Lenovo ThinkSystem DE6000H Storage: #1 Price/Performance SPC-1 v3 Benchmark
Performance Benchmark Result

November 8, 2018... Lenovo announced the new DM and DE Series All Flash and Hybrid flash storage in September 2018 and once again changed the storage economic landscape in the industry. Building on the two previous #1 of Storage Performance Council's SPC-1 v3 benchmark testing with the ThinkSystem DS4200 and ThinkSystem DS6200, Lenovo has now delivered a new #1 worldwide price/performance benchmark with the ThinkSystem DE6000H.

This new benchmark result shows we delivered 2.5x better performance(1), and a lower $/IOP for customers to improve application response time and consolidate more workloads into a single array. In addition, this adds to Lenovo's number one position in customer satisfaction and server reliability for x86 servers, as well as the recently achieved 121 #1 server benchmarks.

Figure 1. Lenovo ThinkSystem DE6000H Hybrid Storage Array

Why does this matter?

- The Lenovo ThinkSystem DE6000H is #1 in Price Performance, $/IOP, as measured by the widely recognized SPC-1 v3 benchmark.
- This performance benchmark is an essential proof point of the value of Lenovo Storage to support entry to mid-range customers who need maximum IOPs and high availability with outstanding value. By delivering over 2.5x the performance(1) at the lowest $/IOP, customers can improve application response times and consolidate more workloads into a single array.
- The DE Series SAN products are targeted to SMB and Enterprise customers and are ideal for high-performance databases, web and security applications, data analytics, video surveillance, backup and recovery, technical computing and big data analytics.

The #1 price/performance result is documented on the Storage Performance Council's web site.

(1) As compared to DS6200 SPC-1 v3 benchmark submission, summarized in https://lenovopress.com/lp0893-thinksystem-ds6200-storage-spc1-benchmark-result

Benchmark configuration

The following table shows the all-flash array configuration used to obtain the #1 benchmark result.

Table 1. Benchmark configuration

Part number	Description	Quantity
7Y78A000WW	Lenovo ThinkSystem DE6000H SAS Hybrid Flash Array SFF	1
4XB7A14105	Lenovo ThinkSystem DE Series 800GB 3DWD 2.5" SSD 2U24	24
00YL847	0.5m External MiniSAS HD 8644/MiniSAS HD 8644 Cable	4
7Y37A01090	ThinkSystem 430-8E SAS HBA	2
5PS7A21772	Essential Service - 3Yr 24x7 4Hr Response + YourDrive YourData	1

Industry leading innovation

This benchmark result confirms that ThinkSystem DE Series is the #1 Price/Performance offering for storage in the industry. For customers who are looking to get the most performance for every dollar they spend, the ThinkSystem DE Series storage arrays deliver the best return on investment.

Storage performance can be easy to achieve with Lenovo ThinkSystem. Compared to other performance solutions, DE Series storage is easily configured and well suited for entry to mid-range SAN solutions.

About ThinkSystem DE Series

The Lenovo ThinkSystem DE Series of All-Flash and Hybrid-Flash arrays allow businesses to achieve affordable performance, reliability and simplicity for modern enterprise applications. DE Series products are performance optimized for high-performance databases, web and security applications, data analytics, video surveillance, backup and recovery, technical computing and big data analytics.

The DE Series comes in multiple performance levels; DE2000H, DE4000H, DE4000F, DE6000H and DE6000F. These systems are ideal for large enterprises, remote/branch office, and small/medium business.

DE Series models offer advanced enterprise-class data protection, both locally and over long distance, including:

- Snapshot / Volume copy
- Asynchronous mirroring
- Synchronous mirroring (DE4000 and DE6000 models only)

To learn more about the ThinkSystem DE Series products, visit the Lenovo Storage Area Network product page:
https://www.lenovo.com/us/en/c/data-center/storage/storage-area-network

About Storage Performance Council

Storage Performance Council (SPC) is a non-profit corporation founded to define, standardize and promote storage benchmarks and to disseminate objective, verifiable storage performance data to the computer industry and its customers.

The SPC-1 benchmark is a true appraisal of enterprise storage performance and measures total IOPS, price-performance (cost per IOPS), and total cost of ownership (which includes three years of warranty support).

SPC-1 consists of a single workload designed to demonstrate the performance of a storage subsystem while performing the typical functions of business critical applications. Those applications are characterized by predominately random I/O operations and require both queries as well as update operations. Examples of those types of applications include OLTP, database operations, and mail server implementations.

SPC-1 version 3 retains the core capabilities and requirements of SPC-1 version 1, but includes support for data deduplication, and data compression, in addition to refining some of the workload attributes to bring the benchmark more in-line with modern storage system workloads.

Learn more

To learn more about the benchmark result:

- SPC-1 v3 Results - Top 10 by Price-Performance
- Lenovo result:
    - Executive summary
    - Full Disclosure Report

To learn more about the DE Series storage arrays:

Lenovo Storage home page:
https://www.lenovo.com/us/en/data-center/storage/

Lenovo Storage Area Networking products page:
https://www.lenovo.com/us/en/c/data-center/storage/storage-area-network

Lenovo Storage benchmark results:
https://lenovopress.com/storage/benchmarks

Datasheets:

- ThinkSystem DE Series Hybrid Flash Array
- ThinkSystem DE Series All-Flash Array

Product Guides:

- Lenovo ThinkSystem DE2000H Hybrid Storage Array
- Lenovo ThinkSystem DE4000H Hybrid Storage Array
- Lenovo ThinkSystem DE6000H Hybrid Storage Array
- Lenovo ThinkSystem DE4000F All Flash Storage Array
- Lenovo ThinkSystem DE6000F All Flash Storage Array

Interactive 3D Tours:

- 3D Tour: Lenovo ThinkSystem DE Hybrid Storage Array
- 3D Tour: Lenovo ThinkSystem DE Series All Flash Storage Array

Related product families

Product families related to this document are the following:

- DE Series Storage
- Lenovo SAN Storage
- SPC-1 Benchmark Results
- Storage Benchmarks

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