

ThinkAgile VX650 V3 2U Integrated System and VX650 V3 2U Certified Node

Product Guide

The Lenovo ThinkAgile VX650 V3 Integrated System and Certified Nodes are 2-socket 2U systems that feature the 5th Generation Intel Xeon Scalable processors (formerly codenamed "Emerald Rapids) and 4th Generation Intel Xeon Scalable processors (formerly codenamed "Sapphire Rapids). VX650 V3 provides up to 64 cores per 5th generation processor and up to 60 cores per 4th generation processor and support for the new PCIe 5.0 standard for I/O, the VX650 V3 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 and management in a tightly integrated software stack.

Suggested uses: Inference, virtualization, VDI, HPC, ERP

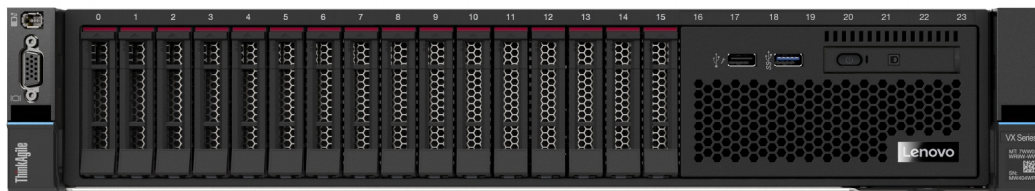


Figure 1. Lenovo ThinkAgile VX650 V3 with 2.5-inch drive bays

Did you know?

The ThinkAgile VX650 V3 are built on the Lenovo ThinkSystem SR650 V3 server that features enterprise-class reliability, management, and security.

The ThinkAgile VX650 V3 provides 4x higher performance through optimized storage compression techniques with ESA and 70% more usable capacity with RAID-6 erasure coding.

The VX650 V3 Integrated Systems comes paired with Premier Support that offers a single point of support for quick 24/7 problem reporting and resolution.

Key features

ThinkAgile features

The ThinkAgile VX650 V3 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 vSAN 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 software.
- 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.
- Five-year hardware warranty, bundled with Premier Support that provides a 24x7 Single Point of Support
- The VX650 V3 Certified Node for SAP HANA is Certified by SAP to run SAP HANA in production on hyperconverged infrastructure.
- Offer Lenovo deployment services to get customers up and running quickly.

The VMware software running on ThinkAgile VX650 V3 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.
- Provides 4x higher performance through optimized storage compression techniques with ESA
- 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.

Hardware features

The ThinkAgile VX650 V3 are based on the SR650 V3 and have the following hardware features:

Scalability and performance

The VX650 V3 offer numerous features to boost performance, improve scalability and reduce costs:

- Supports one or two fifth-generation Intel Xeon Processor Scalable processors
 - Up to 64 cores and 128 threads
 - Core speeds of up to 3.9 GHz
 - TDP ratings of up to 350 W
- Supports one or two fourth-generation Intel Xeon Processor Scalable processors
 - Up to 60 cores and 120 threads
 - Core speeds of up to 3.7 GHz
 - TDP ratings of up to 350 W
- Support for DDR5 memory DIMMs to maximize the performance of the memory subsystem:
 - Up to 32 DDR5 memory DIMMs, 16 DIMMs per processor
 - 8 memory channels per processor (2 DIMMs per channel)
 - Supports 1 DIMM per channel operating at 5600 MHz (5th Gen processors) or 4800 MHz (4th Gen processors)
 - Supports 2 DIMMs per channel operating at 4800 MHz (5th Gen processors) or 4400 MHz (4th Gen processors)
 - Using 256GB 3DS RDIMMs, the server supports up to 8TB of system memory
- Supports up to eight single-width GPUs or three double-wide GPUs, 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), mid bays (8 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 36x NVMe drives without oversubscription of PCIe lanes (1:1 connectivity). The use of NVMe drives maximizes drive I/O performance, in terms of throughput and latency.
- Supports high-speed controllers from Broadcom providing 12 Gb SAS connectivity to the drive backplanes. A variety of PCIe 3.0 and PCIe 4.0 RAID adapters are available.
- 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 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 4.0 x16 interface, supporting a variety of Ethernet network adapters. A simple-swap mechanism with a thumbscrew and pull-tab enables tool-less installation and removal of the adapter. The adapter supports shared BMC network sideband connectivity to enable out-of-band systems management.
- Dedicated models to support NVIDIA Bluefield-2 Data Processing Unit (DPU) with dual ports of 25GbE

- 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 Gen 5, compared to 16 GT/s with PCIe Gen 4 and 8 GT/s with PCIe Gen 3). A PCIe 5.0 x16 slot provides 128 GB/s bandwidth, enough to support a dual-port 200GbE network connection.
- The server offers up to eight PCIe 5.0 slots, all with rear access, plus an internal bay for a cabled RAID adapter or HBA, plus a slot dedicated to the OCP adapter.

Availability and serviceability

The VX650 V3 provide many features to simplify serviceability and increase system uptime:

- The server offers Single Device Data Correction (SDDC, also known as Chipkill), Adaptive Double-Device Data Correction (ADDDC, also known as Redundant Bit Steering or RBS), and memory mirroring for redundancy in the event of a non-correctable memory failure. Note: ADDDC is not supported with 9x4 RDIMMs.
- The server offers hot-swap drives, supporting RAID redundancy for data protection and greater system uptime.
- Available M.2 boot adapters support RAID-1 (using Intel VROC) which can enable two NVMe M.2 drives to be configured as a redundant pair.
- 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.
- The light path diagnostics feature uses LEDs to lead the technician to failed (or failing) components, which simplifies servicing, speeds up problem resolution, and helps improve system availability.
- Supports a new dedicated Firmware and Root of Trust Security Module that stores all system firmware settings, making it easier to transfer customer settings in the event of a system board replacement, while still maintaining data security.
- Solid-state drives (SSDs) offer more reliability and performance 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 integrated into 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 2 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 or tablet 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 (varies by geography), 9 x 5 next business day. Optional service upgrades are available.

Manageability and security

Systems management features simplify local and remote management of the VX650 V3:

- The server includes 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 (ISO and IMG image files), boot capture, power capping and new XCC2 Platinum features. New XCC2 Platinum features include System Guard, new security modes including a CNSA-compliant mode, FIPS 140-3 and NIST 800-193 support, and a new Neighbor Group feature.

- Dedicated Ethernet port at the rear of the server for remote management (BMC management).
- 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 Secure Boot to ensure only a digitally signed operating system can be used. Supported with HDDs and SSDs, as well as 7mm and M.2 drives.
- Industry-standard Advanced Encryption Standard (AES) NI support for faster, stronger encryption.
- Intel Execute Disable Bit functionality can prevent certain classes of malicious buffer overflow attacks when combined with a supported operating system.
- Intel Trusted Execution Technology provides enhanced security through hardware-based resistance to malicious software attacks, allowing an application to run in its own isolated space, protected from all other software running on a system.
- Additional physical security features are an available chassis intrusion switch and available lockable front bezel.

Energy efficiency

The VX650 V3 offer the following energy-efficiency features to save energy, reduce operational costs, and increase energy availability:

- Energy-efficient system board 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
- Solid-state drives (SSDs) consume as much as 80% less power than traditional spinning 2.5-inch HDDs.
- Support for Lenovo XClarity Energy Manager provides advanced data center power notification, analysis, and policy-based management to help achieve lower heat output and reduced cooling needs.
- 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.

Components and connectors

The ThinkAgile VX650 V3 are based on the ThinkSystem SR650 V3 server.

The following figure shows the front of the ThinkAgile VX650 V3 with 2.5-inch drives.

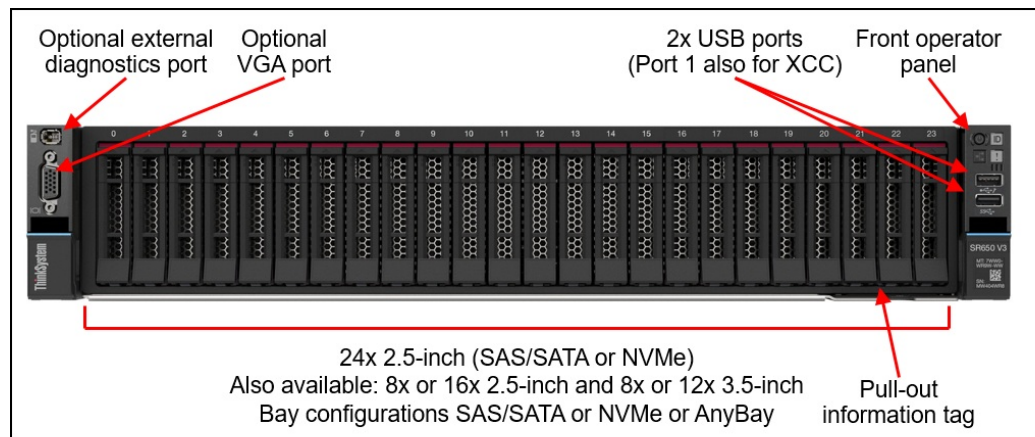


Figure 2. Front view of the ThinkAgile VX650 V3 with 2.5-inch drives

The following figure shows the front of the VX650 V3 with 3.5-inch drives.

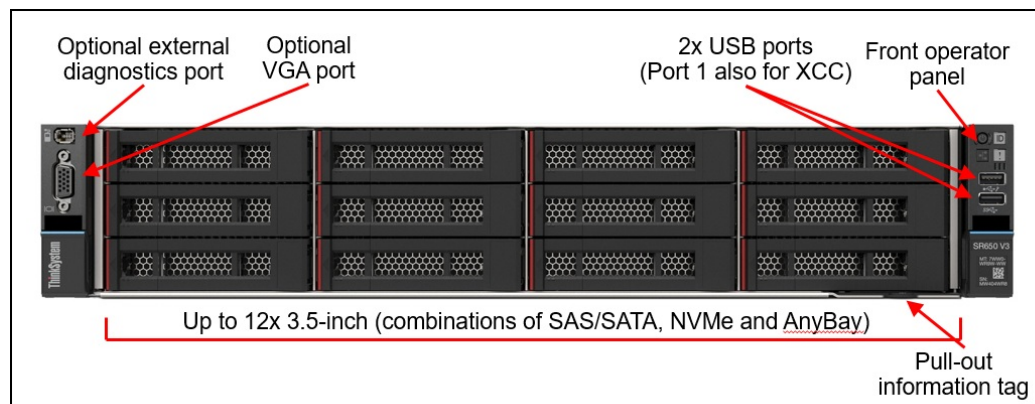


Figure 3. Front view of the ThinkAgile VX650 V3 with 3.5-inch drives

The following figure shows the components visible from the rear of the system. 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.

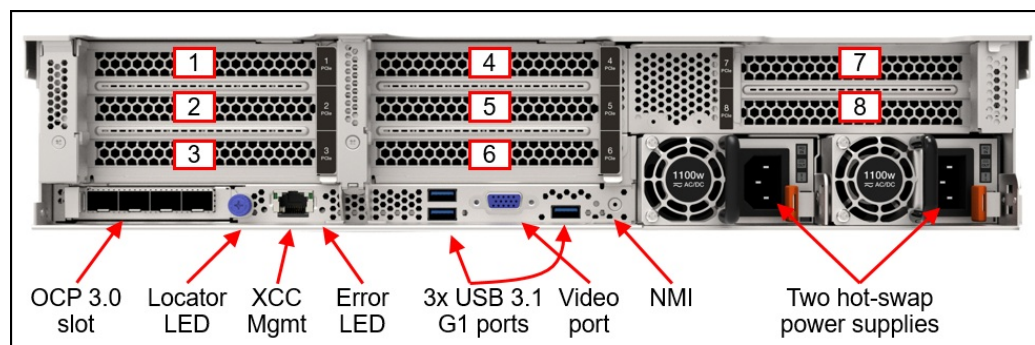


Figure 4. Rear view of the VX650 V3 systems (configuration with eight PCIe slots)

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

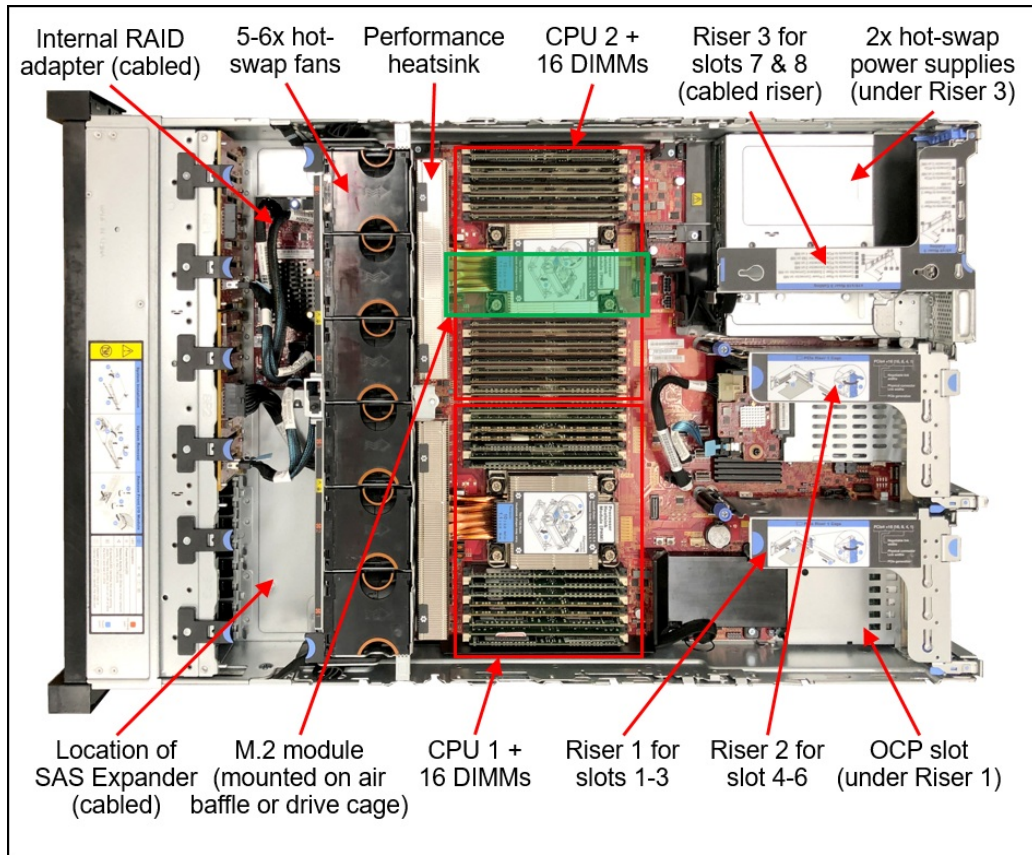


Figure 5. Internal view of the VX650 V3 systems

Standard specifications

The ThinkAgile VX650 V3 are based on the ThinkSystem SR650 V3 server.

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

Table 1. Comparison of features

	VX650 V3 IS	VX650 V3 CN	VX650V3 DPU IS	VX650V3 DPU CN	VX650 V3 CN for SAP HANA	VX650 V3-DPU SAP HANA Certified Node
VX offering type	Integrated System	Certified Node	Integrated System	Certified Node	Certified Node	Certified Node
Target workloads	Compute heavy	Compute heavy	Network Heavy, Edge	Network Heavy, Edge	SAP HANA	SAP HANA
Base MTM	7D6WCTO1WW	7D6WCTO2WW	7D6WCTO4WW	7D6WCTO5WW	7D6WCTO3WW	7D6WCTO6WW
Form Factor	2U	2U	2U	2U	2U	2U
Base platform	SR650 V3	SR650 V3	SR650 V3	SR650 V3	SR650 V3	SR650 V3
Max Cluster Size	64 Hosts	64 Hosts	64 Hosts	64 Hosts	64 Hosts	64 hosts
CPU	1x or 2x Intel Xeon SP Gen 5 (Emerald Rapids) or Gen 4 (Sapphire Rapids)	1x or 2x Intel Xeon SP Gen 5 (Emerald Rapids) or Gen 4 (Sapphire Rapids)	2x Intel Xeon SP Gen 5 (Emerald Rapids) or Gen 4 (Sapphire Rapids)	2x Intel Xeon SP Gen 5 (Emerald Rapids) or Gen 4 (Sapphire Rapids)	2x Intel Xeon SP Gen 4 (Sapphire Rapids)	2x Intel Xeon SP Gen 4 (Sapphire Rapids)
Memory	32x DDR5 5600 MHz (8TB maximum)	32x DDR5 5600 MHz (8TB maximum)	32x DDR5 5600 MHz (8TB maximum)	32x DDR5 5600 MHz (8TB maximum)	32x DDR5 4800 MHz (8TB maximum)	32x DDR5 4800 MHz (8TB maximum)
Drive Bays	*32 x 2.5" *20 x 3.5"	*32 x 2.5" *20 x 3.5"	*32 x 2.5" *20 x 3.5"	*32 x 2.5" *20 x 3.5"	*32 x 2.5"	*32 x 2.5"
Drive configurations	All Flash Hybrid	All Flash Hybrid	All Flash Hybrid	All Flash Hybrid	All Flash	All Flash
Disk groups	1 - 5	1 - 5	1-5	1-5	2-4	2-4
HBA	4350-xi 440-xi	4350-xi 440-xi	4350-xi 440-xi	4350-xi 440-xi	4350-xi 440-xi	4350-xi 440-xi
Boot drives	2x M.2 SATA 2x 7mm hot-swap	2x M.2 SATA 2x 7mm hot-swap	2x M.2 SATA 2x 7mm hot-swap	2x M.2 SATA 2x 7mm hot-swap	2x M.2 SATA 2x 7mm hot-swap	2x M.2 SATA 2x 7mm hot-swap
OCP networking	1x OCP 3.0 adapter 1Gb, 10Gb, 25Gb	1x OCP 3.0 adapter 1Gb, 10Gb, 25Gb	None	None	1x OCP 3.0 adapter 1Gb, 10Gb, 25Gb	None
PCIe networking	Up to 8x adapters 1Gb, 10Gb BASE-T, 10Gb, 25Gb, 100Gb, 200Gb	Up to 8x adapters 1Gb, 10Gb BASE-T, 10Gb, 25Gb, 100Gb, 200Gb	Up to 8x adapters 1Gb, 10Gb BASE-T, 10Gb, 25Gb, 100Gb, 200Gb	Up to 8x adapters 1Gb, 10Gb BASE-T, 10Gb, 25Gb, 100Gb, 200Gb	Up to 8x adapters 1Gb, 10Gb BASE-T, 10Gb, 25Gb, 100Gb, 200Gb	Up to 8x adapters 1Gb, 10Gb BASE-T, 10Gb, 25Gb, 100Gb, 200Gb
DPU- Smart NIC	None	None	1x NVIDIA Bluefield-2 DPU with dual ports of 25GbE	1x NVIDIA Bluefield-2 DPU with dual ports of 25GbE	None	1x NVIDIA Bluefield-2 DPU with dual ports of 25GbE

	VX650 V3 IS	VX650 V3 CN	VX650V3 DPU IS	VX650V3 DPU CN	VX650 V3 CN for SAP HANA	VX650 V3-DPU SAP HANA Certified Node
GPUs	3x DW GPU up to 300W each 8x SW GPU up to 75W each 6x SW GPU up to 150W each	3x DW GPU up to 300W each 8x SW GPU up to 75W each 6x SW GPU up to 150W each	None	None	None	None
Hypervisor	ESXi 8.0u1 (Factory Installed) ESXi 7.0 U3 (Factory Installed)	ESXi 8.0u1 (Factory Installed) ESXi 7.0 U3 (Factory Installed)	ESXi 8.0u1 (Factory Installed)	ESXi 8.0u1 (Factory Installed)	ESXi 8.0u1 (Factory Installed)	ESXi 8.0u1 (Factory Installed)

* Note: 40 drives and Certified Node Lemans under evaluation
The following table lists the standard specifications.

Table 2. Standard specifications

Components	Specification
Machine types	7D6W - 3 year warranty
Form factor	2U rack.
Cluster Size	With Lenovo ThinkAgile VX Series & VMware vSAN, you can create a vSAN cluster with a minimum 3 hosts and a maximum of 64 hosts. Requires vSAN 6.0 and later releases
Processor	Supports one or two 5th generation Intel Xeon Scalable processor (formerly codenamed "Emerald Rapids") or 4th-generation Intel Xeon Scalable processor (formerly codenamed "Sapphire Rapids"). Supports up to 64 cores per 5th generation processor and up to 60 cores per 4th generation processor, core speeds of up to 3.9 GHz, and TDP ratings of up to 350 W.
Chipset	Intel C741 "Emmitsburg" chipset, part of the platform codenamed "Eagle Stream"
Memory	32 DIMM slots with two processors (16 DIMM slots per processor). Each processor has 8 memory channels, with 2 DIMMs per channel (DPC). Lenovo TruDDR5 RDIMMs, 9x4 RDIMMs, and 3DS RDIMMs are supported. DIMM slots are shared between standard system memory and persistent memory. DIMMs operate at up to 5600 MHz at 1 DPC and up to 4400 MHz at 2 DPC.
Memory maximum	With RDIMMs: Up to 8TB by using 32x 256GB 3DS RDIMMs
Memory protection	ECC, SDDC (for x4-based memory DIMMs), ADDDC (for x4-based memory DIMMs excluding 9x4 RDIMMs, requires Platinum or Gold processors), and memory mirroring.

Components	Specification
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 server also supports these drives for OS boot or drive storage:</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>Note: EDSFF drive bays are currently not supported.</p>
Storage controller	<ul style="list-style-type: none"> • Up to 12x Onboard NVMe ports • NVMe Retimer Adapter • 12 Gb SAS/SATA non-RAID: 440-8i and 440-16i HBAs
Network interfaces	Dedicated OCP 3.0 SFF slot with PCIe 5.0 x16 host interface. Supports a variety of 2-port and 4-port adapters with 1GbE, 10GbE, 25GbE and 100GbE network connectivity. One port can optionally be shared with the XClarity Controller 2 (XCC2) management processor for Wake-on-LAN and NC-SI support.
PCIe slots	<p>Up to 8x PCIe 5.0 slots, all full height slots and with rear access, plus a slot dedicated to the OCP adapter. Slot availability is based on riser selection and rear drive bay selection. Slots 4, 5, and 6 (riser 2) require 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 RAID adapter or HBA in a dedicated area that does not consume any of the PCIe slots.</p>
DPU Support	Supports up to 1x NVIDIA Bluefield-2 Data Processing Unit (DPU) with dual ports of 25GbE with dedicated models
GPU support	Supports up to 8x single-wide GPUs or up to 3x double-wide GPUs
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 DB-9 COM serial port (installs in slot 3).</p> <p>Internal: 1x USB 3.1 G1 connector for operating system or license key purposes</p>
Cooling	6x (with two processors installed) or 5x (with one processor installed) single-rotor or dual-rotor hot swap 60 mm fans, configuration dependent. Fans are N+1 redundant, tolerating a single-rotor failure. 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 2600W AC options, 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.

Components	Specification
Video	Embedded graphics with 16 MB memory with 2D hardware accelerator, integrated into the XClarity Controller 2 management 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 8x or 16x 2.5-inch front drive bays can optionally support an Integrated Diagnostics Panel. XClarity Controller 2 (XCC2) embedded management controller, XClarity Administrator centralized infrastructure delivery, XClarity Integrator plugins, and XClarity Energy Manager centralized server power management. Optional XClarity Controller Platinum to enable remote control and other functions
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.
Software	Software licenses that can be purchased from Lenovo or provided by the customer: <ul style="list-style-type: none"> • VMware vSAN: Standard, Advanced, Enterprise, Enterprise Plus, ROBO or Desktop • VMware vSphere: Standard, Enterprise Plus or ROBO • HCI Kit: Essentials, Standard, Advanced, Enterprise or ROBO • VMware Horizon: Standard, Advanced or Enterprise • VMware Cloud Foundation (VCF): Basic, Standard, Advanced, Enterprise or for VDI • VMware vCenter Server: Foundation or Standard
Hypervisors	VMware ESXi. See Operating system support section for details.
Limited warranty	Three-year or one-year (model dependent) 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.
Dimensions	Width: 445 mm (17.5 in.), height: 87 mm (3.4 in.), depth: 764 mm (30.1 in.)
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 your 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 not 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 VX650 V3 Integrated System	7D6WCTO1WW	7D6WCTOAWW
ThinkAgile VX650 V3 Certified Node	7D6WCTO2WW	7D6WCTOBWW
ThinkAgile VX650 V3 SAP HANA Certified Node	7D6WCTO3WW	None
ThinkAgile VX650 V3-DPU Integrated System	7D6WCTO4WW	None
ThinkAgile VX650 V3-DPU Certified Node	7D6WCTO5WW	None
ThinkAgile VX650 V3-DPU SAP HANA Certified Node	7D6WCTO6WW	None

CTO models for NVIDIA Bluefield SmartNIC DPUs

The VX650 V3 supports the new VMware vSphere Distributed Services Engine (DSE) using the NVIDIA Bluefield SmartNIC Data Processing Unit (DPU). This solution improves the performance of VMware vSphere by offloading tasks from server CPUs to the DPU thereby making data center applications more efficient.

VMware vSphere Distributed Services Engine is only available in CTO builds using the DPU-specific models listed in the following table.

For more information, see the [DPU adapter](#) section.

Table 4. Base CTO models for VX650 V3 with NVIDIA Bluefield SmartNIC DPU support

Machine Type/Model	Description
7D6WCTO4WW	ThinkAgile VX650 V3 DPU - 3 year Warranty

Comparison with the ThinkSystem SR650 V3

The ThinkAgile VX650 V3 are based on the ThinkSystem SR650 V3 server, however there are key differences:

- No onboard SATA controller support
- Persistent Memory not supported
- RAID adapter supported for boot only
- VROC RAID support for boot only
- No SATA HDDs
- Encryption not supported on SED drives
- Fibre Channel support for data migration only
- No InfiniBand support
- Drives are categorized as Cache or Capacity drives and are formed as disk groups (up to 5 disk groups for OSA configurations. ESA configurations only consist of a storage tier, no cache drives or disk groups required)

For details about the ThinkSystem SR650 V3, see the SR650 V3 product guide:

<https://lenovopress.com/lp1601-thinksystem-sr650-v3-server>

To verify what specific hardware components are supported with the VX650 V3, see the DCSC configurator:

<https://dcsc.lenovo.com>

Processors

The VX650 V3 supports processors in either the 5th Gen Intel Xeon Scalable Processor family or the 4th Gen Intel Xeon Scalable Processor family.

Topics in this section:

- [5th Gen Intel Xeon Scalable processors](#)
- [4th Gen Intel Xeon Scalable processors](#)

5th Gen Intel Xeon Scalable processors

The VX650 V3 systems support the following processors. The systems support 1 or 2 processors installed.

For details about these options, including configuration rules, see the SR650 V3 product guide:

<https://lenovopress.com/lp1601-thinksystem-sr650-v3-server#processors>

Table 5. Emerald Rapids Processor choices

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
None	BYVT	Intel Xeon Bronze 3508U 8C 125W 2.1GHz Processor	1	1	1	1	1	1
None	BYW3	Intel Xeon Silver 4509Y 8C 125W 2.6GHz Processor	2	2	2	2	2	2
None	BYW4	Intel Xeon Silver 4510 12C 150W 2.4GHz Processor	2	2	2	2	2	2
None	BYVS	Intel Xeon Silver 4510T 12C 115W 2.0GHz Processor	2	2	2	2	2	2
None	BYVP	Intel Xeon Silver 4514Y 16C 150W 2.0GHz Processor	2	2	2	2	2	2
None	BYW6	Intel Xeon Silver 4516Y+ 24C 185W 2.2GHz Processor	2	2	2	2	2	2
None	BYVU	Intel Xeon Gold 5512U 28C 185W 2.1GHz Processor	1	1	1	1	1	1
None	BYVW	Intel Xeon Gold 5515+ 8C 165W 3.2GHz Processor	2	2	2	2	2	2
None	BYW7	Intel Xeon Gold 5520+ 28C 205W 2.2GHz Processor	2	2	2	2	2	2
None	BYVX	Intel Xeon Gold 6526Y 16C 195W 2.8GHz Processor	2	2	2	2	2	2
None	BYWK	Intel Xeon Gold 6530 32C 270W 2.1GHz Processor	2	2	2	2	2	2
None	BYW0	Intel Xeon Gold 6534 8C 195W 3.9GHz Processor	2	2	2	2	2	2
None	BYVQ	Intel Xeon Gold 6538N 32C 205W 2.1GHz Processor	2	2	2	2	2	2
None	BYW8	Intel Xeon Gold 6538Y+ 32C 225W 2.2GHz Processor	2	2	2	2	2	2
None	BYVY	Intel Xeon Gold 6542Y 24C 250W 2.9GHz Processor	2	2	2	2	2	2
None	BYW1	Intel Xeon Gold 6544Y 16C 270W 3.6GHz Processor	2	2	2	2	2	2
None	BYVR	Intel Xeon Gold 6548N 32C 250W 2.8GHz Processor	2	2	2	2	2	2
None	BYVZ	Intel Xeon Gold 6548Y+ 32C 250W 2.5GHz Processor	2	2	2	2	2	2
None	BYW9	Intel Xeon Gold 6554S 36C 270W 2.2GHz Processor	2	2	2	2	2	2

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
None	BYVV	Intel Xeon Gold 6558Q 32C 350W 3.2GHz Processor	2	2	2	2	2	2
None	BYW5	Intel Xeon Platinum 8558 48C 330W 2.1GHz Processor	2	2	2	2	2	2
None	BYWA	Intel Xeon Platinum 8558P 48C 350W 2.7GHz Processor	2	2	2	2	2	2
None	BYWE	Intel Xeon Platinum 8558U 48C 300W 2.0GHz Processor	1	1	1	1	1	1
None	BYW2	Intel Xeon Platinum 8562Y+ 32C 300W 2.8GHz Processor	2	2	2	2	2	2
None	BYWF	Intel Xeon Platinum 8568Y+ 48C 350W 2.3GHz Processor	2	2	2	2	2	2
None	BYWG	Intel Xeon Platinum 8570 56C 350W 2.1GHz Processor	2	2	2	2	2	2
None	BYWD	Intel Xeon Platinum 8571N 52C 300W 2.4GHz Processor	1	1	1	1	1	1
None	BYWH	Intel Xeon Platinum 8580 60C 350W 2.0GHz Processor	2	2	2	2	2	2
None	BYWC	Intel Xeon Platinum 8581V 60C 270W 2.0GHz Processor	1	1	1	1	1	1
None	BYWJ	Intel Xeon Platinum 8592+ 64C 350W 1.9GHz Processor	2	2	2	2	2	2
None	BYWB	Intel Xeon Platinum 8592V 64C 330W 2.0GHz Processor	2	2	2	2	2	2

4th Gen Intel Xeon Scalable processors

The VX650 V3 systems support the following processors. The systems support 1 or 2 processors installed.

For details about these options, including configuration rules, see the SR650 V3 product guide:

<https://lenovopress.com/lp1601-thinksystem-sr650-v3-server#processors>

Table 6. Sapphire Rapids Processor choices

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
None	BXHX	Intel Xeon 5423N 20C 145W 2.1GHz Processor	1	1	1	1	1	1
None	BXHY	Intel Xeon 5433N 20C 160W 2.3GHz Processor	1	1	1	1	1	1

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
None	BYQK	Intel Xeon 6403N 24C 185W 1.9GHz Processor	1	1	1	1	1	1
None	BYQH	Intel Xeon 6423N 28C 195W 2.0GHz Processor	1	1	1	1	1	1
None	BYQJ	Intel Xeon 6433N 32C 205W 2.0GHz Processor	1	1	1	1	1	1
None	BYQG	Intel Xeon 6443N 32C 195W 1.6GHz Processor	1	1	1	1	1	1
None	BQ68	Intel Xeon Bronze 3408U 8C 125W 1.8GHz Processor	1	1	No	1	1	No
None	BQ64	Intel Xeon Silver 4410T 10C 150W 2.7GHz Processor	2	2	2	2	2	2
None	BQ67	Intel Xeon Silver 4410Y 12C 150W 2.0GHz Processor	2	2	2	2	2	2
None	BQ69	Intel Xeon Silver 4416+ 20C 165W 2.0GHz Processor	2	2	2	2	2	2
None	BQ6J	Intel Xeon Gold 5411N 24C 165W 1.9GHz Processor	1	1	No	1	1	No
None	BU1V	Intel Xeon Gold 5412U 24C 185W 2.1GHz Processor	1	1	No	1	1	No
None	BQ63	Intel Xeon Gold 5415+ 8C 150W 2.9GHz Processor	2	2	2	2	2	2
None	BQ6L	Intel Xeon Gold 5416S 16C 150W 2.0GHz Processor	2	2	2	2	2	2
None	BQ6H	Intel Xeon Gold 5418N 24C 165W 1.8GHz Processor	2	2	2	2	2	2
None	BQ66	Intel Xeon Gold 5418Y 24C 185W 2.0GHz Processor	2	2	2	2	2	2
None	BQ65	Intel Xeon Gold 5420+ 28C 205W 2.0GHz Processor	2	2	2	2	2	2
None	BPPD	Intel Xeon Gold 6414U 32C 250W 2.0GHz Processor	1	1	No	1	1	No
None	BQ6C	Intel Xeon Gold 6416H 18C 165W 2.2GHz Processor	2	2	2	2	2	2
None	BQ6B	Intel Xeon Gold 6418H 24C 185W 2.1GHz Processor	2	2	2	2	2	2
None	BQ6G	Intel Xeon Gold 6421N 32C 185W 1.8GHz Processor	1	1	No	1	1	No
None	BPQF	Intel Xeon Gold 6426Y 16C 185W 2.5GHz Processor	2	2	2	2	2	2
None	BQ6F	Intel Xeon Gold 6428N 32C 185W 1.8GHz Processor	2	2	2	2	2	2
None	BPPC	Intel Xeon Gold 6430 32C 270W 2.1GHz Processor	2	2	2	2	2	2
None	BPQC	Intel Xeon Gold 6434 8C 195W 3.7GHz Processor	2	2	2	2	2	2
None	BQ6E	Intel Xeon Gold 6434H 8C 195W 3.7GHz Processor	2	2	2	2	2	2
None	BQ6K	Intel Xeon Gold 6438M 32C 205W 2.2GHz Processor	2	2	2	2	2	2
None	BQ6D	Intel Xeon Gold 6438N 32C 205W 2.0GHz Processor	2	2	2	2	2	2
None	BQ62	Intel Xeon Gold 6438Y+ 32C 205W 2.0GHz Processor	2	2	2	2	2	2
None	BPQE	Intel Xeon Gold 6442Y 24C 225W 2.6GHz Processor	2	2	2	2	2	2
None	BPQB	Intel Xeon Gold 6444Y 16C 270W 3.6GHz Processor	2	2	2	2	2	2
None	BQ6A	Intel Xeon Gold 6448H 32C 250W 2.4GHz Processor	2	2	2	2	2	2
None	BPQD	Intel Xeon Gold 6448Y 32C 225W 2.1GHz Processor	2	2	2	2	2	2
None	BPPM	Intel Xeon Gold 6454S 32C 270W 2.2GHz Processor	2	2	2	2	2	2

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
None	BPPH	Intel Xeon Platinum 8444H 16C 270W 2.9GHz Processor	2	2	2	2	2	2
None	BPPG	Intel Xeon Platinum 8450H 28C 250W 2.0GHz Processor	2	2	2	2	2	2
None	BPPB	Intel Xeon Platinum 8452Y 36C 300W 2.0GHz Processor	2	2	2	2	2	2
None	BPPF	Intel Xeon Platinum 8454H 32C 270W 2.1GHz Processor	2	2	2	2	2	2
None	BPPT	Intel Xeon Platinum 8458P 44C 350W 2.7GHz Processor	2	2	2	2	2	2
None	BPPN	Intel Xeon Platinum 8460H 40C 330W 2.2GHz Processor	2	2	2	2	2	2
None	BPPQ	Intel Xeon Platinum 8460Y+ 40C 300W 2.0GHz Processor	2	2	2	2	2	2
None	BPPK	Intel Xeon Platinum 8461V 48C 300W 2.2GHz Processor	1	1	No	1	1	No
None	BPQA	Intel Xeon Platinum 8462Y+ 32C 300W 2.8GHz Processor	2	2	2	2	2	2
None	BPPU	Intel Xeon Platinum 8468 48C 350W 2.1GHz Processor	2	2	2	2	2	2
None	BPPE	Intel Xeon Platinum 8468H 48C 330W 2.1GHz Processor	2	2	2	2	2	2
None	BPPP	Intel Xeon Platinum 8468V 48C 330W 2.4GHz Processor	2	2	2	2	2	2
None	BN0N	Intel Xeon Platinum 8470 52C 350W 2.0GHz Processor	2	2	2	2	2	2
None	BPPJ	Intel Xeon Platinum 8470N 52C 300W 1.7GHz Processor	2	2	2	2	2	2
None	BPPR	Intel Xeon Platinum 8471N 52C 300W 1.8GHz Processor	1	1	No	1	1	No
None	BN0M	Intel Xeon Platinum 8480+ 56C 350W 2.0GHz Processor	2	2	2	2	2	2
None	BPPS	Intel Xeon Platinum 8490H 60C 350W 1.9GHz Processor	2	2	2	2	2	2

Memory

5th Generation Memory options

The VX650 V3 systems support the following 5th generation memory options.

For details about these options, including configuration rules, see the SR650 V3 product guide:
<https://lenovopress.com/lp1601-thinksystem-sr650-v3-server#memory-options>

Table 7. Emerald Rapids Memory options

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
RDIMMs - 5600 MHz								
4X77A90991	BZ4U	ThinkSystem 32GB TruDDR5 Performance+ 5600MHz (2Rx8) RDIMM	32	32	32	32	32	32
4X77A90992	BZ4V	ThinkSystem 64GB TruDDR5 Performance+ 5600MHz (2Rx4) 10x4 RDIMM	32	32	32	32	32	32
4X77A88050	BWJF	ThinkSystem 32GB TruDDR5 5600MHz (1Rx4) 9x4 RDIMM	32	32	32	32	32	32
4X77A88053	BWHT	ThinkSystem 64GB TruDDR5 5600MHz (2Rx4) 9x4 RDIMM	32	32	32	32	32	32
4X77A88640	BX8Z	ThinkSystem 96GB TruDDR5 5600MHz (2Rx4) 9x4 RDIMM	32	32	32	32	32	32
4X77A88049	BWHW	ThinkSystem 32GB TruDDR5 5600MHz (1Rx4) 10x4 RDIMM	32	32	32	32	32	32
4X77A88052	BWHS	ThinkSystem 64GB TruDDR5 5600MHz (2Rx4) 10x4 RDIMM	32	32	32	32	32	32
4X77A88639	BX8Y	ThinkSystem 48GB TruDDR5 5600MHz (1Rx4) 10x4 RDIMM	32	32	32	32	32	32
4X77A88058	BWHV	ThinkSystem 96GB TruDDR5 5600MHz (2Rx4) RDIMM	32	32	32	32	32	32
4X77A88087	BWJE	ThinkSystem 16GB TruDDR5 5600MHz (1Rx8) RDIMM	32	32	32	32	32	32
4X77A88051	BWJC	ThinkSystem 32GB TruDDR5 5600MHz (2Rx8) RDIMM	32	32	32	32	32	32
4X77A88056	BWSL	ThinkSystem 24GB TruDDR5 5600MHz (1Rx8) RDIMM	32	32	32	32	32	32
4X77A88057	BWJD	ThinkSystem 48GB TruDDR5 5600MHz (2Rx8) RDIMM	32	32	32	32	32	32
3DS RDIMMs - 5600 MHz								
4X77A88054	BWHU	ThinkSystem 128GB TruDDR5 5600MHz (4Rx4) 3DS RDIMM	32	32	32	32	32	32

4th Generation Memory options

The VX650 V3 systems support the following 4th generation memory options.

For details about these options, including configuration rules, see the SR650 V3 product guide:
<https://lenovopress.com/lp1601-thinksystem-sr650-v3-server#memory-options>

Table 8. Sapphire Rapids Memory options

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
RDIMMs								
4X77A77029	BKTL	ThinkSystem 16GB TruDDR5 4800MHz (1Rx8) RDIMM	32	32	32	32	32	32
4X77A77030	BNF6	ThinkSystem 32GB TruDDR5 4800MHz (1Rx4) 10x4 RDIMM	32	32	32	32	32	32
4X77A77483	BNW5	ThinkSystem 32GB TruDDR5 4800MHz (1Rx4) 9x4 RDIMM	32	32	32	32	32	32
4X77A77031	BKTM	ThinkSystem 32GB TruDDR5 4800MHz (2Rx8) RDIMM	32	32	32	32	32	32
4X77A77032	BNF9	ThinkSystem 64GB TruDDR5 4800MHz (2Rx4) 10x4 RDIMM	32	32	32	32	32	32
4X77A77033	BKTN	ThinkSystem 64GB TruDDR5 4800MHz (2Rx4) 9x4 RDIMM	32	32	32	32	32	32
3DS RDIMMs								
4X77A77034	BNFC	ThinkSystem 128GB TruDDR5 4800MHz (4Rx4) 3DS RDIMM v2	32	32	32	32	32	32
CTO Only	BY8F	ThinkSystem 128GB TruDDR5 4800MHz (4Rx4) 3DS RDIMM v1	32	32	32	32	32	32
4X77A77035	BNF8	ThinkSystem 256GB TruDDR5 4800MHz (8Rx4) 3DS RDIMM	32	32	32	32	32	32

Disk Groups

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

Table 9. Disk Groups

Drive Selection Rules	VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650V3 DPU IS	VX650V3 DPU CN	VX650 V3-DPU SAP HANA Certified Node
Model Type	Hybrid (HY) All Flash (AF)	Hybrid (HY) All Flash (AF)	All Flash (AF)	Hybrid (HY) All Flash (AF)	Hybrid (HY) All Flash (AF)	All Flash (AF)
Maximum number of drives	32	32	32	32	32	32
Number of Disk Groups	1 - 5	1 - 5	2-4	1 - 5	1 - 5	2-4
Number of Cache Drives per Disk Group	1	1	1	1	1	1
Number of Capacity Drives per Disk Group	2 - 7	2 - 7	2-7	2 - 7	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	Not Supported	2, 3, 4, 5, 6 or 7	2, 3, 4, 5, 6 or 7	Not Supported
2 Disk Groups (2 Cache Drives)	4, 6, 8, 10, 12 or 14	4, 6, 8, 10, 12 or 14	4, 6, 8, 10, 12 or 14	4, 6, 8, 10, 12 or 14	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	6, 9, 12, 15, 18 or 21	6, 9, 12, 15, 18 or 21	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	8, 12, 16, 20, 24 or 28	8, 12, 16, 20, 24 or 28	8, 12, 16, 20, 24 or 28	8, 12, 16, 20, 24 or 28
5 Disk Groups (5 Cache Drives)	10, 15, 20, 25	10, 15, 20, 25	Not Supported	10, 15, 20, 25	10, 15, 20, 25	Not Supported

Internal storage

The VX650 V3 have three drive bay zones and supports up to 20x 3.5-inch or 40x 2.5-inch hot-swap drive bays or a combination of drive bays, depending on the selected chassis and backplane configuration. The server also supports configurations without any drive bays if desired.

The three drive bay zones are as follows:

- Front:
 - Up to 12x 3.5-inch hot-swap bays, or
 - Up to 24x 2.5-inch hot-swap bays
- Middle:
 - 4x 3.5-inch hot-swap bays, or
 - 8x 2.5-inch hot-swap bays
- Rear:
 - Up to 4x 3.5-inch hot-swap bays, or
 - Up to 8x 2.5-inch hot-swap bays
 - Also supports 2x 7mm hot-swap drives bays

All drives are hot-swap and are accessible from the front, from the rear, or from drive bays that are located in the middle of the server (accessible when you remove the top cover of the server).

The server also supports one or two M.2 drives, installed in an M.2 adapter internal to the server.

For details about NVMe drives see the the SR650 V3 product guide:

<https://lenovopress.lenovo.com/lp1601-thinksystem-sr650-v3-server#nvme-drive-support>

For details about these options, including configuration rules, see the SR650 V3 product guide:

<https://lenovopress.com/lp1601-thinksystem-sr650-v3-server#internal-storage>

Table 10. Drive backplanes

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
Front 3.5-inch drive backplanes								
None	B8L3	ThinkSystem 1U/2U 4x3.5" SAS/SATA Backplane	1	1	No	1	1	No
None	B8LP	ThinkSystem 2U 8x3.5" SAS/SATA Backplane	1	1	No	1	1	No
None	BPL8	ThinkSystem 2U 8x3.5" SAS/SATA+4 AnyBay Backplane	1	1	No	1	1	No
None	BPL9	ThinkSystem 2U 8x3.5" SAS/SATA+4 NVMe Backplane	1	1	No	1	1	No
None	B8LT	ThinkSystem 2U 12x3.5" SAS/SATA Backplane	1	1	No	1	1	No
Front 2.5-inch drive backplanes								
None	B8LV	ThinkSystem 2U 4x2.5" SAS/SATA Backplane	1	1	1	1	1	1
None	B8LU	ThinkSystem 2U 8x2.5" SAS/SATA Backplane	3	3	3	3	3	3
None	BH8B	ThinkSystem 2U/4U 8x2.5" AnyBay Backplane	3	3	3	3	3	3
None	BH8D	ThinkSystem 2U/4U 8x2.5" NVMe Backplane	3	3	3	3	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	1	1	1	1
Mid - 3.5-inch drive backplanes								
None	BCQK	ThinkSystem 2U 4x3.5" SAS/SATA Middle Backplane	1	1	No	1	1	No
Mid - 2.5-inch drive backplanes								
None	BDY7	ThinkSystem 2U 4x2.5" Middle NVMe Backplane	2	2	2	2	2	2
None	BCQL	ThinkSystem 2U 4x2.5" SAS/SATA Middle Backplane	2	2	2	2	2	2
Rear - 3.5-inch drive backplanes								
None	BAG7	ThinkSystem 2U 2x3.5" SAS/SATA Rear Backplane	1	1	No	1	1	No
Rear - 2.5-inch drive backplanes								
None	B97X	ThinkSystem 2U 8x2.5" SAS/SATA Rear Backplane	1	1	1	1	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/enablement kits for M.2 and 7mm boot drives.

For details about these options, including configuration rules, see the SR650 V3 product guide: <https://lenovopress.com/lp1601-thinksystem-sr650-v3-server#internal-storage>

Table 11. Boot Drive Enablement

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
M.2 enablement kits								
4Y37A09750	B8P9	ThinkSystem M.2 NVMe 2-Bay RAID Adapter	1	1	1	1	1	1
4Y37A90063	BYFF	ThinkSystem M.2 RAID B540i-2i SATA/NVMe Adapter	1	1	1	1	1	1
7mm enablement kits								
4XH7A61058	B8P3	ThinkSystem 2U 7mm Drive Kit w/ NVMe RAID	1	1	1	1	1	1
4Y37A90062	BYFG	ThinkSystem 7mm SATA/NVMe 2-Bay Rear Hot-Swap RAID Enablement Kit	1	1	1	1	1	1

Controllers for internal storage

The VX650 V3 support the following storage controller options.

For details about these options, including configuration rules, see the SR650 V3 product guide:
<https://lenovopress.com/lp1601-thinksystem-sr650-v3-server#controllers-for-internal-storage>

Table 12. Controllers for internal storage

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
SAS/SATA HBA - PCIe 4.0								
None	BM50	ThinkSystem 440-16i SAS/SATA PCIe Gen4 12Gb HBA	2	2	2	2	2	2
None	BM51	ThinkSystem 440-8i SAS/SATA PCIe Gen4 12Gb HBA	4	4	4	4	4	4
4Y37A09725	B8P1	ThinkSystem 440-16i SAS/SATA PCIe Gen4 12Gb Internal HBA	1	1	1	1	1	1
SAS/SATA HBA - PCIe 3.0								
4Y37A72481	BJHJ	ThinkSystem 4350-16i SAS/SATA 12Gb HBA	2	2	2	2	2	2
4Y37A72480	BJHH	ThinkSystem 4350-8i SAS/SATA 12Gb HBA	4	4	4	4	4	4
NVMe adapters								
4C57A65446	B98C	ThinkSystem 4-Port PCIe Gen4 NVMe Retimer Adapter	3	3	3	3	3	3

Internal drive options

This section lists the supported drives:

- [Boot drives](#)
- [Internal drives for VX650 V3 Integrated System](#)
- [Internal drives for VX650 V3 Certified Node](#)
- [Internal drives for VX650 V3 SAP HANA Certified Node](#)
- [Internal drives for VX650 V3 DPU Integrated System](#)
- [Internal drives for VX650 V3 DPU Certified Node](#)
- [Internal drives for VX650 V3-DPU SAP HANA Certified Node](#)

Configuration Note:

- VMware will no longer support higher capacity hard drives greater than 8TB
- Express Storage Architecture (ESA) supports a minimum of 1 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 VX650 V3 systems support the following drive for boot functions.

Table 13. Boot drives

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
7mm 6 Gb SATA SSDs								
4XB7A82264	BQ1U	ThinkSystem 7mm 5400 PRO 240GB Read Intensive SATA 6Gb HS SSD	2	2	2	2	2	2
4XB7A82265	BQ1V	ThinkSystem 7mm 5400 PRO 480GB Read Intensive SATA 6Gb HS SSD	2	2	2	2	2	2
4XB7A82266	BQ1W	ThinkSystem 7mm 5400 PRO 960GB Read Intensive SATA 6Gb HS SSD	2	2	2	2	2	2
4XB7A17106	BK79	ThinkSystem 7mm S4520 240GB Read Intensive SATA 6Gb HS SSD	2	2	2	2	2	2
4XB7A17107	BK7A	ThinkSystem 7mm S4520 480GB Read Intensive SATA 6Gb HS SSD	2	2	2	2	2	2

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
4XB7A17108	BK7B	ThinkSystem 7mm S4520 960GB Read Intensive SATA 6Gb HS SSD	2	2	2	2	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	2	2	2	2
4XB7A82855	BPZ5	ThinkSystem 7mm U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	2	2	2	2	2	2
4XB7A82856	BPZ6	ThinkSystem 7mm U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	2	2	2	2	2	2
M.2 6 Gb SATA SSDs								
4XB7A82286	BQ1Z	ThinkSystem M.2 5400 PRO 240GB Read Intensive SATA 6Gb NHS SSD	2	2	1	2	2	2
4XB7A82287	BQ1Y	ThinkSystem M.2 5400 PRO 480GB Read Intensive SATA 6Gb NHS SSD	2	2	2	2	2	2
4XB7A82288	BQ20	ThinkSystem M.2 5400 PRO 960GB Read Intensive SATA 6Gb NHS SSD	2	2	2	2	2	2
4XB7A89422	BYF7	ThinkSystem M.2 ER3 240GB Read Intensive SATA 6Gb NHS SSD	2	2	2	2	2	2
4XB7A90049	BYF8	ThinkSystem M.2 ER3 480GB Read Intensive SATA 6Gb NHS SSD	2	2	2	2	2	2
4XB7A90230	BYF9	ThinkSystem M.2 ER3 960GB Read Intensive SATA 6Gb NHS SSD	2	2	2	2	2	2
M.2 PCIe 4.0 NVMe Drives								
4XB7A13999	BKSR	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	2	2	2	2	2	2
4XB7A90102	BXMH	ThinkSystem M.2 PM9A3 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	2	2	2	2	2	2

Internal drives for VX650 V3 Integrated System

The following table lists the drives support in the VX650 V3 Integrated System. For both All Flash Storage and Hybrid Storage configurations, drives are classified as either Cache drives, Capacity drives, or both.

Configuration Note: CORE needed for 40 dive configurations and needed for 3.5" Mixed USE NVMe drives.

Table 14. Drives supported in the VX650 V3 Integrated System

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 SAS SSDs							
4XB7A82289	BQ21	ThinkSystem 2.5" 5400 MAX 480GB Mixed Use SATA 6Gb HS SSD	No	No	32	32	No
4XB7A82290	BQ24	ThinkSystem 2.5" 5400 MAX 960GB Mixed Use SATA 6Gb HS SSD	No	No	32	32	No
4XB7A82291	BQ22	ThinkSystem 2.5" 5400 MAX 1.92TB Mixed Use SATA 6Gb HS SSD	No	No	32	32	No
4XB7A82292	BQ23	ThinkSystem 2.5" 5400 MAX 3.84TB Mixed Use SATA 6Gb HS SSD	No	No	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

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
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
4XB7A72439	BM8A	ThinkSystem 2.5" PM893 960GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A72441	BM88	ThinkSystem 2.5" PM893 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
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	24	No	32	No	No
4XB7A13942	BMGE	ThinkSystem 2.5" U.2 P5520 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A13943	BNEF	ThinkSystem 2.5" U.2 P5520 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A13631	BNEQ	ThinkSystem 2.5" U.2 P5520 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A17129	BNEG	ThinkSystem 2.5" U.2 P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	32	No
4XB7A17130	BNEH	ThinkSystem 2.5" U.2 P5620 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	32	No

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A17133	BNEZ	ThinkSystem 2.5" U.2 P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	32	No
4XB7A17136	BA4V	ThinkSystem 2.5" U.2 P5620 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	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
4XB7A13967	BNEJ	ThinkSystem 2.5" U.3 7450 MAX 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	32	32	No	No
4XB7A13970	BNEY	ThinkSystem 2.5" U.3 7450 MAX 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	No	No
4XB7A13971	BNEL	ThinkSystem 2.5" U.3 7450 MAX 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	No	No
4XB7A84056	BRG0	ThinkSystem 2.5" U.3 7450 MAX 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	No	No	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
4XB7A79647	BNF2	ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	32	No	No
4XB7A79648	BNF5	ThinkSystem 2.5" U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A79649	BNF4	ThinkSystem 2.5" U.3 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A83097	BQAV	ThinkSystem 2.5" U.3 7450 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	No	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

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
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	No
4XB7A17120	BA7M	ThinkSystem 3.5" S4520 960GB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
4XB7A17121	BA7N	ThinkSystem 3.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
4XB7A17122	BK7F	ThinkSystem 3.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
4XB7A17123	BK7G	ThinkSystem 3.5" S4520 7.68TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
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							
4XB7A13632	BNES	ThinkSystem 3.5" U.2 P5520 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	12	No	No
4XB7A76777	BNET	ThinkSystem 3.5" U.2 P5520 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	12	No	No

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
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
4XB7A17141	BNEK	ThinkSystem 3.5" U.2 P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	No
4XB7A17143	BNEM	ThinkSystem 3.5" U.2 P5620 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	No
4XB7A17144	BNEN	ThinkSystem 3.5" U.2 P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	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
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

Internal drives for VX650 V3 Certified Node

The following table lists the drives support in the VX650 V3 Certified Node. For both All Flash Storage and Hybrid Storage configurations, drives are classified as either Cache drives, Capacity drives, or both.

Configuration Note: CORE needed for 40 dive configurations and needed for 3.5" Mixed USE NVMe drives.

Table 15. Drives supported in the VX650 V3 Certified Node

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

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
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 SAS SSDs							
4XB7A82289	BQ21	ThinkSystem 2.5" 5400 MAX 480GB Mixed Use SATA 6Gb HS SSD	No	No	32	32	No
4XB7A82290	BQ24	ThinkSystem 2.5" 5400 MAX 960GB Mixed Use SATA 6Gb HS SSD	No	No	32	32	No
4XB7A82291	BQ22	ThinkSystem 2.5" 5400 MAX 1.92TB Mixed Use SATA 6Gb HS SSD	No	No	32	32	No
4XB7A82292	BQ23	ThinkSystem 2.5" 5400 MAX 3.84TB Mixed Use SATA 6Gb HS SSD	No	No	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
4XB7A72439	BM8A	ThinkSystem 2.5" PM893 960GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A72441	BM88	ThinkSystem 2.5" PM893 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

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
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
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	24	No	32	No	No
4XB7A13942	BMGE	ThinkSystem 2.5" U.2 P5520 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A13943	BNEF	ThinkSystem 2.5" U.2 P5520 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A13631	BNEQ	ThinkSystem 2.5" U.2 P5520 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A17129	BNEG	ThinkSystem 2.5" U.2 P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	32	No
4XB7A17130	BNEH	ThinkSystem 2.5" U.2 P5620 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	32	No
4XB7A17133	BNEZ	ThinkSystem 2.5" U.2 P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	32	No
4XB7A17136	BA4V	ThinkSystem 2.5" U.2 P5620 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	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

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A13967	BNEJ	ThinkSystem 2.5" U.3 7450 MAX 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	32	32	No	No
4XB7A13970	BNEY	ThinkSystem 2.5" U.3 7450 MAX 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	No	No
4XB7A13971	BNEL	ThinkSystem 2.5" U.3 7450 MAX 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	No	No
4XB7A84056	BRG0	ThinkSystem 2.5" U.3 7450 MAX 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	No	No	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
4XB7A79647	BNF2	ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	32	No	No
4XB7A79648	BNF5	ThinkSystem 2.5" U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A79649	BNF4	ThinkSystem 2.5" U.3 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A83097	BQAV	ThinkSystem 2.5" U.3 7450 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	No	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

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
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	No
4XB7A17120	BA7M	ThinkSystem 3.5" S4520 960GB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
4XB7A17121	BA7N	ThinkSystem 3.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
4XB7A17122	BK7F	ThinkSystem 3.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
4XB7A17123	BK7G	ThinkSystem 3.5" S4520 7.68TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
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							
4XB7A13632	BNES	ThinkSystem 3.5" U.2 P5520 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	12	No	No
4XB7A76777	BNET	ThinkSystem 3.5" U.2 P5520 3.84TB 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
4XB7A17141	BNEK	ThinkSystem 3.5" U.2 P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	No
4XB7A17143	BNEM	ThinkSystem 3.5" U.2 P5620 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	No
4XB7A17144	BNEN	ThinkSystem 3.5" U.2 P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	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

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
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

Internal drives for VX650 V3 SAP HANA Certified Node

The following table lists the drives support in the VX650 V3 SAP HANA Certified Node. For All Flash Storage configurations, drives are classified as either Cache drives, Capacity drives, or both.

Configuration Note: CORE needed for 40 drive configurations

Table 16. Drives supported in the VX650 V3 SAP HANA Certified Node

Part number	Feature	Description	All Flash	All Flash	
			ESA	Cache	Capacity
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
4XB7A80319	BNWE	ThinkSystem 2.5" PM1653 1.92TB Read Intensive SAS 24Gb HS SSD	No	No	32
4XB7A80320	BNWF	ThinkSystem 2.5" PM1653 3.84TB Read Intensive SAS 24Gb HS SSD	No	No	32
4XB7A80321	BP3E	ThinkSystem 2.5" PM1653 7.68TB Read Intensive SAS 24Gb HS SSD	No	No	32
4XB7A80322	BP3J	ThinkSystem 2.5" PM1653 15.36TB Read Intensive SAS 24Gb HS SSD	No	No	32
4XB7A80323	BP3D	ThinkSystem 2.5" PM1653 30.72TB Read Intensive SAS 24Gb HS SSD	No	No	32
4XB7A80340	BNW8	ThinkSystem 2.5" PM1655 800GB Mixed Use SAS 24Gb HS SSD	No	32	32
4XB7A80341	BNW9	ThinkSystem 2.5" PM1655 1.6TB Mixed Use SAS 24Gb HS SSD	No	32	32
4XB7A80342	BNW6	ThinkSystem 2.5" PM1655 3.2TB Mixed Use SAS 24Gb HS SSD	No	32	32
4XB7A80343	BP3K	ThinkSystem 2.5" PM1655 6.4TB Mixed Use SAS 24Gb HS SSD	No	32	32
2.5-inch hot-swap 6 Gb SAS SSDs					
4XB7A82289	BQ21	ThinkSystem 2.5" 5400 MAX 480GB Mixed Use SATA 6Gb HS SSD	No	No	32

Part number	Feature	Description	All Flash	All Flash	
			ESA	Cache	Capacity
4XB7A82290	BQ24	ThinkSystem 2.5" 5400 MAX 960GB Mixed Use SATA 6Gb HS SSD	No	No	32
4XB7A82291	BQ22	ThinkSystem 2.5" 5400 MAX 1.92TB Mixed Use SATA 6Gb HS SSD	No	No	32
4XB7A82292	BQ23	ThinkSystem 2.5" 5400 MAX 3.84TB Mixed Use SATA 6Gb HS SSD	No	No	32
4XB7A82258	BQ1Q	ThinkSystem 2.5" 5400 PRO 240GB Read Intensive SATA 6Gb HS SSD	No	No	32
4XB7A82259	BQ1P	ThinkSystem 2.5" 5400 PRO 480GB Read Intensive SATA 6Gb HS SSD	No	No	32
4XB7A82260	BQ1R	ThinkSystem 2.5" 5400 PRO 960GB Read Intensive SATA 6Gb HS SSD	No	No	32
4XB7A82261	BQ1X	ThinkSystem 2.5" 5400 PRO 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	32
4XB7A82262	BQ1S	ThinkSystem 2.5" 5400 PRO 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	32
4XB7A82263	BQ1T	ThinkSystem 2.5" 5400 PRO 7.68TB Read Intensive SATA 6Gb HS SSD	No	No	32
4XB7A72439	BM8A	ThinkSystem 2.5" PM893 960GB Read Intensive SATA 6Gb HS SSD	No	No	32
4XB7A72441	BM88	ThinkSystem 2.5" PM893 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	32
4XB7A17101	BA7G	ThinkSystem 2.5" S4520 480GB Read Intensive SATA 6Gb HS SSD	No	No	32
4XB7A17102	BA7H	ThinkSystem 2.5" S4520 960GB Read Intensive SATA 6Gb HS SSD	No	No	32
4XB7A17103	BA7J	ThinkSystem 2.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	32
4XB7A17104	BK77	ThinkSystem 2.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	32
4XB7A17105	BK78	ThinkSystem 2.5" S4520 7.68TB Read Intensive SATA 6Gb HS SSD	No	No	32
4XB7A17125	BA7Q	ThinkSystem 2.5" S4620 480GB Mixed Use SATA 6Gb HS SSD	No	32	32
4XB7A17126	BA4T	ThinkSystem 2.5" S4620 960GB Mixed Use SATA 6Gb HS SSD	No	32	32
4XB7A17127	BA4U	ThinkSystem 2.5" S4620 1.92TB Mixed Use SATA 6Gb HS SSD	No	32	32
4XB7A17128	BK7L	ThinkSystem 2.5" S4620 3.84TB Mixed Use SATA 6Gb HS SSD	No	32	32
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	24	No	32
4XB7A13942	BMGE	ThinkSystem 2.5" U.2 P5520 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32

Part number	Feature	Description	All Flash	All Flash	
			ESA	Cache	Capacity
4XB7A13943	BNEF	ThinkSystem 2.5" U.2 P5520 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32
4XB7A13631	BNEQ	ThinkSystem 2.5" U.2 P5520 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32
4XB7A17129	BNEG	ThinkSystem 2.5" U.2 P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32
4XB7A17130	BNEH	ThinkSystem 2.5" U.2 P5620 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32
4XB7A17133	BNEZ	ThinkSystem 2.5" U.2 P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32
4XB7A17136	BA4V	ThinkSystem 2.5" U.2 P5620 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	No	32
4XB7A17158	BKKY	ThinkSystem 2.5" U.2 P5800X 400GB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	32	32
4XB7A17159	BKKZ	ThinkSystem 2.5" U.2 P5800X 800GB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	32	32
4XB7A17160	BMM8	ThinkSystem 2.5" U.2 P5800X 1.6TB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	32	32
4XB7A79639	BNF1	ThinkSystem 2.5" U.3 7450 MAX 800GB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	32	32
4XB7A13967	BNEJ	ThinkSystem 2.5" U.3 7450 MAX 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	32	32
4XB7A13970	BNEY	ThinkSystem 2.5" U.3 7450 MAX 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32
4XB7A13971	BNEL	ThinkSystem 2.5" U.3 7450 MAX 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32
4XB7A84056	BRG0	ThinkSystem 2.5" U.3 7450 MAX 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	No	No
4XB7A79646	BNF3	ThinkSystem 2.5" U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	32
4XB7A79647	BNF2	ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	32
4XB7A79648	BNF5	ThinkSystem 2.5" U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32
4XB7A79649	BNF4	ThinkSystem 2.5" U.3 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32
4XB7A83097	BQAV	ThinkSystem 2.5" U.3 7450 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	No

Internal drives for VX650 V3 DPU Integrated System

The following table lists the drives support in the VX650 V3 DPU Integrated System. For both All Flash Storage and Hybrid Storage configurations, drives are classified as either Cache drives, Capacity drives, or both.

Configuration Note: CORE needed for 40 dive configurations and needed for 3.5" Mixed USE NVMe drives.

Table 17. Drives supported in the VX650 V3 DPU Integrated System

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 SAS SSDs							
4XB7A82289	BQ21	ThinkSystem 2.5" 5400 MAX 480GB Mixed Use SATA 6Gb HS SSD	No	No	32	32	No
4XB7A82290	BQ24	ThinkSystem 2.5" 5400 MAX 960GB Mixed Use SATA 6Gb HS SSD	No	No	32	32	No
4XB7A82291	BQ22	ThinkSystem 2.5" 5400 MAX 1.92TB Mixed Use SATA 6Gb HS SSD	No	No	32	32	No
4XB7A82292	BQ23	ThinkSystem 2.5" 5400 MAX 3.84TB Mixed Use SATA 6Gb HS SSD	No	No	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
4XB7A82261	BQ1X	ThinkSystem 2.5" 5400 PRO 1.92TB 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
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
4XB7A72439	BM8A	ThinkSystem 2.5" PM893 960GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A72441	BM88	ThinkSystem 2.5" PM893 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
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	24	No	32	No	No
4XB7A13942	BMGE	ThinkSystem 2.5" U.2 P5520 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A13943	BNEF	ThinkSystem 2.5" U.2 P5520 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A13631	BNEQ	ThinkSystem 2.5" U.2 P5520 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A17129	BNEG	ThinkSystem 2.5" U.2 P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	32	No
4XB7A17130	BNEH	ThinkSystem 2.5" U.2 P5620 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	32	No
4XB7A17133	BNEZ	ThinkSystem 2.5" U.2 P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	32	No

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A17136	BA4V	ThinkSystem 2.5" U.2 P5620 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	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
4XB7A13967	BNEJ	ThinkSystem 2.5" U.3 7450 MAX 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	32	32	No	No
4XB7A13970	BNEY	ThinkSystem 2.5" U.3 7450 MAX 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	No	No
4XB7A13971	BNEL	ThinkSystem 2.5" U.3 7450 MAX 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	No	No
4XB7A84056	BRG0	ThinkSystem 2.5" U.3 7450 MAX 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	No	No	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
4XB7A79647	BNF2	ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	32	No	No
4XB7A79648	BNF5	ThinkSystem 2.5" U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A79649	BNF4	ThinkSystem 2.5" U.3 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A83097	BQAV	ThinkSystem 2.5" U.3 7450 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	No	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							

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
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	No
4XB7A17120	BA7M	ThinkSystem 3.5" S4520 960GB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
4XB7A17121	BA7N	ThinkSystem 3.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
4XB7A17122	BK7F	ThinkSystem 3.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
4XB7A17123	BK7G	ThinkSystem 3.5" S4520 7.68TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
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							
4XB7A13632	BNES	ThinkSystem 3.5" U.2 P5520 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	12	No	No
4XB7A76777	BNET	ThinkSystem 3.5" U.2 P5520 3.84TB 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

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A76779	BNF0	ThinkSystem 3.5" U.2 P5520 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	12	No	No
4XB7A17141	BNEK	ThinkSystem 3.5" U.2 P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	No
4XB7A17143	BNEM	ThinkSystem 3.5" U.2 P5620 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	No
4XB7A17144	BNEN	ThinkSystem 3.5" U.2 P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	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
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

Internal drives for VX650 V3 DPU Certified Node

The following table lists the drives support in the VX650 V3 DPU Certified Node. For both All Flash Storage and Hybrid Storage configurations, drives are classified as either Cache drives, Capacity drives, or both.

Configuration Note: CORE needed for 40 dive configurations and needed for 3.5" Mixed USE NVMe drives.

Table 18. Drives supported in the VX650 V3 DPU Certified Node

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	12
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

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
			4XB7A80321	BP3E	ThinkSystem 2.5" PM1653 7.68TB Read Intensive SAS 24Gb HS SSD	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 SAS SSDs							
4XB7A82289	BQ21	ThinkSystem 2.5" 5400 MAX 480GB Mixed Use SATA 6Gb HS SSD	No	No	32	32	No
4XB7A82290	BQ24	ThinkSystem 2.5" 5400 MAX 960GB Mixed Use SATA 6Gb HS SSD	No	No	32	32	No
4XB7A82291	BQ22	ThinkSystem 2.5" 5400 MAX 1.92TB Mixed Use SATA 6Gb HS SSD	No	No	32	32	No
4XB7A82292	BQ23	ThinkSystem 2.5" 5400 MAX 3.84TB Mixed Use SATA 6Gb HS SSD	No	No	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
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
4XB7A72439	BM8A	ThinkSystem 2.5" PM893 960GB Read Intensive SATA 6Gb HS SSD	No	No	32	No	No
4XB7A72441	BM88	ThinkSystem 2.5" PM893 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

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
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
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	24	No	32	No	No
4XB7A13942	BMGE	ThinkSystem 2.5" U.2 P5520 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A13943	BNEF	ThinkSystem 2.5" U.2 P5520 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A13631	BNEQ	ThinkSystem 2.5" U.2 P5520 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A17129	BNEG	ThinkSystem 2.5" U.2 P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	32	No
4XB7A17130	BNEH	ThinkSystem 2.5" U.2 P5620 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	32	No
4XB7A17133	BNEZ	ThinkSystem 2.5" U.2 P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	32	No
4XB7A17136	BA4V	ThinkSystem 2.5" U.2 P5620 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	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
4XB7A13967	BNEJ	ThinkSystem 2.5" U.3 7450 MAX 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	32	32	No	No
4XB7A13970	BNEY	ThinkSystem 2.5" U.3 7450 MAX 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	No	No

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A13971	BNEL	ThinkSystem 2.5" U.3 7450 MAX 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32	No	No
4XB7A84056	BRG0	ThinkSystem 2.5" U.3 7450 MAX 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	No	No	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
4XB7A79647	BNF2	ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	32	No	No
4XB7A79648	BNF5	ThinkSystem 2.5" U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A79649	BNF4	ThinkSystem 2.5" U.3 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32	No	No
4XB7A83097	BQAV	ThinkSystem 2.5" U.3 7450 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	No	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							

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A17119	BA7L	ThinkSystem 3.5" S4520 480GB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
4XB7A17120	BA7M	ThinkSystem 3.5" S4520 960GB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
4XB7A17121	BA7N	ThinkSystem 3.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
4XB7A17122	BK7F	ThinkSystem 3.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
4XB7A17123	BK7G	ThinkSystem 3.5" S4520 7.68TB Read Intensive SATA 6Gb HS SSD	No	No	20	No	No
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							
4XB7A13632	BNES	ThinkSystem 3.5" U.2 P5520 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	12	No	No
4XB7A76777	BNET	ThinkSystem 3.5" U.2 P5520 3.84TB 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
4XB7A17141	BNEK	ThinkSystem 3.5" U.2 P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	No
4XB7A17143	BNEM	ThinkSystem 3.5" U.2 P5620 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	No
4XB7A17144	BNEN	ThinkSystem 3.5" U.2 P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	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
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

Part number	Feature	Description	All Flash	All Flash		Hybrid	
			ESA	Cache	Capacity	Cache	Capacity
4XB7A77070	BMM6	ThinkSystem 3.5" U.2 P5800X 1.6TB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	12	12	No	No

Internal drives for VX650 V3-DPU SAP HANA Certified Node

The following table lists the drives support in the VX650 V3-DPU SAP HANA Certified Node. For All Flash Storage configurations, drives are classified as either Cache drives, Capacity drives, or both.

Configuration Note: CORE needed for 40 dive configurations

Table 19. Drives supported in the VX650 V3-DPU SAP HANA Certified Node

Part number	Feature	Description	All Flash	All Flash	
			ESA	Cache	Capacity
2.5-inch hot-swap 24 Gb SAS SSDs					
4XB7A80318	BNWC	ThinkSystem 2.5" PM1653 960GB Read Intensive SAS 24Gb HS SSD	No	No	40
4XB7A80319	BNWE	ThinkSystem 2.5" PM1653 1.92TB Read Intensive SAS 24Gb HS SSD	No	No	40
4XB7A80320	BNWF	ThinkSystem 2.5" PM1653 3.84TB Read Intensive SAS 24Gb HS SSD	No	No	40
4XB7A80321	BP3E	ThinkSystem 2.5" PM1653 7.68TB Read Intensive SAS 24Gb HS SSD	No	No	40
4XB7A80322	BP3J	ThinkSystem 2.5" PM1653 15.36TB Read Intensive SAS 24Gb HS SSD	No	No	40
4XB7A80323	BP3D	ThinkSystem 2.5" PM1653 30.72TB Read Intensive SAS 24Gb HS SSD	No	No	40
4XB7A80340	BNW8	ThinkSystem 2.5" PM1655 800GB Mixed Use SAS 24Gb HS SSD	No	40	40
4XB7A80341	BNW9	ThinkSystem 2.5" PM1655 1.6TB Mixed Use SAS 24Gb HS SSD	No	40	40
4XB7A80342	BNW6	ThinkSystem 2.5" PM1655 3.2TB Mixed Use SAS 24Gb HS SSD	No	40	40
4XB7A80343	BP3K	ThinkSystem 2.5" PM1655 6.4TB Mixed Use SAS 24Gb HS SSD	No	40	40
2.5-inch hot-swap 6 Gb SAS SSDs					
4XB7A82289	BQ21	ThinkSystem 2.5" 5400 MAX 480GB Mixed Use SATA 6Gb HS SSD	No	No	40
4XB7A82290	BQ24	ThinkSystem 2.5" 5400 MAX 960GB Mixed Use SATA 6Gb HS SSD	No	No	40
4XB7A82291	BQ22	ThinkSystem 2.5" 5400 MAX 1.92TB Mixed Use SATA 6Gb HS SSD	No	No	40
4XB7A82292	BQ23	ThinkSystem 2.5" 5400 MAX 3.84TB Mixed Use SATA 6Gb HS SSD	No	No	40

Part number	Feature	Description	All Flash	All Flash	
			ESA	Cache	Capacity
4XB7A82258	BQ1Q	ThinkSystem 2.5" 5400 PRO 240GB Read Intensive SATA 6Gb HS SSD	No	No	40
4XB7A82259	BQ1P	ThinkSystem 2.5" 5400 PRO 480GB Read Intensive SATA 6Gb HS SSD	No	No	40
4XB7A82260	BQ1R	ThinkSystem 2.5" 5400 PRO 960GB Read Intensive SATA 6Gb HS SSD	No	No	40
4XB7A82261	BQ1X	ThinkSystem 2.5" 5400 PRO 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	32
4XB7A82262	BQ1S	ThinkSystem 2.5" 5400 PRO 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	40
4XB7A82263	BQ1T	ThinkSystem 2.5" 5400 PRO 7.68TB Read Intensive SATA 6Gb HS SSD	No	No	40
4XB7A72439	BM8A	ThinkSystem 2.5" PM893 960GB Read Intensive SATA 6Gb HS SSD	No	No	40
4XB7A72441	BM88	ThinkSystem 2.5" PM893 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	40
4XB7A17101	BA7G	ThinkSystem 2.5" S4520 480GB Read Intensive SATA 6Gb HS SSD	No	No	40
4XB7A17102	BA7H	ThinkSystem 2.5" S4520 960GB Read Intensive SATA 6Gb HS SSD	No	No	40
4XB7A17103	BA7J	ThinkSystem 2.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD	No	No	40
4XB7A17104	BK77	ThinkSystem 2.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD	No	No	40
4XB7A17105	BK78	ThinkSystem 2.5" S4520 7.68TB Read Intensive SATA 6Gb HS SSD	No	No	40
4XB7A17125	BA7Q	ThinkSystem 2.5" S4620 480GB Mixed Use SATA 6Gb HS SSD	No	40	40
4XB7A17126	BA4T	ThinkSystem 2.5" S4620 960GB Mixed Use SATA 6Gb HS SSD	No	40	40
4XB7A17127	BA4U	ThinkSystem 2.5" S4620 1.92TB Mixed Use SATA 6Gb HS SSD	No	40	40
4XB7A17128	BK7L	ThinkSystem 2.5" S4620 3.84TB Mixed Use SATA 6Gb HS SSD	No	40	40
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	24	No	32
4XB7A13942	BMGE	ThinkSystem 2.5" U.2 P5520 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32
4XB7A13943	BNEF	ThinkSystem 2.5" U.2 P5520 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32
4XB7A13631	BNEQ	ThinkSystem 2.5" U.2 P5520 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32
4XB7A17129	BNEG	ThinkSystem 2.5" U.2 P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32

Part number	Feature	Description	All Flash	All Flash	
			ESA	Cache	Capacity
4XB7A17130	BNEH	ThinkSystem 2.5" U.2 P5620 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32
4XB7A17133	BNEZ	ThinkSystem 2.5" U.2 P5620 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32
4XB7A17136	BA4V	ThinkSystem 2.5" U.2 P5620 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	No	32
4XB7A17158	BKKY	ThinkSystem 2.5" U.2 P5800X 400GB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	32	32
4XB7A17159	BKKZ	ThinkSystem 2.5" U.2 P5800X 800GB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	32	32
4XB7A17160	BMM8	ThinkSystem 2.5" U.2 P5800X 1.6TB Write Intensive NVMe PCIe 4.0 x4 HS SSD	No	32	32
4XB7A79639	BNF1	ThinkSystem 2.5" U.3 7450 MAX 800GB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	32	32
4XB7A13967	BNEJ	ThinkSystem 2.5" U.3 7450 MAX 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	32	32
4XB7A13970	BNEY	ThinkSystem 2.5" U.3 7450 MAX 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32
4XB7A13971	BNEL	ThinkSystem 2.5" U.3 7450 MAX 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	32	32
4XB7A84056	BRG0	ThinkSystem 2.5" U.3 7450 MAX 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24	No	No
4XB7A79646	BNF3	ThinkSystem 2.5" U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	32
4XB7A79647	BNF2	ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	32
4XB7A79648	BNF5	ThinkSystem 2.5" U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32
4XB7A79649	BNF4	ThinkSystem 2.5" U.3 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	32
4XB7A83097	BQAV	ThinkSystem 2.5" U.3 7450 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24	No	No

Network adapters

The VX650 V3 systems support the following networking options.

For details about these options, including configuration rules, see the SR650 V3 product guide:

<https://lenovopress.com/lp1601-thinksystem-sr650-v3-server#i-o-expansion>

<https://lenovopress.com/lp1601-thinksystem-sr650-v3-server#network-adapters>

Table 20. OCP network adapters

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
Gigabit Ethernet								
4XC7A08235	B5T1	ThinkSystem Broadcom 5719 1GbE RJ45 4-port OCP Ethernet Adapter	1	1	1	No	No	No
4XC7A08277	B93E	ThinkSystem Intel I350 1GbE RJ45 4-port OCP Ethernet Adapter	1	1	1	No	No	No
10 Gb Ethernet								
4XC7A08236	B5ST	ThinkSystem Broadcom 57416 10GBASE-T 2-port OCP Ethernet Adapter	1	1	1	No	No	No
4XC7A08240	B5T4	ThinkSystem Broadcom 57454 10GBASE-T 4-port OCP Ethernet Adapter	1	1	1	No	No	No
4XC7A08278	BCD5	ThinkSystem Intel X710-T2L 10GBASE-T 2-port OCP Ethernet Adapter	1	1	1	No	No	No
4XC7A80268	BPPY	ThinkSystem Intel X710-T4L 10GBase-T 4-Port OCP Ethernet Adapter	1	1	1	No	No	No
25 Gb Ethernet								
4XC7A08237	BN2T	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-Port OCP Ethernet Adapter	1	1	1	No	No	No
4XC7A62582	BE4T	ThinkSystem Mellanox ConnectX-6 Lx 10/25GbE SFP28 2-Port OCP Ethernet Adapter	1	1	1	No	No	No
4XC7A80567	BPPW	ThinkSystem Broadcom 57504 10/25GbE SFP28 4-Port OCP Ethernet Adapter	1	1	1	No	No	No
4XC7A08294	BCD4	ThinkSystem Intel E810-DA2 10/25GbE SFP28 2-Port OCP Ethernet Adapter	1	1	1	No	No	No
4XC7A80269	BP8L	ThinkSystem Intel E810-DA4 10/25GbE SFP28 4-Port OCP Ethernet Adapter	1	1	1	No	No	No
100 Gb Ethernet								
4XC7A08243	BPPX	ThinkSystem Broadcom 57508 100GbE QSFP56 2-Port OCP Ethernet Adapter	1	1	1	No	No	No

Table 21. PCIe network adapters

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
Gigabit Ethernet								
7ZT7A00535	AUZW	ThinkSystem I350-T4 PCIe 1Gb 4-Port RJ45 Ethernet Adapter	8	8	8	8	8	8
7ZT7A00484	AUZV	ThinkSystem Broadcom 5719 1GbE RJ45 4-Port PCIe Ethernet Adapter	8	8	8	8	8	8
10GBASE-T Ethernet								
7ZT7A00496	AUKP	ThinkSystem Broadcom 57416 10GBASE-T 2-Port PCIe Ethernet Adapter	8	8	8	8	8	8
4XC7A08245	B5SU	ThinkSystem Broadcom 57454 10GBASE-T 4-port PCIe Ethernet Adapter	8	8	8	8	8	8
4XC7A80266	BNWL	ThinkSystem Intel X710-T2L 10GBase-T 2-Port PCIe Ethernet Adapter	8	8	8	8	8	8
4XC7A79699	BMXB	ThinkSystem Intel X710-T4L 10GBase-T 4-Port PCIe Ethernet Adapter	8	8	8	8	8	8
25 Gb Ethernet								
4XC7A08238	BK1H	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter	8	8	8	8	8	8
4XC7A80566	BNWM	ThinkSystem Broadcom 57504 10/25GbE SFP28 4-Port PCIe Ethernet Adapter	6	6	6	6	6	6
4XC7A08295	BCD6	ThinkSystem Intel E810-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	8	8	8	8	8	8
4XC7A80267	BP8M	ThinkSystem Intel E810-DA4 10/25GbE SFP28 4-Port PCIe Ethernet Adapter	6	6	6	6	6	6
4XC7A62580	BE4U	ThinkSystem Mellanox ConnectX-6 Lx 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	8	8	8	8	8	8
100 Gb Ethernet								
4XC7A08297	BK1J	ThinkSystem Broadcom 57508 100GbE QSFP56 2-port PCIe 4 Ethernet Adapter	6	6	6	6	6	6
4XC7A08248	B8PP	ThinkSystem Mellanox ConnectX-6 Dx 100GbE QSFP56 2-port PCIe Ethernet Adapter	6	6	6	6	6	6
4C57A14177	B4R9	ThinkSystem Mellanox ConnectX-6 HDR100/100GbE QSFP56 1-port PCIe VPI Adapter	6	6	6	6	6	6
4C57A14178	B4RA	ThinkSystem Mellanox ConnectX-6 HDR100/100GbE QSFP56 2-port PCIe VPI Adapter	6	6	6	6	6	6

Part number	Feature	Description	Maximum supported									
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN				
HDR and NDR200 InfiniBand (200 GbE)												
4C57A15326	B4RC	ThinkSystem Mellanox ConnectX-6 HDR/200GbE QSFP56 1-port PCIe 4 VPI Adapter	6	6	6	6	6	6				

DPU adapters

The initial release of the DPU solution with Lenovo ThinkAgile VX Series features NVIDIA Bluefield-2 Data Processing Unit (DPU) with dual ports of 25GbE, an array of ARM® cores, purpose-built hardware-acceleration engines, and full software programmability powered by NVIDIA DOCA™ software framework to leverage DPU hardware accelerators, providing breakthrough data center performance, efficiency and security for software-defined storage, networking, and management of workloads.

Configuration Note:

- The feature is factory-installed, requires the VMware vSphere 8 or later release
- The DSE solution requires the OCP adapter; as a result, no other OCP networking adapters are supported

For more details on DPU's, see the article <https://lenovopress.lenovo.com/lp1733-secure-and-accelerate-your-infrastructure-nvidia-bluefield-2-vx-series>

Table 22. DPU adapters

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
CTO Only	BRPK	ThinkSystem NVIDIA BlueField-2 25GbE SFP56 2-Port PCIe Ethernet DPU w/BMC & Crypto	No	No	No	1	1	1
CTO Only	BSH7	ThinkSystem OCP Enablement Kit for Distributed Services Engine	No	No	No	1	1	1

*These adapters are only available CTO and only available using DPU-specific CTO model numbers

GPU adapters

The VX650 V3 systems support the following GPU options.

For details about these options, including configuration rules, see the SR650 V3 product guide:

<https://lenovopress.com/lp1601-thinksystem-sr650-v3-server#gpu-adapters>

Table 23. GPU adapters

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
4X67A76720	BMT9	ThinkSystem NVIDIA RTX A2000 12GB PCIe Active GPU	3	3	No	No	No	No
4X67A76726	BNFD	ThinkSystem NVIDIA RTX A4500 20GB PCIe Active GPU	3	3	No	No	No	No
4X67A76581	BQZR	ThinkSystem NVIDIA A30 24GB PCIe Gen4 Passive GPU w/o CEC	3	3	No	No	No	No
4X67A71310	BFT0	ThinkSystem NVIDIA RTX A6000 48GB PCIe Active GPU	3	3	No	No	No	No
4X67A72593	BQZQ	ThinkSystem NVIDIA A40 48GB PCIe Gen4 Passive GPU w/o CEC	3	3	No	No	No	No
4X67A84823	BT87	ThinkSystem NVIDIA L40 48GB PCIe Gen4 Passive GPU	3	3	No	No	No	No
CTO Only	BQZU	ThinkSystem NVIDIA A16 64GB Gen4 PCIe Passive GPU w/o CEC	3	3	No	No	No	No
4X67A76715	BQZP	ThinkSystem NVIDIA A100 80GB PCIe Gen4 Passive GPU w/o CEC	3	3	No	No	No	No
4X67A82257	BR9U	ThinkSystem NVIDIA H100 80GB PCIe Gen5 Passive GPU	3	3	No	No	No	No
Single-wide GPUs								
4X67A79778	BMXE	ThinkSystem NVIDIA T400 4GB PCIe Active GPU	6	6	No	No	No	No
4X67A79777	BMXD	ThinkSystem NVIDIA T1000 8GB PCIe Active GPU	6	6	No	No	No	No
4X67A81547	BQZT	ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU w/o CEC	8	8	No	No	No	No
4X67A84824	BS2C	ThinkSystem NVIDIA L4 24GB PCIe Gen4 Passive GPU	8	8	No	No	No	No

Fibre Channel host bus adapters

Table 24. Fibre Channel host bus adapters

Part number	Feature	Description	Maximum supported					
			VX650 V3 IS	VX650 V3 CN	VX650 V3 SAP HANA CN	VX650 V3-DPU IS	VX650 V3-DPU CN	VX650 V3-DPU SAP HANA CN
64 Gb Fibre Channel HBAs								
4XC7A77485	BLC1	ThinkSystem Emulex LPe36002 64Gb 2-port PCIe Fibre Channel Adapter	8	8	8	8	8	8
32 Gb Fibre Channel HBAs								
4XC7A76498	BJ3G	ThinkSystem Emulex LPe35000 32Gb 1-port PCIe Fibre Channel Adapter v2	8	8	8	8	8	8
4XC7A76525	BJ3H	ThinkSystem Emulex LPe35002 32Gb 2-port PCIe Fibre Channel Adapter V2	8	8	8	8	8	8
4XC7A08279	BA1G	ThinkSystem QLogic QLE2770 32Gb 1-Port PCIe Fibre Channel Adapter	8	8	8	8	8	8
4XC7A08276	BA1F	ThinkSystem QLogic QLE2772 32Gb 2-Port PCIe Fibre Channel Adapter	8	8	8	8	8	8
16 Gb Fibre Channel HBAs								
01CV840	ATZV	Emulex 16Gb Gen6 FC Dual-port HBA	8	8	8	8	8	8
01CV830	ATZU	Emulex 16Gb Gen6 FC Single-port HBA	8	8	8	8	8	8
01CV760	ATZC	QLogic 16Gb Enhanced Gen5 FC Dual-port HBA	8	8	8	8	8	8
01CV750	ATZB	QLogic 16Gb Enhanced Gen5 FC Single-port HBA	8	8	8	8	8	8

Operating system support

The ThinkAgile VX650 V3 Integrated System supports the following operating systems:

- ESXi 7.0u3 (Factory Installed)
- ESXi 8.0u1 (Factory Installed)

The ThinkAgile VX650 V3 Certified Node supports the following operating systems:

- ESXi 7.0u3 (Factory Installed)
- ESXi 8.0u1 (Factory Installed)
- ESXi 8.0u2 (Factory Installed)

The ThinkAgile VX650 V3 SAP Certified Node supports the following operating systems:

- ESXi 7.0u3 (Factory Installed)
- ESXi 8.0u1 (Factory Installed)
- ESXi 8.0u2 (Factory Installed)

The ThinkAgile VX650 V3 DPU Integrated System supports the following operating systems:

- ESXi 8.0u1 (Factory Installed)

The ThinkAgile VX650 V3 DPU Certified Node supports the following operating systems:

- ESXi 8.0u1 (Factory Installed)

The ThinkAgile VX650 V3-DPU SAP Certified Node supports the following operating systems:

- ESXi 7.0u3 (Factory Installed)
- ESXi 8.0u1 (Factory Installed)

Configuration Note:

On the Integrated Systems, the ESXi version to be installed is selected on the ThinkAgile VX Deployer. The system ships out of the factory with the Feature Code (FC) BLA3 which includes the Lenovo custom image with the VX Deployer SW installed as a VM. The customer can then use the VX deployer SW to select the ESXi version of their choice and follow the step-by-step installation process to deploy/install/activate/configure vSphere, vSAN, vCenter, LXCi (HSM), etc. Once the deployer completes its activity, the customer follows the regular management flow using vCenter.

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.lenovo.com/osig#term=vx&support=all>

Software

VMware vSAN, vSphere, and vCenter Server software are required for ThinkAgile VX Series Integrated Systems and Certified Nodes. For Integrated Systems, you are required to purchase VMware vSAN licenses for VX Series from Lenovo. Customers have the option to transfer the license after it has initially landed on Lenovo VX Integrated System. For Certified Nodes, you can purchase the vSAN licenses from Lenovo or from VMware, or you can use your existing licenses. For vSphere and vCenter Server, you can use the existing VMware software licenses and active support contracts, or you can purchase software licenses and support from Lenovo or VMware.

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

- VMware vSAN License and Subscription
- VMware vSphere License and Subscription
- VMware HCI Kit License and Subscription
- VMware Horizon License and Subscription
- VMware Cloud Foundation License and Subscription
- VMware vCenter Server License and Subscription

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

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

Configuration notes:

- The selection of vSAN licenses is required: Standalone licenses, HCI bundle licenses, VDI solution licenses, or VCF licenses.
- VMware software licenses that are available for selection include 1-year, 3-year, or 5-year software support (matches the duration of the selected solution-level warranty period).
- The quantity of processor-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.
- The quantity of CCU-based licenses is specified based on the concurrent user requirements.

ThinkAgile VX Deployer Tool

The ThinkAgile VX Deployer tool is a web-based UI used to simplify and automate the deployment of Lenovo ThinkAgile VX systems within VMware vSAN clusters. 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://www.lenovo.com/content/dam/lenovo/dcg/global/en/products/software-defined-infrastructure/Prowess_Measuring_the_Ease_of_Deployment_of_ThinkAgile_VX.pdf

Warranty and Support

The VX650 V3 have a 3-year warranty based on the machine type:

- 7D6W - 3 year warranty

The ThinkAgile VX Integrated System 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.

The standard warranty terms are customer-replaceable unit (CRU) and onsite (for field-replaceable units FRUs only) with standard call center support during normal business hours and 9x5 Next Business Day Parts Delivered.

Lenovo's additional support services provide a sophisticated, unified support structure for your data center, with an experience consistently ranked number one in customer satisfaction worldwide. Available offerings include:

- **Premier Support**

Premier Support provides a Lenovo-owned customer experience and delivers direct access to technicians skilled in hardware, software, and advanced troubleshooting, in addition to the following:

- Direct technician-to-technician access through a dedicated phone line
- 24x7x365 remote support
- Single point of contact service
- End to end case management
- Third-party collaborative software support
- Online case tools and live chat support
- On-demand remote system analysis

- **Warranty Upgrade (Preconfigured Support)**

Services are available to meet the on-site response time targets that match the criticality of your systems.

- 3, 4, or 5 years of service coverage
- 1-year or 2-year post-warranty extensions
- **Foundation Service:** 9x5 service coverage with next business day onsite response. YourDrive YourData is an optional extra (see below).
- **Essential Service:** 24x7 service coverage with 4-hour onsite response or 24-hour committed repair (available only in select markets). Bundled with YourDrive YourData.
- **Advanced Service:** 24x7 service coverage with 2-hour onsite response or 6-hour committed repair (available only in select markets). Bundled with YourDrive YourData.

- **Managed Services**

Lenovo Managed Services provides continuous 24x7 remote monitoring (plus 24x7 call center availability) and proactive management of your data center using state-of-the-art tools, systems, and practices by a team of highly skilled and experienced Lenovo services professionals.

Quarterly reviews check error logs, verify firmware & OS device driver levels, and software as needed. We'll also maintain records of latest patches, critical updates, and firmware levels, to ensure you systems are providing business value through optimized performance.

- **Technical Account Management (TAM)**

A Lenovo Technical Account Manager helps you optimize the operation of your data center based on a deep understanding of your business. You gain direct access to your Lenovo TAM, who serves as your single point of contact to expedite service requests, provide status updates, and furnish reports to track incidents over time. In addition, your TAM will help proactively make service recommendations and manage your service relationship with Lenovo to make certain your needs are met.

- **Enterprise Server Software Support**

Enterprise Software Support is an additional support service providing customers with software support on Microsoft, Red Hat, SUSE, and VMware applications and systems. Around the clock availability for critical problems plus unlimited calls and incidents helps customers address challenges fast, without incremental costs. Support staff can answer troubleshooting and diagnostic questions, address product comparability and interoperability issues, isolate causes of problems, report defects to software vendors, and more.

- **YourDrive YourData**

Lenovo's YourDrive YourData is a multi-drive retention offering that ensures your data is always under your control, regardless of the number of drives that are installed in your Lenovo server. In the unlikely event of a drive failure, you retain possession of your drive while Lenovo replaces the failed drive part. Your data stays safely on your premises, in your hands. The YourDrive YourData service can be purchased in convenient bundles and is optional with Foundation Service. It is bundled with Essential Service and Advanced Service.

- **Health Check**

Having a trusted partner who can perform regular and detailed health checks is central to maintaining efficiency and ensuring that your systems and business are always running at their best. Health Check supports Lenovo-branded server, storage, and networking devices, as well as select Lenovo-supported products from other vendors that are sold by Lenovo or a Lenovo-Authorized Reseller.

Examples of region-specific warranty terms are second or longer business day parts delivery or parts-only base warranty.

If warranty terms and conditions include onsite labor for repair or replacement of parts, Lenovo will dispatch a service technician to the customer site to perform the replacement. Onsite labor under base warranty is limited to labor for replacement of parts that have been determined to be field-replaceable units (FRUs). Parts that are determined to be customer-replaceable units (CRUs) do not include onsite labor under base warranty.

If warranty terms include parts-only base warranty, Lenovo is responsible for delivering only replacement parts that are under base warranty (including FRUs) that will be sent to a requested location for self-service. Parts-only service does not include a service technician being dispatched onsite. Parts must be changed at customer's own cost and labor and defective parts must be returned following the instructions supplied with the spare parts.

Lenovo Service offerings are region-specific. Not all preconfigured support and upgrade options are available in every region. For information about Lenovo service upgrade offerings that are available in your region, refer to the following resources:

- Service part numbers in Lenovo Data Center Solution Configurator (DCSC):
<http://dcsc.lenovo.com/#/services>
- Lenovo Services Availability Locator
<http://lenovolocator.com/>

For service definitions, region-specific details, and service limitations, please refer to the following documents:

- Lenovo Statement of Limited Warranty for Infrastructure Solutions Group (ISG) Servers and System Storage
<http://pcsupport.lenovo.com/us/en/solutions/ht503310>
- Lenovo Data Center Services Agreement
<http://support.lenovo.com/us/en/solutions/ht116628>

Software maintenance

The ThinkAgile VX Series Integrated Systems (appliances) include one- (PRC only), three-, or five-year software support and 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. VMware will contact the customer and will own the software-related problem resolution until closure.

For the VMware vSphere, vSAN, and vCenter Server software and subscription licenses purchased from Lenovo together with the ThinkAgile VX Series Integrated Systems, 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.

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)

The following Lenovo deployment services are available for the ThinkAgile VX Series Integrated Systems to get customers up and running quickly:

- 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 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 25. 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/>

Regulatory compliance

The server conforms to the following standards:

- ANSI/UL 62368-1
- IEC 62368-1(CB Certificate and CB Test Report)
- FCC - Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003, issue 7, Class A
- CSA C22.2 No. 62368-1
- CISPR 32, Class A, CISPR 35
- Japan VCCI, Class A
- Taiwan BSMI CNS13438, Class A; CNS 14336-1; Section 5 of CNS15663
- CE, UKCA Mark (EN55032 Class A, EN62368-1, EN55024, EN55035, EN61000-3-2, EN61000-3-3, (EU) 2019/424, and EN50581)
- Korea KN32, Class A, KN35
- Russia, Belorussia and Kazakhstan, TP EAC 037/2016 (for RoHS)
- Australia/New Zealand AS/NZS CISPR 32, Class A; AS/NZS 62368.1
- China CELP certificate, HJ 2507-2011
- UL Green Guard, UL2819
- Energy Star 3.0
- EPEAT (NSF/ ANSI 426) Bronze
- China CCC certificate, GB17625.1;GB4943.1;GB/T9254
- China CECP certificate, CQC3135
- Japanese Energy-Saving Act

Lenovo Financial Services

Lenovo Financial Services reinforces Lenovo's commitment to deliver pioneering products and services that are recognized for their quality, excellence, and trustworthiness. Lenovo Financial Services offers financing solutions and services that complement your technology solution anywhere in the world.

We are dedicated to delivering a positive finance experience for customers like you who want to maximize your purchase power by obtaining the technology you need today, protect against technology obsolescence, and preserve your capital for other uses.

We work with businesses, non-profit organizations, governments and educational institutions to finance their entire technology solution. We focus on making it easy to do business with us. Our highly experienced team of finance professionals operates in a work culture that emphasizes the importance of providing outstanding customer service. Our systems, processes and flexible policies support our goal of providing customers with a positive experience.

We finance your entire solution. Unlike others, we allow you to bundle everything you need from hardware and software to service contracts, installation costs, training fees, and sales tax. If you decide weeks or months later to add to your solution, we can consolidate everything into a single invoice.

Our Premier Client services provide large accounts with special handling services to ensure these complex transactions are serviced properly. As a premier client, you have a dedicated finance specialist who manages your account through its life, from first invoice through asset return or purchase. This specialist develops an in-depth understanding of your invoice and payment requirements. For you, this dedication provides a high-quality, easy, and positive financing experience.

For your region-specific offers, please ask your Lenovo sales representative or your technology provider about the use of Lenovo Financial Services. For more information, see the following Lenovo website:

<https://www.lenovo.com/us/en/landingpage/lenovo-financial-services/>

Seller training courses

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

1. **Lenovo Data Center Product Portfolio**
2024-04-22 | 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.

Published: 2024-04-22
Length: 20 minutes
Employee link: [Grow@Lenovo](#)
Partner link: [Lenovo Partner Learning](#)
Course code: SXXW1110r7

2. **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.

Published: 2024-04-10
Length: 50 minutes
Employee link: [Grow@Lenovo](#)
Course code: DVCLD211

3. **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?

Published: 2024-04-10
Length: 60 minutes
Employee link: [Grow@Lenovo](#)
Course code: DVDAT209

4. **ThinkAgile VX – How to sell**
2024-03-21 | 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.

Published: 2024-03-21
Length: 15 minutes
Employee link: [Grow@Lenovo](#)
Partner link: [Lenovo Partner Learning](#)
Course code: DVXS100

5. **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

Published: 2024-03-14

Length: 25 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DSTOO201

6. **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

Published: 2024-03-07

Length: 35 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDT2001r3

7. **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

Published: 2024-02-01

Length: 5 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DVXS101

8. Lightboard – ThinkAgile VX Enhancements

2024-01-30 | 10 minutes | Employees and Partners

In this Part 2 lightboard video, Srihari Angaluri, Principal Engineer SDI, further discusses high-level enhancements to ThinkAgile VX. He also walks you through Day 0, Day 2 deployment, lifecycle management, and vRealize integration and the value it can provide to your customers.

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

- 1) Understand the key components and functionalities of the Think Agile VX Hyperconverged Infrastructure Portfolio
- 2) Apply the knowledge gained to assess and recommend strategies for efficiently deploying and managing VMware vCenter environments using the ThinkAgile VX platform

Published: 2024-01-30

Length: 10 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DVXS104

9. Lightboard – ThinkAgile VX Enhancements

2024-01-30 | 10 minutes | Employees and Partners

In this Part One lightboard video, Mike McDermott, Senior Product Manager, SDI walks you through ThinkAgile VX product changes and enhancements. The three different types of ThinkAgile VX offerings are defined and the differences between each, allowing you to understand the best option for your customers.

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

- 1) Describe the key features and benefits of ThinkAgile VX
- 2) Effectively communicate the competitive advantages of ThinkAgile VX

Published: 2024-01-30

Length: 10 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DVXS103

10. 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

Published: 2024-01-25

Length: 15 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: XSXW1101r2

11. **VTT Cloud Architecture: Future-Ready AI Infrastructure Edge to Cloud Transformation**

2024-01-09 | 60 minutes | Employees Only

Join Asmaa El Andaloussi, Lenovo Enterprise Architect and Muhammad Toffaha, Lenovo Advisory Technical Consultant as they discuss the digital transformation that is driving the demand for a new class of infrastructure for organization from edge to cloud and are ready to embrace IT modernization and AI. In this session, the main spotlight will be on AI workload on Virtual GPU with ThinkAgile VX paired with VMware Cloud Foundation, featuring state-of-the-art NVIDIA GPUs for high performance.

Published: 2024-01-09

Length: 60 minutes

Employee link: [Grow@Lenovo](#)

Course code: DVCLD208

12. **Partner Technical Webinar - VxRail Takeout**

2024-01-09 | 60 minutes | Employees and Partners

In this 60-minute replay, Mat Remillard, Lenovo VMware CTO for NA and former VxRail Architect, presented what VxRail is, where Lenovo's advantages lie and some use cases where we should target.

Published: 2024-01-09

Length: 60 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: 010524

13. **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.

Published: 2024-01-03

Length: 30 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDO112r2

14. **FY24Q3 Hybrid Cloud Update**

2023-12-11 | 15 minutes | Employees and Partners

This update is designed to help you discuss the features and customer benefits of Lenovo ThinkAgile systems that use the 5th Gen Intel® Xeon® processors. Lenovo has also introduced a new service, Lenovo TruScale Hybrid Cloud for Edge, which provides agile and reliable infrastructure as a service where you need it, when you need it. New Professional Services for AI with NVIDIA provides customers with expert guidance for designing and implementing tailored AI solutions. Reasons to call your customer and talk about refreshing their infrastructure are also included as a guideline.

Published: 2023-12-11

Length: 15 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: SXXW2523a

15. VTT Introducing VMware's vSAN Max - November 2023

2023-11-22 | 60 minutes | Employees Only

- Introducing vSAN Max powered by vSAN ESA
- Use cases ideal for vSAN Max
- vSAN Max Provisioning and Connectivity

Published: 2023-11-22

Length: 60 minutes

Employee link: [Grow@Lenovo](#)

Course code: DVDAT206

16. VTT Cloud Architecture - VMware Hybrid Cloud Solutions for Mid-Markets and Enterprises

2023-11-14 | 80 minutes | Employees Only

Please join Jeff Huxtable, Lenovo Solutions Marketing Manager, and a number of speakers from Lenovo, VMware and Intel for an open discussion on a high-level overview of the Lenovo and VMware Hybrid Cloud solution and the tools available to properly size, test, and configure the solution. We will review the new Sales Play, deployment ready configurations, "holodeck" POC site, demos/tours, reference architectures, configuration guides, professional services, and technical documents available to you in support of this solution.

Published: 2023-11-14

Length: 80 minutes

Employee link: [Grow@Lenovo](#)

Course code: DVCLD206

17. 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.

Published: 2023-10-11

Length: 54 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DVCLD205

18. **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.

Published: 2023-09-27

Length: 20 minutes

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DSTOO100

19. **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.

Published: 2023-09-12

Length: 35 minutes

Employee link: Grow@Lenovo

Course code: DVCLD204

20. **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.

Published: 2023-08-17

Length: 60 minutes

Employee link: Grow@Lenovo

Course code: DVCLD203

21. **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.

Published: 2023-07-28

Length: 50 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DVXT201

22. **Lenovo Data Center Product Portfolio**

2023-07-21 | 15 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.

Published: 2023-07-21

Length: 15 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: SXXW1110r6

23. **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

Published: 2023-07-14

Length: 60 minutes

Employee link: [Grow@Lenovo](#)

Course code: DVDAT202

24. 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

Published: 2023-07-12

Length: 60 minutes

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DVXSV104

25. 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.

Published: 2023-07-12

Length: 90 minutes

Employee link: Grow@Lenovo

Course code: DVCLD202

26. 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

Published: 2023-07-11

Length: 40 minutes

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDS104r2

27. Evolve your Data Center with VMware vSphere Distributed Services Engine on Lenovo
2023-05-26 | 60 minutes | Employees and Partners

Join us for an insightful course that explores the evolving data center landscape and the role of VMware Distributed Services Engine (DSE) in conjunction with Lenovo's ThinkAgile VX series and NVIDIA DPUs. Discover how DSE enhances data security and enables efficient management of heterogeneous infrastructure. Learn about the increasing adoption of GPUs, DPUs, and FPGAs in data centers and their impact on next-generation workloads. Explore the use cases and industries leveraging the benefits of DPUs, including financials, healthcare, retail edge, and sovereign cloud deployments. By the end of this course, you will have a comprehensive understanding of DSE and its potential applications in transforming data center operations.

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

- Understand the concept of VMware Distributed Services Engine (DSE) and its role in evolving the data center
- Recognize the impact of new infrastructure devices on data center operations
- Explore the use cases and industries leveraging the benefits of DPUs

Published: 2023-05-26

Length: 60 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DVXSV102

28. Improve Storage Performance with VMware vSAN ESA on Lenovo ThinkAgile VX Series
2023-05-26 | 10 minutes | Employees and Partners

Explore VMware's vSAN 8 release and Lenovo's ThinkAgile VX series in this comprehensive course. Discover how the Express Storage Architecture (ESA) revolutionizes storage by eliminating caching tiers and leveraging storage pools. Learn about hardware requirements, VMware certifications, and Lenovo's Configurator for successful ESA implementation. Enhance your storage performance and optimize your infrastructure. Enroll now to unlock the potential of vSAN 8 and ESA on ThinkAgile VX.

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

- Understand the benefits of VMware's vSAN 8 release and Express Storage Architecture (ESA)
- Recognize the hardware requirements and prerequisites for implementing ESA
- Explore how Lenovo Think Agile VX series supports the implementation of ESA

Published: 2023-05-26

Length: 10 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DVXSV101

29. **Day 0 Operations with ThinkAgile VX**
2023-05-25 | 10 minutes | Employees and Partners

Discover the power of the ThinkAgile VX Deployer in this comprehensive course. Learn to easily deploy and configure ThinkAgile VX Integrated Systems using step-by-step instructions and practical demonstrations. Explore key features, such as vCenter configuration, integration with Lenovo XClarity Integrator, and efficient software installations. Master the deployment process, streamline operations, and optimize your cluster environment.

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

- Understand the purpose and capabilities of the ThinkAgile VX Deployer
- Recognize the benefits of using the Lenovo XClarity Integrator
- Comprehend the steps involved in deploying a cluster with ThinkAgile VX Deployer

Published: 2023-05-25

Length: 10 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DCVD101

30. **Partner Technical Webinar - HX vs VX vs MX Panelist Discussion**
2023-04-11 | 60 minutes | Employees and Partners

In this 60-minute replay, Joe Murphy moderated a panelist discussion on ThinkAgile SHI. Baker Hull, VMware represented VX; Mike Tilt, Lenovo Technical Sales Manager presented HX; Phil Searles, Lenovo Solution Architect represented MX; and Brandon Saxton, Lenovo NA Product Manager for ThinkAgile made up the panelist. The focus was less on the differences but how to elevate the conversation to get to the best solution. No slides were presented.

Published: 2023-04-11

Length: 60 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: 033123

31. **ThinkAgile VX & VMware**
2023-03-07 | 15 minutes | Employees and Partners

In this lightboard presentation, Mike McDermott explains the changes done in the last months for the elements of ThinkAgile VX: Ready nodes, Certified Node and Integrated Systems.

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

- Explain ThinkSystem Ready Node
- Explain ThinkAgile VX Certified Node
- Explain ThinkAgile VX Integrated Node
- Explain Lenovo TruScale

Published: 2023-03-07

Length: 15 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DVXS118

32. **Family Portfolio: ThinkAgile VX**

2023-02-28 | 20 minutes | Employees and Partners

This course is an introduction to Lenovo ThinkAgile VX Integrated Systems (previously called appliances) and Certified Nodes. The course includes systems based on the Intel and AMD Gen4 processors, and includes the new VX naming convention.

You will learn to identify products and features within the Lenovo ThinkAgile VX family, describe Lenovo innovations that the ThinkAgile VX family uses, and recognize when a specific product or products should be selected.

Published: 2023-02-28

Length: 20 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: SXS2130r4

33. **Partner Technical Webinar - ThinkAgile V3 Overview and SMB Express**

2023-02-13 | 60 minutes | Employees and Partners

In this 60-minute replay, Joe Murphy and Dave Brown, Lenovo Solution Architects reviewed the new ThinkAgile V3 solutions. In addition, Dave did a lengthy demo and explanation of the new SMB Express feature of DCSC.

Published: 2023-02-13

Length: 60 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: 021023

34. **Lenovo ThinkAgile VX Customer Presentation**

2022-10-31 | 25 minutes | Employees Only

This presentation serves as an enablement guide on how to pitch ThinkAgile VX to a client. If you are not familiar with ThinkAgile VX, it will also help you learn more about our ThinkAgile VX HCI solution and the market in which it competes.

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

- Understand how to pitch ThinkAgile VX to a client.
- Describe our ThinkAgile VX HCI Solution and the market in which it competes.

Published: 2022-10-31

Length: 25 minutes

Employee link: [Grow@Lenovo](#)

Course code: DVXCP101

35. **Lenovo ThinkAgile VX Seller Presentation**

2022-10-31 | 23 minutes | Employees Only

This presentation is an introductory course on how to position and sell ThinkAgile VX, which is Lenovo's Hyperconverged solution for VMware environments.

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

- Understand customer profiles and how to position ThinkAgile VX.
- Describe the sales process for ThinkAgile VX.
- Identify sales tactics, tools and resources that can help you win.

Published: 2022-10-31

Length: 23 minutes

Employee link: Grow@Lenovo

Course code: DVXSP101

36. **Partner Technical Webinar - ThinkAgile VX vs VxRail**

2022-10-25 | 60 minutes | Partners Only

In this 60-minute replay, Arrow Solution Architect Todd Frederking discussed Lenovo ThinkAgile VX strengths over VxRail and how to capitalize on VxRail weakness. A live demo of the ThinkAgile VX interface was also shared with the audience.

Published: 2022-10-25

Length: 60 minutes

Partner link: [Lenovo Partner Learning](#)

Course code: 102122

37. **Lenovo's value-added Solutions Software and SDI - ThinkAgile VX Sales Process and Overview**

2022-08-22 | 60 minutes | Employees Only

In this continuous series of recorded webinars for ThinkAgile Portfolio Sales Process, Mike Tilt, Sales Engineer Director, discusses with the North American region, the overview of ThinkAgile VX sales process. He discusses the differences between the two VMware Solution options and reviews common FAQ and audience questions.

Published: 2022-08-22

Length: 60 minutes

Employee link: Grow@Lenovo

Course code: DCLDO123

38. **Partner Technical Webinar - sizing ThinkAgile HX & VX**

2022-08-01 | 60 minutes | Partners Only

In this 60-minute replay, we demonstrated how to size ThinkAgile VX and ThinkAgile HX. First Lenovo Solution Architect Joe Murphy reviewed the sizing methodology. Next, Lenovo Solution Architect Richard Smutzer demonstrated how to size ThinkAgile HX using Nutanix's sizing tool. Lenovo Solution Architect David Cianchetta closed the webinar by demonstrating ThinkAgile VX sizing using the VSAN sizer from VMware.

Published: 2022-08-01

Length: 60 minutes

Partner link: [Lenovo Partner Learning](#)

Course code: 072922

39. **ThinkAgile Advantage Services**

2022-07-20 | 15 minutes | Employees and Partners

The goal of this training is to go through the details of ThinkAgile Advantage, and to provide everything you need to have customer conversations and to order ThinkAgile Advantage and recommended services.

Course objectives:

1. Learn about the customer challenges and benefits of ThinkAgile Advantage
2. Discover what it includes
3. Understand how to make the most of ThinkAgile products and solutions with the elevator pitch for customer conversations.

Published: 2022-07-20

Length: 15 minutes

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DSVC121r2

40. **Start the Conversation - Lenovo Cloud Strategy**

2021-10-25 | 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. Topics include:

- Why customers choose the cloud
- The Lenovo Cloud Strategy
- Starting the customer cloud conversation

Published: 2021-10-25

Length: 25 minutes

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDS103r2

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)
<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)
<http://datacentersupport.lenovo.com/us/en/solutions/HT505302>
- [VMware documentation](https://docs.vmware.com/)
<https://docs.vmware.com/>
- [ThinkSystem SR650 V3 product guide:](https://lenovopress.com/lp1601-thinksystem-sr650-v3-server)
<https://lenovopress.com/lp1601-thinksystem-sr650-v3-server>

Related product families

Product families related to this document are the following:

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

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This document, LP1673, was created or updated on March 26, 2024.

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