ThinkSystem SR860 V2 Sets 2 World Records with New SAP BW Edition for SAP HANA (5.2B Records) Benchmark Result

Performance Benchmark Result (withdrawn product)

Lenovo ThinkSystem SR860 V2 using Intel Xeon Platinum 8380HL processors delivers world record performance for two out of three KPIs for SAP Business Warehouse, 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 platform. The benchmark consists of three phases and the SR860 V2 server achieved the following performance results. The Lenovo result is a record for the Phase 1 and Phase 3 KPIs (1):

- **Phase 1: Data load phase = 10,437** (Runtime of last Data Set in seconds)
- **Phase 2: Query throughput phase = 6,661** (Query Executions per Hour)
- **Phase 3: Query runtime phase = 81** (Total Runtime of complex query phase in seconds)

The SR860 V2 was configured as follows:

- Four Intel Xeon Platinum 8380HL Processors, 2.90 GHz
  - 112 total cores / 224 total threads
  - 64 KB L1 cache and 1024 KB L2 cache per core
  - 38.5 MB L3 cache per processor
- 3072 GB DRAM system memory
- SUSE Linux Enterprise Server 15 SP2
- SAP HANA 2.0
- SAP NetWeaver 7.50

Results referenced are current as of March 8, 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 2021017). 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 SR860 V2 with 4 processor / 112 cores / 224 threads, Intel Xeon Platinum 8380HL processors, 2.90 GHz, 64 KB L1 cache and 1024 KB L2 cache per core, 38.5 MB L3 cache per processor, 3,072 GB DRAM.

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 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 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
- SAP Alliance
- SAP BW Benchmark Results
- ThinkSystem SR860 V2 Server

Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area. Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service. Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

Lenovo (United States), Inc.
8001 Development Drive
Morrisville, NC 27560
U.S.A.
Attention: Lenovo Director of Licensing

LENOVO PROVIDES THIS PUBLICATION ”AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

The products described in this document are not intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. The information contained in this document does not affect or change Lenovo product specifications or warranties. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Lenovo or third parties. All information contained in this document was obtained in specific environments and is presented as an illustration. The result obtained in other operating environments may vary. Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-Lenovo Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this Lenovo product, and use of those Web sites is at your own risk. Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

© Copyright Lenovo 2025. All rights reserved.

This document, LP1457, was created or updated on March 29, 2021.

Send us your comments in one of the following ways:

- Use the online Contact us review form found at:
  https://lenovopress.lenovo.com/LP1457
- Send your comments in an e-mail to:
  comments@lenovopress.com

This document is available online at https://lenovopress.lenovo.com/LP1457.

Trademarks

Lenovo and the Lenovo logo are trademarks or registered trademarks of Lenovo in the United States, other countries, or both. A current list of Lenovo trademarks is available on the Web at https://www.lenovo.com/us/en/legal/copytrade/.

The following terms are trademarks of Lenovo in the United States, other countries, or both:
Lenovo®
ThinkShield®
ThinkSystem®
XClarity®

The following terms are trademarks of other companies:

Intel®, the Intel logo, Intel Optane®, and Xeon® are trademarks of Intel Corporation or its subsidiaries.

Linux® is the trademark of Linus Torvalds in the U.S. and other countries.

Other company, product, or service names may be trademarks or service marks of others.