

ThinkSystem SR860 V2 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 world records. The result has been achieved on the powerful Lenovo ThinkSystem SR860 V2 server. The benchmark results are:

- The world's #1 best overall TPC-E result for performance
- The world's #1 best 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 SR860 V2 server achieved the following score (1):

- **12,162.59 tpsE (transactions per second E) @ \$84.96 USD/tpsE**



This result sets two new records:

- The best performance in the industry: 7% faster than the previous overall best score. (2)
- The lowest ever price/performance.

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

The SR860 V2 achieved this record level of OLTP performance using the following configuration:

- Four Intel Xeon Platinum 8380H Scalable processors at 2.90 GHz (4 processors each 28 cores, 112 total cores, 224 total threads)
- 3072 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. Six D1224 storage enclosures and 126 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 November 19, 2020. To view all TPC results, visit <http://www.tpc.org>.

(1) The total solution availability for this TPC-E benchmark result is November 19, 2020. See the details for this result at <http://www.tpc.org/4087>

(2) The Lenovo ThinkSystem SR950 previously held the #1 overall TPC-E performance result and #1 4P TPC-E price/performance result. Result details are from <http://www.tpc.org/4081>. This result is in the TPC's Historical Result list.

(3) The Lenovo ThinkSystem SR655 holds the #1 1P TPC-E performance result and the #1 1P TPC-E price/performance result. Result details are from <http://www.tpc.org/4085>

(4) The Lenovo ThinkSystem SR650 holds the #1 2P TPC-E performance result. Result details are from <http://www.tpc.org/4084>

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 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 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:

- [Microsoft SQL Server](#)
- [ThinkSystem SR860 V2 Server](#)
- [Direct-Attached Storage](#)
- [4-Socket Rack Servers](#)
- [TPC-E Benchmark Results](#)

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 2022. All rights reserved.

This document, LP1399, was created or updated on November 20, 2020.

Send us your comments in one of the following ways:

- Use the online Contact us review form found at:
<https://lenovopress.lenovo.com/LP1399>
- Send your comments in an e-mail to:
comments@lenovopress.com

This document is available online at <https://lenovopress.lenovo.com/LP1399>.

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®

TruDDR4

XClarity®

The following terms are trademarks of other companies:

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

Microsoft®, SQL Server®, Windows Server®, and Windows® are trademarks of Microsoft Corporation in the United States, other countries, or both.

TPC, TPC Benchmark, TPC-E, and tpsE are trademarks of Transaction Processing Performance Council.

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