Introducing the New GPU-Rich Software-Defined Infrastructure Systems
Article

Introducing the new GPU-rich software-defined infrastructure systems, the new ThinkAgile HX650a V4, MX650a V4, and VX650a V4.

Unleash next-level performance with support for up to 4 double-wide GPUs with NVLink support and purpose-built for compute-intensive AI workloads, virtual desktops, and graphics intensive applications.

ThinkAgile HX650a V4

Lenovo ThinkAgile HX Series, pre-integrated with Nutanix software, delivers a seamless hybrid multi-cloud solution, providing simplicity and freedom to harness the power of AI with flexibility, scalability, and security across workloads from edge to cloud.

ThinkAgile HX650a V4 models are designed for deploying industry-leading hyperconvergence software from Nutanix on Lenovo enterprise platforms. Nutanix brings the benefits of web-scale technologies to enterprise applications through enterprise storage, data protection, infrastructure resilience, management and analytics, and security.
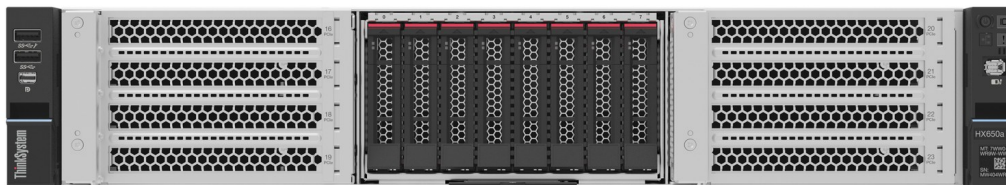

Figure 1. ThinkAgile HX650a V4

The ThinkAgile HX650a V4 system offers the following key features:

- Factory-integrated, pre-configured ready-to-go integrated systems built on proven and reliable Lenovo ThinkSystem servers that provide compute power for a variety of workloads and applications and powered by industry's most feature-rich hyperconverged infrastructure software from Nutanix.

- Provide quick and convenient path to implement a hyperconverged solution powered by Nutanix with "one stop shop" and a single point of contact provided by Lenovo for purchasing, deploying, and supporting the solution.

- Meet various workload demands with performance-optimized all NVMe storage configurations

- Deliver fully validated and integrated hardware and firmware that is certified with Nutanix software.

For more information, see the ThinkAgile HX650a V4 product guide .

ThinkAgile MX650a V4

Lenovo ThinkAgile MX Series allow customers to easily accelerate and modernize their AI and hybrid cloud infrastructure by enabling Azure cloud services at the edge and in their own data center.

The ThinkAgile MX650a V4 is designed for deploying highly available, highly scalable hyper-converged infrastructure (HCI) and software-defined storage (SDS) from Microsoft on Lenovo enterprise platforms. The ThinkAgile MX650a V4 solution offers varying levels of included software, support, and pre-validation.

Figure 2. ThinkAgile MX650a V4

The ThinkAgile MX650a V4 offers the following key features:

- Continuously tested and validated by Lenovo and Microsoft with single point of support for HW and L1, L2 SW support from Lenovo to ensure higher reliability and less downtime.
- Quick and convenient path to implement a hyperconverged solution powered by the Azure Local OS with Hyper-V virtualization, Microsoft Storage Spaces Direct (S2D) Software Defined Storage (SDS), and Software Defined Networking (SDN) network virtualization.
- Streamlined management of Azure Arc enabled servers with unified single-pane-of-glass for creating and managing VMs, S2D volumes, and virtual networks with Azure Portal or Windows Admin Center with Lenovo xClarity Integrator.
- Solution Builder Extension (SBE) integration with Azure Arc.

For more information, see the ThinkAgile HX650a V4 Product Guide .

ThinkAgile VX650a V4

With faster deployments and seamless operational management, ThinkAgile VX Series co-engineered HCI solution and ThinkAgile Converged Solution for VMware enable optimized investments for private and hybrid cloud-based VMware environments.

The Lenovo ThinkAgile VX650a V4 offer the ultimate in two-socket GPU-rich performance in a 2U form factor. Based on VMware software, the system offers a unique, software-defined approach to hyper convergence, leveraging the hypervisor to deliver compute, storage and management in a tightly integrated software stack.

Figure 3. ThinkAgile VX650a V4

The ThinkAgile VX650a V4 offers the following key features:

- Factory-integrated, pre-validated ready-to-go integrated systems built on proven and reliable Lenovo ThinkSystem servers that provide compute power for a variety of workloads and applications and powered by industry-leading hyperconverged infrastructure software from VMware.

- Fully tested and validated for vSAN compliance with VMware and includes the latest supported firmware levels integrated at factory.

- Provide quick and convenient path to implement a implement a private or hybrid cloud environment powered by VMware Cloud Foundation (VCF) or VMware vSphere Foundation (VVF) software stacks. Purchasing the software licenses through Lenovo provides a "one stop shop" and a single point of contact from Lenovo for purchasing, deploying, and supporting the solution.

For more information, see the ThinkAgile VX650a V4 Product Guide .

Based on the ThinkSystem SR650a V4

The HX650a V4, MX650a V4 and VX650a V4 are all based on the ThinkSystem SR650a V4 platform.

The SR650a V4 is an ideal 2-socket 2U rack server for customers want to maximize GPU compute power while still retaining the traditional 2U rack form factor. With two Intel Xeon 6700-series or 6500-series processors, plus support for four double-wide GPUs including the NVIDIA H100 NVL 94GB, the SR650a V4 is designed for high density and scale-out workloads.

The ThinkSystem SR650a V4 offers numerous features to boost performance, improve scalability and reduce costs:

- Supports one or two Intel Xeon 6700-series or 6500-series processors with Performance-cores (P-cores), up to 350W
- Support for DDR5 memory DIMMs to maximize the performance of the memory subsystem, up to 8TB of memory
- Supports up to 4x double-wide GPUs with dual-GPU NVLink support, or 8x single-wide GPUs, installed at the front of the server, for substantial processing power in a 2U system.
- Supports up to 8x 2.5-inch NVMe hot-swap drive bays or 8x E3.S 1T NVMe hot-swap drives for local storage.
- Up to 8x PCIe slots (front accessible) for GPUs and 6x PCIe slots (rear accessible) for other PCIe adapters, plus two slots dedicated to OCP 3.0 adapters.

For more information on the SR650a V4, see these resources:

- SR650a V4 product guide
- SR650a V4 datasheet
- SR650a V4 3D tour

360° View	Full 3D Tour

For more information

For more information, see the ThinkAgile Software-Defined Infrastructure product web page.

Related product families

Product families related to this document are the following:

- ThinkAgile HX Series for Nutanix
- ThinkAgile MX Series for Microsoft Azure Local
- ThinkAgile VX Series for VMware

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.

This document, LP2290, was created or updated on August 29, 2025.

Send us your comments in one of the following ways:

- Use the online Contact us review form found at:
  https://lenovopress.lenovo.com/LP2290
- Send your comments in an e-mail to:
  comments@lenovopress.com

This document is available online at https://lenovopress.lenovo.com/LP2290.

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®
ThinkAgile®
ThinkSystem®

The following terms are trademarks of other companies:

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

Microsoft®, Arc®, Azure®, Hyper-V®, and Windows® are trademarks of Microsoft Corporation in the United States, other countries, or both.

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