

Five Highlights of the Lenovo ThinkSystem SR850 V3 Server

Article

The ThinkSystem SR850 V3 is a 4-socket server that is densely packed into a 2U rack design. The server offers technology advances, including fourth-generation Intel Xeon Scalable processors, scale-up capacity with up to 16TB of system memory, up to 12x PCIe slots, and up to 24x 2.5-inch drive bays. The SR850 V3 is ideal for mission-critical applications scaling up from 2-socket systems such as enterprise virtualization, CRM, ERP, SQL databases, VDI and small-mid sized SAP HANA computing environments. Lets take a look at five highlights of the SR850 V3 server.



Figure 1. Lenovo ThinkSystem SR850 V3

1. Optimized for Growth with 2U Density

The SR850 V3 delivers high performance, reliability, and versatility to effortlessly tackle the workloads that keep your organization moving, enabling you to quickly respond to the expansion of your data infrastructure needs.

The versatile design of the system enables you to rapidly upgrade its capabilities with more CPUs, memory, and storage capacity to help you keep pace with growing IT needs. The system has the capability to scale from two to four processors that offers a simple “pay as you grow” upgrade for both processors and memory, resulting in greater system performance to handle growing next-generation workloads.

In addition, the SR850 V3 supports ample amounts of ultra-fast DDR5 memory, considerable on-board storage capabilities with support for up to 24 2.5-inch drives, up to 24 direct link NVMe drive support for latency-sensitive applications, and even up to two double-width 350W or four single-width GPUs.

2. Flexible PCIe and GPU Support

The SR850 V3 supports a total of up to 12x rear-accessible PCIe slots, plus two dedicated OCP 3.0 SFF slot for networking. The SR850 V3 server supports Gen4-only or Gen5+Gen4 slot configurations to suit the needs of installed applications.

The SR850 V3 can also support up to 4x single wide GPUs or 2x double-wide GPUs for substantial processing power in a 4 Processor - 2U system.

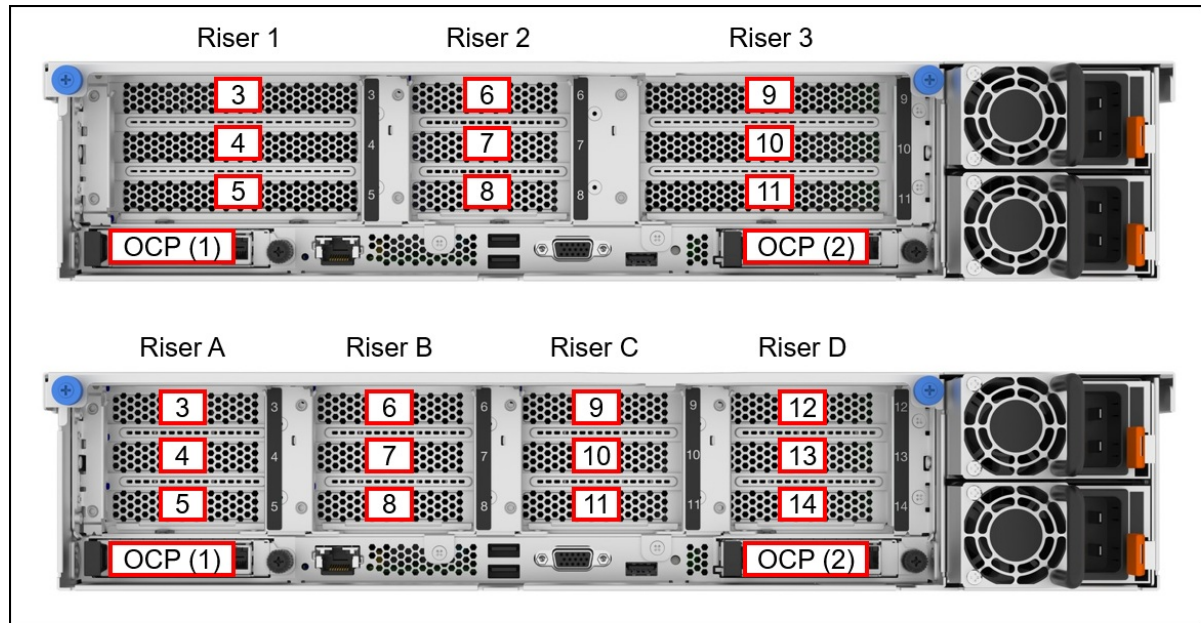


Figure 2. Slots in the SR850 V3

3. Flexible Storage

The SR850 V3 supports up to 24x 2.5-inch SAS/SATA or AnyBay drive bays. All 24x drive bays are hot-swap and all front-accessible. This includes up to 24x NVMe drives to maximize storage performance. All connections are made using onboard connectors. Each x4 drive has a full x4 (four PCIe Gen5 lanes) connection to the processor.

The server also supports internal M.2 drives (one or two, installed in an adapter), or rear-accessible hot-swap 7mm SSDs (installed in the place of two PCIe slots).

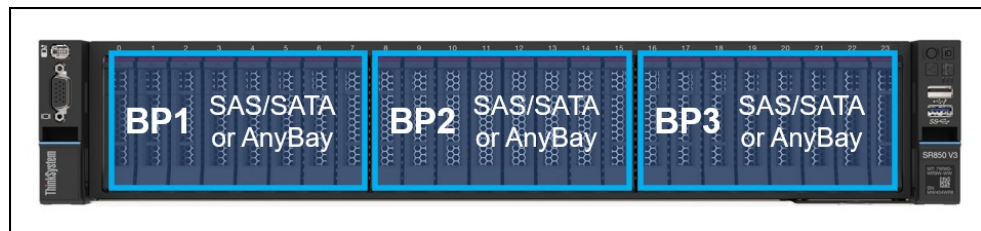


Figure 3. SR850 V3 Front Storage Backplanes

4. Increased Performance, Capacity and Lower Power with DDR5 Memory

DDR5 is the newest RAM available for Lenovo ThinkSystem servers. The DDR means “double data rate”, and the “5” means that this is the fifth generation of this type of RAM.

DDR5 Provides:

- Higher Performance - DDR5 offerings are faster and more efficient than the latest DDR4. DDR5 starts at 4800 MT/s, where DDR4 maxes out at 3200 MT/s.
- Higher Capacity - DDR5 memory supports larger RAM devices than DDR4.
- Lower Power Consumption - Not only do the DIMMs themselves consume less power, but less power is needed to cool them.

5. Enhanced Security

The SR850 V3 includes many security features including Lenovo ThinkShield security software. ThinkShield prevents, detects and remediates against attacks, providing security in the supply chain, below the OS in the server, and from the OS to the cloud. The XClarity system manager simplifies infrastructure processes, handling faults, and adding new servers to the network. It also adds security by monitoring log events.

The SR850 V3 server offers the following electronic security features:

- Secure Boot function of the Intel Xeon processor
- Support for Platform Firmware Resiliency (PFR) hardware Root of Trust (RoT)
- Firmware signature processes compliant with FIPS and NIST requirements
- Administrator and power-on password
- Integrated Trusted Platform Module (TPM) supporting TPM 2.0
- Self-encrypting drives (SEDs)

The SR850 V3 server also offers the following physical security features:

- Optional chassis intrusion switch (standard on some models)
- Optional lockable front security bezel

Lenovo's ThinkShield Security is a transparent and comprehensive approach to security that extends to all dimensions of our data center products: from development, to supply chain, and through the entire product lifecycle. This includes Platform Firmware Resiliency (PFR) hardware Root of Trust (RoT) which enables the system to be NIST SP800-193 compliant.

Further reading

For further reading, see these SR850 V3 resources:

- [SR850 V3 Datasheet](#)
- [SR850 V3 Product Guide](#)
- [SR850 V3 Product Web page](#)

This article is one in a series on the ThinkSystem V3 servers:

- [Five Highlights of the Lenovo ThinkSystem SR630 V3 Server](#)
- [Five Highlights of the Lenovo ThinkSystem SR650 V3 Server](#)
- **[Five Highlights of the Lenovo ThinkSystem SR850 V3 Server](#)**
- [Five Highlights of the Lenovo ThinkSystem SR860 V3 Server](#)
- [RAS Features of the Lenovo ThinkSystem Intel Servers](#)

About the author

Randall Lundin is a Senior Product Manager in the Lenovo Infrastructure Solution Group. He is responsible for planning and managing ThinkSystem servers. Randall has also authored and contributed to numerous Lenovo Press publications on ThinkSystem products.

Related product families

Product families related to this document are the following:

- [ThinkSystem SR850 V3 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, LP1696, was created or updated on February 6, 2023.

Send us your comments in one of the following ways:

- Use the online Contact us review form found at:
<https://lenovopress.lenovo.com/LP1696>
- Send your comments in an e-mail to:
comments@lenovopress.com

This document is available online at <https://lenovopress.lenovo.com/LP1696>.

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®

AnyBay®

ThinkShield®

ThinkSystem®

XClarity®

The following terms are trademarks of other companies:

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

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