Datasheet

NetApp FAS8000 Series

Respond more quickly to changing IT needs with unified scale-out storage and industry-leading data management

Key Benefits

Support More Workloads
Run SAN and NAS workloads simultaneously with the industry's only unified scale-out storage.

Consolidate Infrastructure
Expand scaling up to 103PB and include existing storage with FlexArray™.

Accelerate I/O-Intensive Apps
Reduce latency and speed operations with up to 1.7PB of hybrid flash.

Maximize Uptime
Experience >99.999% availability plus nondisruptive operations that eliminate planned downtime.

Realize Superior Value
Deliver up to 2x the price/performance of the previous generation.

Optimized for the Hybrid Cloud
Easily implement a service-oriented IT architecture that spans on-premises and off-site resources.

The Challenge
Enabling the data-driven business
As the role of technology has expanded to cover key business operations as well as back-office functions, IT leaders have had to rethink the way they architect storage. Traditional requirements such as storage uptime, scalability, and cost efficiency are still critical, but so are factors such as cloud integration, unified support for SAN and NAS, and simplified data mining for competitive advantage.

Many enterprises struggle, held back by structural limitations in legacy storage and data architectures. Traditional storage arrays might deliver on basic needs, but are incapable of meeting advanced service requirements and new IT models such as cloud.

The Solution
Accelerate business operations with unified scale-out storage
The demands of a data-driven business require a fundamentally new approach to storage with an integrated combination of high-performance hardware and adaptive, scalable storage software. It needs to support existing workloads as well as adapt and scale quickly to address new applications and evolving IT models.

FAS8000 enterprise storage systems are engineered specifically to address these needs. Powered by NetApp® Data ONTAP® and optimized for scale-out, the FAS8000 series unifies your SAN and NAS storage infrastructure. With proven data management capabilities, the FAS8000 has the flexibility to keep up with changing business needs while delivering on core IT requirements.

The FAS8000 features a multiprocessor Intel chip set and leverages high-performance memory modules, NVRAM to accelerate and optimize writes, and an I/O-tuned PCIe gen3 architecture that maximizes application throughput. Building on a decade of multicore optimization, Data ONTAP drives the latest cores and increased core counts to keep up with continuous growth in storage demands. The result is a flexible, efficient I/O design capable of supporting large numbers of high-speed network connections and massive capacity scaling.

FAS8000 scale-out storage systems offer exceptional flexibility and expandability. Integrated unified target adapter (UTA2) ports support 16Gb Fibre Channel, 10GbE, or FCoE, so your storage is ready on day one for whatever choices the future holds.

■ NetApp®

Figure 1) NetApp FAS8000 controllers.

For performance-intensive environments where maximum scale and I/O throughput are necessary to drive business-critical applications, NetApp offers the FAS8080 EX. You can find out more in the FAS8080 EX datasheet.

Get more from existing storage investments
Simplify your IT operations and deliver more value from existing storage with the only unified storage virtualization solution. FlexArray virtualization software running on FAS8000 extends the capabilities of Data ONTAP to include storage capacity from EMC, Hitachi, HP, and NetApp E-Series arrays. Consolidate management of your existing storage to increase efficiency and provide superior functionality.

This software creates a single storage management architecture that supports both SAN and NAS while simplifying management and cloud integration.

Scale and adapt to meet changing needs
Your business is constantly changing. Your storage infrastructure should adapt and scale right along with it. With FAS8000 unified scale-out storage, you can optimize and accelerate your storage environment as needed. All FAS8000 storage is designed to scale as performance and capacity requirements change.

You can scale up—by adding capacity, adding flash acceleration, and upgrading controllers—and scale out. A single cluster can grow up to 24 nodes and 103PB of capacity with ease.

Because you can nondisruptively add or replace storage systems and components as well as mix and match different FAS models, scaling occurs without maintenance windows or the challenge of coordinating downtime across teams.

Unlock the full power of flash
Flash-accelerated FAS8000 storage systems deliver twice the performance of our previous generation storage, boosting throughput, lowering latency, and meeting stringent service levels with predictable high performance. Data ONTAP on the FAS8000 simplifies flash management, resulting in more powerful hybrid storage.

In hybrid FAS8000 configurations, flash functions as a self-managing virtual storage tier with up to 144TB of flash per HA pair and 1.7PB per cluster. Hot data is automatically promoted to flash in real time, so you get the full benefit of flash performance.

The All Flash FAS (AFF) family of all flash arrays are optimized for applications that require high performance, low latency, and rich data management. See the All Flash FAS datasheet for details.

Enable innovation and empower users
In a data-driven business, performance and capacity alone are not enough. You need the ability to leverage data for competitive advantage and to assign resources dynamically for more effective operations.

The NetApp OnCommand® storage management software portfolio is composed of a range of products for use with the NetApp FAS8000, including device-level management, automation, integration, and enterprise storage resource management.

NetApp OnCommand software-defined storage products provide flexibility, scalability, simplified provisioning, and data protection to meet business needs today and the changing needs of the future.

Achieve unparalleled availability and nondisruptive operations
FAS8000 enterprise storage is engineered to meet the most demanding availability requirements. All models are designed to deliver 99.999% availability or greater through a comprehensive approach that combines highly reliable hardware, innovative software, and sophisticated service analytics.

Software and firmware updates, hardware repair and replacement, load balancing, and tech refresh happen without planned downtime. NetApp Integrated Data Protection technologies protect your data, accelerate recovery, and integrate with leading backup applications for easier management.

Advanced service analytics software prevents issues from becoming outages. Risk signatures are constantly monitored, and your administrators and/or NetApp service staff are alerted to proactively address issues that might affect operations.

NetApp MetroCluster™ expands data protection to eliminate risk of data loss by synchronously mirroring data between locations for continuous availability of information. A MetroCluster storage

Figure 2) FAS8080 EX controllers.

array can exist in a single data center or in two different data centers that are located across a campus, across a metropolitan area, or in different cities altogether. MetroCluster provides data protection combined with continuous data availability. This means that no matter what happens, your data can be protected from loss and is continuously available to meet the most business-critical needs.

Build the right long-term platform

When it comes to long-term storage infrastructure investments, total cost of ownership and the ability to accommodate new IT initiatives are critical. FAS8000 enterprise storage systems unlock the power of your data and your people.

In addition to a significant price/performance benefit—up to two times that of the previous generation—the FAS8000 platform delivers industry-leading storage efficiency technologies such as deduplication, compression, thin provisioning, and space-efficient Snapshot® copies. This reduces your cost per effective gigabyte of storage.

Optimize hybrid cloud deployment

Organizations today are focusing on service-oriented IT architectures where cloud IT models are leveraged to enhance return on investment and assets. FAS8000 running Data ONTAP is optimized for private and hybrid cloud with secure multi-tenancy, QoS, nondisruptive operations, and easily defined tiers of service.

A FAS8000 tightly integrated with the industry standard OpenStack cloud infrastructure enables an organization to build a private cloud that delivers a leading service-oriented IT architecture and meets the demanding needs of enterprise applications.

For organizations that need an enterprise-class hybrid cloud with predictable performance and availability, the FAS8000 can be used in a NetApp Private Storage (NPS) for Cloud solution. With NPS for Cloud you can directly connect to multiple clouds using a private, high- bandwidth, low-latency connection. Connect to industry-leading clouds such as Amazon Web Services (AWS), Microsoft Azure, or SoftLayer and switch between them at any time, all while maintaining complete control of your data on your dedicated, private FAS8000. You get the elasticity of the public cloud and protect your data with NetApp technologies that you understand and trust.

For maximum flexibility, Cloud ONTAP™ provides superior data portability at the best ROI. Cloud ONTAP is a software-defined storage version of Data ONTAP that runs in AWS and provides the storage efficiency, availability, and scalability of Data ONTAP. It allows quick and easy movement of data between your on-premises FAS8000 and AWS environments with NetApp SnapMirror® data replication software.

Get More Business Value with Services

Whether you are planning your next-generation environment, need specialized know-how for a major deployment, or want to get the most from your current storage, NetApp and our certified partners can help.

We collaborate with you to enhance your IT capabilities through a full portfolio of services that covers your IT lifecycle with:

• **Strategy services** to align IT with your business goals
• **Design services** to architect your best storage environment
• **Deploy and transition services** to implement validated architectures and prepare your storage environment
• **Operations services** to deliver continuous operations while driving operational excellence and efficiency

In addition, NetApp provides in-depth knowledge transfer and education services that give you access to our global technical resources and intellectual property.

Learn more at netapp.com/services.

About NetApp

Leading organizations worldwide count on NetApp for software, systems and services to manage and store their data. Customers value our teamwork, expertise and passion for helping them succeed now and into the future.

www.netapp.com

FAS8000 Technical Specifications

Scale-Out

	FAS8080 EX	FAS8060	FAS8040	FAS8020
NAS scale-out	1–24 nodes (12 HA pairs)			
Maximum drives (HDD/SSD)	17,280/2,880	14,400/2,880	8,640/2,880	5,760/2,880
Maximum raw capacity	103PB	86PB	51PB	34PB
Maximum Flash Cache™	576TB	192TB	32TB	24TB
Maximum Flash Pool™	1728TB	864TB	576TB	288TB
Maximum memory	3072GB	1536GB	768GB	576GB
SAN scale-out	1–8 nodes (4 HA pairs)			
Maximum drives (HDD/SSD)	5,760/960	4,800/960	2,880/960	1,920/960
Maximum raw capacity	34PB	28PB	17PB	11.5PB
Maximum Flash Cache	192TB	64TB	32TB	24TB
Maximum Flash Pool	576TB	288TB	192TB	96TB
Maximum memory	1024GB	512GB	256GB	192GB
Cluster interconnect	2, 4, or 6 10GbE	2 or 4 10GbE	2 or 4 10GbE	2 10GbE

Per HA Pair Specifications (Active-Active Dual Controller)

	FAS8080 EX	FAS8060	FAS8040	FAS8020
Maximum drives (HDD/SSD)	1,440/240	1,200/240	720/240	480/240
Maximum raw capacity	8640TB	7200TB	4320TB	2880TB
Maximum Flash Cache	24TB	8TB	4TB	3TB
Maximum Flash Pool	144TB	72TB	48TB	24TB
Controller form factor	12U (2 enclosures)	6/12U[2]	6U	3U
ECC memory	256GB	128GB	64GB	48GB
NVRAM	32GB	16GB	16GB	8GB
PCIe expansion slots	24	8/24[3]	8	4
Onboard I/O: UTA 2 (16Gb FC/FCoE/10GbE)	8	8	8	4
Onboard I/O: GbE	8	8	8	4
Onboard I/O: 10GbE	8	8	8	4
Onboard I/O: 6Gb SAS	8	8	8	4
OS version	Data ONTAP 8.2.2 and later		Data ONTAP 8.2.1 and later	
Shelves and media	See the Shelves and Media page[1] on NetApp.com for the most current information.			
Storage protocols supported	FC, FCoE, iSCSI, NFS, pNFS, CIFS/SMB			
Host/client operating systems supported	Windows 2000, Windows Server 2003, Windows Server 2008, Windows Server 2012, Windows XP, Linux, Sun Solaris, AIX, HP-UX, Mac OS, VMware, ESX			

1. netapp.com/us/products/storage-systems/disk-shelves-and-storage-media/index.aspx.
2. 6U with two controllers in a single enclosure. 12U with two controllers in two separate enclosures (and a PCIe expansion module in each enclosure).
3. 24 PCIe slots with the PCIe expansion module.

NetApp FAS8000 Series Software

Features and software included with Data ONTAP	**Efficiency:** FlexVol®, deduplication, compression, and thin provisioning **Availability:** MetroCluster and multipath I/O **Data protection:** RAID DP® and Snapshot **Performance:** Storage QoS **Management:** OnCommand Unified Manager, OnCommand Performance Manager, Workflow Automation, OnCommand API Services. OnCommand System Manager is bundled with Data ONTAP
Extended value software (optional)	• FlexArray storage virtualization software • OnCommand Insight • SnapProtect® • Storage protocols (purchase each storage protocol you require) A Premium Bundle is available for purchase with FAS8000 systems that includes: • SnapRestore®: Restore entire Snapshot copies in seconds • SnapMirror: Simple, flexible disaster recovery • FlexClone®: Instant virtual copies of files, LUNs, and volumes • SnapManager® software: Backup/recovery for enterprise applications • SnapVault®: Disk-based backup See NetApp.com for information on additional software available from NetApp.