Lenovo ThinkAgile VX630 V4 Hyperconverged System
Product Guide

The Lenovo ThinkAgile VX630 V4 are 2-socket 1U systems that feature the Intel® Xeon® 6 Scalable processors (formerly code named "Granite Rapids"). The latest Lenovo ThinkAgile VX V4 Series systems are backed by the power of Intel® Xeon® 6 processors to deliver more cores, higher memory bandwidth, and enhanced AI acceleration in every core. These systems are designed to make AI accessible with new servers that are purpose-built and optimized to maximize performance and efficiency for wide range of targeted workloads, from compute-intensive AI to general-purpose data services while flexibly matching the specific workloads needs of any business. ThinkAgile VX V4 Series systems also support hardware accelerators like Graphics Processing Units (GPUs) and Data Processing Unit (DPU) cards for maximum performance and increased zero trust security capabilities. The ThinkAgile VX630 V4 provides up to 86 cores and support for the new PCIe 5.0 standard for I/O, the VX systems offers the ultimate in two-socket performance in a 1U form factor. Lenovo offers a unique, software-defined approach to hyperconvergence, leveraging the hypervisor to deliver compute, storage and management in a tightly integrated solution stack based on VMware software.

Suggested uses: AI Inference, virtualization, VDI, ROBO,

Figure 1. Lenovo ThinkAgile VX630 V4 with 2.5-inch drive bays

Did you know?

The ThinkAgile VX630 V4 systems are built on the Lenovo ThinkSystem SR630 V4 server that features enterprise-class reliability, management, and security.

The ThinkAgile VX630 V4 provides 4x higher performance through optimized storage compression techniques with vSAN ESA.

The VX630 V4 comes paired with Premier Support in available countries. It offers a single point of support for quick 24/7 problem reporting and resolution.

Key features

ThinkAgile VX features

The ThinkAgile VX630 V4 offer the following key features:

- Factory-integrated, pre-validated ready-to-go integrated systems built on proven and reliable Lenovo ThinkSystem servers that provide compute power for a variety of workloads and applications and powered by industry-leading hyperconverged infrastructure software from VMware.
- Fully tested and validated for vSAN compliance with VMware and includes the latest supported firmware levels integrated at factory.
- Provide quick and convenient path to implement a implement a private or hybrid cloud environment powered by VMware Cloud Foundation (VCF) or VMware vSphere Foundation (VVF) software stacks. Purchasing the software licenses through Lenovo provides a "one stop shop" and a single point of contact from Lenovo for purchasing, deploying, and supporting the solution.
- Meet various workload demands with performance-optimized all NVMe certified with VMware by Broadcom.
- They also come with deployment delivered by Lenovo Professional Services and VMware software licenses.*
- Three and Five-year hardware warranty, bundled with Premier Support in supported countries that provides a 24x7 Single Point of Support, problem reporting and resolution.

The VMware software running on ThinkAgile VX630 V4 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.

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

Hardware features

The VX systems are based on the ThinkSystem SR630 V4 and have the following hardware features:

Scalability and performance

The VX630 V4 offer numerous features to boost performance, improve scalability and reduce costs:

- Supports one or two Intel Xeon 6700-series or 6500-series processors with Performance-cores (P-cores)
  - Up to 86 cores and 172 threads
  - Core speeds of up to 4 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 6400 MHz
  - Supports 2 DIMMs per channel operating at 5200 MHz
  - Supports 1 MRDIMM per channel operating at 8000 MHz
  - Using 256GB 3D RDIMMs, the server supports up to 8TB of system memory
- Support for MRDIMMs for increased memory bandwidth with memory bus speeds of up to 8000 MHz. MRDIMMs require Intel Xeon 6700P-series processors.
- Support for up to three single-width GPUs, each up to 75W for substantial processing power in a 1U system.
- Supports up to 12x 2.5-inch NVMe hot-swap drive bays, by using combinations of front-accessible (up to 10 bays) and rear-accessible (2 bays).
- Support for up to 16x E3.S NVMe drives, a new form factor drive for high-density and high-performance storage.
- Supports up to 16x NVMe drives without oversubscription of PCIe lanes (1:1 connectivity) and without the need for additional NVMe adapters. The use of NVMe drives maximizes drive I/O performance, in terms of throughput and latency.
- Supports 12x SAS drives using a variety of 12Gb RAID controllers and SAS HBAs.
- Supports high-speed RAID controllers providing 12 Gb SAS connectivity to the drive backplanes. A variety of PCIe 3.0 and PCIe 4.0 RAID adapters are available.
- Supports M.2 drives for convenient operating system boot functions or data storage. M.2 drives in a RAID-1 configuration can be internally mounted or can be mounted at the front or rear of the server as hot-swap drives.
- Supports up to 3x PCIe slots at the rear of the server. Also supports 2x OCP slots at the rear of the server.
- The server has up to two dedicated industry-standard OCP 3.0 slots 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.

- 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 three 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 VX630 V4 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.
- The server offers hot-swap drives for greater system uptime.
- Available M.2 boot adapters support RAID-1 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 eight 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.
- 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 (SSDs, NVMe SSDs, M.2 storage), fans, power supplies, 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 3 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 3 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 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 VX630 V4:

- The server includes XClarity Controller 3 (XCC3) to monitor server availability. XCC3 Premier is included to provide remote control (keyboard video mouse) functions, support for the mounting of remote media files (ISO and IMG image files), boot capture and power capping. XCC3 Premier also offers additional features such as Neighbor Groups, System Guard, a CNSA-compliant security

mode, a FIPS 140-3-compliant mode, and enhanced NIST 800-193 support.

- Dedicated Ethernet port at the rear of the server for remote management (BMC management). Optional support for a second dedicated BMC management port, installed in the OCP adapter bay.
- 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 SSDs, as well as 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 VX630 V4 offer the following energy-efficiency features to save energy, reduce operational costs, and increase energy availability:

- The server supports advanced Lenovo Neptune Core direct-water cooling (DWC) capabilities, where heat from key components is removed from the rack and the data center using an open loop and coolant distribution units, resulting in lower energy costs:
  - Processor Neptune Core Module uses liquid cooling to remove heat from the processors
- 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 VX630 V4 are based on the ThinkSystem SR630 V4 server.

The following figure shows the front of the VX630 V4 with 2.5-inch drives.

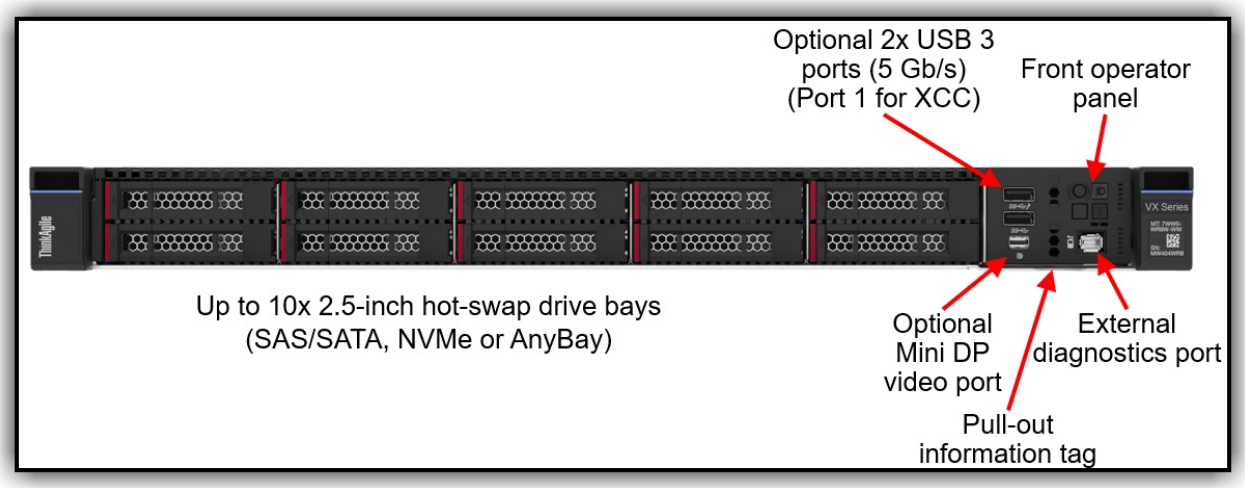

Figure 2. Front view of the ThinkAgile VX 630 V4 with 2.5-inch drives

The following figure shows the components visible from the rear of the server. As shown, there are six different configurations available, including two with rear-mounted drive bays: two 2.5-inch hot-swap drive bays (NVMe).

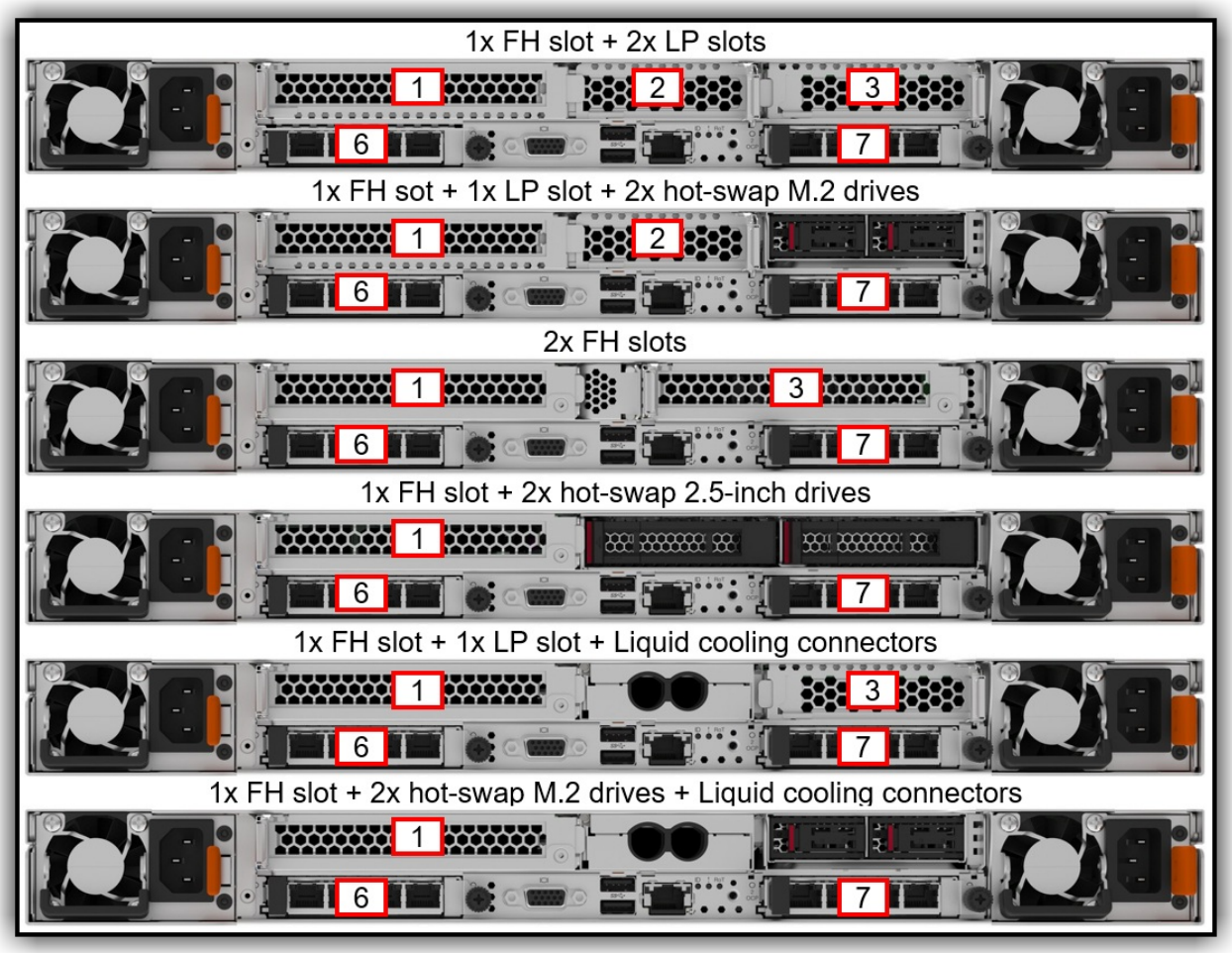

Figure 3. Rear view of the ThinkAgile VX 630 V4 systems

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

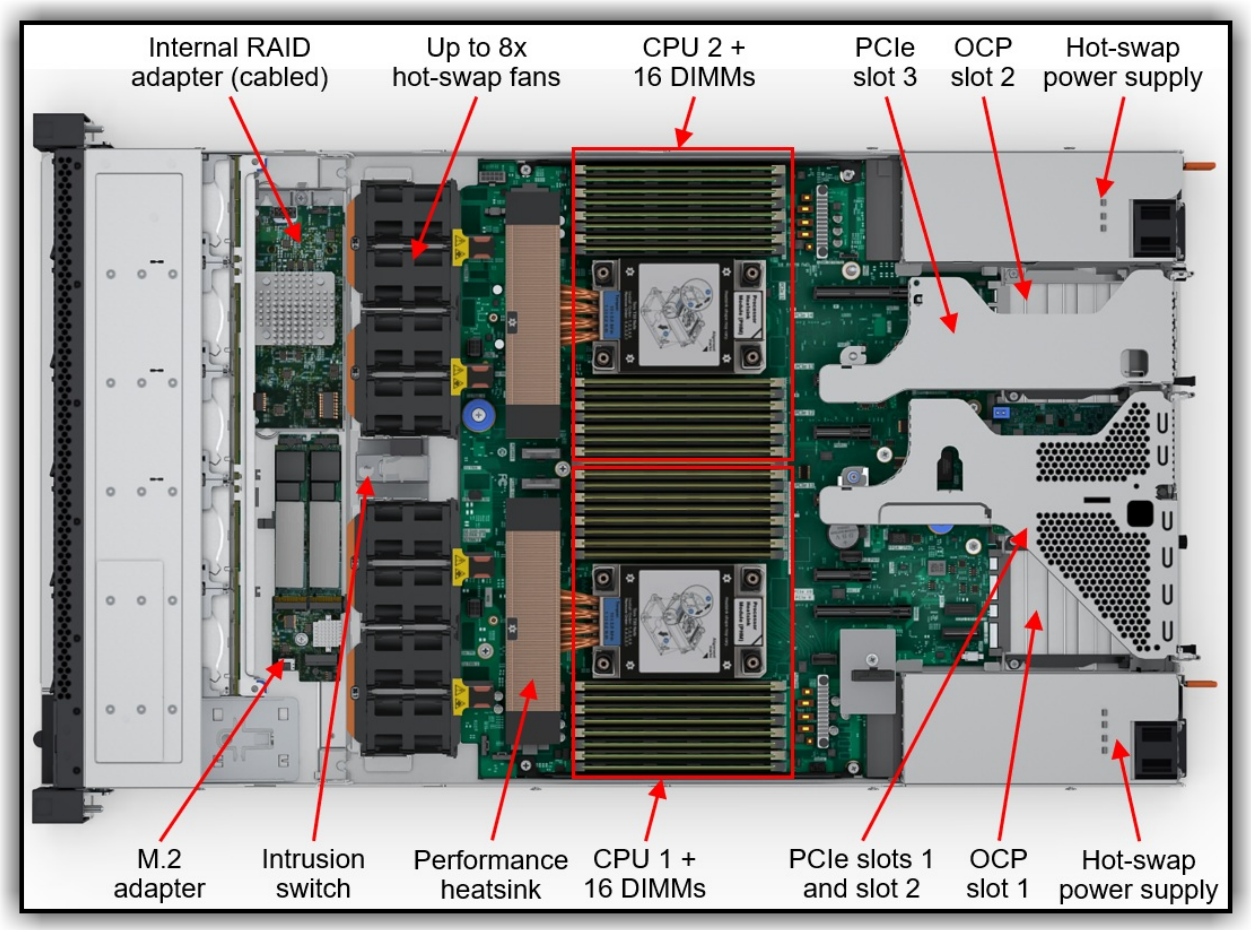

Figure 4. Internal view of the ThinkAgile VX630 V4 systems

Standard specifications

The ThinkAgile VX630 V4 are based on the ThinkSystem SR630 V4 server.

The following table provides an overview of the ThinkAgile VX630 V4 system.

Table 1. Comparison of features

	ThinkAgile VX630 V4
VX offering type	Flexible
Target workloads	Enterprise Resource Planning, CRM, SMB, ROBO, VDI
Base MTM	7DG5CTO1WW
Form Factor	1U
Base platform	SR630 V4
Max Cluster Size	64 Hosts
CPU	1x or 2x Intel® Xeon® 6 (Granite Rapids-SP)
Memory	• DDR5 memory operating up to 8000 MHz • 8 channels per CPU • 32 DIMMs (16 per processor), 2 DIMMs per channel • Supports RDIMMs, 3DS RDIMMs, and MRDIMMs • Supports CXL 2.0 memory in E3.S 2T form factor • Up to 8TB of system memory
Drive Bays	• Front: 10x 2.5” NVMe drives • Front: 16x E3.S 1T NVMe hot-swap drive bays • Front: 8x E3.S 2T NVMe hot-swap drive bays • Rear: Up to 2x 2.5’” NVMe hot-swap drive bays • 16x Onboard NVMe ports • 2x Internal M.2 or 2x Hot-swap M.2
Drive configurations	All Flash
Boot drives	2x M.2 SATA
OCP networking	2x OCP 3.0 adapter 1Gb, 10Gb, 25Gb, 100Gb
PCIe networking	Up to 5x adapters 10GBASE-T, 10Gb, 25Gb, 100Gb
GPUs	Supports up to 3x single-wide GPUs
Hypervisor	ESXi 8.0u3 (Factory Installed) ESXi 9.0 (Factory Installed)

The following table lists the standard specifications.

Table 2. Standard specifications

Components	Specification
Machine types	7DG5 - 3 or 5 year warranty
Form factor	1U rack.
Cluster Size	With Lenovo ThinkAgile VX Series & VMware Cloud Foundation (VCF), you need a minimum of 4 nodes to create a management domain cluster. With Lenovo ThinkAgile VX Series & VMware vSphere Foundation (VVF), you can create a vSAN cluster with a minimum 3 hosts and a maximum of 64 hosts. Requires vSAN 7.0 , 8.0 P05 and later releases.
Processor	One or two Intel Xeon 6700P-series or 6500P-series processors (formerly codenamed "Granite Rapids-SP"). Supports processors up to 86 cores and 172 threads, core speeds of up to 4.0 GHz, and TDP ratings of up to 350 W.
Chipset	None. Integrated into the processor
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 are supported. DIMMs operate at up to 6400 MHz at 1 DPC and up to 5200 MHz at 2 DPC. Xeon 6500P and 6700P-series processors also support MRDIMMs up to 8000 MHz at 1 DPC. Xeon 6500P and 6700P-series processors also support up to 8x CXL 2.0 memory DIMMs (4 per processor) installed in E3.S 2T drive bays.
Memory maximum	Up to 8TB by using 32x 256GB 3DS RDIMMs
Memory protection	ECC, SDDC (for x4-based memory DIMMs), ADDDC (for x4-based memory DIMMs), and memory mirroring.

Drive bays	Up to 12x 2.5-inch hot-swap drive bays plus M.2 drives:
	• Front bays can be one of the following:
	  ◦ 10x 2.5-inch hot-swap NVMe drive bays
	  ◦ 10x 2.5-inch hot-swap: AnyBay drive bays (supports NVMe)
	  ◦ 8x 2.5-inch hot-swap NVMe drive bays
	  ◦ 16x E3.S 1T NVMe hot-swap drives
	  ◦ 8x E3.S 2T NVMe hot-swap drives
	  ◦ 8x E3.S 1T + 4x E3.S 2T NVMe hot-swap drives
	• Rear can be one of the following:
	  ◦ 2x 2.5-inch hot-swap NVMe bays
	  ◦ 2x 2.5-inch hot-swap SAS/SATA bays
	• M.2 support for OS boot:
	  ◦ 2x front or rear hot-swap M.2 drive bays, or
	  ◦ Internal M.2 module supporting up to two M.2 drives

Storage controller	• Up to 16x Onboard NVMe ports
Network interfaces	Two dedicated OCP 3.0 SFF slots with a PCIe 5.0 host interface, either x8 or x16. Support a variety of 2-port and 4-port adapters with 1, 10, 25 and 100 GbE network connectivity. One port of each installed OCP adapter can optionally be shared with the XClarity Controller 3 (XCC3) management processor for Wake-on-LAN and NC-SI support.

Components	Specification
PCI Expansion slots	Up to 3x slots, all at the rear, plus 2 OCP slots. All slots are PCIe 5.0. Four choices for rear-access slots: • 3x PCIe 5.0 x16 low-profile slots • 2x PCIe 5.0 x16 full-height half-length slots • 1x PCIe 5.0 x16 full-height half-length slot + 1x PCIe 5.0 x16 low-profile slot (also supports 2x rear hot-swap M.2 drive bays) • 1x PCIe 5.0 x16 low-profile slot (also supports 2x rear 2.5-inch drive bays) All configurations include at the rear of the server: • 2x OCP slots with PCIe 5.0 x16 or x8 connection With 2.5-inch front drive configurations, the server supports the installation of a CFF RAID adapter in a dedicated area that does not consume any of the rear PCIe slots. **Note**: Some slots are not available in a 1-processor configuration.
GPU support	Supports up to 3x single-wide GPUs
Ports	Front: External diagnostics port, optional 2x USB 3 (5 Gb/s) port, one supports XCC local management, optional Mini DisplayPort 1.1a video port. Rear: 2x USB 3 (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 a slot). Support for an optional second RJ-45 1GbE systems management port for XCC remote management (installs in OCP adapter slot). Support for an optional adapter to share an incoming remote management network connection across 4 servers (installs in an OCP slot). Internal: Optional 1x USB 3 (5 Gb/s) connector for operating system or license key purposes
Cooling	Up to 8x N+1 dual-rotor or single-rotor hot-swap 40 mm fans, implemented as 2-in-1 fan modules. Fans are N+1 rotor redundant. Fan select is configuration dependent. There is also one fan integrated in each power supply. For customers with water infrastructure in their data center, the server also supports open-loop water cooling for efficient heat removal.
Power supply	Up to two hot-swap redundant AC power supplies, 80 PLUS Platinum or 80 PLUS Titanium certification. 800W, 1300W, 2000W AC options. All AC power supplies support 230V power; some also support 115V input supply. In China only, all power supply options support 240 V DC. Support for HVDC and -48V DC power supply options.
Video	Embedded graphics with 16 MB memory with 2D hardware accelerator, integrated into the XClarity Controller 3 management controller. Two video ports (rear VGA and optional front Mini DisplayPort); both can be used simultaneously if desired. 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. Clarity Controller 3 (XCC3) embedded management based on the ASPEED AST2600 baseboard management controller (BMC), XClarity Administrator centralized infrastructure delivery, XClarity Integrator plugins, and XClarity Energy Manager centralized server power management. Optional XCC3 Premier to enable remote control functions and other features..
Security features	Chassis intrusion switch, Power-on password, administrator's password, Root of Trust module supporting TPM 2.0 and Platform Firmware Resiliency (PFR). Optional lockable front security bezel.

Components	Specification
Software	All ThinkAgile VX Series products will support the following Primary Software Stack (3-year & 5-year terms) and Add-Ons. Primary Software 1. VMware Cloud Foundation (VCF) 2. VMware vSphere Foundation (VVF) Add-On Options (requires purchase of a Primary Software version) 1. VMware vSAN (for capacity over TiB allocation from primary SKU) 2. VMware Live Recovery 3. VMware Firewall (requires VCF) 4. VMware Firewall with Advanced Threat Prevention (requires VCF) 5. VMware Avi Load Balancer 6. VMware Private AI Foundation (requires VCF)
Hypervisors	VMware ESXi. See Operating system support section for details.
Limited warranty	Three or Five-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: 440 mm (17.3 in.), height: 43 mm (1.7 in.), depth: 788 mm (31 in.). Servers with E3.S front drives have a longer depth
Weight	Maximum weight: 20.2 kg (44.5 lb)

Models

The Factory-integrated model is 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.

Tip: It is highly recommended to engage a Lenovo representative early in a project that includes the ThinkAgile VX Solutions

The following table lists the base CTO models.

Table 3. CTO base models

Server model	Standard Open models
	These CTO models are available in all markets.
ThinkAgile VX630 V4	7DG5CTO1WW

Comparison with the ThinkSystem SR630 V4

The ThinkAgile VX630 V4 are based on the ThinkSystem SR630 V4 server, however there are key differences:

- No HBA support
- No vROC support
- RAID adapter supported for boot only
- Encryption not supported on SED drives
- Fibre Channel support for data migration only
- No InfiniBand support
- ESA configurations only consist of a storage tier, no cache drives or disk groups required

For details about the ThinkSystem SR630 V4, see the SR630 V4 product guide:
https://lenovopress.com/lp1600-thinksystem-sr630-v3-server

To verify what specific hardware components are supported with the VX630 V4, see the DCSC configurator:
https://dcsc.lenovo.com

Processors

The ThinkAgile VX630 V4 supports processors 6th Gen Intel Xeon Scalable Processor family.

Topics in this section:

6th Gen Intel Xeon Scalable processors

The VX630 V4 systems support the following processors. The systems support 1 or 2 processors installed.

For details about these options, including configuration rules, see the SR630 V4 product guide:
https://lenovopress.lenovo.com/lp1971-thinksystem-sr630-v4-server#processors

Table 4. Granite Rapids Processor choices

Part number	Feature	Description	Maximum supported
			VX630 V4
None	C5QQ	Intel Xeon 6505P 12C 150W 2.2GHz Processor	2
None	C5R6	Intel Xeon 6507P 8C 150W 3.5GHz Processor	2
None	C5RD	Intel Xeon 6515P 16C 150W 2.3GHz Processor	2
None	C5QV	Intel Xeon 6517P 16C 190W 3.2GHz Processor	2
None	C5QR	Intel Xeon 6520P 24C 210W 2.4GHz Processor	2
None	C5QT	Intel Xeon 6530P 32C 225W 2.3GHz Processor	2
None	C5R7	Intel Xeon 6714P 8C 165W 4.0GHz Processor	2
None	C5R5	Intel Xeon 6724P 16C 210W 3.6GHz Processor	2
None	C5R0	Intel Xeon 6736P 36C 205W 2.0GHz Processor	2
None	C5QX	Intel Xeon 6737P 32C 270W 2.9GHz Processor	2
None	C5R3	Intel Xeon 6740P 48C 270W 2.1GHz Processor	2
None	C5R8	Intel Xeon 6747P 48C 330W 2.7GHz Processor	2
None	C5R1	Intel Xeon 6760P 64C 330W 2.2GHz Processor	2
None	C5QY	Intel Xeon 6767P 64C 350W 2.4GHz Processor	2
None	C5QM	Intel Xeon 6787P 86C 350W 2.0GHz Processor	2

*Minimum of 16 cores is required for ESA configurations.

Lenovo Processor Neptune Core Module - Open-loop liquid cooling

The VX630 V4 also supports advanced direct-water cooling (DWC) capability with the Lenovo Processor Neptune Core Module. This module implements a liquid cooling solution where heat from the processors is removed from the rack and the data center using an open loop and coolant distribution units.

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

Internal testing has shows a 74% fan power saving per node and 26% rack-level power saving with the use of open-loop liquid cooling. Power savings are configuration dependent.

The following figure shows the Lenovo Processor Neptune Core Module.

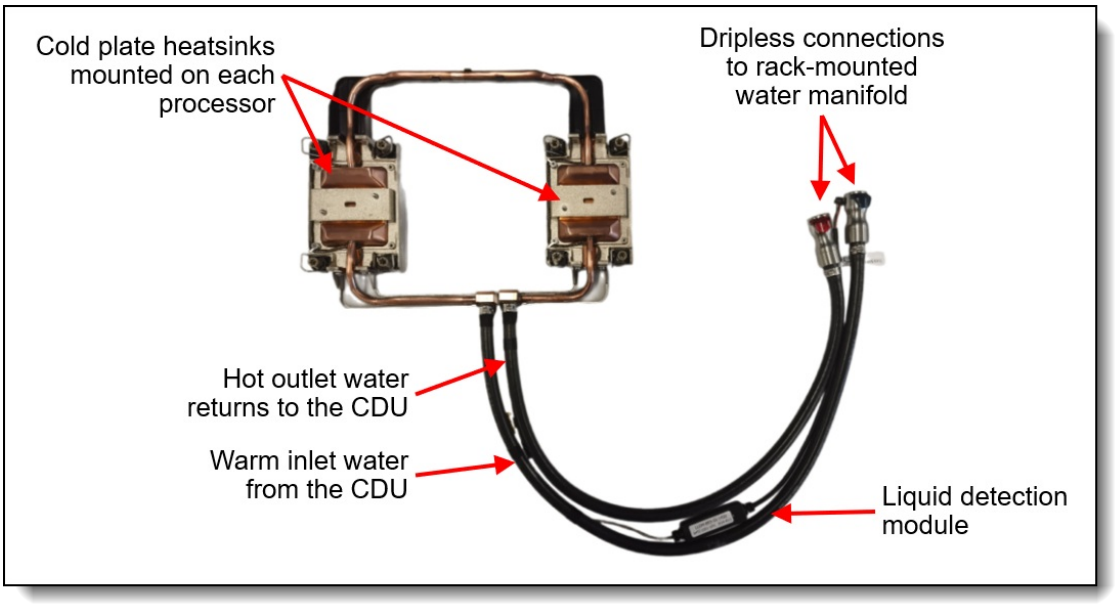

Figure 5. Lenovo Processor Neptune Core Module

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

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

Table 5. Lenovo Processor Neptune Core Module

Part number	Feature code	Description
CTO only	C1XH*	ThinkSystem V4 1U/2U Processor Neptune Core Module

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

Configuration notes:

- The Processor Neptune Core Module requires water infrastructure be available in the rack cabinet and data center, as described in the Water infrastructure section.
- All processor SKUs are supported
- Either one or two CPUs are supported
- All front drive bay configurations are supported
- Slot 2 is not available for adapters - the water loop is routed through the space otherwise occupied by slot 2
- Only the following slot configuration is supported:
  - 2x Low profile x16 slots, in slot 1 and slot 3
- Rear 2.5-inch drive bays are not supported
- RAID flash power module (supercap) support is limited only to positions 1 (2.5-inch drives only) or position 3 (slot 3), as described in the RAID flash power module (supercap) support section. Location 2 on the air baffle is not supported.
- M.2 adapters are supported based on the configurations in the Storage configurations section

- Standard fans can be configured in most configurations
- The use of a cable management arm (CMA) is not supported

For more information, see the Thermal Rules page for the direct water cooling module:
https://pubs.lenovo.com/sr630-v4/thermal_rules#server-models-with-direct-water-cooling-module

Memory

6th Generation Memory options

The ThinkAgile VX630 V4 systems support the following 6th generation memory options. The VX630 V4 uses Lenovo TruDDR5 memory operating at up to 8800 MHz. The server supports up to 32 DIMMs with 2 processors. The processors have 8 memory channels and support 2 DIMMs per channel (DPC). The server supports up to 8TB of memory using 32x 256GB RDIMMs and two processors. The server also supports up to 8x CXL memory DIMMs (4 per CPU) which are installed in E3.S 2T drive bays.

DIMMs operate at the following speeds, up to the memory bus speed of the processor selected. See the Processor features section for specifics.

- RDIMMs and 3DS RDIMMs:
  - 1 DIMM per channel: Up to 6400 MHz
  - 2 DIMMs per channel using RDIMMs: Up to 5200 MHz
- MRDIMMs
  - 1 DIMM per channel: 8000 MHz
- CXL 2.0 DIMMs - installs in E3.S 2T front drive bays
  - Up to 8 DIMMs per server (4 per CPU)

For details about these options, including configuration rules, see the SR630 V4 product guide: https://lenovopress.lenovo.com/lp1971-thinksystem-sr630-v4-server#memory

Table 6. Granite Rapids Memory options

Part number	Feature	Description	Maximum supported VX630 V4
x4 RDIMMs			
4X77A90964	C0U9	ThinkSystem 32GB TruDDR5 6400MHz (1Rx4) RDIMM	32
4X77A90966	C0TQ	ThinkSystem 64GB TruDDR5 6400MHz (2Rx4) RDIMM	32
4X77A90997	BZ7D	ThinkSystem 96GB TruDDR5 6400MHz (2Rx4) RDIMM	32
4X77A90993	C0U1	ThinkSystem 128GB TruDDR5 6400MHz (2Rx4) RDIMM	32
x8 RDIMMs			
4X77A90963	C0U2	ThinkSystem 16GB TruDDR5 6400MHz (1Rx8) RDIMM	32
4X77A90965	BYTJ	ThinkSystem 32GB TruDDR5 6400MHz (2Rx8) RDIMM	32
4X77A90996	BZ7C	ThinkSystem 48GB TruDDR5 6400MHz (2Rx8) RDIMM	32
3DS RDIMMs			
4X77A90994	C0U0	ThinkSystem 256GB TruDDR5 6400MHz (4Rx4) 3DS RDIMM	32
MRDIMMs (operate at 8000 MHz in the VX630 V4) (Note: Not all processors support MRDIMMs - see Processor features)			
4X77A90998	C0TY	ThinkSystem 32GB TruDDR5 8800MHz (2Rx8) MRDIMM	32
4X77A90999	C0TX	ThinkSystem 64GB TruDDR5 8800MHz (2Rx4) MRDIMM	32
CXL DIMMs			
4X77A91000	C0TW	ThinkSystem 96GB E3.S 2T CXL DIMM	8
4X77A91001	C0TV	ThinkSystem 128GB E3.S 2T CXL DIMM	8

Internal storage

The VX630 V4 supports up to 12x 2.5-inch drives. The server alternatively supports up to 16x E3.S 1T or 8x E3.S 2T drive bays, depending on the selected chassis and backplane configuration. The server can be configured without any drive bays if desired.

The server supports front and rear drive bays, are as follows:

- Front accessible:
  - Up to 10x 2.5-inch hot-swap bays, or
  - 16x E3.S 1T hot-swap bays, or
  - 8x E3.S 2T hot-swap bays, or
  - Mix of E3.S 1T and E3.S 2T hot-swap bays
- Rear accessible:
  - 2x 2.5-inch hot-swap bays

The server also supports one or two M.2 drives, in three possible locations:

- Installed in an M.2 adapter internal to the server (non-hot-swap)
- Hot-swap in the rear of the server
- Hot-swap in the front of the server

The choice of backplanes supported varies by system, as listed in the following table.

For details about these options, including configuration rules, see the SR630 V4 product guide: https://lenovopress.lenovo.com/lp1971-thinksystem-sr630-v4-server#internal-storage

Table 7. Drive backplanes

Part number	Feature	Description	Maximum supported VX630 V4
Front 2.5-inch drive backplanes			
None	C2NN	ThinkSystem 1U V4 4x2.5" NVMe Gen5 Backplane	2
None	C21X	ThinkSystem 1U V4 10x2.5" NVMe Gen5 Backplane	1
Front E3.S drive backplanes			
None	C221	ThinkSystem V4 EDSFF E3.S 4x1T NVMe Gen5 Backplane	4
None	C222	ThinkSystem V4 EDSFF E3.S 2x2T NVMe Gen5 Backplane	4
Rear - 2.5-inch drive backplanes			
None	C226	ThinkSystem 1U V4 2x2.5" NVMe Gen5 Rear Backplane	1

For OS boot functions, the systems also support one M.2 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 boot drives.

For details about these options, including configuration rules, see the SR630 V4 product guide: https://lenovopress.lenovo.com/lp1971-thinksystem-sr630-v4-server#internal-storage

Table 8. Boot Drive Enablement

Part number	Feature	Description	Maximum supported VX630 V4
Front M.2 enablement kits			
4XH7B03857	C217	ThinkSystem M.2 RAID B540d-2HS SATA/NVMe Hot-Swap Controller Board	1
4Y37A93014	C0TT	ThinkSystem M.2 RAID B540d-2HS SATA/NVMe Adapter	1
Rear M.2 enablement kits			
4Y37A90064	C0JJ	ThinkSystem M.2 RAID B540p-2HS SATA/NVMe Adapter	1
Internal M.2 (non-hot-swap)			
4Y37A93746	C26V	ThinkSystem M.2 RAID B545i-2i SATA/NVMe Adapter	1

Internal drive options

This section lists the supported drives:

- Boot drives
- Internal drives for VX630 V4

Configuration Note:

- Express Storage Architecture (ESA) supports a minimum of 2 drives and a maximum of 24 drives. Please reference the vSAN ESA ReadyNode Hardware Guidance for additional requirements.
- VMware vSAN certification for Generic NVMe drives: The drives are listed in the Broadcom Compatibility Guide (BCG) 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 VX630 V4 systems support the following drive for boot functions.

Table 9. Boot drives

Part number	Feature	Description	Maximum supported VX630 V4
M.2 6 Gb SATA SSDs			
4XB7A82286	BQ1Z	ThinkSystem M.2 5400 PRO 240GB Read Intensive SATA 6Gb NHS SSD	2
4XB7A82287	BQ1Y	ThinkSystem M.2 5400 PRO 480GB Read Intensive SATA 6Gb NHS SSD	2
4XB7A82288	BQ20	ThinkSystem M.2 5400 PRO 960GB Read Intensive SATA 6Gb NHS SSD	2
4XB7A89422	BYF7	ThinkSystem M.2 ER3 240GB Read Intensive SATA 6Gb NHS SSD	2
4XB7A90049	BYF8	ThinkSystem M.2 ER3 480GB Read Intensive SATA 6Gb NHS SSD	2
4XB7A90230	BYF9	ThinkSystem M.2 ER3 960GB Read Intensive SATA 6Gb NHS SSD	2

Internal drives for VX630 V4

The following table lists the drives supported in the VX630 V4. For both All Flash Storage and Hybrid Storage configurations, drives are classified as either Cache drives, Capacity drives, or both.

Table 10. Drives supported in the VX630 V4

Part number	Feature	Description	All Flash ESA	All Flash Cache	All Flash Capacity
2.5-inch hot-swap PCIe 5.0 NVMe SSDs					
4XB7A93066	C0GK	ThinkSystem 2.5" U.2 PM9D3a 960GB Read Intensive NVMe PCIe 5.0 x4 HS SSD	12	No	No
4XB7A93067	C0GL	ThinkSystem 2.5" U.2 PM9D3a 1.92TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	12	No	No
4XB7A93068	C0GN	ThinkSystem 2.5" U.2 PM9D3a 3.84TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	12	No	No
4XB7A93069	C0GP	ThinkSystem 2.5" U.2 PM9D3a 7.68TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	12	No	No
4XB7A93095	C1WL	ThinkSystem 2.5" U.2 PM9D3a 15.36TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	12	No	No
4XB7A93097	C1WM	ThinkSystem 2.5" U.2 PM9D5a 800GB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	12	No	No
4XB7A93098	C1WN	ThinkSystem 2.5" U.2 PM9D5a 1.6TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	12	No	No
4XB7A93099	C1WP	ThinkSystem 2.5" U.2 PM9D5a 3.2TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	12	No	No
4XB7A93100	C1WR	ThinkSystem 2.5" U.2 PM9D5a 6.4TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	12	No	No
4XB7A93101	C1WQ	ThinkSystem 2.5" U.2 PM9D5a 12.8TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	12	No	No
2.5-inch hot-swap PCIe 4.0 NVMe SSDs					

Part number	Feature	Description	All Flash	All Flash	
			ESA	Cache	Capacity
4XB7A95054	C2BG	ThinkSystem 2.5" U.3 7500 MAX 800GB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12	No	No
4XB7A95055	C2BV	ThinkSystem 2.5" U.3 7500 MAX 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12	No	No
4XB7A95056	C2BW	ThinkSystem 2.5" U.3 7500 MAX 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12	No	No
4XB7A95057	C2BF	ThinkSystem 2.5" U.3 7500 MAX 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12	No	No
4XB7A95058	C2BX	ThinkSystem 2.5" U.3 7500 MAX 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12	No	No
4XB7A95049	C2BY	ThinkSystem 2.5" U.3 7500 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	12	No	No
4XB7A95050	C2BR	ThinkSystem 2.5" U.3 7500 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	12	No	No
4XB7A95051	C2BS	ThinkSystem 2.5" U.3 7500 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	12	No	No
4XB7A95052	C2BT	ThinkSystem 2.5" U.3 7500 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	12	No	No
4XB7A95053	C2BU	ThinkSystem 2.5" U.3 7500 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	12	No	No
E3.S hot-swap SSDs - PCIe 5.0 NVMe					
4XB7A93810	C0R2	ThinkSystem E3.S CD8P 1.92TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	16	No	No
4XB7A93811	C0R3	ThinkSystem E3.S CD8P 3.84TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	16	No	No
4XB7A93812	C0R4	ThinkSystem E3.S CD8P 7.68TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	16	No	No
4XB7A93813	C0R5	ThinkSystem E3.S CD8P 15.36TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	16	No	No
4XB7A95510	C3P7	ThinkSystem E3.S CD8P 1.6TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	16	No	No
4XB7A95511	C3P8	ThinkSystem E3.S CD8P 3.2TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	16	No	No
4XB7A95512	C3P9	ThinkSystem E3.S CD8P 6.4TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	16	No	No
4XB7A95513	C3PA	ThinkSystem E3.S CD8P 12.8TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	16	No	No

Network adapters

The VX630 V4 systems support the following networking options.

For details about these options, including configuration rules, see the SR630 V4 product guide:
https://lenovopress.lenovo.com/lp1971-thinksystem-sr630-v4-server#i-o-expansion
https://lenovopress.lenovo.com/lp1971-thinksystem-sr630-v4-server#network-adapters

Table 11. OCP network adapters

Part number	Feature	Description	Maximum supported VX630 V4
Gigabit Ethernet			
4XC7A08235	B5T1	ThinkSystem Broadcom 5719 1GbE RJ45 4-port OCP Ethernet Adapter	2
10 Gb Ethernet - 10GBASE-T			
4XC7A95696	C4GB	ThinkSystem Broadcom 57412 10GBase-T 4-Port OCP Ethernet Adapter	2
4XC7A08236	B5ST	ThinkSystem Broadcom 57416 10GBASE-T 2-port OCP Ethernet Adapter	2
4XC7A96732	C4HS	ThinkSystem Intel E610-T2 10GBase-T 2-Port OCP Ethernet Adapter(Generic FW)	2
25 Gb Ethernet			
4XC7A08237	BN2T	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-Port OCP Ethernet Adapter	2
4XC7A80567	BPPW	ThinkSystem Broadcom 57504 10/25GbE SFP28 4-Port OCP Ethernet Adapter	2
4XC7A62582	BE4T	ThinkSystem Mellanox ConnectX-6 Lx 10/25GbE SFP28 2-port OCP Ethernet Adapter	2
100 Gb Ethernet			
4XC7A99190	C62H	ThinkSystem Nvidia ConnectX-6 Dx 100GbE QSFP56 2-port OCP Ethernet Adapter(Generic)	2
4XC7A08243	BPPX	ThinkSystem Broadcom 57508 100GbE QSFP56 2-Port OCP Ethernet Adapter	2
400 Gb Ethernet			
4XC7A95695	C4CQ	ThinkSystem Broadcom 57608 2x200/1x400GbE QSFP112 OCP Ethernet Adapter(Generic FW))	2

Table 12. PCIe network adapters

Part number	Feature	Description	Maximum supported VX630 V4
Gigabit Ethernet			
7ZT7A00484	AUZV	ThinkSystem Broadcom 5719 1GbE RJ45 4-Port PCIe Ethernet Adapter	4
10 Gb Ethernet - 10GBASE-T			
4XC7A95697	C4GC	ThinkSystem Broadcom 57412 10GBase-T 4-Port PCIe Ethernet Adapter	4
7ZT7A00496	AUKP	ThinkSystem Broadcom 57416 10GBASE-T 2-Port PCIe Ethernet Adapter	5
4XC7A96733	C4HT	ThinkSystem Intel E610-T4 10GBase-T 4-Port PCIe Ethernet Adapter(Generic FW)	3
25 Gb Ethernet			
4XC7A08238	BK1H	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter	5
4XC7A80566	BNWM	ThinkSystem Broadcom 57504 10/25GbE SFP28 4-port PCIe Ethernet Adapter	3
4XC7A62580	BE4U	ThinkSystem Mellanox ConnectX-6 Lx 10/25GbE SFP28 2-port PCIe Ethernet Adapter	5
100 Gb Ethernet			
4XC7A08248	B8PP	ThinkSystem Mellanox ConnectX-6 Dx 100GbE QSFP56 2-port PCIe Ethernet Adapter	5
4XC7A08297	BK1J	ThinkSystem Broadcom 57508 100GbE QSFP56 2-Port PCIe 4 Ethernet Adapter	5
200 Gb Ethernet			
4XC7A81883	BQBN	ThinkSystem NVIDIA ConnectX-7 NDR200/200GbE QSFP112 2-port PCIe Gen5 x16 Adapter	5
4XC7A95572	C4GA	ThinkSystem Broadcom 57608 2x200/1x400GbE QSFP112 PCIe Ethernet Adapter	5

GPU adapters

The ThinkAgile VX630 V4 systems support the following GPU options.

For details about these options, including configuration rules, see the SR630 V4 product guide: https://lenovopress.lenovo.com/lp1971-thinksystem-sr630-v4-server#gpu-adapters

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.

Note: It is highly recommended to engage a Lenovo representative early in a project that includes the ThinkAgile VX Systems

Table 13. GPU adapters

Part number	Feature	Description	Maximum supported VX630 V4
4X67A84824	BS2C	ThinkSystem NVIDIA L4 24GB PCIe Gen4 Passive GPU	3

Fibre Channel host bus adapters

Table 14. Fibre Channel host bus adapters

Part number	Feature	Description	Maximum supported VX630 V4
64 Gb Fibre Channel HBAs			
4XC7A96744	C4L3	ThinkSystem QLogic QLE2872 64Gb 2-Port PCIe Fibre Channel Adapter(Generic FW)	5
4XC7A96458	C5FD	ThinkSystem Emulex LPe38102 64Gb 2-Port PCIe Fibre Channel Adapter	5
32 Gb Fibre Channel HBAs			
4XC7A08276	BA1F	ThinkSystem QLogic QLE2772 32Gb 2-Port PCIe Fibre Channel Adapter	5
4XC7A96457	C5FC	ThinkSystem Emulex LPe37102 32Gb 2-Port PCIe Fibre Channel Adapter	5
4XC7A08279	BA1G	ThinkSystem QLogic QLE2770 32Gb 1-Port PCIe Fibre Channel Adapter	5

Operating system support

The ThinkAgile VX630 V4 supports the following operating systems:

- ESXi 9.0 (Factory Installed)
- ESXi 8.0u3 (Factory Installed)

Configuration Note:

On the ThinkAgile VX630 V4, 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 tool 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 Broadcom Compatibility Guide (BCG) under the drive vendor company name instead of Lenovo. To check a drive for vSAN certification, search the BCG 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

**Phase 1 of VX650 V4 will not be shipped with the VX Deployer (FC: BLA3) and customer will have the ability to select the preferred version of ESXi to be factory installed. Phase 2 delivery will ship with this factory installed feature.

Software

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

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

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

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

For details and ordering information, see the VMware Software Solution Product Guide: https://lenovopress.com/lp1265-vmware-software-solution-product-guide

Configuration notes:

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

ThinkAgile VX Deployer Tool

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

VMware ESXi

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

VMware vCenter Server

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

Lenovo® XClarity Integrator

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

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

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

Warranty and Support

The VX630 V4 has a 3 or 5 -year warranty based on the machine type:

- 7DG5 - 3 or 5 year warranty

The ThinkAgile VX System can be configured with a three- or five-year hardware warranty with 24x7. In available countries, 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 Premier determination and resolution for hardware-related issues and escalate to VMware, on behalf of the customer, for software-related problem determination. VMware will contact the customer and will own the software-related problem resolution until closure.

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

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

For more information, consult the brochure Lenovo Operational Support Services for Data Centers Services.

Software maintenance

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

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

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

Deployment services

The following optional Lenovo basic installation services are available for the ThinkAgile VX Solutions:

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

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

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

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

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

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

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

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

Table 15. ThinkAgile Deployment offerings

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

For more information, refer to the Data Center Implementation Services web page:
https://www.lenovo.com/us/en/data-center/services/implementation-services/

Lenovo TruScale

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

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

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

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

Regulatory compliance

The server conforms to the following standards:

- ANSI/UL 62368-1
- IEC 62368-1 (CB Certificate and CB Test Report)
- CSA C22.2 No. 62368-1
- Argentina IEC 60950-1
- Mexico NOM-019
- India BIS 13252 (Part 1)
- Germany GS
- TUV-GS (EN62368-1, and EK1-ITB2000)
- Ukraine UkrCEPRO
- Morocco CMIM Certification (CM)
- Russia, Belorussia and Kazakhstan, TP EAC 037/2016 (for RoHS)
- Russia, Belorussia and Kazakhstan, EAC: TP TC 004/2011 (for Safety); TP TC 020/2011 (for EMC)
- CE, UKCA Mark (EN55032 Class A, EN62368-1, EN55035, EN61000-3-11, EN61000-3-12, (EU) 2019/424, and EN IEC 63000 (RoHS))
- FCC - Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003, issue 7, Class A
- CISPR 32, Class A, CISPR 35
- Korea KS C 9832 Class A, KS C 9835
- Japan VCCI, Class A
- Taiwan BSMI CNS15936, Class A; CNS15598-1; Section 5 of CNS15663
- Australia/New Zealand AS/NZS CISPR 32, Class A; AS/NZS 62368.1
- UL Green Guard, UL2819
- Energy Star 4.0
- EPEAT (NSF/ ANSI 426) Bronze
- Japanese Energy-Saving Act
- EU2019/424 Energy Related Product (ErP Lot9)
- TCO Certified
- China CCC certificate, GB17625.1; GB4943.1; GB/T9254
- China CECP certificate, CQC3135
- China CELP certificate, HJ 2507-2011

Lenovo Financial Services

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

- **Flexible**

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

- **100% Solution Financing**

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

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

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

- **24/7 Asset management**

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

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

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

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

Related publications and links

For more information, see these resources:

- Lenovo ThinkAgile VX Series
  https://www.lenovo.com/us/en/data-center/software-defined-infrastructure/ThinkAgile-VX-Series/p/WMD00000340
- ThinkAgile VX - Best Recipes
  http://datacentersupport.lenovo.com/us/en/solutions/HT505302
- VMware documentation
  https://docs.vmware.com/
- ThinkSystem SR630 V4 product guide:
  https://lenovopress.lenovo.com/lp1971-thinksystem-sr630-v4-server

Related product families

Product families related to this document are the following:

- 2-Socket Rack Servers
- Hyperconverged Infrastructure
- ThinkAgile VX Series for VMware

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