

Lenovo ThinkAgile VX665 V3 2U Integrated Systems and Certified Nodes (AMD EPYC 9000)

Product Guide

The Lenovo ThinkAgile VX665 V3 Integrated Systems and Certified Node are 2-socket 2U systems that features AMD EPYC 9000 Series 5th Generation "Turin" and 4th Generation "Genoa" family of processors. With up to 160 cores per processor and support for the new PCIe 5.0 standard for I/O, the VX systems offer the ultimate in two-socket performance in a 2U form factor. VMware offers a unique, software-defined approach to hyper convergence, leveraging the hypervisor to deliver compute, storage, networking and management in a tightly integrated software stack.

Suggested uses: Inference, virtualization, VDI, HPC, Hyperconverged infrastructure



Figure 1. Lenovo ThinkAgile VX with 2.5-inch drive bays

Did you know?

The ThinkAgile VX665 V3 Integrated Systems and Certified Node are built on the Lenovo ThinkSystem SR665 v3 server that features enterprise-class reliability, management, and security.

The VX665 V3 Integrated Systems comes preinstalled with VMware software. The deployer tool provides for faster day 0 and day 1 operations. XClarity Integrator acting as the Hardware Support manager (HSM) for the vCenter Life Cycle Manager (vLCM), handles lifecycle management of both software and firmware updates via a single pane of glass that fully integrates VMware tools. The VX Integrated System comes paired with Premier Support that offers a single point of support for quick 24/7 problem reporting and resolution.

The systems have been designed to take advantage of the features of the 5th Generation AMD EPYC 9005 Series "Turin" and 4th Generation EPYC 9004 Series "Genoa" family of processors and support for the new PCIe 5.0 standard for I/O, the VX systems offer the ultimate in two-socket performance in a 2U form factor.

The systems are available as an Integrated System or a Certified Node delivering greater virtualized workload consolidation with higher core count, GPU support and easy-to-use lifecycle management console.

Key features

ThinkAgile features

The ThinkAgile VX665 V3 Integrated Systems and Certified Node offer 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-leading hyperconverged infrastructure software from VMware.
- Provide quick and convenient path to implement a hyperconverged solution powered by VMware Cloud Foundation (VCF) or VMware vSphere Foundation (VVF) software stacks 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 cost-efficient hybrid or performance-optimized all-flash storage configurations.
- Deliver fully validated and integrated hardware and firmware that is certified with VMware by Broadcom.
- ThinkAgile Integrated Systems are bundled with Premier Support providing a single-point-of-contact for quick 24/7 hardware and software support, problem reporting and resolution.
- They also come with deployment delivered by Lenovo Professional Services and VMware software licenses.*
- Five-year hardware warranty, bundled with Premier Support that provides a 24x7 Single Point of Support

The VMware software running on ThinkAgile VX665 V3 Integrated Systems and Certified Node delivers the following key features:

- Distributed architecture that allows "pay-as-you-grow", non-disruptive scaling by adding new nodes to the cluster (scale-out) to increase capacity and performance.
- Advanced capacity management, including deduplication, compression, and erasure coding (RAID 5/6), which helps deliver greater storage utilization with dramatically lower storage capacity and costs.
- Automation of VM storage provisioning and control of storage service levels (capacity, performance, availability) with VM-centric policies to load balance storage resources.
- Native HCI security solution with two-factor authentication (SecurID and CAC) and data-at-rest encryption that does not require self-encrypting drives (SEDs).
- Stretched cluster with local and site failure protection between two geographically dispersed sites for higher level of availability with near zero downtime.
- Centralized management with provisioning, administering, and monitoring virtual resources across multiple hosts and clusters from a centralized interface.
- Rapid workload provisioning, simplified data center operations, increased business efficiency, and decreased CAPEX and OPEX costs.
- VM and data protection with agent-less, image-level virtual machine backups and application-aware protection for business-critical Microsoft applications (Exchange, SQL Server, SharePoint) along with WAN-efficient, encrypted backup data replication.
- Reduced unplanned downtime and virtually eliminated planned downtime for server and storage maintenance with live workload migration, high availability, and fault tolerance.
- Enhanced application performance and availability with resource management, load balancing, and access prioritization.
- Intelligent operations management and automation to proactively monitor and manage compute, storage, and networking resources, identify performance bottlenecks, and re-balance workloads by leveraging predictive analytics.
- Capacity planning and optimization guidance to address future needs with performance trends, projections and extended forecasts.

- Managing remote offices and branch offices with rapid provisioning of servers through virtualization, minimization of host configuration drift, and enhanced visibility into regulatory compliance, across multiple sites.

*Customers now have the ability to opt out of these features. Please check sections on Software and Deployment Services for more information.

Hardware features

The VX665 V3 are based on the SR665 V3 and have the following hardware features

Scalability and performance

The VX665 V3 offer numerous features to boost performance, improve scalability and reduce costs:

- Supports 5th Generation AMD EPYC 9005 "Turin" family of processors with up to 160 cores and 320 threads, core speeds of up to 4.0 GHz, and TDP ratings of up to 400 W.
- Supports 4th Generation AMD EPYC 9004 family of processors with up to 96 cores and 192 threads, core speeds of up to 3.6 GHz, and TDP ratings of up to 360W.
- Support for up to 24 TruDDR5 memory DIMMs with two processors (12 DIMMs per processor). Each processor has 12 memory channels and 1 DIMMs per channel. With 1 DIMM installed per channel (12 DIMMs total), memory operates at 4800 MHz.
- Using 256GB 3DS RDIMMs, the server supports up to 6TB of system memory.
- Supports up to eight single-width GPUs, each up to 75W for substantial processing power in a 2U system.
- Supports up to 40x 2.5-inch hot-swap drive bays, by using combinations of front-accessible (up to 24 bays) and rear-accessible (8 bays).
- Supports 20x 3.5-inch drive bays for lower-cost high-capacity HDD storage. 2.5-inch and 3.5-inch drive bays can be mixed if desired.
- Supports 16x NVMe drives without oversubscription of PCIe lanes (1:1 connectivity) or up to 32 NVMe drives with a 1:2 oversubscription. The use of NVMe drives maximizes drive I/O performance, in terms of throughput, bandwidth, and latency.
- Supports up to two externally accessible 7mm hot-swap drives with RAID functionality for operating system boot functions
- Supports M.2 drives for convenient operating system boot functions. Available M.2 adapters support either one M.2 drive or two M.2 drives in a RAID 1 configuration for performance and reliability.
- The server has a dedicated industry-standard OCP 3.0 small form factor (SFF) slot, with a PCIe 5.0 x16 interface, supporting a variety of Ethernet network adapters. Simple-swap mechanism with thumbscrews and pull-tab enables tool-less installation and removal of the adapter. Supports shared BMC network sideband connectivity to enable out-of-band systems management.
- The server offers PCI Express 5.0 I/O expansion capabilities that doubles the theoretical maximum bandwidth of PCIe 4.0 (32GT/s in each direction for PCIe 5.0, compared to 16 GT/s with PCIe 4.0). A PCIe 5.0 x16 slot provides 128 GB/s bandwidth, enough to support a 400GbE network connection.
- Up to eight PCIe 5.0 slots, all with rear access, plus an internal bay for a cabled HBA, plus a slot dedicated to the OCP adapter.

Availability and serviceability

The VX665 V3 provide many features to simplify serviceability and increase system uptime:

- The server uses ECC memory and supports memory RAS features including Single Device Data Correction (SDDC, also known as Chipkill), Patrol/Demand Scrubbing, Bounded Fault, DRAM Address Command Parity with Replay, DRAM Uncorrected ECC Error Retry, On-die ECC, ECC Error Check and Scrub (ECS), and Post Package Repair.
- The server offers hot-swap drives for greater system uptime.

- The server has up to two hot-swap redundant power supplies and up to six hot-swap redundant fans to provide availability for business-critical applications.
- Optional front-accessible slots and drives so that most major components and cables (except power) are located at the front of the server.
- The power-source-independent light path diagnostics uses LEDs to lead the technician to failed (or failing) components, which simplifies servicing, speeds up problem resolution, and helps improve system availability.
- Solid-state drives (SSDs) offer more reliability than traditional mechanical HDDs for greater uptime.
- Proactive Platform Alerts (including PFA and SMART alerts): Processors, voltage regulators, memory, internal storage (SAS/SATA HDDs and SSDs, NVMe SSDs, M.2 storage, flash storage adapters), fans, power supplies, RAID controllers, server ambient and subcomponent temperatures. Alerts can be surfaced through the XClarity Controller to managers such as Lenovo XClarity Administrator and VMware vCenter. These proactive alerts let you take appropriate actions in advance of possible failure, thereby increasing server uptime and application availability.
- The built-in XClarity Controller 2 continuously monitors system parameters, triggers alerts, and performs recovery actions in case of failures to minimize downtime.
- Built-in diagnostics in UEFI, using Lenovo XClarity Provisioning Manager, speed up troubleshooting tasks to reduce service time.
- Lenovo XClarity Provisioning Manager supports diagnostics and can save service data to a USB key drive or remote CIFS share folder for troubleshooting and reduce service time.
- Auto restart in the event of a momentary loss of AC power (based on power policy setting in the XClarity Controller service processor)
- Offers a diagnostics port on the front of the server to allow you to attach an external diagnostics handset for enhanced systems management capabilities.
- Support for the XClarity Administrator Mobile app running on a supported smartphone and connected to the server through the service-enabled USB port, enables additional local systems management functions.
- Three-year or one-year customer-replaceable unit and onsite limited warranty, 9 x 5 next business day. Optional service upgrades are available.

Manageability and security

Systems management features simplify local and remote management of the VX665 V3:

- The server includes an XClarity Controller 2 (XCC2) to monitor server availability. Optional upgrade to XCC Platinum to provide remote control (keyboard video mouse) functions, support for the mounting of remote media files, FIPS 140-3 security, enhanced NIST 800-193 support, boot capture, power capping, and other management and security features.
- Lenovo XClarity Administrator offers comprehensive hardware management tools that help to increase uptime, reduce costs and improve productivity through advanced server management capabilities.
- UEFI-based Lenovo XClarity Provisioning Manager, accessible from F1 during boot, provides system inventory information, graphical UEFI Setup, platform update function, RAID Setup wizard, operating system installation function, and diagnostic functions.
- Support for Lenovo XClarity Energy Manager which captures real-time power and temperature data from the server and provides automated controls to lower energy costs.
- An integrated industry-standard Unified Extensible Firmware Interface (UEFI) enables improved setup, configuration, and updates, and simplifies error handling.
- Support for industry standard management protocols, IPMI 2.0, SNMP 3.0, Redfish REST API, serial console via IPMI
- An integrated hardware Trusted Platform Module (TPM) supporting TPM 2.0 enables advanced cryptographic functionality, such as digital signatures and remote attestation.

- Administrator and power-on passwords help protect from unauthorized access to the server.
- Supports AMD Secure Root-of-Trust, Secure Run and Secure Move features to minimize potential attacks and protect data as the OS is booted, as applications are run and as applications are migrated from server to server.
- Supports Secure Boot to ensure only a digitally signed operating system can be used.
- Industry-standard Advanced Encryption Standard (AES) NI support for faster, stronger encryption.
- Additional physical security features are a chassis intrusion switch and a lockable front bezel.

Energy efficiency

The VX665 V3 offer the following energy-efficiency features to save energy, reduce operational costs, and increase energy availability:

- Energy-efficient planar components help lower operational costs.
- Carbon offset is available at click of button. You can project the carbon emissions per device for an average lifecycle (up to 5 years). That information is available [here](#)
- High-efficiency power supplies with 80 PLUS Platinum and Titanium certifications
- Low-voltage 1.1 V DDR5 memory offers energy savings compared to 1.2 V DDR4 DIMMs, an approximately 20% decrease in power consumption
- Solid-state drives (SSDs) consume as much as 80% less power than traditional spinning 2.5-inch HDDs.
- The server uses hexagonal ventilation holes, which can be grouped more densely than round holes, providing more efficient airflow through the system and thus keeping your system cooler.
- Optional Lenovo XClarity Energy Manager provides advanced data center power notification and analysis to help achieve lower heat output and reduced cooling needs.

Components and connectors

The ThinkAgile VX665 V3 Integrated Systems and Certified Node are based on the ThinkSystem SR665 V3 server.

The following figure shows the front of the VX665 V3 with 2.5-inch drives.

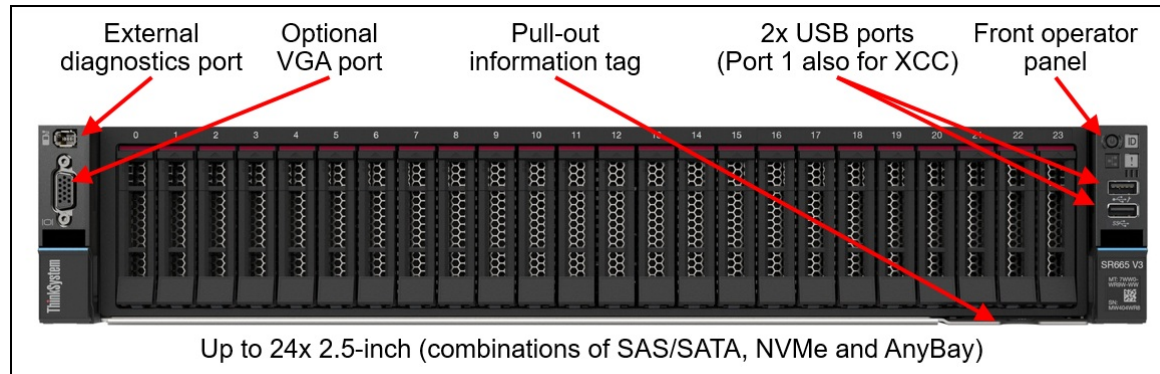


Figure 2. Front view of the ThinkAgile VX665 V3 with 2.5-inch drives

The following figure shows the front of the VX665 V3 with 3.5-inch drives.

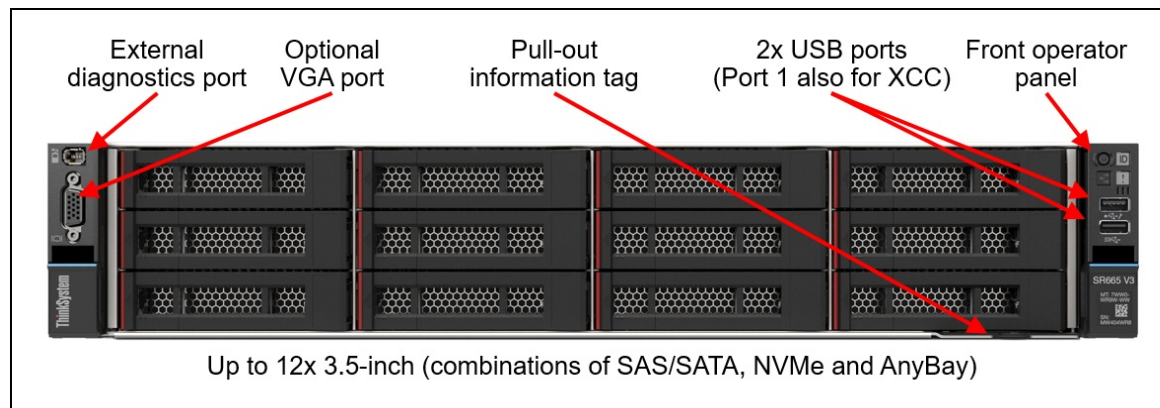


Figure 3. Front view of the ThinkAgile VX665 V3 with 3.5-inch drives

The following figure shows the components visible from the rear of the VX systems. The figure shows one configuration, with eight PCIe slots, however there are additional rear configurations which include 3.5-inch drive bays, 2.5-inch drive bays, or 7mm drive bays.

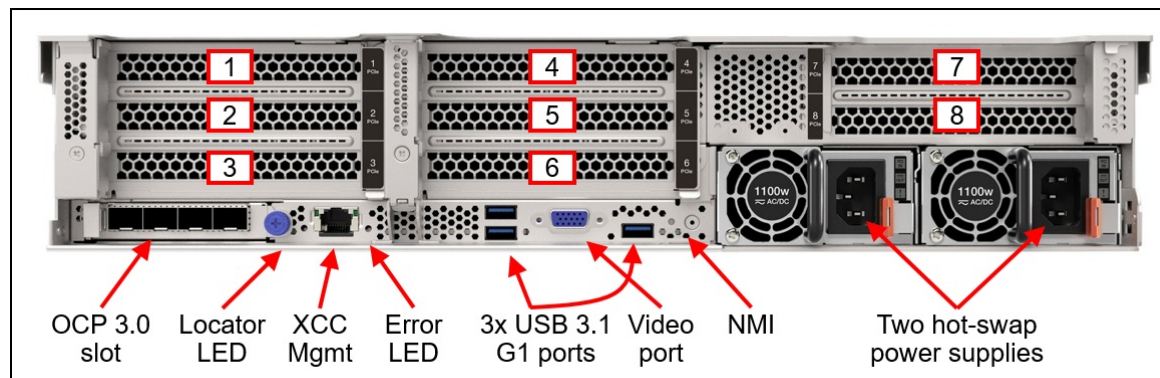


Figure 4. Rear view of the VX665 V3 (configuration with eight PCIe slots)

The following figure shows the locations of key components inside the systems.

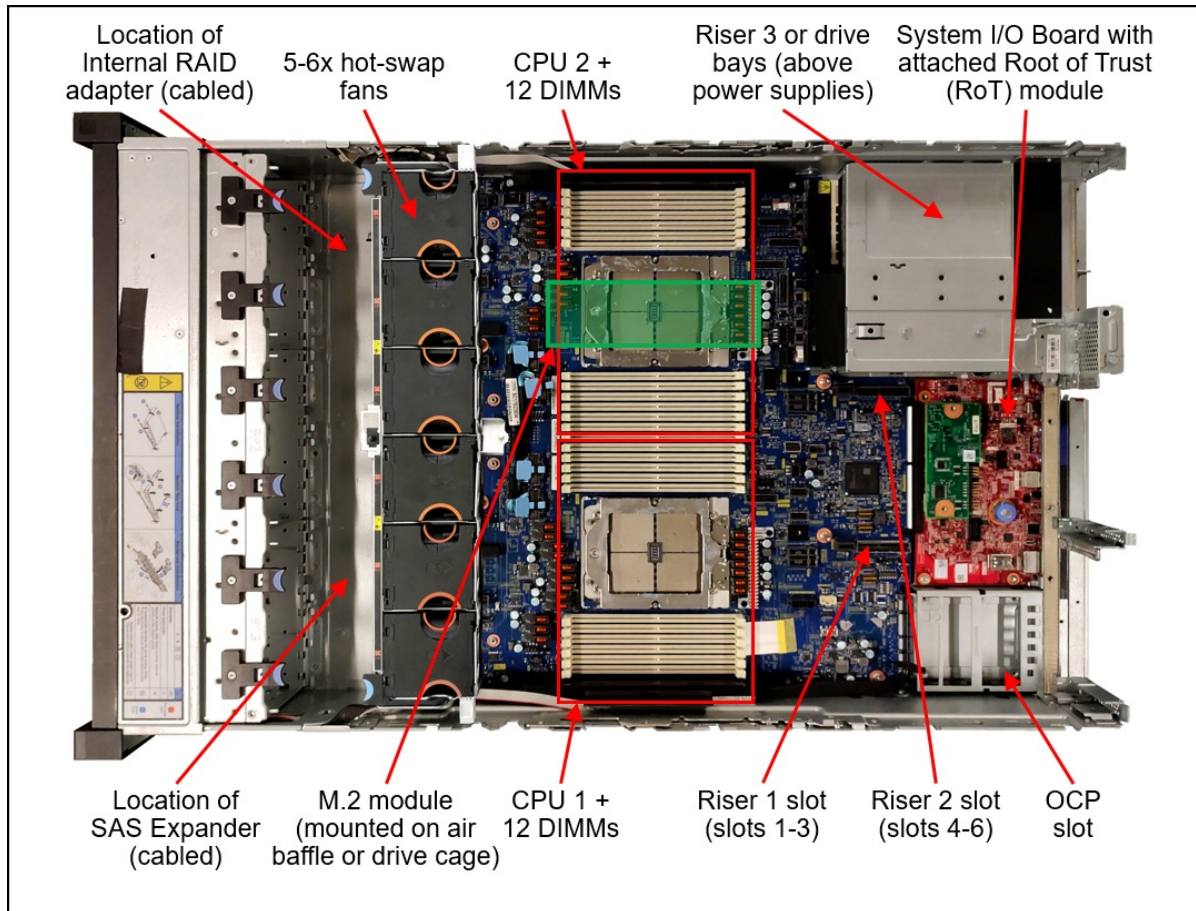


Figure 5. Internal view of the VX665 V3

Standard specifications

The ThinkAgile VX665 V3 Integrated Systems and Certified Node are based on the ThinkSystem SR665 V3 server.

The following table provides an overview comparison between the VX systems.

Table 1. Comparison of features

	VX665 V3 IS	VX665 V3 CN
Code Name	Kauai	Kauai
VX offering type	Integrated System	Certified Node
Base model	7D9LCTO1WW	7D9LCTO2WW
Form factor	2U	2U
Base platform	SR665 V3	SR665 V3
CPU	1x or 2x EPYC 9005 (Turin) 1x or 2x EPYC 9004 (Genoa)	1x or 2x EPYC 9005 (Turin) 1x or 2x EPYC 9004 (Genoa)
Memory	24x DDR5 6000MHz (6TB maximum with 256GB 3DS RDIMMs)	24x DDR5 6000MHz (6TB maximum with 256GB 3DS RDIMMs)
Drive bays	40x 2.5-inch SAS/SATA 16x 3.5-inch SAS/SATA 32x 2.5-inch NVMe 12x 3.5-inch NVMe	40x 2.5-inch SAS/SATA 16x 3.5-inch SAS/SATA 32x 2.5-inch NVMe 12x 3.5-inch NVMe
Drive Configuration	All Flash or Hybrid	All Flash or Hybrid
Disk groups	Up to 5 groups	Up to 5 groups
HBA	4350-8i 4350-16i 440-8i 440-16i 440-16i Int	4350-8i 4350-16i 440-8i 440-16i 440-16i Int
Boot drives	2x 7mm hot-swap SATA 2x 7mm hot-swap NVMe 2x M.2 SATA	2x 7mm hot-swap SATA 2x 7mm hot-swap NVMe 2x M.2 SATA
OCP networking	1x OCP 3.0 adapter 2/4port 10G/10GBASE-T, 25Gb,100Gb	1x OCP 3.0 adapter 2/4port 10G/10GBASE-T, 25Gb,100Gb
PCIe networking	Up to 10x adapters 10GBASE-T, 10G, 25G, 100G	Up to 10x adapters 10GBASE-T, 10G, 25G, 100G
GPUs	Supports up to: 8x single-wide GPUs or 3x double-wide GPUs	Supports up to: 8x single-wide GPUs or 3x double-wide GPUs
Hypervisor	ESXi 7.0 U3 ESXi 8.0 U2	ESXi 7.0 U3 ESXi 8.0 U2

The following table lists the standard specifications.

Table 2. Standard specifications

Components	Specification
Machine types	7D9A - 3 year warranty
Form factor	2U rack.
Cluster Size	<ul style="list-style-type: none"> With Lenovo ThinkAgile VX Series & VMware Cloud Foundation (VCF), you need a minimum of 4 nodes to create a management domain cluster. With Lenovo ThinkAgile VX Series & VMware vSphere Foundation (VVF), you can create a vSAN cluster with a minimum 3 hosts* and a maximum of 64 hosts. Requires vSAN 7.0 and later releases. <p>*Supports 2-node vSAN cluster deployment with a vSAN witness appliance deployed as a virtual machine or hardware appliance, typically in remote office/branch offices (ROBO) use cases and requires VMware vSphere Foundation (VVF) software license.</p>
Processor	<p>One or two AMD EPYC 9005 Series processors (codenamed "Turin"). Supports processors up to 160 cores, core speeds of up to 4.0 GHz, and TDP ratings of up to 400W. Supports PCIe 5.0 for high performance I/O.</p> <p>One or two AMD EPYC 9004 Series processors (codenamed "Genoa"). Supports processors up to 96 cores, core speeds of up to 3.6 GHz, and TDP ratings of up to 360W. Supports PCIe 5.0 for high performance I/O.</p>
Chipset	Not applicable (platform controller hub functions are integrated into the processor)
Memory	24 DIMM slots with two processors (12 DIMM slots per processor). Each processor has 12 memory channels, with 1 DIMM per channel (DPC). Lenovo TruDDR5 RDIMMs, 3DS RDIMMs, and 9x4 RDIMMs are supported, up to 6000 MHz
Memory maximum	Up to 6TB with 24x 256GB 3DS RDIMM-A
Persistent memory	Not supported.
Memory protection	ECC, SDDC, Patrol/Demand Scrubbing, Bounded Fault, DRAM Address Command Parity with Replay, DRAM Uncorrected ECC Error Retry, On-die ECC, ECC Error Check and Scrub (ECS), Post Package Repair
Disk drive bays	<p>Up to 20x 3.5-inch or 40x 2.5-inch hot-swap drive bays:</p> <ul style="list-style-type: none"> Front bays can be 3.5-inch (8 or 12 bays) or 2.5-inch (8, 16 or 24 bays) Middle bays can be 3.5-inch (4 bays) or 2.5-inch (8 bays) Rear bays can be 3.5-inch (2 or 4 bays) or 2.5-inch (4 or 8 bays) Combinations of SAS/SATA, NVMe, or AnyBay (supporting SAS, SATA or NVMe) are available <p>The systems also support these drives for OS boot:</p> <ul style="list-style-type: none"> Two 7mm drives at the rear of the server (in addition to any 2.5-inch or 3.5-inch drive bays) Internal M.2 module supporting up to two M.2 drives <p>See Supported drive bay combinations for details.</p>
Storage controller	<ul style="list-style-type: none"> Onboard NVMe (no RAID) NVMe Retimer Adapter (PCIe 4.0 or PCIe 5.0) 12 Gb SAS/SATA HBA (non-RAID) <ul style="list-style-type: none"> 8-port and 16-port PCIe 4.0 or PCIe 3.0 host interface

Components	Specification
Network interfaces	Dedicated OCP 3.0 SFF slot with PCIe 5.0 x16 host interface, either at the rear of the server (rear-accessible) or the front of the server (front-accessible). Supports a variety of 2-port and 4-port adapters with 1GbE, 10GbE, 25GbE and 100 GbE network connectivity. One port can optionally be shared with the XClarity Controller 2 (XCC2) management processor for Wake-on-LAN and NC-SI support. Additional PCIe network adapters supported in PCIe slots.
PCI Expansion slots	<p>Up to 10x PCIe slots with rear access, plus a slot dedicated to the OCP adapter. Slot are either PCIe 5.0 or 4.0 depending on riser selection and rear drive bay selection. The use of some slots requires two processors.</p> <p>Slots are configured using three riser cards. Riser 1 (slots 1-3) and Riser 2 (slots 4-6) are installed in slots in the system board, Riser 3 (slots 7-8) is cabled to ports on the system board.</p> <p>A variety of riser cards are available. See the I/O expansion for details.</p> <p>For 2.5-inch front drive configurations, the server supports the installation of a HBA in a dedicated area that does not consume any of the PCIe slots.</p> <p>The server alternatively supports slots at the front of the server (configurations with up to 16 drive bays)</p> <ul style="list-style-type: none"> • 1x OCP slot • 2x PCIe x16 full-height half-length slots
Ports	<p>Front: 1x USB 3.1 G1 (5 Gb/s) port, 1x USB 2.0 port (also for XCC local management), External diagnostics port, optional VGA port.</p> <p>Rear: 3x USB 3.1 G1 (5 Gb/s) ports, 1x VGA video port, 1x RJ-45 1GbE systems management port for XCC remote management. Optional 2nd XCC remote management port (installs in OCP slot). Optional DB-9 COM serial port (installs in slot 3).</p> <p>Internal: 1x USB 3.1 G1 (5 Gb/s) connector for operating system or license key purposes.</p>
Cooling	Up to 6x N+1 redundant hot swap 60 mm fans, configuration dependent. One fan integrated in each power supply.
Power supply	Up to two hot-swap redundant AC power supplies, 80 PLUS Platinum or 80 PLUS Titanium certification. 750 W, 1100 W, 1800 W, 2400 W, and 2600 W AC, supporting 220 V AC. 750 W and 1100 W options also support 110V input supply. In China only, all power supply options support 240 V DC. Also available is a 1100W power supply with a -48V DC input.
Video	G200 graphics with 16 MB memory with 2D hardware accelerator, integrated into the XClarity Controller. Maximum resolution is 1920x1200 32bpp at 60Hz.
Hot-swap parts	Drives, power supplies, and fans.
Systems management	Operator panel with status LEDs. Optional External Diagnostics Handset with LCD display. Models with 16x 2.5-inch front drive bays can optionally support an Integrated Diagnostics Panel. XClarity Controller 2 (XCC2) embedded management based on the ASPEED AST2600 baseboard management controller (BMC). Dedicated rear Ethernet port for XCC2 remote access for management. Optional 2nd redundant XCC2 remote port supported, installs in the OCP slot. XClarity Administrator for centralized infrastructure management, XClarity Integrator plugins for VMware Lifecycle Manager, and XClarity Energy Manager centralized server power management. Optional XCC Platinum to enable remote control functions and other features.
Security features	Chassis intrusion switch, Power-on password, administrator's password, Root of Trust module supporting TPM 2.0 and Platform Firmware Resiliency (PFR). Optional lockable front security bezel.

Components	Specification
Software	<p>All ThinkAgile VX Series products (Integrated Systems and Certified Nodes) will support the following Primary Software Stack (3-year & 5-year terms) and Add-Ons.</p> <p>Primary Software</p> <ol style="list-style-type: none"> 1. VMware Cloud Foundation 5 (VCF) 2. VMware vSphere Foundation 8 (VVF) <p>Add-On Options (requires purchase of a Primary Software version)</p> <ol style="list-style-type: none"> 1. VMware vSAN 8 (for capacity over TiB allocation from primary SKU) 2. VMware Live Recovery 3. VMware Firewall (requires VCF) 4. VMware Firewall with Advanced Threat Prevention (requires VCF) 5. VMware Avi Load Balancer 6. VMware Private AI Foundation (requires VCF)
Hypervisors	VMware ESXi 7.0 U3 (factory install), ESXi 8.0 (Future Support) See the Operating system support section for specifics.
Limited warranty	Three-year customer-replaceable unit and onsite limited warranty with 9x5 next business day (NBD).
Service and support	Optional service upgrades are available through Lenovo Services: 4-hour or 2-hour response time, 6-hour fix time, 1-year or 2-year warranty extension, software support for Lenovo hardware and some third-party applications.
Software maintenance	One-, three-, or five-year software support and subscription is included with the VMware software licenses available from Lenovo (optional).
Dimensions	Width: 445 mm (17.5 in.), height: 87 mm (3.4 in.), depth: 764 mm (30.1 in.). See Physical and electrical specifications for details.
Weight	Maximum: 38.8 kg (85.5 lb)

Models

Factory-integrated models of the integrated systems and certified nodes are configured by using the Lenovo Data Center Solution Configurator (DCSC), <http://dcsc.lenovo.com>

To ensure that the controlled GPUs and accelerators are only sold in the supported markets, the following configure-to-order base machine-type models (CTO MTMs) are selectable in DCSC:

- **Standard Open models** are available in all markets worldwide. Controlled GPUs cannot be configured using these models. These are CTO1WW models.
- **GPU Controlled models** are used to order any of the controlled GPUs and accelerators. Controlled models are not available in affected markets. If you start from a controlled model, your configuration must include a controlled GPUs.

Note:

- For all models listed in the GPU **Controlled models** column, one of the controlled GPUs *must* be selected in the DCSC configurator. DCSC will display an error if you configuration does not include one of the controlled GPUs.
- It is highly recommended to engage a Lenovo representative early in a project that includes the ThinkAgile VX Series Integrated Systems and Certified Nodes

The following table lists the base CTO models.

Table 3. CTO base models

Server model	Standard Open models	GPU Controlled models
	These CTO models are available in all markets. Configurations based on these MTMs cannot include controlled GPUs.	These CTO models are not available in affected markets. Configurations based on these MTMs must include controlled GPUs.
ThinkAgile VX665 Integrated System	7D9LCTO1WW	7D9LCTOAWW
ThinkAgile VX665 Certified Node	7D9LCTO2WW	7D9LCTOBWW

Models of the VX systems are defined based on whether the systems have 2.5-inch drive bays at the front (called the 2.5-inch chassis) or whether they have 3.5-inch drive bays at the front (called the 3.5-inch chassis). For models, the feature codes for these chassis bases are as listed in the following table.

Table 4. Chassis base feature codes

Feature code	Description
BLKJ	ThinkSystem V3 2U 12x3.5" Chassis
BLKK	ThinkSystem V3 2U 24x2.5" Chassis

Comparison with the ThinkSystem SR665 V3

The ThinkAgile VX665 V3 Integrated Systems and Certified Node are based on the ThinkSystem SR665 V3 server, however there are key differences between the base model and the Integrated System\Certified Node:

- No onboard SATA controller support
- No SATA HDDs
- No support for SED drives
- Fibre Channel support for data migration only
- InfiniBand support only supports the ethernet function
- Drives are categorized as Cache or Capacity drives and are formed as disk groups (up to 5 disk groups)

For details about the ThinkSystem SR665 V3, see the SR665 V3 product guide:

<https://lenovopress.com/lp1608-thinksystem-sr665-v3-server>

To verify what specific hardware components are supported with the VX665 V3, see the DCSC configurator:

<https://dcsc.lenovo.com>

Processors

The VX665 V3 supports either the 5th Gen Intel AMD EPYC Processor family or the 4th Gen AMD EPYC Processor family.

Topics in this section:

- [5th Gen AMD EPYC processors](#)
- [4th Gen AMD EPYC processors](#)
- [Lenovo Processor Neptune Core Module - Open-loop liquid cooling](#)

5th Gen AMD EPYC processors

The VX665 V3 systems support the following fifth -generation AMD EPYC processors. The systems support 1 or 2 processors installed.

For details about the ThinkSystem SR665 V3, see the SR665 V3 product guide:
<https://lenovopress.com/lp1608-thinksystem-sr665-v3-server#processor-options>

Table 5. Turin Processors

Part number	Feature	Description	Maximum supported	
			VX665 V3 IS	VX665 V3 CN
None	C2AK	ThinkSystem AMD EPYC 9135 16C 200W 3.65GHz Processor	2	2
None	C2AZ	ThinkSystem AMD EPYC 9355 32C 280W 3.55GHz Processor	2	2
None	C2AV	ThinkSystem AMD EPYC 9355P 32C 280W 3.55GHz Processor	1	1
None	C2AY	ThinkSystem AMD EPYC 9555 64C 360W 3.2GHz Processor	2	2
None	C2AW	ThinkSystem AMD EPYC 9555P 64C 360W 3.2GHz Processor	1	1
None	C4H8	ThinkSystem AMD EPYC 9575F 64C 400W 3.3GHz Processor	2	2
None	C2AU	ThinkSystem AMD EPYC 9655 96C 400W 2.6GHz Processor	2	2
None	C2AX	ThinkSystem AMD EPYC 9655P 96C 400W 2.6GHz Processor	1	1

4th Gen AMD EPYC processors

The VX665 V3 systems support the following fourth -generation AMD EPYC processors. The systems support 1 or 2 processors installed.

For details about the ThinkSystem SR665 V3, see the SR665 V3 product guide:
<https://lenovopress.com/lp1608-thinksystem-sr665-v3-server#processor-options>

Table 6. Genoa Processors

Part number	Feature	Description	Maximum supported	
			VX665 V3 IS	VX665 V3 CN
None	BREE	ThinkSystem AMD EPYC 9124 16C 200W 3.0GHz Processor	2	2
None	BREJ	ThinkSystem AMD EPYC 9174F 16C 320W 4.1GHz Processor	2	2
None	BREH	ThinkSystem AMD EPYC 9224 24C 200W 2.5GHz Processor	2	2
None	BRED	ThinkSystem AMD EPYC 9254 24C 200W 2.9GHz Processor	2	2
None	BREF	ThinkSystem AMD EPYC 9274F 24C 320W 4.05GHz Processor	2	2
None	BREC	ThinkSystem AMD EPYC 9334 32C 210W 2.7GHz Processor	2	2
None	BR30	ThinkSystem AMD EPYC 9354 32C 280W 3.25GHz Processor	2	2
None	BREG	ThinkSystem AMD EPYC 9354P 32C 280W 3.25GHz Processor	1	1
None	BR32	ThinkSystem AMD EPYC 9374F 32C 320W 3.85GHz Processor	2	2
None	BREB	ThinkSystem AMD EPYC 9454 48C 290W 2.75GHz Processor	2	2
None	BREM	ThinkSystem AMD EPYC 9454P 48C 290W 2.75GHz Processor	1	1
None	BR31	ThinkSystem AMD EPYC 9474F 48C 360W 3.6GHz Processor	2	2
None	BREA	ThinkSystem AMD EPYC 9534 64C 280W 2.45GHz Processor	2	2
None	BPVJ	ThinkSystem AMD EPYC 9554 64C 360W 3.1GHz Processor	2	2
None	BREL	ThinkSystem AMD EPYC 9554P 64C 360W 3.1GHz Processor	1	1
None	BR2Z	ThinkSystem AMD EPYC 9634 84C 290W 2.25GHz Processor	2	2
None	BPVK	ThinkSystem AMD EPYC 9654 96C 360W 2.4GHz Processor	2	2
None	BREK	ThinkSystem AMD EPYC 9654P 96C 360W 2.4GHz Processor	1	1
None	BXFT	ThinkSystem AMD EPYC 9184X 16C 320W 3.55GHz Processor	2	2
None	BW9V	ThinkSystem AMD EPYC 9384X 32C 320W 3.1GHz Processor	2	2

Lenovo Processor Neptune Core Module - Open-loop liquid cooling

The VX665 V3 also supports advanced direct-water cooling (DWC) capability with the Lenovo Processor Neptune Core Module. This module implements a liquid cooling solution where heat from the processors is removed from the rack and the data center using an open loop and coolant distribution units.

With the Processor Neptune Core Module, all heat generated by the processors is removed from the server using water. This means that the server fans and data center air conditioning units only need to remove the heat generated by the other components. This results in lower air conditioning costs and it enables the use of slower fans which results in lower overall power consumption.

The following figure shows the Lenovo Processor Neptune Core Module.

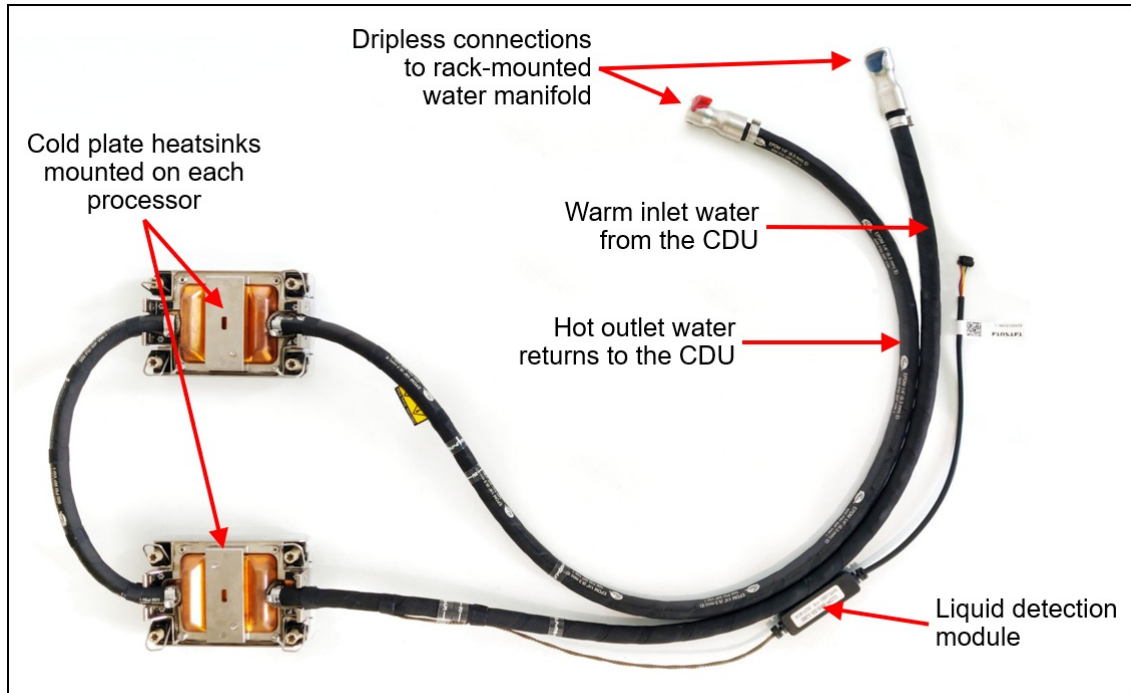


Figure 6. Lenovo Processor Neptune Core Module

The Processor Neptune Core Module also includes a leak detection module which can detect a leakage of more than 0.5ml (about 10 drops) along the length of the tube and then issue an event to the XClarity Controller. XCC will then post an error to the System Event Log and enable further actions. Once the liquid evaporates, a further event is issued to XCC.

The Processor Neptune Core Module is only available in CTO orders, not as a field upgrade. Ordering information is listed in the following table.

Table 7. Lenovo Processor Neptune Core Module

Part number	Feature code	Description
CTO only	BZGM*	ThinkSystem V3 Neptune Processor Direct Water Cooling Solution

* In DCSC, this feature code is listed in the Processor tab

Memory options

5th Generation Memory Options

The VX665 V3 systems support the following 5th Generation memory options.

For details about the ThinkSystem SR665 V3, see the SR665 V3 product guide:

<https://lenovopress.com/lp1608-thinksystem-sr665-v3-server#memory-options>

Table 8. Turin Memory options

Part number	Feature	Description	Maximum supported	
			VX665 V3 IS	VX665 V3 CN
x4 RDIMMs				
4X77A93528	C0CK	ThinkSystem 64GB TruDDR5 6400MHz (2Rx4) RDIMM-A	24	24
4X77A93526	C1PL	ThinkSystem 32GB TruDDR5 6400MHz (1Rx4) RDIMM-A	24	24
4X77A93533	C0CP	ThinkSystem 96GB TruDDR5 6400MHz (2Rx4) RDIMM-A	24	24
4X77A93529	C0CL	ThinkSystem 128GB TruDDR5 6400MHz (2Rx4) RDIMM-A	24	24
x8 RDIMMs				
4X77A93525	C0CH	ThinkSystem 16GB TruDDR5 6400MHz (1Rx8) RDIMM-A	24	24
4X77A93527	C0CJ	ThinkSystem 32GB TruDDR5 6400MHz (2Rx8) RDIMM-A	24	24
4X77A93532	C0CN	ThinkSystem 48GB TruDDR5 6400MHz (2Rx8) RDIMM-A	24	24

4th Generation Memory Options

The VX665 V3 systems support the following 4th Generation memory options.

For details about the ThinkSystem SR665 V3, see the SR665 V3 product guide:

<https://lenovopress.com/lp1608-thinksystem-sr665-v3-server#memory-options>

Table 9. Genoa Memory options

Part number	Feature	Description	Maximum supported	
			VX665 V3 IS	VX665 V3 CN
RDIMMs				
4X77A81437	BQ3C	ThinkSystem 16GB TruDDR5 4800MHz (1Rx8) RDIMM-A	24	24
4X77A81438	BQ39	ThinkSystem 32GB TruDDR5 4800MHz (1Rx4) 10x4 RDIMM-A	24	24
4X77A81439	BQ3E	ThinkSystem 32GB TruDDR5 4800MHz (1Rx4) 9x4 RDIMM-A	24	24
4X77A81440	BQ37	ThinkSystem 32GB TruDDR5 4800MHz (2Rx8) RDIMM-A	24	24
4X77A81447	BUVU	ThinkSystem 48GB TruDDR5 4800MHz (2Rx8) RDIMM-A	24	24
4X77A81441	BQ3D	ThinkSystem 64GB TruDDR5 4800MHz (2Rx4) 10x4 RDIMM-A	24	24
4X77A81442	BQ36	ThinkSystem 64GB TruDDR5 4800MHz (2Rx4) 9x4 RDIMM-A	24	24
4X77A81448	BUVV	ThinkSystem 96GB TruDDR5 4800MHz (2Rx4) 10x4 RDIMM-A	24	24
4X77A96982	C467	ThinkSystem 128GB TruDDR5 5600MHz (2Rx4) RDIMM-A	24	24
3DS RDIMMs				
4X77A81443	BQ3A	ThinkSystem 128GB TruDDR5 4800MHz (4Rx4) 3DS RDIMM-A v2	24	24
CTO Only	BYEE	ThinkSystem 128GB TruDDR5 4800MHz (4Rx4) 3DS RDIMM-A v1	24	24
4X77A81444	BQ3B	ThinkSystem 256GB TruDDR5 4800MHz (8Rx4) 3DS RDIMM-A v2	24	24
CTO Only	BZPN	ThinkSystem 256GB TruDDR5 4800MHz (8Rx4) 3DS RDIMM-A v1	24	24

Internal storage

Internal storage configurations of the VX665 V3 are as follows. All drives are hot-swap and are accessible from the front or rear of the system, or from the internals of the server with the cover removed (where mid drives are supported)

- VX665 V3 Integrated System and Certified Node:
 - Front drive bays:
 - Up to 24x 2.5-inch SAS/SATA or NVMe or 8x 2.5-inch Anybay
 - Up to 12x 3.5-inch SAS/SATA or Anybay
 - Mid drive bays:
 - Up to 8x 2.5-inch SAS/SATA or NVMe
 - Up to 4x 3.5-inch SAS/SATA
 - Rear drive bays:
 - Up to 8x 2.5-inch SAS/SATA
 - Up to 4x 2.5-inch Anybay
 - Up to 4x 3.5-inch SAS/SATA
 - Up to 2x (7mm) SATA/NVME
 - Front IO Chassis:
 - Up to 8x 2.5-inch Anybay and 8x 2.5-inch SAS/SATA

Specific choices of drive backplane are listed in the table below.

For details about these options, including configuration rules, see the SR665 V3 product guide: <https://lenovopress.com/lp1608-thinksystem-sr665V3-server#internal-storage>

Table 10. Drive backplanes

Part number	Feature	Description	Maximum supported	
			VX665 V3 IS	VX665 V3 CN
Front 3.5-inch drive backplanes				
None	B8L3	ThinkSystem 1U/2U 4x3.5" SAS/SATA Backplane	1	1
None	B8LP	ThinkSystem 2U 8x3.5" SAS/SATA Backplane	1	1
None	B8LT	ThinkSystem 2U 12x3.5" SAS/SATA Backplane	1	1
None	BPL8	ThinkSystem 2U 8x3.5" SAS/SATA+4 AnyBay Backplane	1	1
None	BPL9	ThinkSystem 2U 8x3.5" SAS/SATA+4 NVMe Backplane	1	1
Front 2.5-inch drive backplanes				
None	BLL2	ThinkSystem V3 2U 8x2.5" AnyBay Gen5 Backplane	3	3
None	BS7Y	ThinkSystem V3 2U 8x2.5" NVMe Gen5 Backplane	3	3
None	B8LV	ThinkSystem 2U 4x2.5" SAS/SATA Backplane	2	2
None	B8LU	ThinkSystem 2U 8x2.5" SAS/SATA Backplane	3	3
None	BH8D	ThinkSystem 2U/4U 8x2.5" NVMe Backplane	3	3
None	BPL7	ThinkSystem 2U 6x2.5" SAS/SATA+2 AnyBay Backplane	1	1
None	BH8B	ThinkSystem 2U/4U 8x2.5" AnyBay Backplane	3	3
Integrated Diagnostics Panel (for 2.5-inch configurations with 8 or 16 bays only)				
None	BMJA	ThinkSystem 2U 16x2.5" Front Operator Panel v2	1	1
Mid - 3.5-inch drive backplane				
None	BCQK	ThinkSystem 2U 4x3.5" SAS/SATA Middle Backplane	1	1
Mid - 2.5-inch drive backplane				
None	BCQL	ThinkSystem 2U 4x2.5" SAS/SATA Middle Backplane	2	2
None	BDY7	ThinkSystem 2U 4x2.5" Middle NVMe Backplane	2	2
Rear - 3.5-inch drive backplanes				
None	BAG7	ThinkSystem 2U 2x3.5" SAS/SATA Rear Backplane	1	1
Rear - 2.5-inch drive backplanes				
None	B97X	ThinkSystem 2U 8x2.5" SAS/SATA Rear Backplane	1	1

For OS boot functions, the systems also support one or two 7mm hot-swap drives at the rear of the server, or one or two M.2 drives installed on an adapter internal to the server. The following table lists the supported controllers/enabler kits for M.2 boot drives.

Table 11. Boot drive enablement

Part number	Feature	Description	Maximum supported	
			VX665 V3 IS	VX665 V3 CN
M.2 enablement kits				
4Y37A79663	BM8X	ThinkSystem M.2 SATA/x4 NVMe 2-Bay Enablement Kit	1	1
4Y37A09750	B8P9	ThinkSystem M.2 NVMe 2-Bay RAID Enablement Kit	1	1
7MM enablement kits				
None	BU0N	ThinkSystem 7mm SATA/NVMe 2-Bay Rear Enablement Kit v2	1	1
None	B8P3	ThinkSystem 2U 7mm Drive Kit w/ NVMe RAID	1	1
4Y37A90062	BYFG	ThinkSystem 7mm SATA/NVMe 2-Bay Rear Hot-Swap RAID Enablement Kit	1	1
RAID adapters M.2/7MM - Boot Only				
None	BT7N	ThinkSystem Raid 5350-8i for M.2/7MM SATA boot Enablement	1	1
None	BT7P	ThinkSystem Raid 540-8i for M.2/7MM NVMe boot Enablement	1	1
4Y37A90063	BYFF	ThinkSystem M.2 RAID B540i-2i SATA/NVMe Adapter	1	1
RAID adapters PCIe - Boot Only				
4Y37A72482	BJHK	ThinkSystem RAID 5350-8i PCIe 12Gb Adapter	3	3

For details about these options, including configuration rules, see the SR665 V3 product guide:

<https://lenovopress.com/lp1608-thinksystem-sr665V3-server#internal-storage>

Configuration notes:

- If RAID support is not required, the M.2 adapter connects to an onboard port. No additional adapter is required
- The support of RAID-1 with the M.2 drives requires an additional RAID adapter that is installed in PCIe slot 2:
 - RAID support for 7MM/M.2 SATA drives requires a RAID 5350-8i adapter (feature BT7N) for Boot only
 - RAID support for 7MM/M.2 NVMe or SATA drives requires a RAID 540-8i adapter (feature BT7P) for Boot Only
- The RAID adapter used for M.2 drive support cannot be configured for use with other drive bays for VSAN data

Disk Groups

The following table lists the supported Disk Groups for each VX system.

Table 12. Disk Groups

Drive Selection Rules	VX665 V3 Integrated System	VX665 V3 Certified Node
Model type	Hybrid (HY) or All Flash (AF)	Hybrid (HY) or All Flash (AF)
Maximum number of drives	*32	*32
Number of Disk Groups	1 - 5	1 - 5
Number of Cache Drives per Disk Group	1	1
Number of Capacity Drives per Disk Group	2 - 7	2 - 7
Allowed Capacity Drive Quantities		
1 Disk Group (1 Cache Drive)	2, 3, 4, 5, 6 or 7	2, 3, 4, 5, 6 or 7
2 Disk Groups (2 Cache Drives)	4, 6, 8, 10, 12 or 14	4, 6, 8, 10, 12 or 14
3 Disk Groups (3 Cache Drives)	6, 9, 12, 15, 18 or 21	6, 9, 12, 15, 18 or 21
4 Disk Groups (4 Cache Drives)	8, 12, 16, 20, 24 or 28	8, 12, 16, 20, 24 or 28
5 Disk Groups (5 Cache Drives)	10, 15, 20, or 25	10, 15, 20, or 25

*40 drives support available via CORE

Controllers for internal storage

The VX665 V3 systems support the following storage controller options.

For details about these components, including configuration rules, see the SR665 V3 product guide:
<https://lenovopress.com/lp1608-thinksystem-sr665-v3-server#controllers-for-internal-storage>

Table 13. Controllers for internal storage

Part number	Feature	Description	Maximum supported	
			VX665 V3 IS	VX665 V3 CN
SAS/SATA HBA - PCIe 3.0 adapters				
4Y37A72480	BJHH	ThinkSystem 4350-8i SAS/SATA 12Gb HBA	3	3
4Y37A72481	BJHJ	ThinkSystem 4350-16i SAS/SATA 12Gb HBA	2	2
SAS/SATA HBA - PCIe 4.0 adapters				
4Y37A78601	BM51	ThinkSystem 440-8i SAS/SATA PCIe Gen4 12Gb HBA	3	3
4Y37A78602	BM50	ThinkSystem 440-16i SAS/SATA PCIe Gen4 12Gb HBA	2	2
4Y37A09725	B8P1	ThinkSystem 440-16i SAS/SATA PCIe Gen4 12Gb Internal HBA	1	1
NVMe adapters				
4C57A65446	B98C	ThinkSystem 4-Port PCIe Gen4 NVMe Retimer Adapter	3	3
4TA7A84579	BLKY	ThinkSystem PCIe Gen5 NVMe Retimer Adapter	3	3

Internal drive options

This section lists the supported drives:

- [Boot drives](#)
- [Internal drives for VX665 V3 IS](#)

- [Internal drives for VX665 V3 CN](#)

Configuration Note:

- VMware will no longer support higher capacity hard drives greater than 8TB
- Express Storage Architecture (ESA) supports a minimum of 2 drives and a maximum of 24 drives. Please reference the [vSAN ESA ReadyNode Hardware Guidance](#) for additional requirements.
- VMware vSAN certification for Generic NVMe drives: The drives are listed in the [VMware Compatibility Guide](#) (VCG) under the drive vendor company name instead of Lenovo. To check a drive for vSAN certification, search the VCG using the Supplier part number. Part numbers can be found using the Product Guide for the corresponding Drive Family on Lenovo Press https://lenovopress.lenovo.com/servers/options/drives#sort=last_update.

Boot drives

The following table lists the supported 7mm and M.2 drives suitable for OS boot functions.

Table 14. Boot drives

Part number	Feature	Description	Maximum supported	
			VX665 V3 IS	VX665 V3 CN
7mm 2.5-inch hot-swap 6 Gb SATA SSDs				
4XB7A82264	BQ1U	ThinkSystem 7mm 5400 PRO 240GB Read Intensive SATA 6Gb HS SSD	2	2
4XB7A82265	BQ1V	ThinkSystem 7mm 5400 PRO 480GB Read Intensive SATA 6Gb HS SSD	2	2
4XB7A82266	BQ1W	ThinkSystem 7mm 5400 PRO 960GB Read Intensive SATA 6Gb HS SSD	2	2
4XB7A17106	BK79	ThinkSystem 7mm S4520 240GB Read Intensive SATA 6Gb HS SSD	2	2
4XB7A17107	BK7A	ThinkSystem 7mm S4520 480GB Read Intensive SATA 6Gb HS SSD	2	2
4XB7A17108	BK7B	ThinkSystem 7mm S4520 960GB Read Intensive SATA 6Gb HS SSD	2	2
7mm PCIe 4.0 NVMe Drives				
4XB7A82853	BPZ4	ThinkSystem 7mm U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	2	2
4XB7A82855	BPZ5	ThinkSystem 7mm U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	2	2
4XB7A82856	BPZ6	ThinkSystem 7mm U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	2	2
M.2 SATA drives				
4XB7A82286	BQ1Z	ThinkSystem M.2 5400 PRO 240GB Read Intensive SATA 6Gb NHS SSD	2	2
4XB7A82287	BQ1Y	ThinkSystem M.2 5400 PRO 480GB Read Intensive SATA 6Gb NHS SSD	2	2
4XB7A82288	BQ20	ThinkSystem M.2 5400 PRO 960GB Read Intensive SATA 6Gb NHS SSD	2	2
4XB7A89422	BYF7	ThinkSystem M.2 ER3 240GB Read Intensive SATA 6Gb NHS SSD	2	2
4XB7A90049	BYF8	ThinkSystem M.2 ER3 480GB Read Intensive SATA 6Gb NHS SSD	2	2
4XB7A90230	BYF9	ThinkSystem M.2 ER3 960GB Read Intensive SATA 6Gb NHS SSD	2	2
M.2 PCIe NVMe drives				
4XB7A13999	BKSR	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	2	2
4XB7A90102	BXMH	ThinkSystem M.2 PM9A3 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	2	2

Internal drives for VX665 V3 IS

The following table lists the drives support in the VX665 V3 IS. For both All Flash Storage and Hybrid Storage configurations, drives are classified as either Cache drives, Capacity drives, or both.

Configuration Note:

- Maximum drive quantities depend on Disk Group configurations.
- Drive configurations over 32 require CORE.
- VMware will no longer support higher capacity drives greater than 8TB

Table 15. Drives supported in the VX665 V3 IS

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
2.5-inch hot-swap 12 Gb SAS HDDs							
7XB7A00027	AUM1	ThinkSystem 2.5" 1.2TB 10K SAS 12Gb Hot Swap 512n HDD	No	No	No	No	32
7XB7A00028	AUM2	ThinkSystem 2.5" 1.8TB 10K SAS 12Gb Hot Swap 512e HDD	No	No	No	No	32
4XB7A83970	BRG7	ThinkSystem 2.5" 2.4TB 10K SAS 12Gb Hot Swap 512e HDD v2	No	No	No	No	32
2.5-inch hot-swap 24 Gb SAS SSDs							
4XB7A80318	BNWC	ThinkSystem 2.5" PM1653 960GB Read Intensive SAS 24Gb HS SSD	No	No	32	No	No
4XB7A80319	BNWE	ThinkSystem 2.5" PM1653 1.92TB Read Intensive SAS 24Gb HS SSD	No	No	32	No	No
4XB7A80320	BNWF	ThinkSystem 2.5" PM1653 3.84TB Read Intensive SAS 24Gb HS SSD	No	No	32	No	No
4XB7A80321	BP3E	ThinkSystem 2.5" PM1653 7.68TB Read Intensive SAS 24Gb HS SSD	No	No	32	No	No
4XB7A80322	BP3J	ThinkSystem 2.5" PM1653 15.36TB Read Intensive SAS 24Gb HS SSD	No	No	32	No	No
4XB7A80323	BP3D	ThinkSystem 2.5" PM1653 30.72TB Read Intensive SAS 24Gb HS SSD	No	No	32	No	No
4XB7A80340	BNW8	ThinkSystem 2.5" PM1655 800GB Mixed Use SAS 24Gb HS SSD	No	32	32	32	No
4XB7A80341	BNW9	ThinkSystem 2.5" PM1655 1.6TB Mixed Use SAS 24Gb HS SSD	No	32	32	32	No
4XB7A80342	BNW6	ThinkSystem 2.5" PM1655 3.2TB Mixed Use SAS 24Gb HS SSD	No	32	32	32	No
4XB7A80343	BP3K	ThinkSystem 2.5" PM1655 6.4TB Mixed Use SAS 24Gb HS SSD	No	32	32	32	No
2.5-inch hot-swap 6 Gb SATA SSDs							
4XB7A82289	BQ21	ThinkSystem 2.5" 5400 MAX 480GB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A82290	BQ24	ThinkSystem 2.5" 5400 MAX 960GB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A82291	BQ22	ThinkSystem 2.5" 5400 MAX 1.92TB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A82292	BQ23	ThinkSystem 2.5" 5400 MAX 3.84TB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A82258	BQ1Q	ThinkSystem 2.5" 5400 PRO 240GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A82259	BQ1P	ThinkSystem 2.5" 5400 PRO 480GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A82260	BQ1R	ThinkSystem 2.5" 5400 PRO 960GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A82261	BQ1X	ThinkSystem 2.5" 5400 PRO 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A82262	BQ1S	ThinkSystem 2.5" 5400 PRO 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A82263	BQ1T	ThinkSystem 2.5" 5400 PRO 7.68TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A87524	BWKN	ThinkSystem 2.5" PM893a 480GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A87525	BWKM	ThinkSystem 2.5" PM893a 960GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A87526	BWKL	ThinkSystem 2.5" PM893a 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A87527	BWKK	ThinkSystem 2.5" PM893a 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A17101	BA7G	ThinkSystem 2.5" S4520 480GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A17102	BA7H	ThinkSystem 2.5" S4520 960GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A17103	BA7J	ThinkSystem 2.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A17104	BK77	ThinkSystem 2.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A17105	BK78	ThinkSystem 2.5" S4520 7.68TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A17125	BA7Q	ThinkSystem 2.5" S4620 480GB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A17126	BA4T	ThinkSystem 2.5" S4620 960GB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A17127	BA4U	ThinkSystem 2.5" S4620 1.92TB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A17128	BK7L	ThinkSystem 2.5" S4620 3.84TB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A89423	BXDY	ThinkSystem 2.5" CM893a 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
2.5-inch hot-swap PCIe 5.0 NVMe SSDs							
4XB7A93888	C0ZM	ThinkSystem 2.5" U.2 CD8P 1.6TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	32	32	32	No	No
4XB7A93889	C0ZL	ThinkSystem 2.5" U.2 CD8P 3.2TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	32	32	32	No	No
4XB7A93890	C0ZK	ThinkSystem 2.5" U.2 CD8P 6.4TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	32	32	32	No	No

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A93891	C0ZJ	ThinkSystem 2.5" U.2 CD8P 12.8TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	28	No	28	No	No
4XB7A93480	C0BB	ThinkSystem 2.5" U.2 CD8P 1.92TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	28	No	28	No	No
4XB7A93483	C0B8	ThinkSystem 2.5" U.2 CD8P 15.36TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	28	No	28	No	No
4XB7A93481	C0BA	ThinkSystem 2.5" U.2 CD8P 3.84TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	28	No	28	No	No
4XB7A93482	C0B9	ThinkSystem 2.5" U.2 CD8P 7.68TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	28	No	28	No	No
2.5-inch hot-swap PCIe 4.0 NVMe SSDs							
4XB7A13941	BMGD	ThinkSystem 2.5" U.2 P5520 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
4XB7A13943	BNEF	ThinkSystem 2.5" U.2 P5520 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
4XB7A13631	BNEQ	ThinkSystem 2.5" U.2 P5520 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
4XB7B01867	C6MA	ThinkSystem 2.5" U.2 Solidigm P5520 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	28	No	28	No	No
4XB7B01868	C6MB	ThinkSystem 2.5" U.2 Solidigm P5520 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	28	No	28	No	No
4XB7B01869	C6MC	ThinkSystem 2.5" U.2 Solidigm P5520 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	28	No	28	No	No
4XB7B01870	C7NZ	ThinkSystem 2.5" U.2 Solidigm P5520 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	28	No	28	No	No
4XB7B01879	C6M2	ThinkSystem 2.5" U.2 Solidigm P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	32	No
4XB7B01880	C6M3	ThinkSystem 2.5" U.2 Solidigm P5620 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	32	No
4XB7B01881	C6M4	ThinkSystem 2.5" U.2 Solidigm P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	32	No
4XB7B01882	C6M5	ThinkSystem 2.5" U.2 Solidigm P5620 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	28	No	28	No	No
4XB7A17129	BNEG	ThinkSystem 2.5" U.2 P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	32	No
4XB7A17133	BNEZ	ThinkSystem 2.5" U.2 P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	32	No
4XB7A17136	BA4V	ThinkSystem 2.5" U.2 P5620 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A17158	BKKY	ThinkSystem 2.5" U.2 P5800X 400GB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	32	32	No	No
4XB7A17159	BKKZ	ThinkSystem 2.5" U.2 P5800X 800GB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	32	32	No	No
4XB7A17160	BMM8	ThinkSystem 2.5" U.2 P5800X 1.6TB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	32	32	No	No
4XB7A79639	BNF1	ThinkSystem 2.5" U.3 7450 MAX 800GB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	32	32	No	No
4XB7A95055	C2BV	ThinkSystem 2.5" U.3 7500 MAX 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	No	No
4XB7A95056	C2BW	ThinkSystem 2.5" U.3 7500 MAX 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	No	No
4XB7A95057	C2BF	ThinkSystem 2.5" U.3 7500 MAX 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	No	No
4XB7A95058	C2BX	ThinkSystem 2.5" U.3 7500 MAX 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
4XB7A79646	BNF3	ThinkSystem 2.5" U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	32	No	No
4XB7A95050	C2BR	ThinkSystem 2.5" U.3 7500 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
4XB7A95051	C2BS	ThinkSystem 2.5" U.3 7500 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
4XB7A95052	C2BT	ThinkSystem 2.5" U.3 7500 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
4XB7A95053	C2BU	ThinkSystem 2.5" U.3 7500 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
3.5-inch hot-swap 12 Gb SAS HDDs							
7XB7A00042	AUU5	ThinkSystem 3.5" 2TB 7.2K SAS 12Gb Hot Swap 512n HDD	No	No	No	No	20
7XB7A00043	AUU6	ThinkSystem 3.5" 4TB 7.2K SAS 12Gb Hot Swap 512n HDD	No	No	No	No	20
7XB7A00044	AUU7	ThinkSystem 3.5" 6TB 7.2K SAS 12Gb Hot Swap 512e HDD	No	No	No	No	20
7XB7A00045	B0YR	ThinkSystem 3.5" 8TB 7.2K SAS 12Gb Hot Swap 512e HDD	No	No	No	No	20
3.5-inch hot-swap 24 Gb SAS SSDs							
4XB7A80324	BNWD	ThinkSystem 3.5" PM1653 960GB Read Intensive SAS 24Gb HS SSD	No	No	20	No	No
4XB7A80325	BNWG	ThinkSystem 3.5" PM1653 1.92TB Read Intensive SAS 24Gb HS SSD	No	No	20	No	No
4XB7A80326	BNWH	ThinkSystem 3.5" PM1653 3.84TB Read Intensive SAS 24Gb HS SSD	No	No	20	No	No
4XB7A80327	BP3F	ThinkSystem 3.5" PM1653 7.68TB Read Intensive SAS 24Gb HS SSD	No	No	20	No	No
4XB7A80328	BP3H	ThinkSystem 3.5" PM1653 15.36TB Read Intensive SAS 24Gb HS SSD	No	No	20	No	No

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A80345	BNWA	ThinkSystem 3.5" PM1655 1.6TB Mixed Use SAS 24Gb HS SSD	No	20	20	20	No
4XB7A80346	BNWB	ThinkSystem 3.5" PM1655 3.2TB Mixed Use SAS 24Gb HS SSD	No	20	20	20	No
4XB7A80347	BP3G	ThinkSystem 3.5" PM1655 6.4TB Mixed Use SAS 24Gb HS SSD	No	20	20	20	No
3.5-inch hot-swap 6 Gb SAS SSDs							
4XB7A17119	BA7L	ThinkSystem 3.5" S4520 480GB Read Intensive SATA 6Gb HS SSD	No	No	20	No	20
4XB7A17120	BA7M	ThinkSystem 3.5" S4520 960GB Read Intensive SATA 6Gb HS SSD	No	No	20	No	20
4XB7A17121	BA7N	ThinkSystem 3.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	20
4XB7A17122	BK7F	ThinkSystem 3.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	20
4XB7A17123	BK7G	ThinkSystem 3.5" S4520 7.68TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	20
4XB7A17137	BA4W	ThinkSystem 3.5" S4620 480GB Mixed Use SATA 6Gb HS SSD	No	20	20	20	No
4XB7A17138	BA4X	ThinkSystem 3.5" S4620 960GB Mixed Use SATA 6Gb HS SSD	No	20	20	20	No
4XB7A17139	BA4Y	ThinkSystem 3.5" S4620 1.92TB Mixed Use SATA 6Gb HS SSD	No	20	20	20	No
4XB7A17140	BK7P	ThinkSystem 3.5" S4620 3.84TB Mixed Use SATA 6Gb HS SSD	No	20	20	20	No
3.5-inch hot-swap PCIe 4.0 NVMe SSDs							
4XB7A17161	BMM7	ThinkSystem 3.5" U.2 P5800X 400GB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	No
4XB7A17162	BMM5	ThinkSystem 3.5" U.2 P5800X 800GB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	No
4XB7A77070	BMM6	ThinkSystem 3.5" U.2 P5800X 1.6TB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	No
4XB7A13632	BNES	ThinkSystem 3.5" U.2 P5520 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	12	No	No
4XB7A76778	BNEU	ThinkSystem 3.5" U.2 P5520 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	12	No	No
4XB7A76779	BNF0	ThinkSystem 3.5" U.2 P5520 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	12	No	No
4XB7B01871	C6MD	ThinkSystem 3.5" U.2 Solidigm P5520 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	4	No	No
4XB7B01872	C6ME	ThinkSystem 3.5" U.2 Solidigm P5520 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	4	No	No

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7B01873	C6MF	ThinkSystem 3.5" U.2 Solidigm P5520 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	4	No	No
4XB7B01883	C6M6	ThinkSystem 3.5" U.2 Solidigm P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	4	4	4	No
4XB7B01886	C6M9	ThinkSystem 3.5" U.2 Solidigm P5620 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	No	4	No	No
4XB7B01884	C6M7	ThinkSystem 3.5" U.2 Solidigm P5620 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	4	4	4	No
4XB7B01885	C6M8	ThinkSystem 3.5" U.2 Solidigm P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	4	4	4	No
4XB7A17141	BNEK	ThinkSystem 3.5" U.2 P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	12	No
4XB7A17144	BNEN	ThinkSystem 3.5" U.2 P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	12	No
4XB7A17148	BNEP	ThinkSystem 3.5" U.2 P5620 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	No	12	No	No

Internal drives for VX665 V3 CN

The following table lists the drives support in the VX665 V3 CN. For both All Flash Storage and Hybrid Storage configurations, drives are classified as either Cache drives, Capacity drives, or both.

Configuration Note:

- Maximum drive quantities depend on Disk Group configurations.
- Drive configurations over 32 require CORE.
- VMware will no longer support higher capacity drives greater than 8TB

Table 16. Drives supported in the VX665 V3 CN

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
2.5-inch hot-swap 12 Gb SAS HDDs							
7XB7A00027	AUM1	ThinkSystem 2.5" 1.2TB 10K SAS 12Gb Hot Swap 512n HDD	No	No	No	No	32
7XB7A00028	AUM2	ThinkSystem 2.5" 1.8TB 10K SAS 12Gb Hot Swap 512e HDD	No	No	No	No	32
4XB7A83970	BRG7	ThinkSystem 2.5" 2.4TB 10K SAS 12Gb Hot Swap 512e HDD v2	No	No	No	No	32
2.5-inch hot-swap 24 Gb SAS SSDs							

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A80318	BNWC	ThinkSystem 2.5" PM1653 960GB Read Intensive SAS 24Gb HS SSD	No	No	32	No	No
4XB7A80319	BNWE	ThinkSystem 2.5" PM1653 1.92TB Read Intensive SAS 24Gb HS SSD	No	No	32	No	No
4XB7A80320	BNWF	ThinkSystem 2.5" PM1653 3.84TB Read Intensive SAS 24Gb HS SSD	No	No	32	No	No
4XB7A80321	BP3E	ThinkSystem 2.5" PM1653 7.68TB Read Intensive SAS 24Gb HS SSD	No	No	32	No	No
4XB7A80322	BP3J	ThinkSystem 2.5" PM1653 15.36TB Read Intensive SAS 24Gb HS SSD	No	No	32	No	No
4XB7A80323	BP3D	ThinkSystem 2.5" PM1653 30.72TB Read Intensive SAS 24Gb HS SSD	No	No	32	No	No
4XB7A80340	BNW8	ThinkSystem 2.5" PM1655 800GB Mixed Use SAS 24Gb HS SSD	No	32	32	32	No
4XB7A80341	BNW9	ThinkSystem 2.5" PM1655 1.6TB Mixed Use SAS 24Gb HS SSD	No	32	32	32	No
4XB7A80342	BNW6	ThinkSystem 2.5" PM1655 3.2TB Mixed Use SAS 24Gb HS SSD	No	32	32	32	No
4XB7A80343	BP3K	ThinkSystem 2.5" PM1655 6.4TB Mixed Use SAS 24Gb HS SSD	No	32	32	32	No
2.5-inch hot-swap 6 Gb SATA SSDs							
4XB7A82289	BQ21	ThinkSystem 2.5" 5400 MAX 480GB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A82290	BQ24	ThinkSystem 2.5" 5400 MAX 960GB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A82291	BQ22	ThinkSystem 2.5" 5400 MAX 1.92TB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A82292	BQ23	ThinkSystem 2.5" 5400 MAX 3.84TB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A82258	BQ1Q	ThinkSystem 2.5" 5400 PRO 240GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A82259	BQ1P	ThinkSystem 2.5" 5400 PRO 480GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A82260	BQ1R	ThinkSystem 2.5" 5400 PRO 960GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A82261	BQ1X	ThinkSystem 2.5" 5400 PRO 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A82262	BQ1S	ThinkSystem 2.5" 5400 PRO 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A82263	BQ1T	ThinkSystem 2.5" 5400 PRO 7.68TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A87524	BWKN	ThinkSystem 2.5" PM893a 480GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A87525	BWKM	ThinkSystem 2.5" PM893a 960GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A87526	BWKL	ThinkSystem 2.5" PM893a 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A87527	BWKK	ThinkSystem 2.5" PM893a 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A17101	BA7G	ThinkSystem 2.5" S4520 480GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A17102	BA7H	ThinkSystem 2.5" S4520 960GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A17103	BA7J	ThinkSystem 2.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A17104	BK77	ThinkSystem 2.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A17105	BK78	ThinkSystem 2.5" S4520 7.68TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A17125	BA7Q	ThinkSystem 2.5" S4620 480GB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A17126	BA4T	ThinkSystem 2.5" S4620 960GB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A17127	BA4U	ThinkSystem 2.5" S4620 1.92TB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A17128	BK7L	ThinkSystem 2.5" S4620 3.84TB Mixed Use SATA 6Gb HS SSD	No	32	32	32	No
4XB7A89423	BXDY	ThinkSystem 2.5" CM893a 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
2.5-inch hot-swap PCIe 5.0 NVMe SSDs							
4XB7A93888	C0ZM	ThinkSystem 2.5" U.2 CD8P 1.6TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	32	32	32	No	No
4XB7A93889	C0ZL	ThinkSystem 2.5" U.2 CD8P 3.2TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	32	32	32	No	No
4XB7A93890	C0ZK	ThinkSystem 2.5" U.2 CD8P 6.4TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	32	32	32	No	No
4XB7A93891	C0ZJ	ThinkSystem 2.5" U.2 CD8P 12.8TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	28	No	28	No	No
4XB7A93480	C0BB	ThinkSystem 2.5" U.2 CD8P 1.92TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	28	No	28	No	No
4XB7A93483	C0B8	ThinkSystem 2.5" U.2 CD8P 15.36TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	28	No	28	No	No
4XB7A93481	C0BA	ThinkSystem 2.5" U.2 CD8P 3.84TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	28	No	28	No	No
4XB7A93482	C0B9	ThinkSystem 2.5" U.2 CD8P 7.68TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	28	No	28	No	No
2.5-inch hot-swap PCIe 4.0 NVMe SSDs							
4XB7A13941	BMGD	ThinkSystem 2.5" U.2 P5520 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
4XB7A13943	BNEF	ThinkSystem 2.5" U.2 P5520 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A13631	BNEQ	ThinkSystem 2.5" U.2 P5520 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
4XB7B01867	C6MA	ThinkSystem 2.5" U.2 Solidigm P5520 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	28	No	28	No	No
4XB7B01868	C6MB	ThinkSystem 2.5" U.2 Solidigm P5520 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	28	No	28	No	No
4XB7B01869	C6MC	ThinkSystem 2.5" U.2 Solidigm P5520 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	28	No	28	No	No
4XB7B01870	C7NZ	ThinkSystem 2.5" U.2 Solidigm P5520 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	28	No	28	No	No
4XB7B01879	C6M2	ThinkSystem 2.5" U.2 Solidigm P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	32	No
4XB7B01880	C6M3	ThinkSystem 2.5" U.2 Solidigm P5620 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	32	No
4XB7B01881	C6M4	ThinkSystem 2.5" U.2 Solidigm P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	32	No
4XB7B01882	C6M5	ThinkSystem 2.5" U.2 Solidigm P5620 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	28	No	28	No	No
4XB7A17129	BNEG	ThinkSystem 2.5" U.2 P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	32	No
4XB7A17133	BNEZ	ThinkSystem 2.5" U.2 P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	32	No
4XB7A17136	BA4V	ThinkSystem 2.5" U.2 P5620 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
4XB7A17158	BKKY	ThinkSystem 2.5" U.2 P5800X 400GB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	32	32	No	No
4XB7A17159	BKKZ	ThinkSystem 2.5" U.2 P5800X 800GB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	32	32	No	No
4XB7A17160	BMM8	ThinkSystem 2.5" U.2 P5800X 1.6TB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	32	32	No	No
4XB7A79639	BNF1	ThinkSystem 2.5" U.3 7450 MAX 800GB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	32	32	No	No
4XB7A95055	C2BV	ThinkSystem 2.5" U.3 7500 MAX 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	No	No
4XB7A95056	C2BW	ThinkSystem 2.5" U.3 7500 MAX 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	No	No
4XB7A95057	C2BF	ThinkSystem 2.5" U.3 7500 MAX 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	32	32	No	No

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A95058	C2BX	ThinkSystem 2.5" U.3 7500 MAX 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
4XB7A79646	BNF3	ThinkSystem 2.5" U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	32	No	No
4XB7A95050	C2BR	ThinkSystem 2.5" U.3 7500 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
4XB7A95051	C2BS	ThinkSystem 2.5" U.3 7500 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
4XB7A95052	C2BT	ThinkSystem 2.5" U.3 7500 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
4XB7A95053	C2BU	ThinkSystem 2.5" U.3 7500 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	32	No	32	No	No
3.5-inch hot-swap 12 Gb SAS HDDs							
7XB7A00042	AUU5	ThinkSystem 3.5" 2TB 7.2K SAS 12Gb Hot Swap 512n HDD	No	No	No	No	20
7XB7A00043	AUU6	ThinkSystem 3.5" 4TB 7.2K SAS 12Gb Hot Swap 512n HDD	No	No	No	No	20
7XB7A00044	AUU7	ThinkSystem 3.5" 6TB 7.2K SAS 12Gb Hot Swap 512e HDD	No	No	No	No	20
7XB7A00045	B0YR	ThinkSystem 3.5" 8TB 7.2K SAS 12Gb Hot Swap 512e HDD	No	No	No	No	20
3.5-inch hot-swap 24 Gb SAS SSDs							
4XB7A80324	BNWD	ThinkSystem 3.5" PM1653 960GB Read Intensive SAS 24Gb HS SSD	No	No	20	No	No
4XB7A80325	BNWG	ThinkSystem 3.5" PM1653 1.92TB Read Intensive SAS 24Gb HS SSD	No	No	20	No	No
4XB7A80326	BNWH	ThinkSystem 3.5" PM1653 3.84TB Read Intensive SAS 24Gb HS SSD	No	No	20	No	No
4XB7A80327	BP3F	ThinkSystem 3.5" PM1653 7.68TB Read Intensive SAS 24Gb HS SSD	No	No	20	No	No
4XB7A80328	BP3H	ThinkSystem 3.5" PM1653 15.36TB Read Intensive SAS 24Gb HS SSD	No	No	20	No	No
4XB7A80345	BNWA	ThinkSystem 3.5" PM1655 1.6TB Mixed Use SAS 24Gb HS SSD	No	20	20	20	No
4XB7A80346	BNWB	ThinkSystem 3.5" PM1655 3.2TB Mixed Use SAS 24Gb HS SSD	No	20	20	20	No
4XB7A80347	BP3G	ThinkSystem 3.5" PM1655 6.4TB Mixed Use SAS 24Gb HS SSD	No	20	20	20	No
3.5-inch hot-swap 6 Gb SAS SSDs							
4XB7A17119	BA7L	ThinkSystem 3.5" S4520 480GB Read Intensive SATA 6Gb HS SSD	No	No	20	No	20
4XB7A17120	BA7M	ThinkSystem 3.5" S4520 960GB Read Intensive SATA 6Gb HS SSD	No	No	20	No	20
4XB7A17121	BA7N	ThinkSystem 3.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	20

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A17122	BK7F	ThinkSystem 3.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	20
4XB7A17123	BK7G	ThinkSystem 3.5" S4520 7.68TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	20
4XB7A17137	BA4W	ThinkSystem 3.5" S4620 480GB Mixed Use SATA 6Gb HS SSD	No	20	20	20	No
4XB7A17138	BA4X	ThinkSystem 3.5" S4620 960GB Mixed Use SATA 6Gb HS SSD	No	20	20	20	No
4XB7A17139	BA4Y	ThinkSystem 3.5" S4620 1.92TB Mixed Use SATA 6Gb HS SSD	No	20	20	20	No
4XB7A17140	BK7P	ThinkSystem 3.5" S4620 3.84TB Mixed Use SATA 6Gb HS SSD	No	20	20	20	No
3.5-inch hot-swap PCIe 4.0 NVMe SSDs							
4XB7A17161	BMM7	ThinkSystem 3.5" U.2 P5800X 400GB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	No
4XB7A17162	BMM5	ThinkSystem 3.5" U.2 P5800X 800GB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	No
4XB7A77070	BMM6	ThinkSystem 3.5" U.2 P5800X 1.6TB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	No
4XB7A13632	BNES	ThinkSystem 3.5" U.2 P5520 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	12	No	No
4XB7A76778	BNEU	ThinkSystem 3.5" U.2 P5520 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	12	No	No
4XB7A76779	BNF0	ThinkSystem 3.5" U.2 P5520 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	12	No	No
4XB7B01871	C6MD	ThinkSystem 3.5" U.2 Solidigm P5520 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	4	No	No
4XB7B01872	C6ME	ThinkSystem 3.5" U.2 Solidigm P5520 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	4	No	No
4XB7B01873	C6MF	ThinkSystem 3.5" U.2 Solidigm P5520 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	4	No	No
4XB7B01883	C6M6	ThinkSystem 3.5" U.2 Solidigm P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	4	4	4	No
4XB7B01886	C6M9	ThinkSystem 3.5" U.2 Solidigm P5620 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	No	4	No	No
4XB7B01884	C6M7	ThinkSystem 3.5" U.2 Solidigm P5620 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	4	4	4	No
4XB7B01885	C6M8	ThinkSystem 3.5" U.2 Solidigm P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	4	4	4	No

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A17141	BNEK	ThinkSystem 3.5" U.2 P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	12	No
4XB7A17144	BNEN	ThinkSystem 3.5" U.2 P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	12	No
4XB7A17148	BNEP	ThinkSystem 3.5" U.2 P5620 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	No	12	No	No

Network adapters

The VX665 V3 systems support the following networking options.

For details about these options, including configuration rules, see the SR665 V3 product guide:

<https://lenovopress.com/lp1608-thinksystem-sr665v3-server##i-o-expansion>

<https://lenovopress.com/lp1608-thinksystem-sr665-v3-server#network-adapters>

Table 17. OCP networking options

Part number	Feature	Description	Maximum supported	
			VX665 V3 IS	VX665 V3 CN
Gigabit Ethernet				
4XC7A88428	BW97	ThinkSystem Intel I350 1GbE RJ45 4-Port OCP Ethernet Adapter V2	1	1
4XC7A08235	B5T1	ThinkSystem Broadcom 5719 1GbE RJ45 4-port OCP Ethernet Adapter	1	1
4XC7A08277	B93E	ThinkSystem Intel I350 1GbE RJ45 4-port OCP Ethernet Adapter	1	1
10 Gb Ethernet				
4XC7A08236	B5ST	ThinkSystem Broadcom 57416 10GBASE-T 2-port OCP Ethernet Adapter	1	1
4XC7A08278	BCD5	ThinkSystem Intel X710-T2L 10GBASE-T 2-port OCP Ethernet Adapter	1	1
4XC7A80268	BPPY	ThinkSystem Intel X710-T4L 10GBase-T 4-Port OCP Ethernet Adapter	1	1
25 Gb Ethernet				
4XC7A08237	BN2T	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-Port OCP Ethernet Adapter	1	1
4XC7A62582	BE4T	ThinkSystem Mellanox ConnectX-6 Lx 10/25GbE SFP28 2-Port OCP Ethernet Adapter	1	1
4XC7A80567	BPPW	ThinkSystem Broadcom 57504 10/25GbE SFP28 4-Port OCP Ethernet Adapter	1	1
4XC7A08294	BCD4	ThinkSystem Intel E810-DA2 10/25GbE SFP28 2-Port OCP Ethernet Adapter	1	1
4XC7A80269	BP8L	ThinkSystem Intel E810-DA4 10/25GbE SFP28 4-Port OCP Ethernet Adapter	1	1
100 Gb Ethernet				
4XC7A08243	BPPX	ThinkSystem Broadcom 57508 100GbE QSFP56 2-Port OCP Ethernet Adapter	1	1

Table 18. PCIe networking options

Part number	Feature	Description	Maximum supported	
			VX665 V3 IS	VX665 V3 CN
Gigabit Ethernet				
7ZT7A00484	AUZV	ThinkSystem Broadcom 5719 1GbE RJ45 4-Port PCIe Ethernet Adapter	10	10
7ZT7A00535	AUZW	ThinkSystem I350-T4 PCIe 1Gb 4-Port RJ45 Ethernet Adapter	10	10
10 GbE				
7ZT7A00496	AUKP	ThinkSystem Broadcom 57416 10GBASE-T 2-Port PCIe Ethernet Adapter	8	8
4XC7A08245	B5SU	ThinkSystem Broadcom 57454 10GBASE-T 4-port PCIe Ethernet Adapter	8	8
4XC7A80266	BNWL	ThinkSystem Intel X710-T2L 10GBase-T 2-Port PCIe Ethernet Adapter	10	10
4XC7A79699	BMXB	ThinkSystem Intel X710-T4L 10GBase-T 4-Port PCIe Ethernet Adapter	10	10
25 GbE				
4XC7A08238	BK1H	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter	10	10
4XC7A80566	BNWM	ThinkSystem Broadcom 57504 10/25GbE SFP28 4-Port PCIe Ethernet Adapter	6	6
4XC7A08295	BCD6	ThinkSystem Intel E810-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	10	10
4XC7A80267	BP8M	ThinkSystem Intel E810-DA4 10/25GbE SFP28 4-Port PCIe Ethernet Adapter	6	6
4XC7A62580	BE4U	ThinkSystem Mellanox ConnectX-6 Lx 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	10	10
100 GbE				
4XC7A08297	BK1J	ThinkSystem Broadcom 57508 100GbE QSFP56 2-port PCIe 4 Ethernet Adapter	6	6
4XC7A08248	B8PP	ThinkSystem Mellanox ConnectX-6 Dx 100GbE QSFP56 2-port PCIe Ethernet Adapter	6	6
4C57A14178	B4RA	ThinkSystem Mellanox ConnectX-6 HDR100/100GbE QSFP56 2-port PCIe VPI Adapter	6	6
4C57A14177	B4R9	ThinkSystem Mellanox ConnectX-6 HDR100/100GbE QSFP56 1-port PCIe VPI Adapter	6	6
200 GbE				
4C57A15326	B4RC	ThinkSystem Mellanox ConnectX-6 HDR/200GbE QSFP56 1-port PCIe 4 VPI Adapter	6	6

GPU adapters

The VX665 V3 systems support the following GPU options.

To ensure that the controlled GPUs and accelerators are only sold in the supported markets, the following configure-to-order base machine-type models (CTO MTMs) are selectable in DCSC:

- **Standard Open models** are available in all markets worldwide. Controlled GPUs cannot be configured using these models. These are CTO1WW models.
- **GPU Controlled models** are used to order any of the controlled GPUs and accelerators. Controlled models are not available in affected markets. If you start from a controlled model, your configuration must include a controlled GPUs.

Note:

- For all models listed in the GPU **Controlled models** column, one of the controlled GPUs *must* be selected in the DCSC configurator. DCSC will display an error if you configuration does not include one of the controlled GPUs.
- It is highly recommended to engage a Lenovo representative early in a project that includes the ThinkAgile VX Series Integrated Systems and Certified Nodes

For details about these options, including configuration rules, see the SR665 V3 product guide:

<https://lenovopress.com/lp1608-thinksystem-sr665V3-server##gpu-adapters>

Table 19. GPU options

Part number	Feature	Description	Maximum supported			
			VX665 V3 IS	VX665 V3 CN	VX665 V3 IS w/Cntrl GPU	VX665 V3 CN w/Cntrl GPU
Double-wide GPUs						
4X67A76581	BQZR	ThinkSystem NVIDIA A30 24GB PCIe Gen4 Passive GPU w/o CEC	No	No	3	3
4X67A90669	BYFH	ThinkSystem NVIDIA L40S 48GB PCIe Gen4 Passive GPU	No	No	3	3
4X67A76727	BQZU	ThinkSystem NVIDIA A16 64GB PCIe Passive GPU w/o CEC	3	3	No	No
4X67A89325	BXAK	ThinkSystem NVIDIA H100 NVL 94GB PCIe Gen5 Passive GPU	No	No	3	3
Single-wide GPUs						
4X67A81547	BQZT	ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU w/o CEC	8	8	No	No
4X67A84824	BS2C	ThinkSystem NVIDIA L4 24GB PCIe Gen4 Passive GPU	No	No	5	5

Fibre Channel host bus adapters

Table 20. Fibre Channel host bus adapters

Part number	Feature	Description	Maximum supported	
			VX665 V3 IS	VX665 V3 CN
64 Gb Fibre Channel HBAs				
4XC7A77485	BLC1	ThinkSystem Emulex LPe36002 64Gb 2-port PCIe Fibre Channel Adapter	10	10
32 Gb Fibre Channel HBAs				
4XC7A76498	BJ3G	ThinkSystem Emulex LPe35000 32Gb 1-port PCIe Fibre Channel Adapter v2	10	10
4XC7A76525	BJ3H	ThinkSystem Emulex LPe35002 32Gb 2-port PCIe Fibre Channel Adapter V2	10	10
4XC7A08279	BA1G	ThinkSystem QLogic QLE2770 32Gb 1-Port PCIe Fibre Channel Adapter	10	10
4XC7A08276	BA1F	ThinkSystem QLogic QLE2772 32Gb 2-Port PCIe Fibre Channel Adapter	10	10
16 Gb Fibre Channel HBAs				
01CV840	ATZV	Emulex 16Gb Gen6 FC Dual-port HBA	10	10
01CV830	ATZU	Emulex 16Gb Gen6 FC Single-port HBA	10	10
01CV760	ATZC	QLogic 16Gb Enhanced Gen5 FC Dual-port HBA	10	10
01CV750	ATZB	QLogic 16Gb Enhanced Gen5 FC Single-port HBA	10	10

Operating system support

The ThinkAgile VX665 V3 IS supports the following operating systems:

Server: ThinkAgile VX665 V3 IS (7D9K, EPYC 9004)

- VMware ESXi 7.0 U3
- VMware ESXi 8
- ESXi 8.0u3 (Factory Installed)

The ThinkAgile VX665 V3 CN supports the following operating systems:

Server: ThinkAgile VX665 V3 CN (7D9K, EPYC 9004)

- VMware ESXi 7.0 U3
- VMware ESXi 8
- ESXi 8.0u3 (Factory Installed)

Configuration Note:

VMware vSAN certification for Generic NVMe drives: The drives are listed in the [VMware Compatibility Guide](#) (VCG) under the drive vendor company name instead of Lenovo. To check a drive for vSAN certification, search the VCG using the Supplier part number. Part numbers can be found using the Product Guide for the corresponding Drive Family on Lenovo Press https://lenovopress.lenovo.com/servers/options/drives#sort=last_update.

For further details, including any restrictions, see the OS Interoperability Guide: <https://lenovopress.com/osig#term=vx%2520amd%2520u%2520s&support=all>

Software

ThinkAgile VX Series offerings are available with the VMware Cloud Foundation (VCF) and VMware vSphere Foundation (VVF) primary software stack options. Licenses can be purchased through flexible term subscription-based models with 3-year or 5-year durations. In addition to the primary stack options, advanced service add-on options are available for features like vSAN additional capacity, Live Recovery, Firewall with Advanced Threat Prevention, Avi Load Balancer and Private AI Foundation.

Customers who have purchased VMware Licenses directly from Broadcom or an approved distributor have the flexibility to choose “Customer has VMware by Broadcom Software License” in their DCSC configuration.

Lenovo offers the following VMware software license and support options for ThinkAgile VX Series systems:

- Primary Software
 1. VMware Cloud Foundation (VCF)
 2. VMware vSphere Foundation (VVF)
- Add-On Options (requires purchase of a Primary Software version)
 1. VMware vSAN (for capacity over TiB allocation from primary SKU)
 2. VMware Live Recovery
 3. VMware vDefend Firewall Bundle (requires VCF)
 4. VMware vDefend Firewall with Advanced Threat Prevention Bundle (requires VCF)
 5. VMware Avi Load Balancer
 6. VMware Private AI Foundation (requires VCF)

For details and ordering information, see the VMware Software Solution Product Guide:

<https://lenovopress.com/lp1265-vmware-software-solution-product-guide>

Configuration notes:

- VMware software licenses that are available for selection include 3-year, or 5-year software support (matches the duration of the selected solution-level warranty period).
- The quantity of processor core count-based licenses is derived by the configuration tool based on the number of processors selected.
- The quantity of VM-based licenses is specified based on VM requirements.

ThinkAgile VX Deployer Tool

The ThinkAgile VX Deployer tool is a web-based UI tool used to simplify and automate the deployment of Lenovo ThinkAgile VX systems within your VMware environment. The ThinkAgile VX Deployer tool can install and configure the following software:

VMware ESXi

VMware ESXi is a bare-metal hypervisor that the ThinkAgile VX Deployer tool installs on the hardware of each host in the cluster. ESXi translates requests between the physical and virtual resources, making virtualization possible.

VMware vCenter Server

VMware vCenter Server is a management console that provides a centralized platform for controlling VMware vSphere environments. One service that runs in VMware vCenter Server is VMware vLCM, which provides centralized and simplified management to install software, maintain that software through updates and upgrades, and decommission it.

Lenovo® XClarity Integrator

Lenovo XClarity Integrator is the hardware support manager (HSM) used by vCenter for firmware upgrades. Lenovo XClarity Integrator fully integrates with VMware vLCM to give the VMware vCenter Server software visibility into Lenovo hardware. The interface for the ThinkAgile VX Deployer tool is a straightforward web-based installation wizard with three top-level options:

- Install a new cluster (using the wizard).
- Add nodes to an existing cluster (using the wizard).
- Use a configuration file to install a new cluster or add nodes to an existing cluster.

Prowess testing included all three of these options, plus some key lifecycle-management features in VMware vCenter Server. To view the results of our testing please use the link <https://prowessconsulting.com/wp-content/uploads/2023/07/lenovo-thinkagile-vx-hci-easy-deployment-operation-vmware-1.pdf>

Warranty and Support

The VX665 V3 have a 3-year warranty based on the machine type:

- 7D9A - 3 year warranty

The ThinkAgile VX Series Integrated Systems can be configured with a three- or five-year hardware warranty with 24x7 ThinkAgile Premier Single Point of Support (Lenovo server hardware and VMware software; requires an active software support contract purchased either from VMware or Lenovo) and various levels of coverage with a well-defined scope of services, including service hours, response time, term of service, and service agreement terms and conditions.

The Lenovo local support centers perform problem determination and resolution for hardware-related issues and escalate to VMware, on behalf of the customer, for software-related problem determination. VMware will contact the customer and will own the software-related problem resolution until closure.

Our global network of regional support centers offers consistent, local-language support enabling you to vary response times and level of service to match the criticality of your support needs:

- **Standard Next Business Day** – Best choice for non-essential systems requiring simple maintenance.
- **Premier Next Business Day** – Best choice for essential systems requiring technical expertise from senior-level Lenovo engineers.
- **Premier 24x7 4-Hour Response** – Best choice for systems where maximum uptime is critical.
- **Premier Enhanced Storage Support 24x7 4-Hour Response** – Best choice for storage systems where maximum uptime is critical.

For more information, consult the brochure [Lenovo Operational Support Services for Data Centers Services](#).

Software maintenance

The ThinkAgile VX Series Integrated Systems (appliances) or Certified Nodes can include three-, or five-year software subscription (matches the duration of the selected warranty period) that entitles customers to submit service requests to troubleshoot VMware software issues and receive code updates, including fixes, patches, and new software releases.

The Lenovo local support centers perform problem determination and resolution for hardware-related issues and escalate to VMware, on behalf of the customer, for software-related problem determination. Lenovo will contact the customer and will own the software-related problem resolution until closure.

For the VMware by Broadcom license purchased from Lenovo together with the ThinkAgile VX Series Certified Nodes, software support that is provided by VMware includes Production-level support with 24x7 phone and web coverage with the following target response times (priorities are defined by VMware based on the impact on productivity):

- Severity 1 (Critical: Substantial loss or disruption of service, significant risk of data loss): 30 minutes
- Severity 2 (Major: Operations are severely constrained, significant impact): 4 business hours
- Severity 3 (Minor: Non-critical loss of functionality, minimal impact): 8 business hours
- Severity 4 (Cosmetic: General questions): 12 business hours

For the VMware software and subscription licenses provided by the customer, software support that is provided by VMware is based on the support level included with these licenses. VMware by Broadcom will contact the customer and will own the software-related problem resolution until closure.

Deployment services

The following optional Lenovo basic installation services are available for the ThinkAgile VX Series Integrated Systems (appliances):

- Unpacking and inspecting the systems
- Mounting the systems in a rack cabinet
- Connecting the systems to electrical power and network
- Checking and updating firmware to the latest levels
- Verifying operations
- Disposal of the packaging materials (within the customer site)

ThinkAgile VX Integrated Systems include deployment services delivered by Lenovo Professional Services for the ultimate customer experience. However, “Channel Partner Provided” option is also available on DCSC. By choosing this option, Lenovo Customer or Lenovo Business Partner assumes the full responsibility to perform the deployment services for the quoted system. It is strongly recommended that Lenovo Professional Services or approved business partners are used to perform the deployment services.

The following additional Lenovo deployment services are available for the ThinkAgile VX Series with VMware vSphere Foundation solution to get customers up and running quickly. You can use the table below to add these services:

- Conducting remote preparation and planning
- Verifying firmware versions and performing firmware updates, if needed
- Configuring XCC management settings
- Configuring hypervisor settings
- Configuring vSAN
- Configuring VMware vCenter Server and discovering hosts and storage
- Configuring Lenovo XClarity network settings and performing discovery and inventory
- Transferring knowledge
- Developing post-installation documentation

The following Lenovo deployment services are provided with the ThinkAgile VX Series with VMware Cloud Foundation co-engineered solution to get customers up and running quickly:

- Planning and Design
 - Collect technical details for hardware and VMware environment
 - Plan the architecture based on Customer's business and tech requirements
 - Fill the VCF Plan, Prepare Workbook
- Implementation
 - Configure hardware (XCC IP, UEFI), upgrade firmware via OneCLI or BoMC
 - Deploy & Configure ESXi, Cloud Builder & import VCF Workbook, Lenovo xClarity software components
 - Check compliance with VX Best Recipes
- Handover
 - BAU updates based on VCF releases and VX Best Recipes
 - VMware Async Patch Tool (if required)
- Readiness Handover
 - Create handover document and knowledge transfer
 - Includes details for each deployed component

The following table lists ThinkAgile Health Check & Deployment offerings are available for ThinkAgile VX customers. These offerings are performed by Lenovo Professional Services.

- **Onsite Deployment:** Install, configure, and validate solution on-site, and conduct knowledge transfer.
- **Remote Deployment:** Install, configure, and validate solution remotely, and conduct knowledge transfer.
- **Remote Health Check:** Report & remediation of hardware and cluster health issues, including firmware and software updates.

Table 21. ThinkAgile Deployment offerings

Part number	Description
Onsite deployment services	
5MS7B00082	ThinkAgile VX Onsite Deployment (up to 4 nodes)
5MS7B00083	ThinkAgile VX Onsite Deployment (additional node)
Remote deployment services	
5MS7A87711	ThinkAgile VX Remote Deployment (up to 4 nodes)
5MS7A87712	ThinkAgile VX Remote Deployment (additional node)
Remote Health Check	
5MS7B00178	ThinkAgile VX 1X Remote Health Check (up to 4 node cluster)
5MS7B00179	ThinkAgile VX 1X Remote Health Check (additional node)
5MS7B00059	ThinkAgile VX 1X Remote Health Check & Update (up to 4 node cluster)
5MS7B00060	ThinkAgile VX 1X Remote Health Check & Update (additional node)

For more information, refer to the Data Center Implementation Services web page:

<https://www.lenovo.com/us/en/data-center/services/implementation-services/>

Lenovo TruScale

Lenovo TruScale XaaS is your set of flexible IT services that makes everything easier. Streamline IT procurement, simplify infrastructure and device management, and pay only for what you use – so your business is free to grow and go anywhere.

Lenovo TruScale is the unified solution that gives you simplified access to:

- The industry's broadest portfolio – from pocket to cloud – all delivered as a service
- A single-contract framework for full visibility and accountability
- The global scale to rapidly and securely build teams from anywhere
- Flexible fixed and metered pay-as-you-go models with minimal upfront cost
- The growth-driving combination of hardware, software, infrastructure, and solutions – all from one single provider with one point of accountability.

For information about Lenovo TruScale offerings that are available in your region, contact your local Lenovo sales representative or business partner.

Lenovo Financial Services

Why wait to obtain the technology you need now? No payments for 90 days and predictable, low monthly payments make it easy to budget for your Lenovo solution.

- **Flexible**

Our in-depth knowledge of the products, services and various market segments allows us to offer greater flexibility in structures, documentation and end of lease options.

- **100% Solution Financing**

Financing your entire solution including hardware, software, and services, ensures more predictability in your project planning with fixed, manageable payments and low monthly payments.

- **Device as a Service (DaaS)**

Leverage latest technology to advance your business. Customized solutions aligned to your needs. Flexibility to add equipment to support growth. Protect your technology with Lenovo's Premier Support service.

- **24/7 Asset management**

Manage your financed solutions with electronic access to your lease documents, payment histories, invoices and asset information.

- **Fair Market Value (FMV) and \$1 Purchase Option Leases**

Maximize your purchasing power with our lowest cost option. An FMV lease offers lower monthly payments than loans or lease-to-own financing. Think of an FMV lease as a rental. You have the flexibility at the end of the lease term to return the equipment, continue leasing it, or purchase it for the fair market value. In a \$1 Out Purchase Option lease, you own the equipment. It is a good option when you are confident you will use the equipment for an extended period beyond the finance term. Both lease types have merits depending on your needs. We can help you determine which option will best meet your technological and budgetary goals.

Ask your Lenovo Financial Services representative about this promotion and how to submit a credit application. For the majority of credit applicants, we have enough information to deliver an instant decision and send a notification within minutes.

Seller training courses

The following sales training courses are offered for employees and partners (login required). Courses are listed in date order.

1. **Family Portfolio: ThinkAgile Systems**

2025-04-30 | 45 minutes | Employees and Partners

This course covers the foundational components of the ThinkAgile family, including server configurations, key system differences, and the unique features of the HX, MX, and VX product families.

By the end of this course, you should be able to:

- List the ThinkSystem and ThinkEdge servers that the ThinkAgile family is based on
- Explain the difference between Certified Nodes and Integrated Systems
- List two features each of the HX, MX, and VX families

Tags: ThinkAgile, ThinkSystem

Published: 2025-04-30

Length: 45 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: SXS2150r2

2. **Partner Technical Webinar - Storage Announcements**

2025-04-29 | 60 minutes | Employees and Partners

In this 60-minute replay, the April 23 Storage Announcement was presented. Adam Mandelbloom, Lenovo Technical Marketing Manager, presented the ThinkAgile announcements. Next, Roger Yarosh, Senior Storage Product Manager, presented the DG and DM announcements.

Tags: Data Management, ThinkAgile

Published: 2025-04-29

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: 042525

3. **Think AI Weekly: Simplifying AI Deployments with ThinkAgile**

2025-04-11 | 54 minutes | Employees Only

Please view this session to hear Adam Mandelbloom, Technical Marketing Manager for ISG explain these topics:

- Overall value proposition of ThinkAgile in AI solutions
- Use cases for ThinkAgile HX
- Use cases for ThinkAgile VX and MX

Tags: Artificial Intelligence (AI), ThinkAgile

Published: 2025-04-11

Length: 54 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DTAIW137

4. **ThinkAgile VX - How to sell**

2024-12-18 | 15 minutes | Employees and Partners

This module will introduce you to the ThinkAgile VX product line. It also introduces the latest updates to the VMware software packages available with the ThinkAgile VX product line.

Course Objectives:

1. Find out more about the competitive advantage of ThinkAgile VX.
2. Learn about the hardware and software solutions in the ThinkAgile VX line.
3. Understand the business needs and how you can sell more.

Tags: ThinkAgile, VMware

Published: 2024-12-18

Length: 15 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DVXS100

5. **Selling On Prem Value - Private Cloud and Private AI**

2024-12-13 | 40 minutes | Employees Only

This course provides Lenovo Sellers with a series of five videos that are designed to help you better articulate our joint value in the Private Cloud and Private AI solution opportunity. After completing this course, Lenovo Sellers should be prepared to elevate customer discussions by transitioning from product features to explaining value-driven benefits, enabling a deeper understanding of the strategic impact for their business.

Tags: Artificial Intelligence (AI), Industry solutions, Technology solutions, ThinkAgile, VMware

Published: 2024-12-13

Length: 40 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DVMB101

6. **Partner Technical Webinar - Data Center 101 - Why HCI? Why 3-tier?**

2024-11-14 | 60 minutes | Employees and Partners

October 11, 2024 – In this 60-minute webinar Alex Docherty, Channel Technical Strategist, discussed When to HCI vs 3 Tier.

Tags: ThinkAgile, ThinkSystem

Published: 2024-11-14

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: 101124

7. ThinkAgile Solutions for AI - Security and Compliance Considerations

2024-10-01 | 15 minutes | Employees and Partners

This course, tailored specifically for Lenovo and its partner technical sellers, is designed to equip participants with essential knowledge and skills to effectively assess security measures and address compliance considerations for ThinkAgile Solutions for AI.

Upon completion of this training, you will be able to:

- Describe security features of ThinkAgile for AI data protection.
- Explain how to mitigate risk and address compliance considerations in AI deployments.

Last Updated: September 2024

Tags: Artificial Intelligence (AI), High-Performance Computing (HPC), ThinkAgile

Published: 2024-10-01

Length: 15 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDAI203

8. Integration of ThinkAgile and AI

2024-09-11 | 25 minutes | Employees and Partners

Designed specifically for Lenovo and its partner technical sellers, this course aims to equip you with the knowledge and skills to effectively communicate the integration of ThinkAgile Solutions and AI.

Upon completion of this training, you will be able to:

- Highlight the advantages of using ThinkAgile for AI workloads
- Explore how ThinkAgile platforms are specifically optimized for AI

Last Updated: September 2024

Tags: Artificial Intelligence (AI), ThinkAgile

Published: 2024-09-11

Length: 25 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDAI204

9. **Key Features of Lenovo ThinkAgile Solutions for AI**

2024-09-10 | 15 minutes | Employees and Partners

Designed specifically for Lenovo and its partner technical sellers, this course aims to equip you with the knowledge and skills to effectively communicate the key features of ThinkAgile Solutions for AI. By completing this course, you'll be better prepared to understand customer needs and present the most suitable AI solutions, ensuring successful engagements and driving value for your clients.

In this course, you will learn how to:

- Present compute capabilities for AI processing
- Articulate optimized storage solutions with ThinkAgile for high-speed AI performance
- Identify essential networking considerations for ThinkAgile AI workloads
- Present ThinkAgile AI Ready solutions

Last Updated: September 2024

Tags: Artificial Intelligence (AI), ThinkAgile

Published: 2024-09-10

Length: 15 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDAI201

10. **ThinkAgile Solutions for AI - Sales Strategies and Messaging**

2024-09-06 | 15 minutes | Employees and Partners

This course is designed exclusively for Lenovo and its partner technical sales teams, with the goal of empowering you with the knowledge and strategies necessary to effectively engage customers in conversations about ThinkAgile Solutions for AI.

In this course, you'll learn how to:

- Identify customer pain points.
- Recommend ThinkAgile Solutions for AI tailored to those needs. And lastly,
- Communicate the benefits of ThinkAgile for AI to key stakeholders.

Last Updated: September 2024

Tags: Artificial Intelligence (AI), ThinkAgile

Published: 2024-09-06

Length: 15 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDAI202

11. **Position Lenovo ThinkAgile Solutions for AI**
2024-08-19 | 10 minutes | Employees and Partners

Designed specifically for Lenovo and partner technical sellers, this course aims to equip you with the knowledge and skills necessary to effectively evaluate and position ThinkAgile Solutions for AI to your customers. By completing this course, you will be better prepared to understand customer needs and present the most suitable AI solutions, ensuring successful engagements and driving value for your clients.

In this course, you will learn how to position ThinkAgile Solutions for AI to your customers by:

- Evaluating the key challenges in the enterprise landscape
- Advocating the value proposition of ThinkAgile Hyper-Converged Infrastructure
- Exploring use cases of ThinkAgile in AI environments
- Implementing ThinkAgile-based AI deployments

Tags: Artificial Intelligence (AI), ThinkAgile

Published: 2024-08-19

Length: 10 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDAI200

12. **Lenovo VTT Cloud Architecture - Unlock Gen AI with VMware Private AI Foundation with NVIDIA**

2024-07-16 | 60 minutes | Employees Only

In today's rapidly evolving digital landscape, businesses are hungry for the transformative power of Artificial Intelligence (AI). They see AI as the key to streamlining operations and unlocking exciting new opportunities. However, widespread adoption has been hampered by concerns surrounding privacy, the complexity of implementation, and the hefty costs associated with deploying and managing AI solutions at an enterprise level.

Join Chris Gully and Baker Hull, Solutions Architects from VMware by Broadcom, as they discuss how Lenovo, NVIDIA, and VMware By Broadcom are partnering to deliver a private, secure, scalable, and flexible AI infrastructure solution that helps enterprise customers build and deploy AI workloads within their own private cloud infrastructure, ensure the control of sensitive data and compliance with regulatory requirements, ultimately driving faster time to value and achieving their AI objectives.

Tags: Artificial Intelligence (AI), Cloud, Nvidia, ThinkAgile, VMware

Published: 2024-07-16

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DVCLD214

13. **ThinkAgile Roadshow for Account Managers**

2024-06-21 | 60 minutes | Employees Only

As customers transition through technology refresh and modernize their IT, learn how to win and position ThinkAgile portfolio. Get an overview of current ThinkAgile momentum and strategy along with best practices in product positioning

Tags: Artificial Intelligence (AI), Cloud, Microsoft, Nutanix, ThinkAgile, VMware

Published: 2024-06-21

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DTAO101

14. **VTT Cloud Architecture - What next with VMware Discussion**

2024-06-13 | 60 minutes | Employees Only

Broadcom's acquisition of VMware has stirred significant interest and concern among customers who rely on VMware for their cloud and on-premises infrastructure needs. This acquisition may prompt customers to explore alternative platforms due to potential changes in service quality, pricing, and product roadmaps. Join John Encizo, Lenovo Field CTO & Principal Technical Consultant for an in-depth look at what it takes to migrate customers to different platforms and considerations for whether they should make the move.

Tags: Cloud, Microsoft, Nutanix, Technical Sales, VMware

Published: 2024-06-13

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DVCLD213

15. **SAP Webinar for Lenovo Sellers: Lenovo Portfolio Update for SAP Landscapes**

2024-06-04 | 60 minutes | Employees Only

Join Mark Kelly, Advisory IT Architect with the Lenovo Global SAP Center of Competence as he discusses:

- Challenges in the SAP environment
- Lenovo On-premise Solutions for SAP
- Lenovo support resources for SAP solutions

Tags: SAP, ThinkAgile, ThinkEdge, ThinkSystem

Published: 2024-06-04

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DSAPF101

16. **Lenovo Data Center Product Portfolio**
2024-05-29 | 20 minutes | Employees and Partners

This course introduces the Lenovo data center portfolio, and covers servers, storage, storage networking, and software-defined infrastructure products. After completing this course about Lenovo data center products, you will be able to identify product types within each data center family, describe Lenovo innovations that this product family or category uses, and recognize when a specific product should be selected.

Tags: Advanced DataCenter, DataCenter Products, ThinkAgile, ThinkEdge, ThinkSystem

Published: 2024-05-29

Length: 20 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: SXXW1110r7

17. **VTT Cloud Architecture: NVIDIA Using Cloud for GPUs and AI**
2024-05-22 | 60 minutes | Employees Only

Join JD Dupont, NVIDIA Head of Americas Sales, Lenovo partnership and Veer Mehta, NVIDIA Solution Architect on an interactive discussion about cloud to edge, designing cloud Solutions with NVIDIA GPUs and minimizing private\hybrid cloud OPEX with GPUs. Discover how you can use what is done at big public cloud providers for your customers. We will also walk through use cases and see a demo you can use to help your customers.

Tags: Artificial Intelligence (AI), Cloud, Nvidia, Software Defined Infrastructure (SDI), Technical Sales

Published: 2024-05-22

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DVCLD212

18. **Start the Conversation - Lenovo Cloud Strategy**
2024-05-20 | 25 minutes | Employees and Partners

The purpose of this course is to help sellers use the Lenovo cloud strategy as a foundation to start the customer cloud conversation.

Course Objectives:

- Understand why customers choose the cloud
- Describe the Lenovo Cloud Strategy
- Be able to start the customer cloud conversation

Tags: Cloud, Technology solutions

Published: 2024-05-20

Length: 25 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDS103r3

19. **VTT Cloud and Edge Architecture: Principal Consultant Overview**

2024-04-10 | 50 minutes | Employees Only

Join Ruth Miller, Lenovo Principal Consultant, SSG Services for a data-led discussions to examine in detail customer IT environments, highlighting pain points, performance issues, edge and hybrid cloud strategy and carbon reduction capability.

Examples of workshop deliverables and outcomes will be discussed to illustrate the value of early engagement and discovery.

Tags: Cloud, Services, Sustainability, Technology solutions, TruScale Infrastructure as a Service

Published: 2024-04-10

Length: 50 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DVCLD211

20. **VTT Data Management How to sell storage - April 2024**

2024-04-10 | 60 minutes | Employees Only

In this course, you will know:

- Why do we sell storage?
- What are the basics you need to get an opportunity rolling?
- Why Lenovo for Storage?
- What is happening in the market today?
- How to determine traction?

Tags: Data Management, Storage

Published: 2024-04-10

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DVDAT209

21. **Data management Overview**

2024-03-14 | 25 minutes | Employees and Partners

After completing this course you will be able to:

1. Know more about the data management trends and challenges
2. Understand the data management portfolio
3. Find out how data drives business value

Tags: Data Management, Storage, ThinkSystem

Published: 2024-03-14

Length: 25 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DSTOO201

22. **Technical Overview: ThinkAgile HCI and Cloud Platforms**

2024-03-07 | 35 minutes | Employees and Partners

This course is designed to give Lenovo sales and partner representatives a technical overview of Lenovo's ThinkAgile hyperconverged infrastructure and cloud platforms. Turnkey cloud platforms along with their architectural makeup, and container and data protection solutions are also covered.

Learning Objectives:

- Describe Lenovo's ThinkAgile hyperconverged infrastructure and cloud platforms
- Explain do-it-yourself and turnkey cloud platforms along with their architectural makeup
- Describe container and data protection solutions

Tags: Architecture, Engineering & Construction, Cloud, Technical Sales, ThinkAgile

Published: 2024-03-07

Length: 35 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDT2001r3

23. **ThinkAgile VX in 3 minutes**

2024-02-01 | 5 minutes | Employees and Partners

Learn about ThinkAgile VX in under 3 minutes. The business challenges it solves and how it can increase the size of your sales opportunities.

By the end of this training, you should be able to:

- 1) Learn how to sell Lenovo ThinkAgile VX
- 2) Describe what differentiates ThinkAgile VX from other VMware offerings

Tags: ThinkAgile

Published: 2024-02-01

Length: 5 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DVXS101

24. **Family Introduction: Converged and Hyperconverged**

2024-01-25 | 15 minutes | Employees and Partners

This course is designed to give Lenovo sales a foundation on the characteristics of the Converged and Hyperconverged family. As an introduction to each family, this course also includes positioning, when to use a family and product, and keywords a client may use when discussing a converged or hyperconverged product.

Objectives:

- Family characteristics
- Priority positioning
- Product usage
- Key words and phrases

Tags: Sales, Storage

Published: 2024-01-25

Length: 15 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: SXSW1101r2

25. **Lenovo Solutions for the Cloud**

2024-01-03 | 30 minutes | Employees and Partners

Understanding your customer's needs around cloud solutions is imperative. This course aims to increase Lenovo and Partner Seller's ability to identify various Lenovo Cloud offerings and services to position related Lenovo Cloud Solutions.

Tags: Cloud, Technology solutions, ThinkAgile, ThinkEdge, ThinkSystem

Published: 2024-01-03

Length: 30 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDO112r2

26. **VTT Cloud Architecture: Google Cloud Platform with Anthos on ThinkAgile VX - October 2023**
2023-10-11 | 54 minutes | Employees and Partners

Join Chandrakandh Mouleeswaran, Lenovo Senior Software Engineer and Cristian Ghetau, Lenovo Software Engineer for a discussion on Google Cloud Platform (GCP) with Anthos solution based on the Lenovo ThinkAgile VX VMware vSAN certified platform. They will cover a technical overview of Google Kubernetes Engine (GKE) On-prem, which is a containerized workload orchestration software. We will cover the functional aspects of Anthos core components including the Kubernetes, Istio service mesh, Anthos config management, Hybrid and multi-cloud management, and Google cloud marketplace. We will also provide an architecture overview and deployment of Anthos on top of Lenovo ThinkAgile VX hyperconverged infrastructure (HCI) platform. Cristian and Chandrakandh will cover customer use cases for Anthos, including Continuous Integration/Continuous Delivery (CI/CD), Micro-services and Service Mesh, Hybrid Cloud and Multi-cloud management, and Anthos Config Management.

Tags: Cloud, Software Defined Infrastructure (SDI), Technology solutions, ThinkAgile, VMware

Published: 2023-10-11

Length: 54 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DVCLD205

27. **VEEAM Solutions Sales Training**
2023-09-27 | 20 minutes | Employees and Partners

In this course you will learn about Hyper-availability for the Always-On Enterprise.

By the end of this training, you should be able to:

Identify and explain the core products and solutions offered by Veeam.

Explain the key benefits and value propositions of integrating Veeam solutions with Lenovo products.

Tags: Sales

Published: 2023-09-27

Length: 20 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DSTOO100

28. **VTT Cloud Architecture - Application Migration September 2023**

2023-09-12 | 35 minutes | Employees Only

This VTT Cloud Architecture training aims to equip participants with the knowledge necessary to help your customers successfully migrate applications to a cloud infrastructure. With the increasing adoption of cloud computing, organizations are looking to harness the benefits of private and hybrid clouds, such as enhanced security, control, and customization. However, migrating applications to cloud requires careful planning, architectural considerations, and a deep understanding of the migration process. In this training, we will delve into cloud infrastructure and learn about the key components involved in application migration. We will explore various migration strategies, including lift-and-shift, re-platforming, and re-architecting, and understand the factors that influence the selection of an appropriate migration approach. We will also cover best practices for evaluating application readiness, assessing dependencies, identifying potential challenges and risks, and solution design considerations. We will discuss using migration tools, technologies specific to cloud environments and automation techniques for streamlining the migration process, ensuring minimal disruption to business operations.

Tags: Cloud, Software Defined Infrastructure (SDI), Technical Sales, VMware

Published: 2023-09-12

Length: 35 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Course code: DVCLD204

29. **VTT Cloud Architecture - DevOps Cloud Story August 2023**

2023-08-17 | 60 minutes | Employees Only

Understanding how architecture is deployed to support DevOps environment in the cloud. Tanzu/Containers vs VM's. When it best to use each? Modern Application deployment in containers. In the beginning, public cloud IaaS was delivered exclusively via virtual machines. But today, new virtualization methods are taking hold, including containers and serverless computing. As cloud computing principles become more embedded in application development and infrastructure operations, containers and serverless will become increasingly attractive deployment vehicles for code. From requirements to installation.

Tags: Cloud, Infrastructure as a Service (IaaS), ThinkAgile, VMware

Published: 2023-08-17

Length: 60 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Course code: DVCLD203

30. **ThinkAgile Accelerating Cloud Agility: Understanding ThinkAgile VX**
2023-07-28 | 50 minutes | Employees and Partners

Brian Faleiro, Lenovo Technical Product Manager, discusses ThinkAgile VX use cases, where the solution can be positioned. He reviews recent technical improvements and discusses deployment and lifecycle management, 'why ThinkAgile VX', what are the requirements that customers are looking for and how we are solving those requirements.

Tags: ThinkAgile

Published: 2023-07-28

Length: 50 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DVXT201

31. **VTT: SAP HANA Transition and Refresh Opportunity - July 2023**
2023-07-14 | 60 minutes | Employees Only

In this session, we cover:

- What Next for SAP Clients?
- Lenovo Opportunity
- Lenovo Portfolio for SAP Solutions
- RISE with SAP

Tags: Data Management, SAP, ThinkAgile, ThinkEdge, ThinkSystem

Published: 2023-07-14

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DVDAT202

32. **ThinkAgile VX Series - Technical Presentation**
2023-07-12 | 60 minutes | Employees and Partners

Join us in this comprehensive course on ThinkAgile VX Series, where you will gain a deep understanding of its technical overview and components. Dive into the world of Data Processing Units (DPUs) and explore their technical aspects, including their role and benefits. Unlock the potential of ThinkAgile VX Series through a detailed exploration of its versatile use cases, ranging from Hybrid Cloud deployment to VDI, Kubernetes, and AI/ML applications. Moreover, you will learn about effective deployment strategies and lifecycle management processes.

By the end of this training, you should be able to:

- Understand the technical overview of ThinkAgile VX Series
- Gain knowledge about DPU (Data Processing Unit) and its technical aspects
- Explore various use cases of ThinkAgile VX Series, including Hybrid Cloud deployment, VDI (Virtual Desktop Infrastructure), Kubernetes, and AI/ML (Artificial Intelligence/Machine Learning)
- Describe deployment strategies and lifecycle management processes for ThinkAgile VX Series

Tags: Cloud, ThinkAgile

Published: 2023-07-12

Length: 60 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DVXSV104

33. **VTT Cloud Architecture - Why Cloud? July 2023**
2023-07-12 | 90 minutes | Employees Only

Theresa Thompson and Luke Huckaba from VMware discuss the VMware and Lenovo Partnership for cloud solutions addresses common IT constraints, such as slow time to value, limited resources and incompatible systems. Cloud is an enabler of digital business. How do we reduce the operational burden of running and maintaining hardware and software for cloud and prepare our customers for workload migrations and which are suitable for a cloud environment. How to align cloud Initiative outcomes with business goals.

Tags: Cloud, Software Defined Infrastructure (SDI), ThinkAgile, VMware

Published: 2023-07-12

Length: 90 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Course code: DVCLD202

34. **Cloud and HCI or Somewhere in Between**
2023-07-11 | 40 minutes | Employees and Partners

Provides a brief overview of Lenovo Portfolio for HCI and Cloud including ThinkAgile HX, VX, MX Certified Nodes and Appliances, Azure, and Engineered Cloud Solutions. Review Scenarios and complete questions "choose your own adventure" to identify and qualify an opportunity as HCI or Cloud and which portfolio solution would be the best option.

Course objectives:

- Where in the Sales Cycle we are
- What is Cloud
- What is Hyperconverged Infrastructure (HCI)
- Review Lenovo Offerings in Cloud and HCI
- Scenarios

Tags: Cloud

Published: 2023-07-11

Length: 40 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDS104r2

Related publications and links

For more information, see these resources:

- Lenovo ThinkAgile VX Series
<https://www.lenovo.com/us/en/data-center/software-defined-infrastructure/ThinkAgile-VX-Series/p/WMD00000340>
- ThinkAgile VX - Best Recipes
<http://datacentersupport.lenovo.com/us/en/solutions/HT505302>
- VMware documentation
<https://docs.vmware.com/>
- ThinkSystem SR665 V3 product guide:
<https://lenovopress.com/lp1608-thinksystem-sr665-v3-server>

Related product families

Product families related to this document are the following:

- [2-Socket Rack Servers](#)
- [Hyperconverged Infrastructure](#)
- [ThinkAgile VX Series for VMware](#)

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