-5000-SV-SS-1Y-DSU	MS5580G2 Svc&Warranty Upgrade - 7x24x4 Premium - Per Year Per SSU	24	1,255.43	30,130.43	20%	24,104.35
Support & Maintenance Subtotal						65,495.65
SPC-1 Total System Price						2,414,802.90
SPC-1 IOPS™						6,100,329
SPC-1 Price-Performance™ (\$/SPC-1 KIOPS™)						395.85
SPC-1 ASU Capacity (GB)						141,240
SPC-1 ASU Price (\$/GB)						17.10

Discount Details: The discounts shown are generally available, and based on the capacity and total price of the storage configuration purchased.

Warranty: Pricing includes Gold-Level Service with: 24x7 online support, unlimited software upgrades and bug fixes, and on-site presence of a qualified maintenance engineer within 4 hours of a problem acknowledgement, inside the Target Market.

Availability Date: Currently available.

Response Time and Throughput Graph



Contact Information	
Test Sponsor Primary Contact	MacroSAN Technologies Co., Ltd. – http://www.macrosan.com/ Yi Shen – shenyi@macrosan.com
SPC Auditor	InfoSizing – www.sizing.com Francois Raab – francois@sizing.com

Revision Information	
SPC Benchmark 1™ Revision	V3.8.0
SPC-1 Workload Generator Revision	V3.0.2
Publication Revision History	None