ThinkSystem SR655 Sets World Record with New 1-Socket SPECompG Result

Performance Benchmark Result

The Lenovo ThinkSystem SR655 server has set a new 1-node 1-socket performance world record with the SPECompG_base2012 metric of the SPEC OMP2012 Benchmark.

This new benchmark result, published in a new SPEC report on August 7, 2019, demonstrate that the ThinkSystem SR655 continues Lenovo's leadership with outstanding performance for the server industry.

The SPEC OMP2012 Benchmark suite is the industry standard to evaluate performance using applications based on the OpenMP 3.1 standard for shared-memory parallel processing and includes 14 scientific and engineering application codes, covering everything from computational fluid dynamics (CFD) to molecular modeling to image manipulation.

The ThinkSystem SR655 has achieved the following score (1):

- **SPECompG_base2012 = 21.6**

This result is the best one-node 1-socket performance in the industry, 71% faster than Huawei's 2288H V5 result (2).

Table 1. Comparison of results

Hardware vendor	System	Result (Base)	Cores	CPUs	Memory
Lenovo (1)	ThinkSystem SR655 (AMD EPYC 7742, DDR4, 3200 MHz)	21.6	64	1	256 GB
Huawei (2)	Huawei 2288H V5 (Intel Xeon Platinum 8280, DDR4, 2933 MHz)	12.6	28	1	192 GB

The SR655 was configured as follows for the benchmark audit:

- Lenovo ThinkSystem SR655
- 1x AMD EPYC 7742 Processor (64 cores, 2.25 GHz)
- 256 GB memory (8 x 32GB RDIMMs at 3200 MHz)
- 1x 1TB SATA HDD
- Red Hat Enterprise Linux Server release 7.6, Kernel 3.10.0-957.el7.x86_64

Results referenced are current as of August 7, 2019.

(1) The new Lenovo benchmark result can be found at:
https://www.spec.org/omp2012/results/res2019q3/omp2012-20190716-00181.html

(2) Huawei result:
https://www.spec.org/omp2012/results/res2019q2/omp2012-20190311-00161.html

About the ThinkSystem SR655

The Lenovo ThinkSystem SR655 is a 1-socket 2U server that features the AMD EPYC 7002 "Rome" and AMD EPYC 7003 "Milan" families of processors. With up to 64 cores per processor and support for the PCIe 4.0 standard for I/O, the SR655 offers the ultimate in single-socket server performance. With up to 128 PCIe lanes, the server is ideal for workloads that can take advantage of GPU processing and high-performance NVMe drives.

ThinkSystem SR655 is a multi-GPU optimized rack server, with support for up to 6 single-wide GPUs providing 200% more workload acceleration in AI, SDI and VDI instances. Capacity for up to 32x 2.5” low-latency NVMe drives that pairs well with the demands of low-latency, high-bandwidth storage such as clustered SAN solutions and software-defined storage. Eight PCIe Gen4 slots offer 2x faster I/O and support for 16 DIMMs with 2TB of DDR4 memory capacity ensure the SR655 is ideal for high performance database applications.

About SPEC OMP2012

The SPEC OMP benchmark is designed for measuring performance using applications based on the OpenMP 3.1 standard for shared-memory parallel processing. The benchmark also includes an optional metric which includes power measurement.

The benchmark includes 14 scientific and engineering application codes, covering everything from computational fluid dynamics (CFD) to molecular modeling to image manipulation. The optional energy consumption measurements are based on the SPEC Power and Performance Benchmark Methodology, which provides details on how to integrate a power metric into standardized benchmarks.

SPEC OMP focuses on compute intensive performance, which means an emphasis of the performance of the following hardware and software:

- Processor
- Memory architecture
- Parallel support libraries
- Compilers

For more information about SPEC OMP 2012, go to
https://www.spec.org/omp2012/

Learn more

To learn more about solutions for high performance applications that use shared-memory parallel processing, please contact your Lenovo Sales Representative.

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

To learn more about the Lenovo ThinkSystem SR655 server, visit the SR655 product web page:
https://www.lenovo.com/us/en/data-center/servers/racks/ThinkSystem-SR655-Server/p/77XX7SRSR75

Related product families

Product families related to this document are the following:

- 1-Socket Rack Servers
- ThinkSystem SR655 Server
- SPEComp Benchmark Results

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