ThinkSystem SR860 V2 with Intel Optane Persistent Memory Sets 19 World Records with New STAC-M3 Benchmark Result

Performance Benchmark Result (withdrawn product)

Two Lenovo ThinkSystem SR860 V2 servers, configured with third-generation Intel Xeon Scalable processors and Intel Optane Persistent Memory 200 Series (PMem) has set new performance world records with the Antuco and Kanaga suites of the STAC-M3 benchmark.

These new benchmark results, published in a new STAC Report (SUT ID KDB210428) on July 20, 2021, demonstrate that the SR860 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. The optional "Kanaga" suite consists of two test sequences that extend Antuco benchmarks across larger quantities of data in order to measure the volume-scalability of a database stack.

Lenovo used 3 "Kanaga" years (2011-2013) of data instead of current norm of 5 years (2011-2015) to fit more data onto the higher performance PMem in each node.

Compared to other 2-node 4-socket results running the kdb+ database, the pair of SR860 V2 servers with Persistent Memory achieved leadership performance in 10 of 17 benchmark categories in the Antuco suite:

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

The SR860 V2 servers with Persistent Memory also achieved world records in 9 of 10 Kanaga benchmark categories compared to results with 2-node, 4-socket servers running the kdb+ database and configured for 2 or 3 years of data.

- 100T.TRUNC.YR1VWAB-12D-HO.TIME
- 100T.TRUNC.YR2VWAB-12D-HO.TIME
- 10T.TRUNC.YR1-MKTSNAP.TIME
- 10T.TRUNC.YR2-MKTSNAP.TIME
- 1T.TRUNC.2YRHIBID.TIME
- 1T.TRUNC.YR1VWAB-12D-HO.TIME
- 1T.TRUNC.YR2VWAB-12D-HO.TIME
- 50T.TRUNC.YR1VWAB-12D-HO.TIME
- 50T.TRUNC.YR2VWAB-12D-HO.TIME

The servers were configured as follows for the benchmark audit:

- 2 nodes of ThinkSystem SR860 V2, each with:
  - 4x Intel Xeon Platinum 8380HL Processors (28 cores, 2.9GHz, 38.5MB last level cache)
  - 3.0TB memory (24x 128GB DDR4-3200 @ 2666MHz)
  - 12.0TB (24x 512GB) 3200MHz Intel Optane Persistent Memory 200 Series
  - 1x dual-port Mellanox ConnectX-5 100Gb Ethernet Adapter
- SLES 15 SP2 with ext4 and xfs V5
- Kx Systems kdb+ 4.0

About the ThinkSystem SR860 V2

The Lenovo ThinkSystem SR860 V2 server provides the speed and reliability you require today, with the scalability and workload versatility to you'll need to manage the explosive growth of data; its design offers considerable adaptability in order to match system configurations to projected workloads.

The ThinkSystem SR860 V2 is purpose-built to deliver affordable scalability in an industry-standard x86 platform, ideal for mission critical workloads such as SAP HANA in-memory computing, transactional databases, analytics, big data, and enterprise resource planning tasks.

Up to four 250W third-generation Intel® Xeon® Scalable CPUs configured with a mesh topology pair with up to four enterprise-class GPUs position the SR860 V2 to tackle compute-intensive applications, leveraging thousands of GPU processor cores and parallel architecture in combination with additional storage and networking that's both high-performing and flexible.

Key features:

- Up to four 250W 3rd Generation Intel Xeon Scalable CPUs configured with a mesh topology combines with up to 48 2.5" HDD or SSDs, of which 24 can be NVMe SSDs to speed database response times, reducing latency and eliminating storage as the throughput bottleneck in I/O-intensive applications such as transactional processing, HPC, and Big data applications.
- Supports two or four processors, allowing you to start with two processors and then upgrade to four when you need it.
- Capability to handle four double-width GPUs or eight single-width GPUs to accelerate AI inference and deep learning proficiencies.
- Support for up to 12TB of DDR4 memory with DIMMs operating at up to 3200 MHz at 2DPC, and Intel Optane™ Persistent Memory 200 Series accelerates performance for in-memory databases and applications, reducing downtime and increasing application availability.
- High I/O bandwidth coupled with a generous number of PCIe expansion slots provides the additional connectivity scalability as your business and workload demands increase.
- Full Lenovo XClarity and ThinkShield system support for seamless infrastructure management and improved data security.

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 SR860 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 SR860 V2 server, visit the SR860 V2 product web page: https://www.lenovo.com/us/en/data-center/servers/mission-critical/ThinkSystem-SR860-V2-Server/p/77XX7HS86V2

Related product families

Product families related to this document are the following:

- 4-Socket Rack Servers
- STAC-M3 Benchmark Results
- ThinkSystem SR860 V2 Server

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