

ThinkSystem SR650 V2 Sets Overall World Record with New SAP BW Edition for SAP HANA (5.2B Records) Benchmark Result

Performance Benchmark Result

The Lenovo ThinkSystem SR650 V2 using Intel Xeon Platinum 8380 processors delivers world record performance for all three KPIs for SAP® BW edition for SAP HANA® Standard Application Benchmark Version 3 with 5.2 billion (5.2B) initial records in a single-node setup.



The benchmark refers to the SAP Business Warehouse (SAP BW) application running on the SAP HANA database. The benchmark consists of three phases and the SR650 V2 server achieved the following performance results (1):

- **Phase 1: Data load phase = 12,859** (Runtime of last Data Set in seconds)
- **Phase 2: Query throughput phase = 4222** (Query Executions per Hour)
- **Phase 3: Query runtime phase = 89** (Total Runtime of complex query phase in seconds)

The SR650 V2 was configured as follows:

- Two Intel Xeon Platinum 8380 Processors, 2.30 GHz
 - 80 total cores / 160 total threads
 - 80 KB L1 cache and 1280 KB L2 cache per core
 - 60 MB L3 cache per processor
- 1,024 GB DRAM system memory
- 2,048 GB of persistent memory using Intel Optane Persistent Memory 200 Series
- SUSE Linux Enterprise Server 15 SP2
- SAP HANA 2.0
- SAP NetWeaver® 7.50

Results referenced are current as of July 20, 2021. For the latest SAP BW benchmark results, visit: <https://www.sap.com/dmc/exp/2018-benchmark-directory/#/bwh>.

(1) This benchmark fully complies with the SAP Benchmark Council regulations and has been audited and certified by SAP SE (certification number [2021053](#)). Details can be obtained from Lenovo and SAP. The benchmark was performed at the Lenovo Data Center Performance Lab in Walldorf, Germany, by Lenovo engineers. Configuration: ThinkSystem SR650 V2 with 2 processor / 80 cores / 160 threads, Intel Xeon Platinum 8380 processors, 2.30 GHz, 80 KB L1 cache and 1280 KB L2 cache per core, 60 MB L3 cache per processor, 1,024 GB DRAM, 2,048 GB PMem.

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 the SAP BW edition for SAP HANA Benchmark

The SAP BW, edition for SAP HANA Standard Application Benchmark, Version 3, is the latest addition to the list of benchmarks for SAP Business Warehouse. It utilizes the capabilities of SAP HANA to process the benchmark workload. Allowed data volumes are a multiple of 1.3 billion initial records and can be run in single-node and multi-node setups. This benchmark was released in July 2018.

The benchmark scenario represents typical mid-size customer scenario and volumes for SAP BW running on SAP HANA. The benchmark simulates a variety of users with different analytical requirements and measures the key performance indicator (KPI) relevant to each of the three benchmark phases.

The three benchmark phases are as follows:

1. Data load phase, testing data latency and load performance
2. Query throughput phase, testing query throughput with moderate complex queries
3. Query runtime phase, testing the performance of running very complex queries

For more information about the benchmark, go to <https://www.sap.com/about/benchmark.html>.

Learn more

To learn more about business warehouse and data analytics solutions for SAP applications running on Lenovo Servers visit, <https://www.lenovo.com/us/en/data-center/solutions/sap/> or contact your Lenovo Customer Representative.

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](#)
- [SAP Alliance](#)
- [SAP BW Benchmark Results](#)
- [ThinkSystem SR650 V2 Server](#)

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