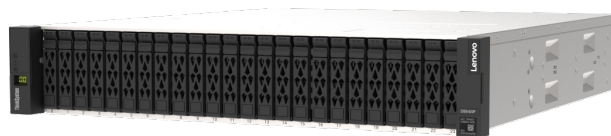# ThinkSystem DE Series All-Flash Array

Maximum performance for next-gen workloads

The Challenge

It's essential that business-critical applications run with maximum efficiency. Data centers are looking for ways to improve the speed and responsiveness of the applications that control their mission-critical business operations.

One way to differentiate your organization from the competition and accelerate time-to-market is to extract value and insights quickly and reliably from a range of mixed workload environments.

The Solution

The DE6600F offers extreme performance with up to 2M IOPs and 44GBps throughput. This all-flash 2U storage arrays supports 24 NVMe SSDs in the controller enclosure, providing industry leading performance for enterprise workloads, such as Big Data analytics, artificial intelligence, and databases.

The DE6400F provides performance and scale in a 2U design. With support for 24 NVMe SSD drives in the controller enclosure, this all-flash storage array is ideal for enterprise workloads and offers up to 20GBps read bandwidth and up to 670k IOPs and sub-100 microsecond response times.

The compact 2U Lenovo ThinkSystem DE6000F all-flash (SSD) mid-range storage array will accelerate access to your data.

This all-flash array combines industry-leading, enterprise-proven availability features with up to 1M of IOPS, sub-100 microsecond response times, and up to 21GBps of read bandwidth.

Similarly, the entry-level Lenovo ThinkSystem DE4000F all-flash storage system boosts access to your data for greater value in only 2U.

It also combines enterprise-proven availability features with affordable IOPS, sub-100 microsecond response times, and up to 10GBps of read bandwidth.

The ThinkSystem All-Flash array availability features include:

- Redundant components with automated failover
- Intuitive storage management with comprehensive tuning functions
- Snapshot copy creation and volume copy
- Asynchronous mirroring for data protection (DE6000F and DE4000F only)
- Data assurance for data integrity and protection against silent data corruption

Both storage subsystems optimize price/performance, configuration flexibility, and simplicity. They enable you to process your critical business data faster and with better insights, for more effective decision-making.

ThinkSystem

All-Flash Delivers Performance

The DE All-Flash Series delivers the performance of more than 2,000 15k rpm HDDs, yet requires only 2% of the rack space, power, and cooling.

Because it consumes 98% less space and power, DE Series can significantly improve the overall efficiency of your IT operations while continuing to meet your performance requirements.

Protecting Your Competitive Advantage

Dynamic drive pool (DDP) technology allows storage administrators to simplify RAID management, improve data protection, and maintain predictable performance under all conditions.

This innovative technology minimizes the performance impact of a drive failure and can return the system to optimal condition up to eight times faster than with traditional RAID.

With shorter rebuild times and patented technology to prioritize reconstruction, DDP capabilities significantly reduce exposure to multiple disk failures, offering a level of data protection that cannot be achieved with traditional RAID.

With DE Series, all management tasks can be performed while the storage remains online with complete read/write data access. Storage administrators can make configuration changes, conduct maintenance, or expand the storage capacity without disrupting I/O to attached hosts.

DE Series nondisruptive administration features include:

- Dynamic capacity and volume expansion
- Dynamic segment size migration
- Dynamic RAID-level migration
- Non-disruptive firmware updates

DE Series all-flash arrays protect against data loss and downtime events, both locally and remotely, using advanced data protection features, including:

- Snapshot / Volume copy
- Asynchronous mirroring (DE6000F and DE4000F only)
- Synchronous mirroring (DE6000F and DE4000F only)
- Full drive encryption

Eventually, all drives get redeployed, retired, or serviced. When this happens, you do not want your sensitive data going out the door with them. Combining local key management with drive-level encryption gives you comprehensive security for data-at-rest with no impact to performance.

XClarity Support

Lenovo XClarity Administrator is a centralized resource management solution that is aimed at reducing complexity, speeding response, and enhancing the availability of Lenovo server systems and solutions.

Lenovo XClarity Administrator provides agent-free hardware management for our servers, storage, network switches, hyperconverged and ThinkAgile solutions.
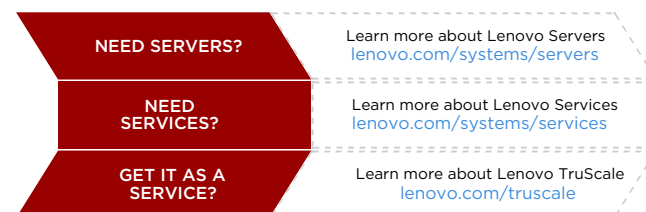
Specifications

	DE6000F	DE4000F	DE6400F	DE6600F
Form Factor (Controller Enclosure)	2U, 24 drives	2U, 24 drives	2U, 24 drives	2U, 24 drives
Maximum Raw Capacity	1.84PB	1.47PB	1841.5TB	1841.5TB
Maximum Drives	120	96	120 (24 NVMe + 96 SAS SSD)	120 (24 NVMe + 96 SAS SSD)
Maximum Expansion	Up to 4 DE240S expansions	Up to 3 DE240S expansions	Up to 4 DE240S expansions (24 NVMe in Controller Enclosure + 96 SAS SSD)	Up to 4 DE240S expansions (24 NVMe in Controller Enclosure + 96 SAS SSD)
IOPS	1,000,000 IOPS	300,000 IOPS	670,000 IOPS	2,000,000 IOPS
Sustained Throughput	Up to 21GBps	Up to 10GBps	Up to 20GBps	Up to 44GBps
System Memory	128GB	64GB	32GB	64GB or 256GB
Optional I/O Ports (per system)	8x 16Gb/32Gb FC 8x 10Gb/25Gb iSCSI 8x 12Gb SAS	8x 16Gb/32Gb FC 8x 10Gb/25Gb iSCSI 8x 12Gb SAS	4x 100Gb NVMe/IB, NVMe/RoCE 4x 100Gb iSER/IB, SRP/IB 8x 32 Gb NVMe/FC 8x 32Gb SCSI FC 8x 25Gb iSCSI	4x 200Gb NVMe/IB, NVMe/RoCe, SRP/IB and iSER/IB 8x 100Gb NVMe/IB, NVMe/RoCe 8x 100Gb iSER/IB, SRP/IB 16x 32Gb NVMe/FC 16x 32Gb SCSI FC 16x 25Gb iSCSI
System Maximums	Hosts/partitions: 512 Volumes: 2,048 Snapshot copies: 2,048 Mirrors: 128	Hosts/partitions: 256 Volumes: 512 Snapshot copies: 512 Mirrors: 32	Hosts: 512 Partitions: 256 Volumes: 1,024 DDP volume size: 2PiB RAID volume size: 30 drives Snapshot copies: 1,024	Hosts: 1024 Partitions: 512 Volumes: 2,048 DDP volume size: 2PiB RAID volume size: 30 drives Snapshot copies: 2,048

About Lenovo

Lenovo (HKSE: 992) (ADR: LNVGY) is a US$62 billion revenue global technology powerhouse, ranked #171 in the Fortune Global 500, employing 77,000 people around the world, and serving millions of customers every day in 180 markets. Focused on a bold vision to deliver smarter technology for all, Lenovo is expanding into new growth areas of infrastructure, mobile, solutions and services. This transformation is building a more inclusive, trustworthy, and sustainable digital society for everyone, everywhere.

For More Information

To learn more about the ThinkSystem DE Series All-Flash Array, contact your Lenovo representative or Business Partner or visit lenovo.com/storage. For detailed specifications, consult the DE Series DE6000F, DE4000F, DE6400F or DE6600F All-Flash Array product guides.

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