ThinkSystem SD650 Sets World Record with New Four-Node SPECmpiM Result

Performance Benchmark Result (withdrawn product)

The Lenovo ThinkSystem SD650 has set a new performance world record with the SPECmpiM_base2007metric from the MPI M2007 suite of the SPEC MPI 2007 Benchmark. The SPECmpiM Benchmark suite is the industry standard to evaluate MPI-parallel, floating point, compute intensive performance across a wide range of cluster and SMP hardware.

This new benchmark result, published in a new SPEC Report on September 14, 2018, demonstrates that the ThinkSystem SD650 continues Lenovo's leadership with outstanding performance for the server industry.

The ThinkSystem SD650 has achieved the following score (1):

- **SPECmpiM_base2007 = 59.2**

This result is the best four nodes performance in the industry, 20% faster than the SGI four nodes 2-socket result. (2)

Table 1. Comparison of results

Hardware vendor	System	Result (Base)	Cores	CPUs	Memory
Lenovo (1)	ThinkSystem SD650 (Intel Xeon Platinum 8180, DDR4-2666 MHz, HT Off, Turbo on)	59.2	224	8	1536
Hewlett Packard Enterprise (2)	SGI 8600 (Intel Xeon Gold 6148, 2.40 GHz)	49.3	160	8	768

The SD650 was configured as follows for the benchmark audit:

- Lenovo ThinkSystem SD650
- 2x Intel Xeon Platinum 8180 Processors (28 cores, 2.50 GHz)
- 384 GB memory (12x 32GB RDIMMs running at 2666MHz)
- 480GB SATA 2.5" SSD
- Red Hat Enterprise Linux Server 7.3, Kernel 3.10.0-514.48.5.el7.x86_64

Results referenced are current as of September 25, 2018.

(1) The Lenovo benchmark result can be found at:
https://www.spec.org/mpi2007/results/res2018q3/mpi2007-20180828-00600.html

(2) SGI result: https://www.spec.org/mpi2007/results/res2017q4/mpi2007-20171011-00579.html

About the ThinkSystem SD650

The ThinkSystem SD650 direct water cooled server is an open, flexible, and simple data center solution for users of technical computing, grid deployments, analytics workloads, and large-scale cloud and virtualization infrastructures. The direct water cooled solution is designed to operate by using warm water, up to 50°C (122°F). Chillers are not needed for most customers, meaning even greater savings and a lower total cost of ownership.

The ThinkSystem SD650 server and the n1200 DWC enclosure are designed to optimize density and performance within typical data center infrastructure limits. The n1200 DWC enclosure is a 6U rack mount unit that fits in a standard 19-inch rack and houses up to 12 water-cooled servers in 6 trays.

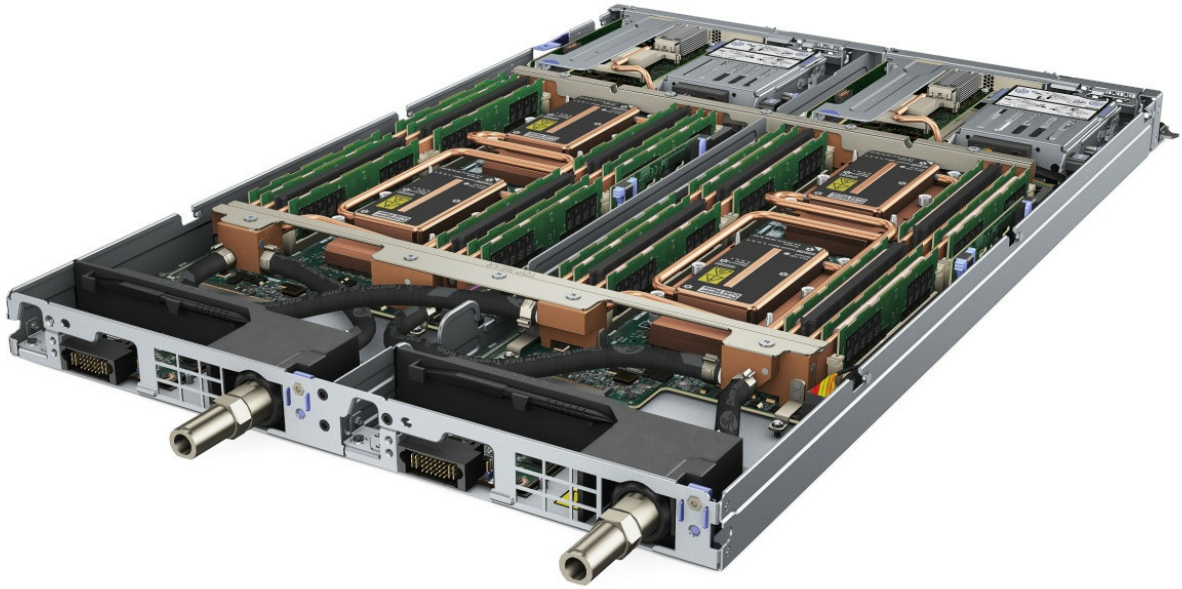

Figure 1. Two Lenovo ThinkSystem SD650 servers on the Compute Tray that provides water cooling

Lenovo XClarity Controller is an all-new hardware embedded management engine common in ThinkSystem servers. XClarity Controller features an uncluttered graphical user interface, industry standard Redfish-compliant REST APIs, and enables booting in half the time of prior generation servers, with up to 6x faster firmware updates.

Lenovo XClarity Administrator is a virtualized application that centrally manages ThinkSystem servers, storage, and networking. Via reusable patterns and policies, it ramps up and scales infrastructure provisioning and maintenance. It serves as a central integration point to extend your data center management processes to physical IT. Running XClarity Integrators in external IT applications, or integrating through REST APIs, helps you further speed services provisioning, streamline IT management, and contain costs.

About SPECmpiM

The SPEC MPI 2007 benchmark suite evaluates Message-Passing Interface (MPI)-parallel, floating point, compute-intensive performance across a wide range of cluster and symmetric multiprocessing (SMP) server hardware. This suite continues the SPEC tradition of giving users the most objective and representative benchmark suite for measuring and comparing high-performance computer systems.

SPEC MPI 2007 focuses on performance of compute intensive applications using the MPI, which means this benchmark emphasizes the performance of all of the following:

- Type of processor
- Number of computer processors
- MPI Library
- Communication interconnect
- Memory architecture
- Compiler used
- Type of shared file system

The benchmark is not intended to stress other computer components such as the operating system, graphics, or the I/O system.

For more information about SPEC MPI 2007, see https://www.spec.org/mpi2007/.

Learn more

To learn more about solutions for compute-intensive applications, please contact your Lenovo Sales Representative.

To find out more about SPEC, visit https://www.spec.org

To learn more about the Lenovo ThinkSystem SD650 server, visit the SD650 product web page.

Related product families

Product families related to this document are the following:

- SPECmpi Benchmark Results
- Supercomputing Servers
- ThinkSystem SD650 Server

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