

ThinkSystem SR650 V2 with Intel Optane Persistent Memory 200 Series sets 14 World Records with New STAC-M3 Benchmark Result

Performance Benchmark Result

The Lenovo ThinkSystem SR650 V2 server, configured with Intel Optane Persistent Memory 200 Series (PMem) modules, the new third-generation Intel Xeon Scalable processors (formerly codenamed “Ice Lake”) and the Kx Systems kdb+ 4.0 database has set new performance world records with the Antuco suite of the STAC-M3 benchmark .



These new benchmark results were published on June 16, 2021 in a new STAC Report, [SUT ID KDB210317](#). These results demonstrate that the SR650 V2 continues Lenovo’s leadership with world record breaking performance for the financial services industry.

The STAC-M3 Benchmark suite is the industry standard for testing solutions that enable high-speed analytics on time series data, such as tick-by-tick market data, also known as tick database stacks. STAC-M3 benchmarks are grouped into suites. The base suite, code-named “Antuco”, contains a range of test cases with varying levels of CPU and storage-I/O intensity.

When compared to 1-node 2-socket results running the kdb+ database, the SR650 V2 with PMem achieved leadership performance in 14 of 17 benchmark categories in the Antuco suite:

- 100T.STATS-UI.TIME
- 100T.VWAB-12D-NO.TIME
- 10T.MKTSNAP.TIME
- 10T.STATS-AGG.TIME
- 10T.VOLCURV.TIME
- 1T.MOHIBID.TIME
- 1T.NBBO.TIME
- 1T.QTRHIBID.TIME
- 1T.VWAB-D.TIME
- 1T.WKHIBID.TIME
- 1T.WRITE.TIME
- 1T.YRHIBID-2.TIME
- 1T.YRHIBID.TIME
- 50T.STATS-UI.TIME

The ThinkSystem SR650 V2 server was configured as follows for the benchmark audit:

- 2x Intel Xeon Platinum 8360Y Processors (36 cores, 2.4GHz, 54MB last level cache)
- 1.0TB memory (16x 64GB DDR4-3200 @ 3200MHz)
- 4.0TB PMEM (16 x 256GB Intel Optane Persistent Memory 200 Series modules) in Storage over App Direct mode
- RHEL 8.3 (Ootpa) with XFS v5
- Kx Systems kdb+ 4.0

About the ThinkSystem SR650 V2

The Lenovo ThinkSystem SR650 V2 server is a multi-purpose server with the right balance of reliability, performance and scalability optimized for data-intensive workload acceleration to tackle the most demanding environments. From medium to large enterprises, and managed and cloud service providers, this 2U, two-socket form factor is the most widely used server type worldwide.

Expand and optimize application performance with support for up to two 3rd generation Intel Xeon Scalable processors, Intel Optane persistent memory 200 series modules, high-powered GPUs, and up to 40x 2.5" drives including support for low-latency NVMe drives.

Key features:

- Multi-socket core count density, up to 40 cores within each of two processors, provides enhanced performance and throughput to tackle data-intensive, multi-threaded applications such as CRM and virtualization workloads
- Maximize local data analytics and deliver larger scale virtual solutions with more than 2X the memory capacity of the previous generation platform
- Support for up to 32 NVMe solid-state drives with NVMe switch adapters; when paired with high speed networking, make the system an excellent choice for workloads that need large amounts of low-latency high-bandwidth storage, including virtualized clustered SAN solutions, software-defined storage (SDS), and applications leveraging NVMe over Fabrics (NVMeOF)
- Configurable to be a multi-GPU optimized rack server, providing support for up to 8 single-wide GPUs, facilitates increased computational performance, time for parallel paths and faster insights
- Higher I/O bandwidth with up to 8x PCI 4.0 slots to accelerate data transfer and computing for high frequency trading, high performance computing and AI workloads

The Lenovo XClarity family of software helps to deliver peak efficiency and precision management including ThinkShield Security. The ThinkSystem SR650 V2 features single sign-on support for XClarity Administrator, enhanced Platform Firmware Resiliency (PFR) and Hardware Root of Trust, transport layer security and IP Address blocking.

With Lenovo ThinkSystem best-in-class reliability, the highly flexible and configurable SR650 V2 is the ideal platform for hyper-converged infrastructure (HCI) or software-defined storage (SDS). It provides a solid foundation for:

- Transforming physical resources into services, using validated designs for hybrid cloud
- Performing analytics on streaming data, using validated designs for Big Data
- Increasing productivity of virtualized transactional systems, using validated designs for OLTP

About STAC

Securities Technology Analysis Center (STAC) is a company that coordinates a community called the STAC Benchmark™ Council. The STAC Benchmark Council consists of over 485 financial institutions and more than 60 vendor organizations.

The purpose of the STAC Benchmark Council is two-fold:

- To conduct substantive discussions on important technical challenges and solutions in financial services
- To develop technology benchmark standards that are useful to financial organizations

User firms include the largest global banks, brokerage houses, exchanges, asset managers, hedge funds, proprietary trading shops, and other market participants. Vendor firms include innovative providers of hardware, software, and cloud services. STAC-M3 is driven by trading firms in the STAC Benchmark Council, with the participation of relevant software, hardware, and cloud providers. The STAC-M3 benchmark report for the SR650 V2 is publicly available.

Learn more

To learn more about solutions for the financial services industry, please contact your Lenovo Sales Representative.

To find out more about STAC, visit the [STAC Research web site](#).

To learn more about the Lenovo ThinkSystem SR650 V2 server, visit the SR650 V2 product web page: <https://www.lenovo.com/us/en/data-center/servers/racks/ThinkSystem-SR650-V2/p/77XX7SR65V2>

Related product families

Product families related to this document are the following:

- [2-Socket Rack Servers](#)
- [STAC-M3 Benchmark Results](#)
- [ThinkSystem SR650 V2 Server](#)

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