

# ThinkSystem DM Series Hybrid Flash

## Hybrid Flash - fast, flexible, reliable and secure



### The Challenge

#### Enabling the data-driven business across flash, disk and cloud

Storage has evolved from an IT afterthought to a crucial component within a company's infrastructure. Businesses are feeling the pressure to keep up with the explosive data growth. Standard hard disks are no longer an acceptable medium to keep up with the always-adapting needs a company has when it comes to storage.

Shrinking budgets, overextended staff, and the never-ending growth of data that must be stored and accessed efficiently dictate the need for a new approach.

You still have to worry about storage uptime, scalability, and cost efficiency, but now you also need to take advantage of flash acceleration, cloud integration, unified support for SAN and NAS, and simplified data mining for competitive advantage.

For those data centers hampered by structural limitations in legacy storage and data architectures, this can be problematic. Traditional storage arrays tend to consist of isolated data silos and cannot meet today's service-level requirements or easily leverage public or private clouds.

### The Solution

#### Unified scale-out hybrid storage with best-in-class data management

A new approach to storage is needed that combines high-performance hardware and adaptive, scalable storage software into an integrated solution. It must support current workloads, yet also take advantage of the new applications and evolving IT models.

ThinkSystem DM Series Hybrid Flash systems are designed to support your IT needs. These hybrid storage arrays provide a unified storage solution to manage all your block-and-file workloads on one array.

DM Series Hybrid Flash systems simplify the task of managing growth and complexity by delivering high performance, supporting a broad range of unified workloads, and seamlessly scaling of performance and capacity. For growing organizations that are concerned about budgets and meeting challenging IT needs, ThinkSystem DM Series Hybrid Flash systems are the perfect choice.

This flexibility enables you to place your data in the precise storage environment that delivers the ideal combination of performance, capacity, and cost effectiveness so you can keep up with changing business needs while meeting your core IT requirements.

Lenovo™

### Scale and Adapt to Meet Changing Needs

Scaling up is easy with DM Series hybrid storage. Simply add more storage, flash acceleration, and upgrade the controllers. To scale out, grow from a base of two nodes to a 12-array cluster containing up to 28PB (SAN) or 57PB (NAS) of capacity. You can cluster with DM Series all-flash models for flexible growth as your business demands.

Adding and replacing storage systems and components is nondisruptive. This enables you to perform updates while running your usual workloads, without having to worry about maintenance windows.

### Extreme Availability, Nondisruptive Operations

You have demanding availability requirements and DM Series enterprise storage is engineered to meet them. Highly reliable Lenovo hardware, innovative software, and sophisticated service analytics deliver 99.9999% (“six-9s”) availability or greater through a multilayered approach.

Software and firmware updates, hardware repair and replacement, load balancing, and tech refreshes are performed real-time, with no need for planned downtime. Integrated data protection technologies protect your data, accelerate recovery, and integrate with leading backup applications for easier management.

MetroCluster expands your data protection to eliminate risk of data loss by synchronously mirroring data between locations for nonstop availability of information. You can configure a MetroCluster storage array to mirror data within a single data center, or between two different locations up to 300km away.

### Optimize Hybrid Cloud Deployment

Many organizations today use cloud IT models as a service-oriented IT architecture to enhance return on investment and assets. For this reason, we optimized DM Series hybrid running ONTAP for private and hybrid cloud with secure multitenancy, quality of service (QoS), nondisruptive operations, and easily defined tiers of service.

To help you meet the demands of enterprise applications, DM Series hybrid tightly integrates with the industry-standard OpenStack cloud infrastructure. This enables you to build a private cloud that delivers a robust service-oriented IT architecture.

For an enterprise-class hybrid cloud that offers predictable performance and availability, combine your DM Series storage array with Cloud Volumes ONTAP. Cloud Volumes ONTAP seamlessly integrates with and replicates data to multiple clouds, such as IBM Cloud, Amazon Web Services (AWS), or Microsoft Azure. This way you are not locked into one cloud provider.

### Build the Right Long-Term Platform

Reduce your TCO and improve your ROI with technologies such as inline deduplication, inline compression, inline compaction, thin provisioning, and space-efficient Snapshot copies — all leading to a lower cost per effective gigabyte of storage.

Naturally, the security of your data is crucial to your business. The Volume Encryption feature of ONTAP enables you to encrypt any volume on any DM Series (hybrid or all-flash) system to secure your data at-rest. There is no requirement for special self-encrypting disks.

With Lenovo XClarity management software you can seamlessly integrate and manage all of your Lenovo ThinkSystem servers, storage, and networking together.

### Why Lenovo

Lenovo is the leading provider of x86 systems for the data center. The portfolio includes rack, tower, blade, dense and converged systems, and supports enterprise class performance, reliability and security. Lenovo also offers a full range of networking, storage, software and solutions, and comprehensive services supporting business needs throughout the IT lifecycle.

## Specifications

Scale-Out	DM7000H	DM5000H	DM3000H
<b>NAS Scale-out: 12 arrays</b>			
Maximum Drives (HDD/SSD)	5760	1728	1728
Maximum Raw Capacity	57PB	15PB	17PB
Maximum onboard Flash Cache Based on NVMe Technology	48TB	24TB	24TB
Maximum Flash Pool	576TB	288TB	288TB
Maximum Memory	3072GB	768GB	768GB
<b>SAN Scale-out: 6 Arrays</b>			
Maximum Drives (HDD/SSD)	2,880	864	864
Maximum Raw Capacity	28PB	7.5PB	8.6PB
Maximum Onboard Flash Cache Based on NVMe Technology	24TB	12TB	12TB
Maximum Flash Pool	288TB	144TB	144TB
Maximum Memory	1536GB	384GB	384GB
Cluster Interconnect	4x 10GbE	4x 10GbE	4x 10GbE
<b>Per High Availability Pair Specifications</b>	Active-Active Dual Controller		
Maximum Drives (HDD/SSD)	480	144	144
Maximum Raw Capacity	4.8PB	1.2PB	1.4PB
Maximum Onboard Flash Cache Based on NVMe Technology	4TB	2TB	2TB
Maximum Flash Pool	48TB	24TB	24TB
Controller Form Factor	3U	2U / 24 drives	2U / 12 drives
ECC Memory	256GB	64GB	64GB
NVRAM	16GB	8GB	8GB
PCIe Expansion Slots	4	0	0
Onboard I/O: UTA 2 (8Gb/16Gb FC, 1GbE/10GbE, or FCVI ports MetroCluster Only)	8	8	8
Onboard I/O: 10GbE	4	4	4
Onboard I/O: 10GbE BASE-T	4	8	8
Onboard I/O: 12Gb SAS	8	4	4

## Specifications

	DM7000H	DM5000H	DM3000H
OS Version	ONTAP 9.4 and later		
Shelves and Media	See Shelves and Media page on <a href="http://www.lenovo.com">www.lenovo.com</a> for most current information		
Protocols Supported	FC, iSCSI, NFS, pNFS, CIFS/SMB		
Host/Client Operating Systems Supported	Microsoft Windows, Linux, Sun Solaris, AIX, HP-UX, Mac OS, VMware ESXi		

## Specifications

### DM Series Hybrid 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](#).

## For More Information

To learn more about ThinkSystem DM Series Hybrid Flash, contact your Lenovo representative or Business Partner or visit [lenovo.com/storage](http://lenovo.com/storage). For detailed specifications, consult the DM Series [DM3000H](#), [DM5000H](#), or [DM7000H](#) Hybrid Flash product guides.

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