FUJITSU

Data Sheet
FUJITSU Storage ETERNUS AF650
All-Flash Array

Transform with Flash!

ETERNUS AF Storage

FUJITSU Storage ETERNUS AF is an incredibly fast and flexible all-flash storage system for the next generation data center. At an affordable price point, it makes flash the new normal for all tier-1 applications in enterprise IT. Response times are ultra-low – in fact, they set performance records. The ETERNUS AF is also built to be smart, with easily-configurable automated quality of service to ensure each app gets the performance it needs, plus flexible deduplication and compression that can be turned on when required – and off when not. It keeps data safe as houses, with full-fledged DR with mirroring and automated transparent failover.

ETERNUS AF650

The Fujitsu All-Flash Storage system ETERNUS AF650 delivers leading storage performance and automated quality of service management enabling a maximum of system utilization and contributing to a fast ROI. It is the perfect solution when consolidating data of large-scale databases, business-critical applications and business analytics / big data – all into one all-flash system. Extensive high-availability and disaster recovery capabilities make ETERNUS AF650 an ideal storage system for any kind of business data.

Green IT

Green Policy Innovation

Green Product
This product cleared our company's original evaluation standard which followed global environmental measures.

intel XEON inside™

vmware READY STORAGE

Features & Benefits

Main Features	Benefits
Based on ETERNUS DX standard architecture	■ Performance optimized design ■ Proven and mature technology ■ Common management across all-flash and hybrid ETERNUS storage systems
Flexible and flash optimized storage	■ Ultra-low response times for all applications ■ Massive increase of IOPS ■ No complicated tuning measures required ■ Scalable in capacity and connectivity
Selective use of deduplication / compression	■ Decide on volume label whether to use it or not ■ Cost reduction for flash ■ Increased lifespan of flash
Automated Quality-of-Service	■ Control of applications priorities according to business needs. ■ Automation of monitoring and adjustment ■ Minimization of admin efforts ■ Guaranteed service levels
Storage Cluster Option/Transparent failover	■ Avoid planned or unplanned downtimes ■ Enjoy 100% data insurance and non-stop operations
Convincing access performance and latency ■ Random access performance: Up to 2.560.000 IOPS (4 KB Blocks) ■ Sequential access performance: Max. 12 GB/s (128 KB Blocks) ■ Latency: Less than 0.1 ms (4 KB Blocks)	■ Sufficient performance for all applications requiring high data rates and low response times

Technical details

General system information

	2.5-inch Controller Enclosure
No. of controllers	2
No. of host interfaces	32 ports [FC(16Gbit/s)], 16 ports [iSCSI(10Gbit/s)]
Maximum System Memory	256 GB
Maximum Disk Drives	96
Supported RAID levels	0, 1, 1+0, 5, 5+0, 6
Host Interfaces	Fibre Channel (16 Gbit/s)
	iSCSI (10 Gbit/s)
Max. no. of hosts	4,096
Maximum Storage Capacity	368.64 TB
Drive Type	2.5-inch, SSD (3.84 TB / 1.92 TB / 960GB / 400 GB)
	2.5-inch, SSD (self-encrypting) (1.92 TB)
Drive interface	Serial Attached SCSI (12 Gbit/s)
Back-end disk connectivity	4 pairs of four-lane x 12 Gbit/s Serial Attached SCSI buses (SAS 3.0 wide)
Max. no. of LUNs	6,144
No. of snapshots - max.	8,192
Max. no. of copy generations	512
Deduplication	for block
Compression	for block

Performance

Latency	Write 60 µs, Read 160 µs (Minimum)
Sequential access performance	2,560,000 IOPS (100 % Read, 4 KB Blocks)
Random access performance	620,000 IOPS (100 % Read, 4 KB Blocks)

Performance management

Automated Storage Tiering	Yes
Quality of Service	Yes
Automated QoS	Yes
Wide striping	Yes
Note	Automation options can be activated via ETERNUS SF Software

Continuity management

Storage Cluster	Yes
Remote Copy functionality	Synchronous and asynchronous
Note	Options can be activated via ETERNUS SF Software

Information security management

Data confidentiality	Self-Encrypting Disk, Controller based Encryption, HTTPS (SSL), One Time Password, RADIUS, SSH
Data integrity	Cache Protection, Data Block Guard, Disk Drive Patrol

Availability management

Non-disruptive maintenance	Dedicated Hot Spare, Global Hot Spare
Non-disruptive firmware upgrade	Yes
Redundancy	RAID Controller, Power supply, Fan
Hot part replacement	Yes

Capacity management

Thin Provisioning	Yes
RAID migration	Yes
LUN online expansion w/o interruption	Yes
Reporting function	Yes
Hot part expansion	Yes

Management

Interfaces	Ethernet (1000 Base-T / 100 Base-TX / 10 Base-T)
Supported protocols	SNMP (version1, 2C, 3), SMI-S 1.6
Administration	Web-based graphical user interface, CLI (Command Line Interface), ETERNUS SF
Remote Support	Event notification (E-mail / SNMP / Syslog), Remote maintenance

Supported configurations

All major host operating systems, servers and business applications
Detailed support matrix:
http://www.fujitsu.com/global/services/computing/storage/eternus/products/diskstorage/dx200/#Tab0-4

Installation specification

	2.5-inch Controller Enclosure	2.5-inch Drive Enclosure
19" rackmount	Yes	
Service Area	Front: 850 mm (33.5 inch) or more Rear: 850 mm (33.5 inch) or more	
Power voltage	AC 100 - 120 V / AC 200 - 240 V	
Power frequency	50 / 60 Hz	
Power supply efficiency	92 % (80 PLUS gold)	
Power phase	Single	
Dimensions (W x D x H)	482 x 805 x 133 mm 19 x 31.7 x 5.2 inch 3 U	482 x 540 x 88 mm 19 x 21.3 x 3.5 inch 2 U
Weight	54 kg (119 lb)	35 kg (77 lb)
Maximum Power Consumption (AC 100 - 120 V)	760W (770VA)	430W (440VA)
Maximum Power Consumption (AC 200 - 240 V)	870W (880VA)	430W (440VA)

Environment

Temperature (operating)	10 - 40 ℃
Temperature (not operating)	0 - 50 ℃
Humidity (operating)	20 - 80 % (relative humidity, non-condensing)
Humidity (not operating)	8 - 80 % (relative humidity, non-condensing)
Altitude	3,000 m (10,000 ft.)
Sound pressure (LpAm)	54dB(A)
Sound power (LWAd; 1B = 10dB)	7.2B
Noise notes	Measured with single enclosure according to ISO 7779 and declared according to ISO 9296
Operating environment	FTS 04230 – Guideline for Data Center (installation specification)
Operating environment link	http://docs.ts.fujitsu.com/dl.aspx?id=e4813edf-4a27-461a-8184-983092c12dbe

Type	2.5-inch Controller Enclosure	2.5-inch Drive Enclosure
Maximum Heat Generation (AC 100 - 120 V)	2800 kJ/h	1600 kJ/h
Maximum Heat Generation (AC 200 - 240 V)	3200 kJ/h	1600 kJ/h

Compliance

Product safety	UL 60950-1, CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1, TP TC 004/2011
Electromagnetic Compatibility	FCC Part-15 Subpart B Class A, ICES-003 Class A, EN55022 Class A, EN 61000-3-2, EN 61000-3-3, EN 55024, VCCI Class A, JIS C 61000-3-2, AS/NZS CISPR22 Class A, TP TC 020/2011, CNS13438 (C6357) Class A, KN22 Class A, KN24 Class A
Electromagnetic Immunity	EN 55024
CE certification	2014/30/EU, 2014/35/EU, 2011/65/EC
Approvals	CB, CE, C-Tick, FCC, EAC, GS, VCCI
Environmental compliance	RoHS compliant, WEEE compliant
Compliance notes	There is general compliance with the safety requirements of all European countries and North America. National approvals required in order to satisfy statutory regulations or for other reasons can be applied for on request.
Compliance link	http://globalsp.ts.fujitsu.com/sites/certificates

Warranty	
Warranty period	3 years
Warranty type	Onsite warranty
Warranty Terms & Conditions	www.fujitsu.com/support
Product Support Services - the perfect extension	
Support Pack Options	Globally available in major business areas: 9x5, Next Business Day Onsite Response Time 9x5, 4h Onsite Response Time 24x7, 4h Onsite Response Time
Recommended Service	24x7, Onsite Response Time: 4h
Service Lifecycle	5 years after end of product life
Service Weblink	http://www.fujitsu.com/support

Fujitsu OPTIMIZATION Services

In addition to Fujitsu ETERNUS AF650, Fujitsu provides a range of platform solutions. They combine reliable Fujitsu products with the best in services, know-how and worldwide partnerships.

Fujitsu Portfolio
Built on industry standards, Fujitsu offers a full portfolio of IT hardware and software products, services, solutions and cloud offering, ranging from clients to datacenter solutions and includes the broad stack of Business Solutions, as well as the full stack of Cloud offerings. This allows customers to select from alternative sourcing and delivery models to increase their business agility and to improve their IT operation's reliability.

Computing Products
www.fujitsu.com/global/products/computing/

Software
www.fujitsu.com/software/

More information

Learn more about Fujitsu ETERNUS AF650, please contact your Fujitsu sales representative or Fujitsu Business partner, or visit our website. www.fujitsu.com/eternus

Fujitsu green policy innovation

Fujitsu Green Policy Innovation is our worldwide project for reducing burdens on the environment.
Using our global know-how, we aim to contribute to the creation of a sustainable environment for future generations through IT. Please find further information at http://www.fujitsu.com/global/about/environment

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