SPC Benchmark 1™

Executive Summary

Fujitsu Limited
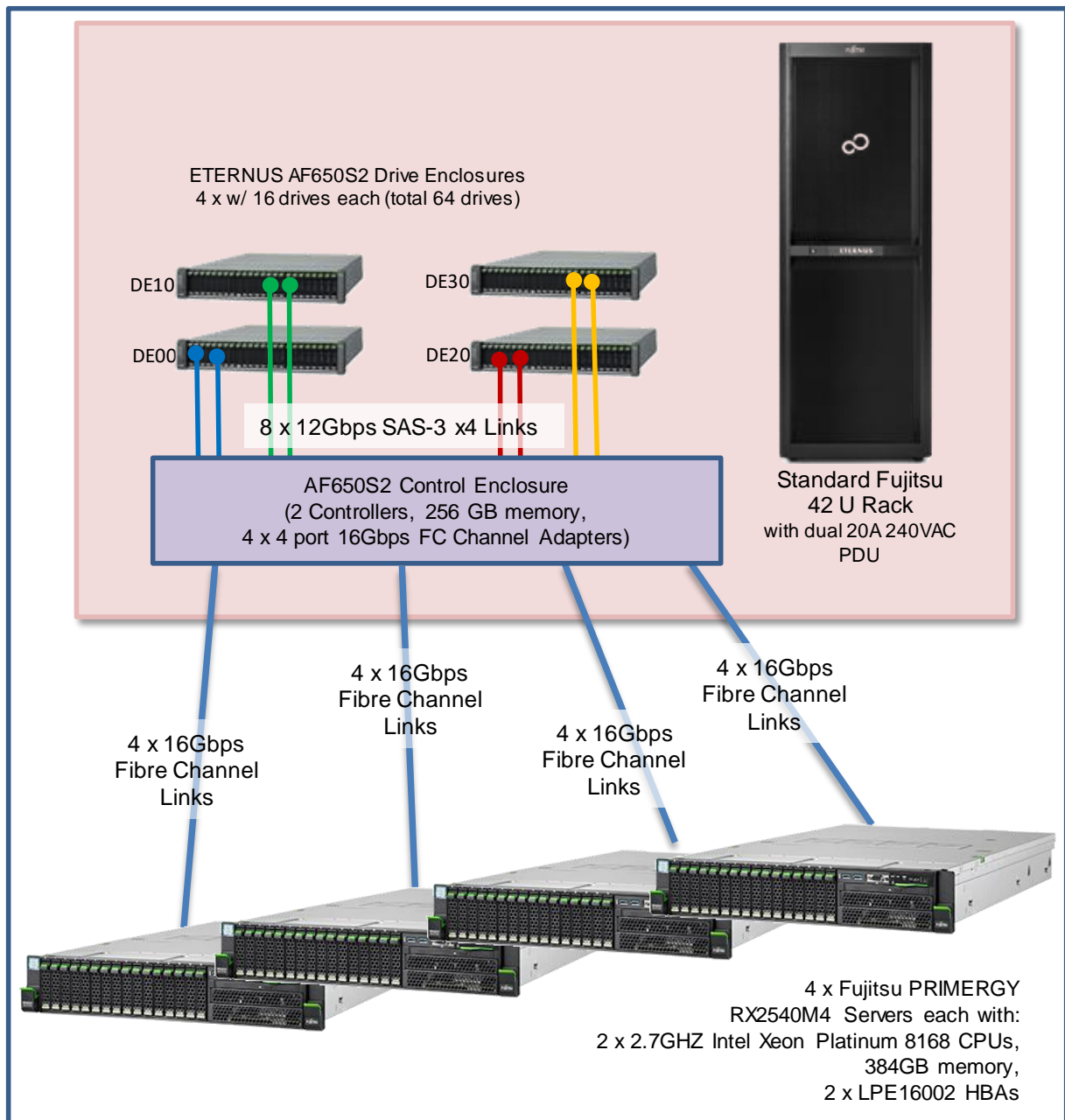## Eternus AF650 S2

SPC-1 IOPS™	620,153
SPC-1 Price-Performance™	$269.79/SPC-1 KIOPS™
SPC-1 IOPS™ Response Time	0.372 ms
SPC-1 Overall Response Time	0.248 ms
SPC-1 ASU Capacity	9,073 GB
SPC-1 ASU Price	$18.45/GB
SPC-1 Total System Price	$167,308.70
Data Protection Level	Protected 2 (RAID1)
Physical Storage Capacity	25,600 GB
Pricing Currency / Target Country	U.S. Dollars / USA

SPC-1 V3.5.0

Submission Identifier: A32004

Submitted For Review: January 19, 2018

Benchmark Configuration Diagram

ETERNUS AF650S2 Drive Enclosures
4 x w/ 16 drives each (total 64 drives)

DE10

DE30

DE00

DE20

8 x 12Gbps SAS-3 x4 Links

AF650S2 Control Enclosure
(2 Controllers, 256 GB memory,
4 x 4 port 16Gbps FC Channel Adapters)

Standard Fujitsu
42 U Rack
with dual 20A 240VAC
PDU

4 x 16Gbps
Fibre Channel
Links

4 x 16Gbps
Fibre Channel
Links

4 x 16Gbps
Fibre Channel
Links

4 x 16Gbps
Fibre Channel
Links

4 x Fujitsu PRIMERGY
RX2540M4 Servers each with:
2 x 2.7GHZ Intel Xeon Platinum 8168 CPUs,
384GB memory,
2 x LPE16002 HBAs

SPC Benchmark 1™ V3.5.0
Fujitsu Limited
Eternus AF650 S2

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Tested Storage Product Description

The ETERNUS AF650 S2 is the ideal choice for application scenarios with demanding data and performance requirements. The system delivers impressive IOPS performance with lowest latency even at full load. Thus, it offers a solution that resolves all performance issues in critical applications – such as real-time business analytics or VDI environments - without requiring any complicated tuning. It also fits best as general-purpose storage for all Tier-1 applications in small and mid-sized companies.

Priced Storage Configuration Components

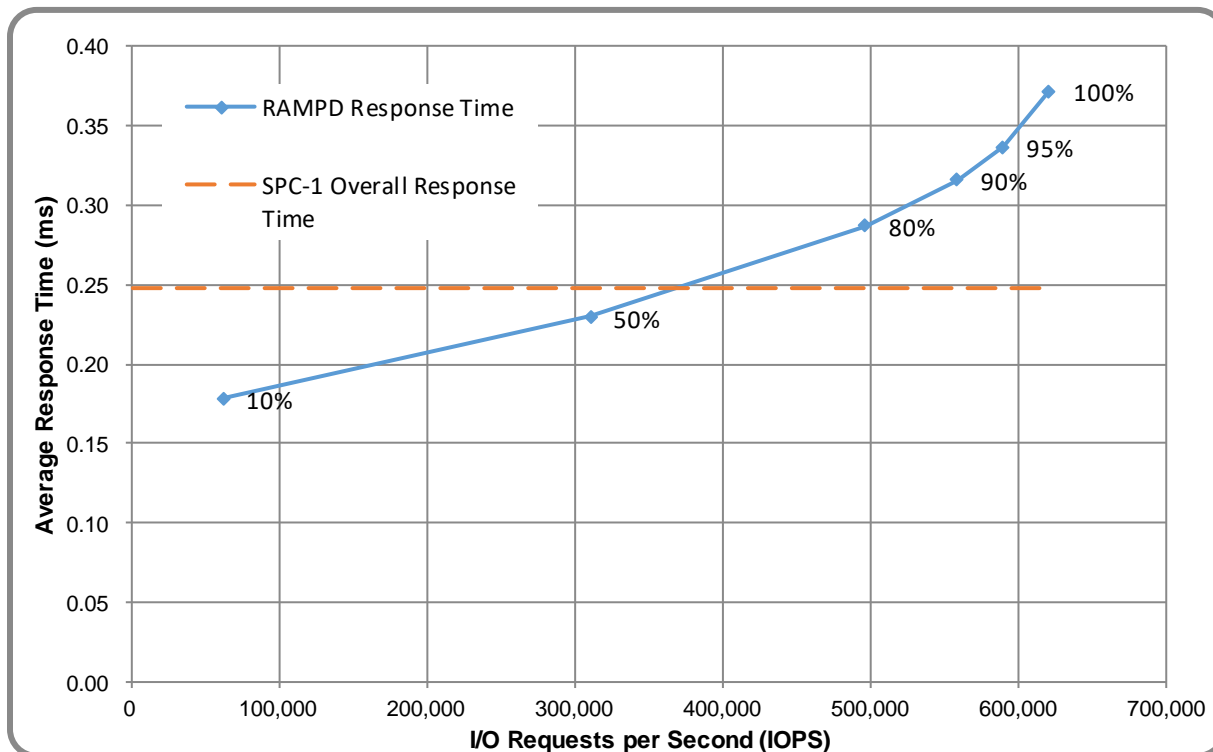| |
|---|
| **8 x Emulex LPE16002 dual port 16 Gb Fibre Channel HBAs** |
| **1 x AF650 S2, with:**
        2 x Controller Modules (CM) each with:
                256 GB cache (512 GB total)
                2 x Channel Adapter (CA) each with
                        4 x 16 Gps Fibre Channel Host Ports
        64 x 400 GB SSD devices (without Hot Spare) |

Storage Configuration Pricing

Product ID	Description	Qty	Unit Price	Ext. Price	Disc.	Disc. Price
	Hardware & Software					
ET652SAU	ETERNUS AF650 S2	1	$84,770.00	84,770	50%	42,385.00
ETQEADAU	Drive enclosure for AF650	4	$4,700.00	18,800	50%	9,400.00
ETQHH8A	Host interface for AF650(16Gbit/s, FC, 8port)	2	$8,310.00	16,620	50%	8,310.00
ETQSAF2	Value SSD(2.5inch) 400GB x12 for AF650	5	$20,900.00	104,500	50%	52,250.00
ETQSAF1	Value SSD(2.5inch) 400GB x1 for AF650	4	$2,100.00	8,400	50%	4,200.00
S26361-F4994-L502	PFC EP LPe16002	8	$1,373.00	10,984	50%	5,492.00
ETPKC10U	AC Power Cords (125V - IEC320-C14, 0.5m)	5	$130.00	650	50%	325.00
ETPP12U-L	Power Distribution Unit for DX (AC240V, 6 enclosures, 2RU)	1	$2,170.00	2,170	50%	1,085.00
PYRACK_S26361-K827-V340_206528-02	PRIMECENTER M1 RACK 642S (42U, 1050x600mm) with Front & Rear Doors, side panels	1	$3,157.00	3,157	50%	1,578.50
61-343827-003	LC-LC 10 GIGABIT MULTIMODE OM3 LASER OPTIMIZED DUPLEX 50/125 FIBER PATCH CABLE RISER RATED AQUA - 5M	16	$140.00	2,240	50%	1,120.00
				Hardware & Software Subtotal		**126,145.50**
	Support & Maintenance					
	Provide 24 hour per day / 7days per week 4 hour response maintenance for 36 months					
ETAF65-W059360-AED	ETERNUS AF650 Warranty, 36 Months, Basic Level, 12x5 Phone Support, 9x5 NBD Onsite	1	0	0	20%	0.00
ETAF65-U004361-AED	ETERNUS AF650 Warranty Uplift, 36 Months, Enhanced Plus Level, 24x7 4hr Onsite, Prepaid billing	1	51,454	51,454	20%	41,163.20
				Support & Maintenance Subtotal		**41,163.20**
	SPC-1 Total System Price					**167,308.70**
	SPC-1 IOPS™					620,153
	SPC-1 Price-Performance™ ($/SPC-1 KIOPS™)					**269.79**
	SPC-1 ASU Capacity (GB)					9,073
	SPC-1 ASU Price ($/GB)					**18.45**

Discount Details: The discounts shown are based on the storage capacity purchased and are generally available.

Warranty: The 3-year maintenance and support included in the above pricing meets or exceeds a 24x7 coverage with a 4-hour response time.

Availability Date: January 24, 2018.

Response Time and Throughput Graph

Contact Information	
Test Sponsor Primary Contact	Fujitsu Limited – http://www.fujitsu.com/services/computing/storage/ Kun Katsumata – kkatsumata@us.fujitsu.com
SPC Auditor	InfoSizing – www.sizing.com Doug Johnson – doug@sizing.com

Revision Information	
SPC Benchmark 1™ Revision	V3.5.0
SPC-1 Workload Generator Revision	V 03.00.2551
Publication Revision History	• First Edition: January 19, 2018 • Second Edition: February 15, 2018 ○ Updated SPC-1 Price-Performance™ metric based on SPC-1 v3.6.0 definition.