

Data-Centric Storage

Reliable and efficient data services
with FUJITSU Storage ETERNUS

FUJITSU



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shaping tomorrow with you

ETERNUS – Data-Centric Storage

The ability to monetize data is essential for digital transformation. However, data relevant to business decisions no longer resides in the data center alone – it is extremely dispersed and also located on user devices, in the cloud, at service providers, customers, partners, suppliers, documentation archives and many other places. Depending on your business scenario, you need storage technologies that optimally support your requirements to control this ever-increasing chaos:

- In real-time business analytics, large data volumes require faster storage response times for as long as the data sets are relevant.
- Storage systems for business-critical data need to be more scalable and provide stronger fault tolerance.

- Extreme growth of unstructured data triggered by data services like online archives, file sharing, video streaming, etc. drive the need for new mid-term and long-term storage architectures for a second storage tier.
- What's more, backup and archiving needs to scale to greater dimensions.

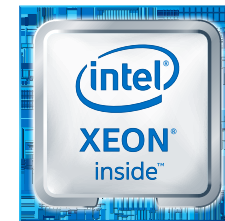
Fujitsu Data-Centric Storage is comprised of effective solutions that help storage professionals provide the right data service levels with reduced cost per gigabyte for all business scenarios.



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The right storage solution for every purpose



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With Fujitsu's new generation of ETERNUS storage solutions, you can master any challenge arising from digital transformation. ETERNUS systems provide better business support at lower cost. They enable you to align existing storage resources with business priorities by providing features like automated quality of service. At the same time, new performance levels contribute to better system utilization, which has a direct impact on ROI.

The ETERNUS line-up is comprised of compelling solutions for all tasks ranging from applications that demand ultra-fast response times, consolidation of different types of data in a single system, and deployment of hyper-scale, software-defined storage to extremely powerful data protection solutions that can be managed very easily and efficiently.

- **ETERNUS AF** all-flash storage excels in recognized benchmarks by delivering incredible storage performance and extremely reliable data services at highly competitive prices.
- **ETERNUS DX** hybrid storage allows you to achieve a maximum of storage consolidation for structured and unstructured data by balancing speed, capacity and cost in one system.
- **ETERNUS AB/HB**: end-to-end NVMe-ready all-flash and hybrid storage systems with the performance and efficiency of block storage systems, offering best-in-class IOPS and balanced speed, capacity, and costs. Extremely scalable, shipped with software that considerably simplifies configuration and data management.
- **ETERNUS Data Services Platform (DSP)** is a software-based data services platform that powers high-performance application environments at a global scale, with game-changing data orchestration and automation, with a 70% lower total cost of ownership and operation.
- **ETERNUS CS** data protection solutions enable you to rigorously consolidate your backup, archive and second-tier storage infrastructures and support the business with top service levels.
- **ETERNUS LT** systems perfectly meet the requirements of low-cost backup and long-term archiving in both homogeneous and heterogeneous environments.

ETERNUS Storage



ETERNUS AF

accelerates data flows with all flash storage



ETERNUS DX

hybrid storage effectively consolidates storage infrastructures



ETERNUS AB/HB

NVMe-ready flash and hybrid block storage for stand-alone applications



ETERNUS DSP

software-based data services platform for all application environments



ETERNUS CS

backup & archive solutions leveraging disk, deduplication and tape technologies



ETERNUS LT

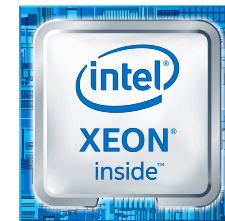
backup to tape systems providing the most cost-efficient backup infrastructure

Storage for production

Storage for backup and archiving



Accelerate data access with ETERNUS AF all-flash storage



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The FUJITSU Storage ETERNUS AF delivers flash performance plus seamless management integration with existing disk storage environments, thus ensuring a smooth transition of data centers to flash. Customers benefit from ultra-fast response times that set performance records thanks to sophisticated inline efficiency technologies. What's more, mirroring and transparent failover ensure nonstop operation, and automated quality of service substantially minimizes administration. In addition, ETERNUS AF cuts operational costs by reducing storage space by up to 66 percent, power consumption by 95 percent and administration costs by 40 percent.

How ETERNUS AF differs from other flash arrays

- Based on an end-to-end optimized performance architecture, ETERNUS AF storage delivers leading response times that provide large-scale data performance headroom for all types of applications.
- With selective use of data reduction technologies, automated quality of service and full management integration with ETERNUS DX hybrid systems, ETERNUS AF systems are unmatched in operational efficiency.
- ETERNUS AF provides the most comprehensive HA and DR capabilities, including mirroring, replication and transparent system failover. This works not only between different ETERNUS AF models, but also with ETERNUS DX hybrid storage to enable cost reductions at recovery sites and a smooth transition from disk to flash.

FUJITSU Storage ETERNUS AF – superior performance and high-availability at reasonable costs

- Performance of more than 900,000 IOPS, 22 GB/s throughput with latency of only 0.3 ms at full load
- Highest business continuity with transparent failover (flash to flash and flash to disk)
- All-inclusive management, deduplication/compression, mirroring and replication functions at no extra cost



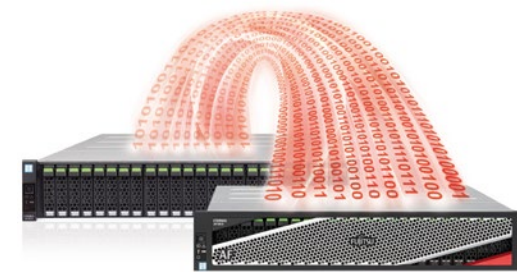
ETERNUS AF150



ETERNUS AF250



ETERNUS AF650



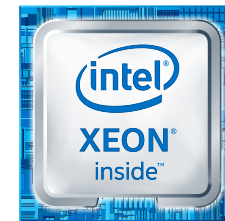
ETERNUS Storage Cluster

Synergy effects provided by the ETERNUS AF/DX family concept

- **ETERNUS Storage Management Software** is the unified management system for the ETERNUS AF/DX family. It ensures that an IT administrator, once trained to operate a specific system, will also be able to manage the other models within the family.
- **ETERNUS Family Concept** ensures the unified management of all ETERNUS AF/DX storage systems via the ETERNUS SF platform. And you also benefit from easy upgrade options and very efficient disaster resilience solutions, such as ETERNUS Storage Cluster.
- **ETERNUS Storage Cluster** automatically executes failover in both directions and between different ETERNUS DX hybrid storage and ETERNUS AF all-flash models, thus supporting nonstop operations very efficiently.



Consolidate storage with ETERNUS DX hybrid storage



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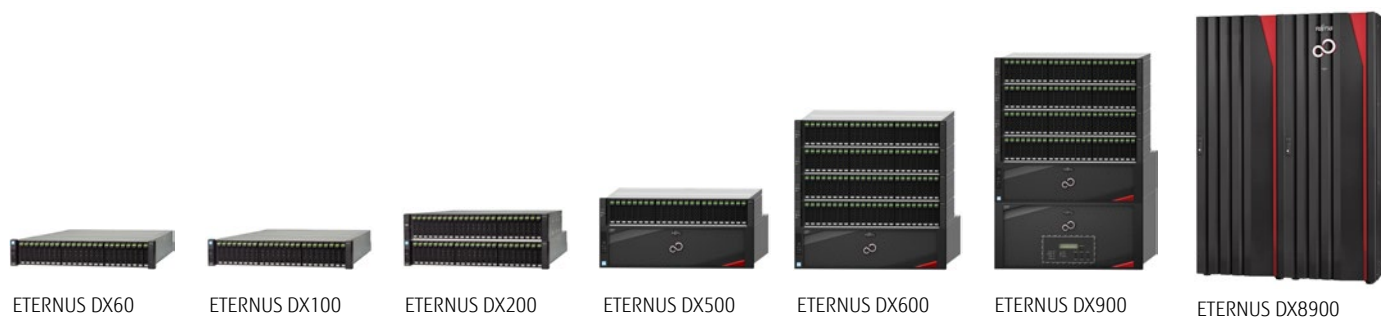
ETERNUS DX hybrid storage is ideal if you want host data for performance-hungry applications like virtualization, databases or OLTP alongside unstructured data, online archives and other “lukewarm” data in a single system. These systems allow you to achieve a maximum of storage consolidation for structured and unstructured data by balancing speed, capacity and cost in one system.

ETERNUS DX hybrid storage systems, with their SSD tier, deliver “all-flash-like” performance, thus allowing for a gradual transition to all-flash, while high-capacity hard disks store unstructured data at the lowest cost. The very latest automation technologies enable you to manage hybrid configurations (SSDs, SAS, Nearline SAS) with a minimum of manpower. Just define the needed response time per volume, and ETERNUS DX does the rest by assigning bandwidth and/or invoking storage tiering.

How the ETERNUS DX Storage Series differs from other hybrid storage systems

- **Performance:** ETERNUS hybrid storage offers the performance advantages of all-flash drives alongside conventional HDDs. The latest models can handle up to three times more transactions, and host 50 percent more virtual machines than before. Even the ETERNUS DX60 model, for example, delivers an outstanding 65,000 IOPS (Random access performance).
- **Automation:** ETERNUS DX hybrid storage offers the latest automation technologies. The systems are intelligent enough to move data between flash and disk drives, depending on usage. And automated Quality of Service management and failover take care of complex storage management tasks.
- **Mainframe class robustness:** ETERNUS DX hybrid storage provides constant data protection supported by the highest levels of built-in system security to prevent access to valuable business data. Business continuity is increased thanks to a boost in data availability of up to 99.9999 percent – which corresponds to less than one minute of unplanned downtime per year.

One consistent family – one system management service, economy to data center storage



Economy

Entry-level and midrange storage

Enterprise storage

ETERNUS SF storage management software

Boost capacity utilization
up to **90** percent with no
performance bottlenecks



Ensure business continuity by
boosting data availability to
99.9999 percent





Turn your data into competitive advantage with ETERNUS AB and ETERNUS HB

FUJITSU Storage ETERNUS AB All-Flash Storage and ETERNUS HB Hybrid Storage are NVMe-ready flexible SAN storage systems with the performance and efficiency of block storage devices. The modular, RAID-only storage systems are extremely scalable and come with software that greatly simplifies configuration and data management. While ETERNUS AB is exclusively configured with SSDs, ETERNUS HB has a mix of SSDs and HDDs. Leverage enterprise-class performance for the workloads of your core applications and databases such as Microsoft SQL Server, Oracle, SAP, and others. At the same time, benefit from advanced data protection capabilities and sustainably reduce your costs.

Distinctive features of ETERNUS AB and ETERNUS HB



NVMe

End-to-end support for NVMe from host to drives

- Makes ETERNUS AB and HB the ideal systems for very demanding and compute-intensive enterprise, cloud and edge data environments
- Reduces total cost of ownership and empowers you to drive key lines of business with maximum performance and an infrastructure with a small footprint



Restful API

The logical choice for modern application environments

- Powerful API for reporting performance at the system and logical component level
- Enables automation and orchestration
- Ensures seamless integration in existing eco systems
- Supported by a strong eco system of partners



Cloud backup

Cost-effective basic backup and recovery in the cloud

- Support for full-block and file-based backup and restore
- Deployment for use with existing Amazon S3 accounts possible
- Incremental backups save bandwidth and costs



Container microservices

Better application development, integration and deployment

- Enables the shift of existing applications to modern cloud architectures
- Helps as container for existing applications
- Supports development of new container-native applications
- Better support for microservices architectures
- Allows the provisioning of containers to support background jobs, such as batch processing



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Superior performance and efficiency

- Ultra-fast response times of less than 100 microseconds
- End-to-end NVMe storage platform purpose-built for high performance
- Extremely scalable secondary cache for the highest operational efficiency



High reliability and availability

- Drive encryption does not negatively impact performance
- Nonstop operation if a cable or drive shelf fails
- Fault tolerance – continued I/O even if a drive failure occurs
- Guaranteed validity of all stored data

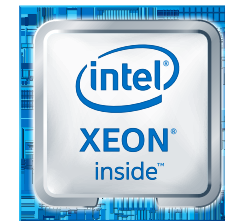


Unmatched flexibility

- Configurations easily tailored to performance and capacity requirements
- Model upgrades on demand
- Support for multiple drive sizes and for a wide range of host interfaces
- Cost-effective options for improving daily operations



Leverage the strength of on-premise IT and the cloud



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ETERNUS Data Service Platform (DSP) supports the SDS approach with an end-to-end solution that also intelligently combines the strengths of on-premise IT with those of the cloud, so that enterprises are wellprepared for the challenges of the digital world. ETERNUS DSP is a software-based data services platform that powers high-performance application environments at a global scale, with game-changing data orchestration and automation, with a 70% lower total cost of ownership and operation. The platform delivers a cloud-like data infrastructure for your most important applications running in containers, virtual machines, or even on bare metal.

Meet the requirements of the digital world flexibly with ETERNUS DSP



Enterprise performance

Efficient scale-out architecture with state-of-the-art enterprise-class data services

- Fast response times of less than 200 micro-seconds
- Up to 5.7 million IOPS in a 32-node configuration
- Leading enterprise and cloud storage capabilities in one solution



Intelligent operations

Intelligent data orchestration and advanced automation save valuable time and money

- 70% reduction in operating expenditures
- Continuous optimization ensures that performance meets policies
- Intelligent platform learns from global telemetry insights



Made for tomorrow

ETERNUS DSP is completely future-proof and provides maximum flexibility

- Support 70% lower total cost of ownership
- Freedom to use storage media and protocols across generations
- Dynamic, policy-driven storage model

Benefit throughout the life cycle with ETERNUS DSP



Deploy with minimal configuration, add resources at any time



Automate everyday storage operations with app templates



Expand automatically, configure nodes flexibly



Simplify maintenance with redundancy/high availability



Perform technology refreshes easily and safely

With ETERNUS DSP you invest once in your storage platform and are prepared for all future requirements – no matter if they are new applications, new locations, or new data.





Ensure fast recovery with data protection appliances

Data is the “new gold” in the digital world. But due to data explosion, it is incredibly difficult to implement an efficient backup, as well as a mid-term to long-term storage strategy for object data, file data and the archive without adding to complexity. This is different with Fujitsu's data protection solutions which make it easy to keep backup and archiving speed, capacity and cost in balance. They offer lower total cost of ownership as opposed to traditional multiple component solutions, and they enable rigorous consolidation of backup infrastructures. Fujitsu is one of the world leaders in end-to-end data protection solutions and services, and it partners with leading software vendors to realize the most efficient fulfillment of individual customer requirements.

How Fujitsu's data protection appliances differ from other solutions

- Leading scalability and performance enable rigorous consolidation of backup infrastructures and ensure that service levels can be reliably fulfilled with regard to capacity, speed and costs.
- Highly developed, automated high-availability and disaster recovery functions ensure an easy and efficient guarantee of backup and restore service availability.
- Appliance concept with leading backup, archiving and deduplication functions makes the management of backup and restore operations simple and efficient.

The right backup appliance for every need

ETERNUS CS8000 – CENTRAL BACKUP AND ARCHIVE STORAGE

- Most reliable central repository for backup, archive, second-tier and object data
- TCO reductions by 60% in complex environments

ETERNUS CS800 – THE ONE-FOR-ALL BACKUP APPLIANCE FOR MEDIUM-SIZED ENVIRONMENTS

- Scalable and high-performance backup appliance supporting all major backup software suites now on the market
- Advanced deduplication technology reduces typical disk capacity requirements for disk-to-disk backup by up to 95 percent

Commvault HyperScale™ Appliance – ACHIEVING IT AGILITY THROUGH A SCALE-OUT INFRASTRUCTURE*

- Flexible hyper-converged solution that integrates computing, storage and full lifecycle data protection in a single platform
- Protect, access and manage all of your data across the data center and the cloud

VERITAS NETBACKUP APPLIANCES – FULLY INTEGRATED SOLUTIONS FROM ONE MOLD

- Integrated appliance with optimal backup that takes less than 30 minutes to deploy
- Embedded cyber-security detects intruder threats to mitigate risks



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Fujitsu's data protection appliances align capacity, speed, and costs – effortlessly

* only available in Europe, Middle East & Africa



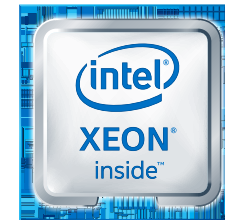
Utilize tape libraries for long-term retention

As data volumes continue to grow at a breathtaking pace, backup and archiving can quickly become a huge challenge that may negatively impact business processes. However, with the affordable FUJITSU Storage ETERNUS LT tape libraries, it is quite easy to cope with such challenges. Offering impressive scalability, ultra-fast transfer speed and rock-solid reliability in a compact design, the systems perfectly meet the requirements of low-cost backup and long-term archiving in both homogeneous and heterogeneous environments.

How ETERNUS LT differs from other tape libraries

- Flexible connectivity – both for connection to storage systems and servers, and in the choice of media
- Highly automated, simple, and remote operation enables intuitive use without local expert skills
- Pay-as-you-grow plan and flexible scaling options help customers avoid unnecessary initial investments and respond flexibly to data growth
- Guarantees data security and fulfills compliance regulations with features like write protection, hardware encryption and partitioning

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FUJITSU Storage ETERNUS LT Tape Libraries
Simplify backup and archiving



Storage as part of hyper-converged infrastructures

Hyper-converged architectures are gaining momentum as an alternative to discrete storage: Hyper-converged infrastructures embed server and storage functionalities in one building block. Storage capacity and performance can thus be increased at the same time by simply adding more building blocks. Fujitsu supports this new form of storage implementation with the PRIMEFLEX family of integrated systems.

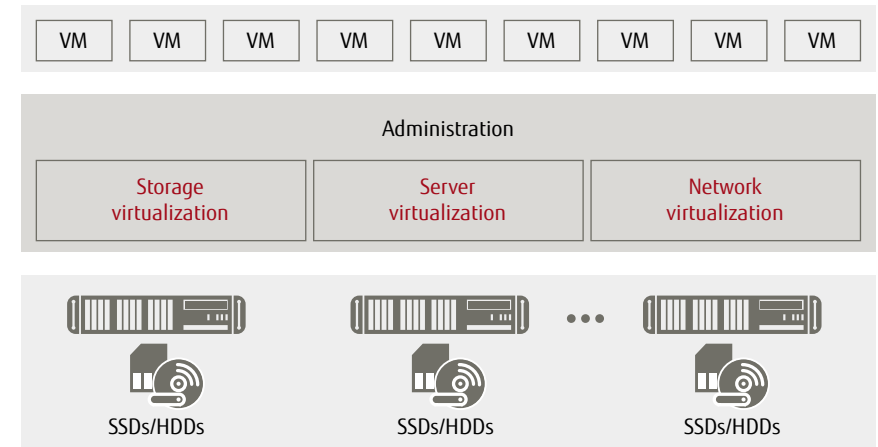
FUJITSU Integrated System PRIMEFLEX represents a wide range of pre-defined, pre-integrated and pre-tested combinations of data center components, such as servers, storage, network connectivity and software. Since infrastructure design, component integration and testing have been completed before starting your project, the deployment of the integrated system and integration in the production environment is the only work needed to be done on-site. Fujitsu addresses highly relevant use cases with the PRIMEFLEX family. Here are two examples:

- **FUJITSU Integrated System PRIMEFLEX for VMware vSAN** is a hyper-converged system that comes with VMware vSphere and VMware vSAN pre-installed, supporting up to 64 server nodes and more than 8 petabytes of storage.
- **FUJITSU Integrated System PRIMEFLEX for Storage Spaces Direct** is a hyper-converged system based on software-defined storage technology (Storage Spaces Direct) integrated in the Windows Server 2016 Datacenter Edition. The system supports up to 16 server nodes.

→ www.fujitsu.com/global/primeflex



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Whatever storage challenge you may have, Fujitsu has the right solution for every scenario.

www.fujitsu.com/eternus

Published by

Fujitsu Limited

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