SPC BENCHMARK 1™

EXECUTIVE SUMMARY

IBM
IBM® DS8888

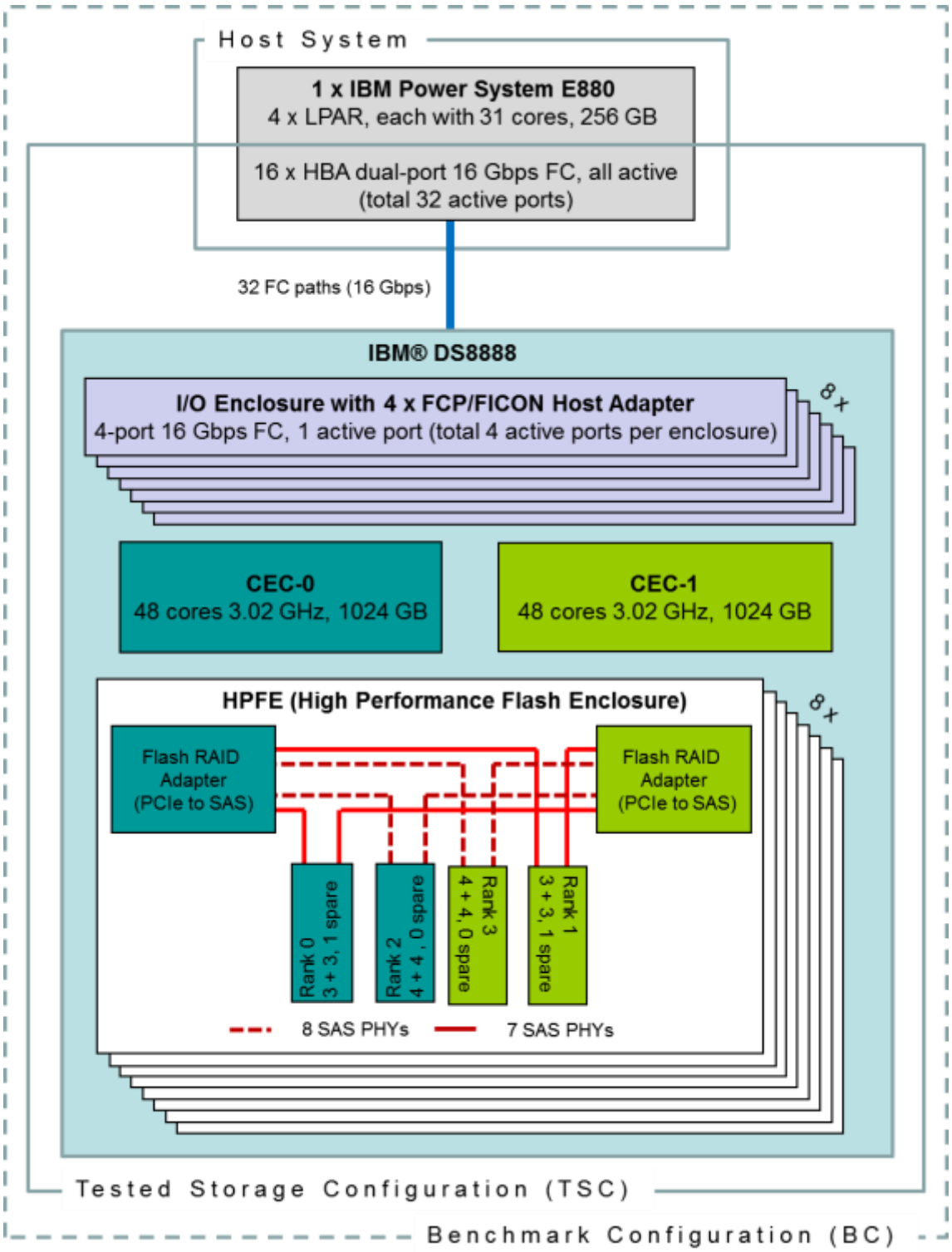
SPC-1 IOPS™	**1,500,187**
SPC-1 Price-Performance™	**$1,313.44/SPC-1 KIOPS™**
SPC-1 IOPS™ Response Time	0.60 ms
SPC-1 Overall Response Time	0.336 ms
SPC-1 ASU Capacity	34,360 GB
SPC-1 ASU Price	$57.35/GB
SPC-1 Total System Price	$1,970,396
Data Protection Level	Protected 2 (mirroring)
Physical Storage Capacity	96,000 GB
Pricing Currency / Target Country	U.S. Dollars / USA

SPC-1 V3.2

SUBMISSION IDENTIFIER: A31002

SUBMITTED FOR REVIEW: NOVEMBER 1, 2016

Benchmark Configuration Diagram



Tested Storage Product Description

The IBM® DS8888, an all flash storage system in the DS8000® product family, delivers world-class performance and data management in a single solution. The DS8888 changes the way companies do their business by accelerating application performance and improving server efficiency, delivering the benefits that make all-flash systems ready for broad enterprise deployment

Priced Storage Configuration Components

16 x 16Gb Dual-Port FC HBAs (all ports active)
1 x IBM DS8888 8 x I/O Enclosure, each with: 4 x FCP/FICON Host Adapter with 4-port 16Gbps FC (4 ports active per enclosure) PCIe connections to CECs PCIe connections to HPFEs 2 x CEC, each with: 4 x Power8 socket (12 cores, 3.02Ghz) 1024GB RAM 8 x HPFE (High Performance Flash Enclosure), each with: 2 x Flash RAID Adapter (PCIe to SAS) 30 x 400GB Flash Card, 1.8", dual SAS PHY

Storage Configuration Pricing

	Description	Qty	Unit Price	Ext. Price	Disc.	Disc. Price
Hardware						
2833-982	DS8888	1	78,015.00	78,015.00	50%	39,007.50
1052	Three phase DC-UPS	2	31,048.00	62,096.00	50%	31,048.00
1086	Three phase power cord	1	2,500.00	2,500.00	50%	1,250.00
1140	Mgmt console - Primary	1	12,120.00	12,120.00	50%	6,060.00
1302	I/O enclosure pair PCIe 3	2	17,140.00	34,280.00	50%	17,140.00
1410	50 um Fibre cable (LC)	32	110.00	3,520.00	50%	1,760.00
1500	High-performance flash enclosure	4	20,500.00	82,000.00	50%	41,000.00
1596	400 GB 1.8-inch flash card set A (	4	130,500.00	522,000.00	50%	261,000.00
1598	400 GB 1.8-inch flash card set B (	4	114,728.00	458,912.00	50%	229,456.00
1881	DS8000 LMC R8.1	1	20,000.00	20,000.00	50%	10,000.00
3353	16Gb 4-port SW FCP/FICON to PCIE	16	12,446.00	199,136.00	50%	99,568.00
4488	2 TB Processor memory (48-core c	1	331,400.00	331,400.00	50%	165,700.00
4888	48-core processor indicator	1	511,800.00	511,800.00	50%	255,900.00
AGA8	Shipping and handling 982	1	3,250.00	3,250.00	50%	1,625.00
2833-98F	DS8888 Expansion Unit	1	51,205.00	51,205.00	50%	25,602.50
1052	Three phase DC-UPS	2	31,048.00	62,096.00	50%	31,048.00
1086	Three phase power cord	1	2,500.00	2,500.00	50%	1,250.00
1302	I/O enclosure pair PCIe 3	2	17,140.00	34,280.00	50%	17,140.00
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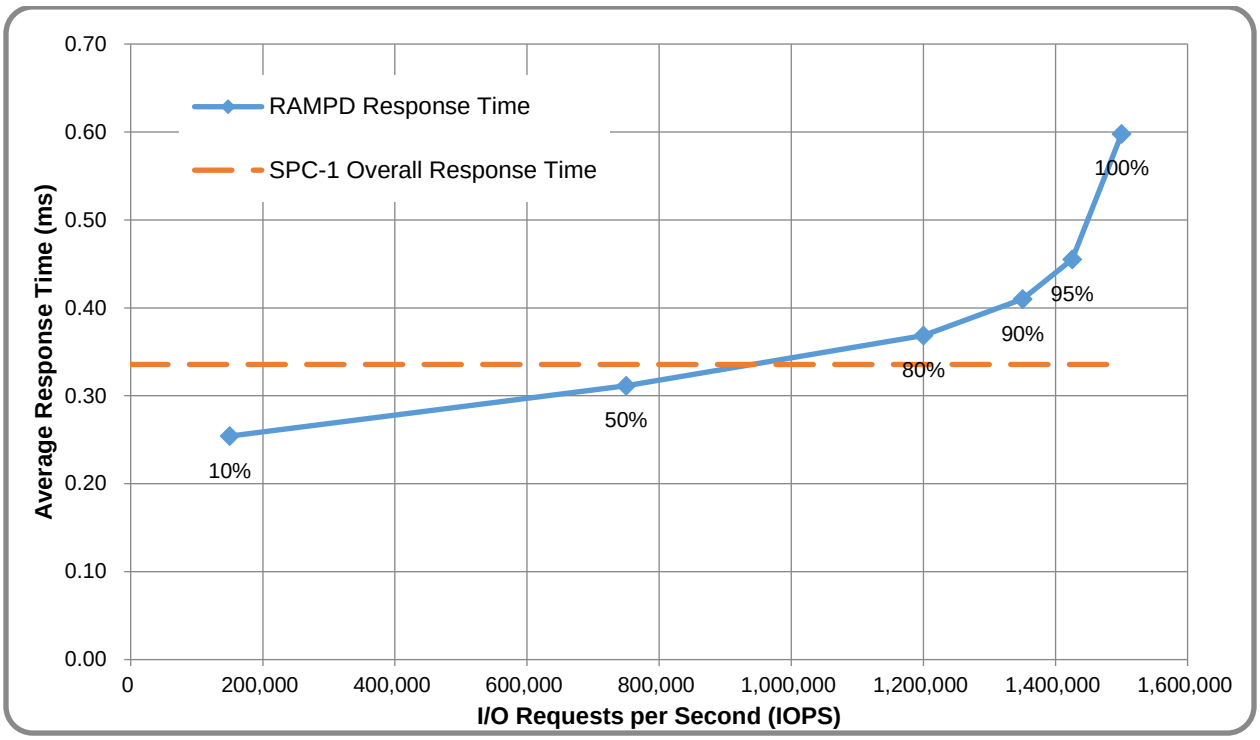
1598	400 GB 1.8-inch flash card set B (	4	114,728.00	458,912.00	50%	229,456.00
AGA9	Shipping and handling 98F	1	3,250.00	3,250.00	50%	1,625.00
2838-LF8	Adv Func License BF (up to 100TE	10	11,008.00	110,080.00	50%	55,040.00
9119-EN0A	PCIe2 16Gb 2-port FC Adapter	16	5,894.00	94,304.00	50%	47,152.00
				Hardware Subtotal		**1,970,396.00**
Support & Maintenance						
	3-year Warranty (7x24 @ 4h)		Included			0.00
				Support & Maintenance Subtotal		**0.00**
SPC-1 Total System Price						**1,970,396.00**
SPC-1 IOPS™						1,500,187
SPC-1 Price-Performance™ ($/SPC-1 kIOPS™)						**1,313.44**
SPC-1 ASU Capacity (GB)						34,360
SPC-1 ASU Price ($/GB)						**57.35**

Discount Details: The discounts shown are on a "field delegation" basis. A discount of 50 percent was applied to all priced components.

Warranty: 3-year warranty included on all components, with 7x24 service and 4-hour response.

Availability Date: November 30, 2016.

Response Time and Throughput Graph



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Revision Information	
SPC Benchmark 1™ Revision	V3.2.0
SPC-1 Workload Generator Revision	V3.0 build 2565
Publication Revision History	• First Edition: November 1, 2016 • Second Edition: February 15, 2018 - Updated SPC-1 Price-Performance™ metric based on SPC-1 v3.6.0 definition.