ThinkSystem DM Series All-Flash Array

Accelerate your business with all-flash transformation

The Challenge

Businesses must continually improve the speed and responsiveness of key business operations if they are to reduce time to market and increase customer satisfaction. One key ingredient of this effort is all-flash storage, which greatly accelerates critical workloads.

However, as all-flash becomes prevalent throughout the data center, it soon becomes apparent that enterprise-grade data management capabilities are critical in a shared environment. To deliver the ultimate solution, all-flash storage needs to offer robust data management, integrated data protection, and seamless scalability.

The Solution

To meet enterprise storage requirements, ThinkSystem All-Flash DM Series systems provide high performance, superior flexibility, and best-in-class data management. DM Series runs on ONTAP data management software, which gives customers unified storage across block-and-file workloads. It accelerates your business while improving the efficiency, flexibility, and reliability of your IT operations.

This enterprise-class solution accelerates, manages, and protects your business-critical data. Customers who currently do not benefit from all-flash solutions should not be worried about implementing one once they are ready.

ThinkSystem DM Series provides an easy and risk-free transition to all-flash. DM Series systems were purpose-built for flash to deliver industry-leading performance, capacity, and density.

Flexible management is also possible through XClarity support. With Lenovo XClarity management software, you can manage your Lenovo ThinkSystem servers, storage and networking together.

Accelerate Your Data

These all-flash arrays offer a range of connectivity including 40Gb Ethernet (GbE), 32Gb Fibre Channel, and NVMe over Fibre Channel, minimizing latency and maximizing performance.

In fact, DM Series systems are so fast they eliminate the bandwidth bottlenecks inherent in other systems that are caused by flash storage exceeding the speed of the network. By leveraging NVMe over Fibre Channel, you can reduce your storage latency by up to 50%.

With Lenovo's all-flash DM Series systems, you can:

Accelerate the speed of business while increasing operational efficiency:

- Experience up to 4M IOPS in one cluster using DM Series All-Flash Array systems
- Through ONTAP Flash Essentials enable consistent high performance to meet the demands of a multitude of workloads in a shared environment.

Simplify IT operations while transforming data center economics:

- All-flash arrays can slash support and performance-tuning costs by up to two-thirds versus hybrid systems
- Reduce rack space by 38x and power consumption by 11x with deduplication and compression.
- Get up to 5:1 capacity reduction with data reduction technologies.
- Onboard volume encryption, software-based data-at-rest encryption, and multi-factor authentication capabilities eliminate the cost and complexity of using SED drives .

Deploy flash everywhere with maximum flexibility while retaining the control and security of your data:

- Move data and applications to wherever they run best: on a DM Series system or in the cloud.
- Get the broadest application ecosystem integration for enterprise applications, VDI, database, and server virtualization.
- Integrate flash into your infrastructure nondisruptively, eliminating silos, and scale out as requirements grow.

ThinkSystem DM Series All-Flash is ideal for performance-critical applications such as Oracle, Microsoft SQL Server, MongoDB, VDI, and server virtualization. It is also a great choice for a variety of common data center workloads in shared environments.

ThinkSystem DM Series includes a suite of powerful integrated data-protection software to help protect your competitive advantage. Key benefits include:

- Deduplication, compression, and compaction paired with cloning and Snapshot copies to reduce storage costs and minimize performance impact
- Application-consistent backup and recovery to simplify application management
- Synchronous replication with MetroCluster software — an industry-leading capability for all-flash arrays that delivers zero recovery point objective (possible data loss) and near-zero recovery time objective for mission-critical workloads
- The ability to meet all of your data compliance and retention requirements via Snaplock.

Optimize Your Data With Flexible Design

The inline data reduction technologies built into DM Series systems typically provide 5x space savings, and the following benefits:

- **Inline data compaction** technology uses an innovative approach to place multiple logical data blocks from the same volume into a single 4KB block. It frees up substantial space for database workloads that have relatively small I/O sizes. When combined with inline compression, ONTAP customers have reported space savings as high as 67:1 for an Oracle database.
- **Inline compression** has a near-zero performance impact. Detection of incompressible data eliminates wasted cycles.
- **Enhanced inline deduplication** maximizes the space savings by eliminating redundant blocks. Some workloads, such as VDI OS patches, can achieve as much as a 70:1 reduction rate.

Whether your performance and capacity needs change or your cloud strategy evolves in the future, your investment is protected:

- All-flash systems seamlessly cluster with DM Series hybrid systems, enabling you to transparently move workloads between high-performance tiers and low-cost capacity tiers — eliminating any performance silos.
- DM Series enables you to grow and adapt as your business changes. It enables you to intermix different controllers, SSD sizes, and next-generation technologies so your investment is protected.
- DM Series has proven cloud connectivity. You can easily move data between the cloud and on premises storage for maximum performance and return on your investment.
- Optimize data management for enterprise workload environments with leading application integration into Oracle, Microsoft, VMware, SAP, OpenStack, and more.

Specifications

	DM7000F	DM5000F
NAS Scale-out	12 High Availability pairs	12 High Availability pairs
Maximum SSDs	4608	1728
Maximum Raw Capacity: All Flash	70.5PB / 62.6PiB	24.1PB / 21.5PiB
Effective Capacity	281PB / 249.6PiB	96.7PB / 85.8PiB
Maximum Memory	3072GB	768GB
SAN Scale-out	6 High Availability pairs	6 High Availability pairs
Maximum SSDs	2304	864
Maximum Raw Capacity	35.3PB / 31.3PiB	12.1PB / 10.7PiB
Effective Capacity	140.5PB / 124.8PiB	48.4PB / 42.8PiB
Maximum Memory	1536GB	384GB
Cluster Interconnect	4x 10GbE	4x 10GbE
Per High Availability Array Specifications	Active-Active Controller	
Maximum SSDs	384	144
Maximum Raw Capacity: All-Flash	5.9PB / 5.2PiB	2.0PB / 1.8PiB
Effective Capacity	23.5PB / 20.9PiB	8.4PB / 7.2PiB
Controller Form Factor	3U chassis with two High Availability controllers	2U chassis with two High Availability controllers and 24 SSD slots
Memory	256GB	64GB
NVRAM	16GB	8GB
PCIe Expansion Slots (maximum)	4	N/A
FC Target Ports (32Gb autoranging, maximum)	8	N/A
FC Target Ports (16Gb autoranging, maximum)	24	8
40GbE Ports (maximum)	8	N/A
10GbE Ports (maximum)	32	8
10GbE BASE-T Ports (1GbE autoranging) (maximum)	12	N/A
12Gb / 6Gb SAS Ports (maximum)	24	4
Cluster Interconnect	4x 10GbE	4x 10GbE
Storage Networking Supported	FC, iSCSI, NFS, pNFS, SMB	FC, iSCSI, NFS, pNFS, SMB
OS Version	ONTAP 9.4 or later	ONTAP 9.4 or later
Shelves and Media	DM240S (2U; 24 drives, 2.5-inch SFF)	
Host/Client OSes Supported	Microsoft Windows, Linux, Oracle Solaris, AIX, HP-UX, Mac OS, VMware ESXi	

DM Series All-Flash Software

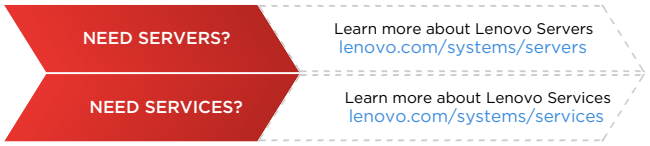
The ONTAP 9 software bundle includes a set of products that delivers leading data management, storage efficiency, data protection, high performance, and advanced capabilities such as instant cloning, data replication, application-aware backup and recovery, and data retention. For more details, visit the ONTAP datasheet.

Why Lenovo

Lenovo is a leading provider of systems for the data center. The portfolio includes rack, tower, blade, dense, and hyperconverged systems, and provides enterprise-class performance, reliability, and security. Lenovo also offers a full range of networking, storage, software, and solutions, as well as comprehensive services that support business needs throughout the IT life cycle. eft Column

For More Information

To learn more about the Lenovo DM Series All-Flash Array, contact your Lenovo representative or Business Partner, or visit lenovo.com/storage. Or for detailed specifications, read the DM Series DM5000F or DM7000F All-Flash Array Product Guides.



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