ThinkSystem SR655 Sets 2 World Records with New TPC-E Benchmark Result

Performance Benchmark Result

Lenovo has published a new TPC-E benchmark result that has set two new world records. The result has been achieved on the powerful Lenovo ThinkSystem SR655 server. The benchmark world records are:

- The world's #1 1P TPC-E result for performance
- The world's #1 overall TPC-E result for price/performance

The TPC-E benchmark is designed to enable customers to objectively measure and compare the performance and price of various Online Transaction Processing (OLTP) and database systems.

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

- **7,890.66 tpsE (transactions per second E) @ $76.92 USD/tpsE**

This result sets these new records:

- The best 1P TPC-E performance in the industry: 17.4% faster than the previous best 1P score. (2)
- The best-ever price/performance on the TPC-E benchmark: 9.4% lower than the previous best overall price/performance result (3) and 23% lower than the previous best 1P price/performance result (2)

Including this new result, Lenovo servers have the #1 1P (1), 4P (3), and overall TPC-E performance (3) and price/performance (1) results as well as the #1 2P (4) TPC-E performance result.

The SR655 achieved this record level of OLTP performance using the following configuration:

- 1x AMD EPYC 7763 64-core processor at 2.45 GHz (1 processor, 64 cores, 128 threads)
- 1024 GB of Lenovo TruDDR4 memory
- Microsoft SQL Server 2019 Enterprise Edition
- Microsoft Windows Server 2016 Standard Edition

This result also relied on the Lenovo Storage D1224 DAS enclosures. Four D1224 storage enclosures and 84 SAS SSDs were used in the benchmark configuration, attached directly to the server using ThinkSystem RAID 930-8e controllers configured with RAID-5.

Results referenced are current as of June 8, 2021. To view all TPC results, visit http://www.tpc.org.

(1) The total solution availability for this TPC-E benchmark result is June 15, 2021. See the details for this result at http://tpc.org/4089

(2) The single-processor Lenovo ThinkSystem SR655, with a result published on August 7, 2019 using an AMD EPYC 7742 64-Core Processor, previously held the #1 1P TPC-E performance result and the #1 1P TPC-E price/performance result. Result details are from http://tpc.org/4085

(3) The 4P Lenovo ThinkSystem SR860 V2 holds the #1 overall TPC-E performance result and the #1 4P TPC-E price/performance result. Result details are from http://tpc.org/4087.

(4) The 2P Lenovo ThinkSystem SR665 holds the #1 2P TPC-E performance result. Result details are from http://tpc.org/4088.

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 the Lenovo Storage D1212 and D1224 Enclosures

The Lenovo Storage D1212 and D1224 Disk Expansion Enclosures offer 12 Gbps SAS direct-attached storage expansion capabilities that are designed to provide simplicity, speed, scalability, security, and high availability for small to large businesses.

The D1212 (with 3.5-inch drives) and D1224 (with 2.5-inch drives), deliver enterprise-class storage technology in a cost-effective solution with flexible drive configurations and RAID or JBOD (non-RAID) host connectivity.

About TPC-E

TPC Benchmark E (TPC-E) is an Online Transaction Processing (OLTP) workload designed to enable customers to objectively measure and compare the performance and price of various OLTP and database systems. TPC-E is a mixture of read-only and update intensive transactions that simulate the activities found in complex OLTP application environments.

Learn more

To learn more about solutions for database and OLTP applications, please contact your Lenovo Sales Representative.

To find out more about TPC, visit http://www.tpc.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/p/77XX7SRSR75

Related product families

Product families related to this document are the following:

- 1-Socket Rack Servers
- Direct-Attached Storage
- Microsoft SQL Server
- TPC-E Benchmark Results
- ThinkSystem SR655 Server

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