

Lenovo ThinkAgile VX7820 Appliance and VX 4U Certified Nodes (Intel Xeon SP Gen 2)

Product Guide

The Lenovo ThinkAgile VX7820 Appliance and VX 4U Certified Nodes are 4-socket and 8-socket 4U systems that feature the 2nd Generation Intel Xeon Scalable processors. These systems are based on the ThinkSystem SR950 with up to 28 cores per processor, up to 24 TB of TruDDR4 memory with up to 2933 MHz memory speeds, and an extensive selection of internal storage and networking options. VMware offers a unique, software-defined approach to hyperconvergence, leveraging the hypervisor to deliver compute, storage and management in a tightly integrated software stack.

The 4U systems are available either as an appliance or certified node:

- VX7820 Appliance for high performance workloads, supporting up to 4 processors
- VX 4U Certified Node, supporting up to 4 processors
- VX 4U Certified Node for SAP HANA, supporting up to 8 processors - certified by SAP for deploying SAP HANA solutions on hyperconverged infrastructure (HCI) in production environments.

Common uses for these systems are high-performance workloads such as databases, e-mail and collaboration, and workload-balancing clusters.



Figure 1. Lenovo ThinkAgile VX7820 Appliance and VX 4U Certified Nodes

Did you know?

The ThinkAgile VX7820 Appliance and VX 4U Certified Nodes are built on the Lenovo ThinkSystem SR950 server that features the ultimate in enterprise-class scalability, performance, reliability, management, and security.

The VX7820 Appliance offers ThinkAgile Advantage Single Point of Support for quick 24/7 problem reporting and resolution.

Key features

ThinkAgile features

The ThinkAgile VX7820 Appliance and VX 4U Certified Nodes offer the following key features:

- Factory-integrated, pre-configured ready-to-go appliances 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.
- Appliances include Lenovo ThinkAgile Advantage Single Point of Support for quick 24/7 problem reporting and resolution.
- Offer Lenovo deployment services to get customers up and running quickly.

The VMware software running on ThinkAgile VX7820 Appliance and VX 4U Certified Nodes delivers the following key features:

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

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

Hardware features

The VX systems are based on the SR950 and have the following hardware features:

Scalability and performance

The VX systems offers numerous features to boost performance, improve scalability, and reduce costs:

- Supports second-generation Intel Xeon Processor Scalable processors
- High-performance scale-out offering where up to 8 processors and 48 DIMMs are housed in 4U of rack space.
- Supports the Gold and Platinum level processors in the Intel Xeon Processor Scalable Family, including the "top bin" highest-performing 205 W processors available from Intel.
- Up to eight processors, each with up to 28 cores and 56 threads to maximize the concurrent execution of multithreaded applications.
- Support for up to 96 TruDDR4 DIMMs operating at up to 2933 MHz means you have the fastest available memory subsystem and memory capacity of up to 24 TB using 96x 256 GB 3DS RDIMMs.
- Supports 2933 MHz Performance+ memory DIMMs which allow configurations of 2 DIMMs per channel to operate at the 2933 MHz rated memory speed.
- Up to 24x 2.5-inch SSDs provide a flexible and scalable all-in-one platform to meet your increasing demands.
- Of the 24x drive bays, support for up to 12 NVMe PCIe SSDs maximizes drive I/O performance, in terms of throughput, bandwidth, IOPS, and latency.
- The use of solid-state drives (SSDs) instead of, or along with, mechanical hard disk drives (HDDs), can improve I/O performance. An SSD can support up to 100 times more I/O operations per second (IOPS) than a typical HDD.
- Supports an M.2 adapter design for convenient operating system boot functions. Available M.2 adapters support either one M.2 drive, or two M.2 drives in a RAID 1 configuration, for the boot drive performance and reliability.
- The server has a dedicated flexible LAN-on-motherboard (LOM) slot offering a variety of Ethernet adapters that do not occupy one of the standard PCIe slots.
- A total of up to 17 rear-accessible PCIe slots: 14 general-purpose PCIe 3.0 slots plus slots dedicated to the LOM adapter and two ML2 adapters. In addition, the server has two internal slots for RAID or HBA adapters.
- The server offers PCI Express 3.0 I/O expansion capabilities that improve the theoretical maximum bandwidth by almost 100% (8 GTps per link using 128b/130b encoding) compared to the previous generation of PCI Express 2.0 (5 GTps per link using 8b/10b encoding).

Availability and serviceability

The VX systems are based on a modular service model where all components and options can be removed from the front or rear of the system, even parts that are located in the center of the machine such as fans, memory DIMMs, and processors. The VX7820 and VX 4U Certified Nodes are designed for 99.99% availability.

The VX systems provides 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), memory mirroring, and memory rank sparing for redundancy in the event of a non-correctable memory failure.

- The Dual M.2 Boot Adapter uses RAID-1 so that the two M.2 drives installed are configured as a redundant pair.
- The server has up to four hot-swap N+N redundant power supplies to help keep the server operational in the event of a power supply or utility supply failure.
- Each compute tray has 6 hot-swap N+1 redundant fans (a total of 12 fans when two compute trays are installed) to maximize availability for business-critical applications.
- The power source-independent light path diagnostics functionality provides individual light path LEDs that lead the technician to failed (or failing) components, which simplifies servicing, speeds up problem resolution, and helps increase system availability.
- The included LCD system information display panel provides greater diagnostic function by listing all error messages and VPD data needed for a service call, thereby speeding problem resolution and increasing system 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, and flash storage adapters), fans, power supplies, RAID controllers, ambient temperature, and subcomponent temperatures. Alerts can be surfaced through the XClarity Controller to managers such as Lenovo XClarity Administrator, VMware vCenter, and Microsoft System Center. These proactive alerts let you take appropriate actions in advance of possible failure, thereby increasing server uptime and application availability.
- Solid-state drives (SSDs) offer more reliability than mechanical HDDs for greater uptime.
- The built-in XClarity Controller 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 diagnostic functions and collects service data to USB key drive or remote CIFS share folder for troubleshooting, to reduce servicing time.
- Auto-restart in the event of a momentary loss of AC power (based on power policy setting in the XClarity Controller service processor).
- Support for the XClarity Administrator Mobile app running on a supported smartphone and connected to the server through the service-enabled USB port, enables additional local systems management functions.
- Three-year or one-year customer-replaceable unit and onsite limited warranty, 9 x 5 next business day. Optional service upgrades are available.

Manageability and security

Powerful systems management features simplify local and remote management of the VX systems:

- The server includes an XClarity Controller (XCC) to monitor server availability and perform remote management. XCC Enterprise is included as standard, which enables remote KVM and remote media files (ISO and IMG image files), boot capture, and power capping.
- Lenovo XClarity Administrator offers comprehensive hardware management tools that help to increase uptime, reduce costs, and improve productivity through advanced server management capabilities.
- New 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.
- Integrated Trusted Platform Module (TPM) 2.0 support enables advanced cryptographic functionality, such as digital signatures and remote attestation.
- Supports Secure Boot to ensure that only a digitally signed operating system can be used. Supported with HDDs and SSDs as well as M.2 drives in the M.2 Adapter.
- 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.

Energy efficiency

The VX systems offers the following energy-efficiency features to save energy, reduce operational costs, and increase energy availability:

- The server can be used in environments up to ASHRAE A4 with ambient temperatures up to 45 °C.
- The server is Energy Star 2.1 compliant.
- Energy-efficient planar components help lower operational costs.
- High-efficiency power supplies with 80 PLUS Platinum certifications
- Intel Intelligent Power Capability powers individual processor elements on and off as needed, to reduce energy draw.
- Low-voltage 1.2 V DDR4 memory offers energy savings compared to 1.35 V and 1.5 V DDR3 DIMMs.
- Solid-state drives (SSDs) consume as much as 80% less power than mechanical 2.5-inch HDDs.
- Optional Lenovo XClarity Energy Manager provide advanced data center power notification, analysis, and policy-based management to help achieve lower heat output and reduced cooling needs.

Components and connectors

The ThinkAgile VX7820 Appliance and VX 4U Certified Nodes are based on the ThinkSystem SR950 server.

The following figure shows the front view of the VX systems.

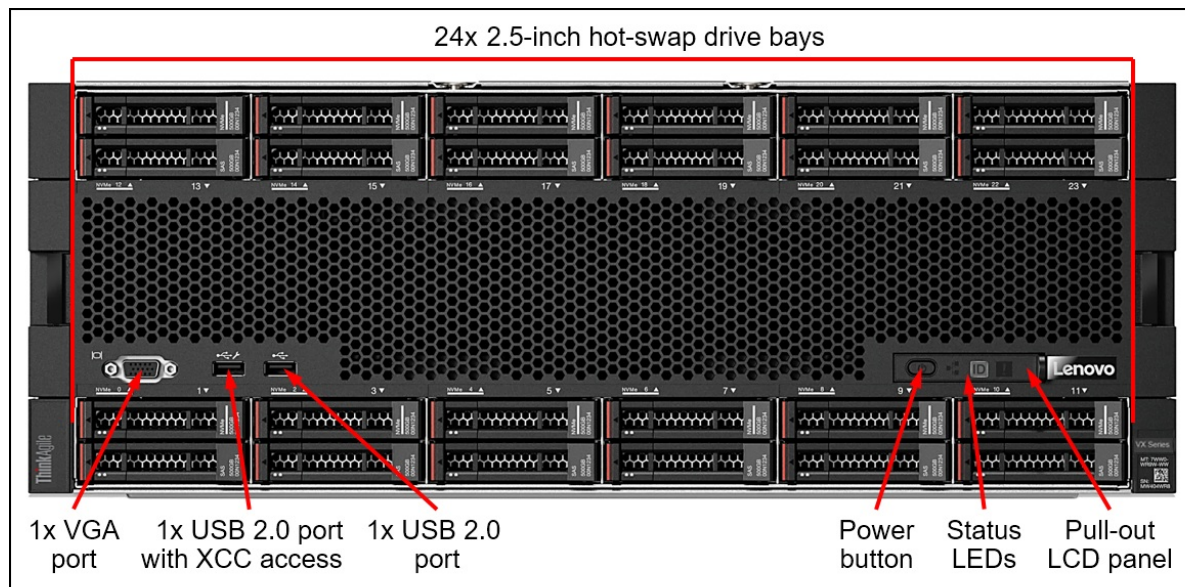


Figure 2. VX7820 and VX 4U Certified Nodes front view

The front of the ThinkAgile VX7820 Appliance and VX 4U Certified Nodes includes the following components:

- Up to 24x SFF hot-swap drive bays
- One VGA port
- One USB 2.0 port with XClarity Controller access
- One USB 2.0 port
- A Power button
- Status LEDs
- A Pull-out LCD panel

The following figure shows the rear view of the VX systems.

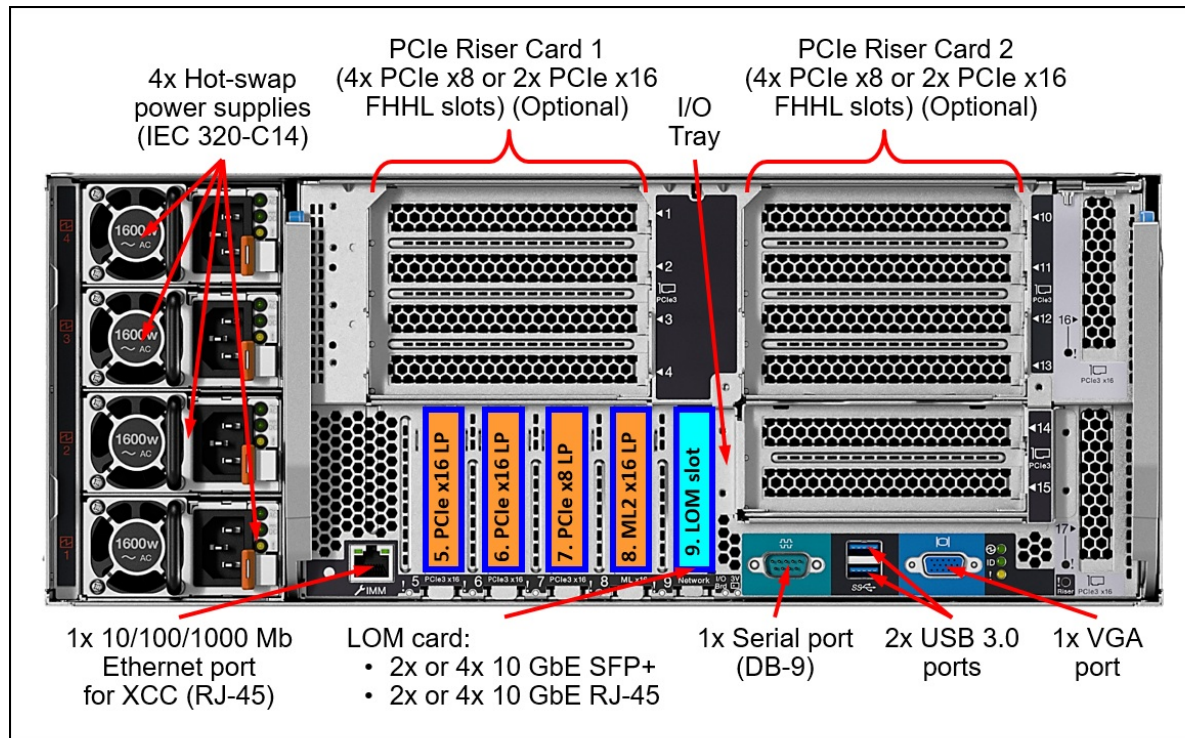


Figure 3. VX7820 and VX 4U Certified Nodes rear view

The rear of the ThinkAgile VX7820 Appliance and VX 4U Certified Nodes includes the following components:

- PCIe Riser Card 1 (optional): Up to four PCIe slots
- I/O Tray:
 - Three PCIe slots
 - One ML2 slot
 - One LOM card slot
- PCIe Riser Card 2 (optional): Up to four PCIe slots
- One 1 GbE port for XClarity Controller
- One DB-9 serial port
- Two USB 3.0 ports
- One VGA port
- Two or four hot-swap power supplies (four power supplies shown)

Standard specifications

The ThinkAgile VX7820 Appliance and VX 4U Certified Nodes are based on the ThinkSystem SR950 server.

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

Table 1. Comparison of features

	VX7820	VX 4U	VX 4U for HANA
VX offering type	Appliance	Certified Node	Certified Node
Target workloads	High performance	High performance	SAP HANA
Base MTM	7Z13CTO1WW	7Z12CTO1WW	7Z12CTO2WW
Form Factor	4U	4U	4U
Base platform	SR950	SR950	SR950
CPU	2x or 4x Intel Xeon SP Gen 2	2x or 4x Intel Xeon SP Gen 2	2x, 4x or 8x Intel Xeon SP Gen 2
Memory	48x DDR4 2933 MHz (12 TB max)	48x DDR4 2933 MHz (12 TB max)	48x DDR4 2933 MHz (12 TB max)
Hot-swap drive bays	Up to 24x 2.5", either: <ul style="list-style-type: none"> • All SAS/SATA • 50/50: SAS/SATA & AnyBay 	Up to 24x 2.5", either: <ul style="list-style-type: none"> • All SAS/SATA • 50/50: SAS/SATA & AnyBay 	Up to 24x 2.5", either: <ul style="list-style-type: none"> • All SAS/SATA • 50/50: SAS/SATA & AnyBay
Drive Configuration	All Flash	All Flash	All Flash
Disk Groups	2 - 5	2 - 5	2 - 4
HBA	430-8i HBA 430-16i HBA Onboard NVMe	430-8i HBA 430-16i HBA Onboard NVMe	430-8i HBA 430-16i HBA Onboard NVMe
Boot drives	2x M.2 SATA	2x M.2 SATA	2x M.2 SATA
LOM networking	1x LOM adapter, 1Gb or 10Gb	1x LOM adapter, 1Gb or 10Gb	1x LOM adapter, 1Gb or 10Gb
PCIe networking	Up to 14x adapters 10Gb, 25Gb, 40Gb, 100Gb	Up to 14x adapters 10Gb, 25Gb, 40Gb, 100Gb	Up to 14x adapters 10Gb, 25Gb, 40Gb, 100Gb
GPUs	No support	No support	No support
Hypervisor	VMware ESXi	VMware ESXi	VMware ESXi

The following table lists the system specifications of the ThinkAgile VX7820 Appliance and VX 4U Certified Nodes.

Table 2. System specifications

Attribute	Specification
Machine types	7Z13 - VX7820 7Z12 - 4U Certified Nodes
Form factor	4U Rack-mount
Processors	VX7820 and VX 4U Certified Node: 2x or 4x 2nd Gen Intel Xeon Scalable processors VX 4U Certified Node for SAP HANA: 2x, 4x or 8x 2nd Gen Intel Xeon Scalable processors
Chipset	Intel C624
Memory	48 DIMM slots (up to 12 DIMMs per processor; six memory channels per processor with two DIMMs per channel) with support for RDIMMs and 3DS RIMMs up to 2933 MHz.
Persistent Memory	No support

Attribute	Specification
Memory protection	Error correction code (ECC), Single Device Data Correction (SDDC; for x4-based memory DIMMs), Adaptive Double Device Data Correction (ADDDC; for x4-based memory DIMMs and Intel Xeon Gold or Platinum processors), patrol scrubbing, and demand scrubbing.
Memory capacity	Up to 12 TB with 256 GB 3DS RDIMMs (Up to 3 TB per processor) Note: Node configurations with more than 1 TB of memory capacity per socket require processors that support up to 4.5 TB (L-suffix) per socket.
Drive bays	Up to 24x 2.5" hot-swap SAS/SATA drive bays, configured using up to 6x 4-bay backplanes. Two backplane choices: <ul style="list-style-type: none"> • SAS/SATA backplane - 4x drives bays supporting SAS or SATA drives • SAS/SATA/NVMe backplane, 4x bays total: 2x drives bays supporting SAS or SATA drives, plus 2x drive bays supporting SAS or SATA or NVMe drive bays. <p>With 6x SAS/SATA/NVMe backplanes, the system supports 24 SAS/SATA drives or 12 SAS/SATA + 12 NVMe drives. NVMe drives use a PCIe 3.0 x4 connection.</p> <p>A minimum of 2 backplanes are required.</p>
Disk groups	<ul style="list-style-type: none"> • VX7820: 2-5 disk groups • VX 4U Certified Node: 2-5 disk groups • VX 4U Certified Node for SAP HANA: 2-4 disk groups
Storage controller	<ul style="list-style-type: none"> • 12 Gbps SAS/6 Gbps SATA (non-RAID): <ul style="list-style-type: none"> ◦ 430-8i HBA. ◦ 430-16i HBA. • NVMe PCIe (non-RAID): Onboard NVMe.
Network interfaces	Integrated 10Gb Ethernet controller, based on the Intel Ethernet Connection X722. Supports a 1Gb or 10Gb LOM adapter. Supports 1 or 2 ML2 adapters. Supports up to 14 PCIe network adapters, ranging from 1Gb to 100Gb Ethernet.
Boot volume	2x M.2 non-hot-swap SSDs (RAID-1).

Attribute	Specification
I/O expansion slots	<p>Up to 17 PCIe 3.0 rear-accessible slots:</p> <ul style="list-style-type: none"> • Slots 1-4 on a riser, one of: <ul style="list-style-type: none"> ◦ Riser with 4x PCIe 3.0 x16 slots, all full-height half-length, all 75W ◦ Riser with 2x PCIe 3.0 x16 slots, all full-height half-length, both 75W ◦ Riser with 4x PCIe 3.0 x8 slots, full-height half-length, all 75W • Slot 5: PCIe 3.0 x16, low-profile, 75W • Slot 6: PCIe 3.0 x16, low-profile, 75W • Slot 7: PCIe 3.0 x8, low-profile, 75W • Slot 8: PCIe 3.0 x16 ML2, low-profile (supports NC-SI) • Slot 9: PCIe 3.0 x8 LOM adapter slot, low-profile (supports NC-SI) • Slots 10-15 on a riser, one of: <ul style="list-style-type: none"> ◦ Riser 5x16+ML2: <ul style="list-style-type: none"> ■ Five PCIe 3.0 x16 slots, all full-height half-length, all 75W ■ One PCIe 3.0 x16 ML2 slot, full-height half-length, 30W (no NC-SI support) ◦ Riser 2x16: Two PCIe 3.0 x16 slots, all full-height half-length, both 75W ◦ Riser 4x8: Four PCIe 3.0 x8 slots, full-height half-length, all 75W • Slot 16-17 on a riser: <ul style="list-style-type: none"> ◦ PCIe 3.0 x8 low profile, 75W ◦ PCIe 3.0 x8 low profile, 75W <p>Additional internal PCIe slots:</p> <ul style="list-style-type: none"> • One or two PCIe 3.0 x8 slots for storage adapters • M.2 adapter slot
Ports	<ul style="list-style-type: none"> • Front: 1x USB 2.0 port with XClarity Controller access, 1x USB 3.0 port, 1x VGA port. • Rear: 2x USB 3.0 ports, 1x VGA port, 1x DB-9 serial port, 1x RJ-45 10/100/1000 Mb Ethernet port for systems management.
Cooling	Six hot-swap fans with N+1 redundancy in the compute tray.
Power supply	Two or four redundant hot-swap 1100 W (100 - 240 V), 1600 W (200 - 240 V), or 2000 W (200 - 240 V) High Efficiency power supplies (80 PLUS Platinum certified).
Video	Matrox G200 with 16 MB memory integrated into the XClarity Controller. Maximum resolution is 1920x1200 at 60 Hz with 32 bits per pixel.
Hot-swap parts	SSDs and HDDs, power supplies, and fans.
Systems management	Lenovo XClarity Controller (XCC) Enterprise (Pilot 4 chip), proactive platform alerts, light path diagnostics, Lenovo XClarity Administrator and XClarity Pro, Lenovo XClarity Integrator for VMware vCenter (optional), Lenovo XClarity Energy Manager (optional).
Security features	Power-on password, administrator's password, secure firmware updates, Trusted Platform Module (TPM) 1.2 or 2.0 (configurable UEFI setting).
Software	<p>Software licenses that can be purchased from Lenovo or provided by the customer:</p> <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: 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

Attribute	Specification
Warranty and support	Three-, four-, or five-year customer-replaceable unit and onsite limited warranty with selectable service levels: 9x5 coverage with next business day (NBD) parts delivered (base warranty), 9x5 coverage with NBD onsite response (Foundation Service), 24x7 coverage with 4-hour onsite response or 24-hour committed repair (select areas) (Essential Service), or 24x7 coverage with 2-hour onsite response or 6-hour committed repair (select areas) (Advanced Service). Also available are 1-year and 2-year post-warranty extensions, and YourDrive YourData.
Software maintenance	One-, three-, or five-year software support and subscription is included with the VMware software licenses available from Lenovo (optional).
Dimensions	Height: 173 mm (6.8 in.), width: 447 mm (17.6 in.), depth: 800 mm (31.5 in.)
Weight	Maximum configuration: 58.7 kg (129.4 lb)

Models

Factory-integrated models of the ThinkAgile VX Series Appliances are configured by using the Lenovo Data Center Solution Configurator (DCSC), <http://dcsc.lenovo.com>.

During the configuration process, you are selecting one of the Configure-to-Order (CTO) base models first, and then you are adding components (processors, memory, drives, and network adapters) to the selected model.

Note: You are required to engage a Lenovo representative in the project that includes the ThinkAgile VX Series Appliances. ThinkAgile VX certified nodes do not have this requirement.

The following table lists the CTO base models.

Table 3. CTO base models

Machine Type/Model	Description
7Z13CTO1WW	ThinkAgile VX7820 Appliance
7Z12CTO1WW	ThinkAgile VX 4U Certified Node
7Z12CTO2WW	ThinkAgile VX 4U Certified Node for SAP HANA

Comparison with the ThinkSystem SR950

The ThinkAgile VX7820 Appliance and VX 4U Certified Nodes are based on the ThinkSystem SR950 server, however there are key differences:

- No RAID adapter support
- No VROC RAID support
- No HDD support
- No SED drive support
- No Fibre Channel support
- No InfiniBand support
- Drives are categorized as Cache or Capacity drives and are formed as disk groups (up to 5 disk groups)

For details about the ThinkSystem SR950, see the SR950 product guide:

<https://lenovopress.com/lp1054-thinksystem-sr950-server-xeon-sp-gen-2>

To verify what specific hardware components are supported with the VX7820 and VX 4U Certified Nodes, see the DCSC configurator:

<https://dcsc.lenovo.com>

Processors

The VX7820 and VX 4U Certified Nodes systems support two or four processors. The VX 4U HANA system also supports eight processors. For the VX 4U HANA system, support for eight processors requires that the 8S feature code be selected at ordering, as listed in the following table.

Table 4. Feature codes for 4-socket and 8-socket configurations

Feature	Description	Maximum supported		
		VX7820	VX 4U	VX 4U HANA
BD1L	ThinkAgile 4U 4S	1	1	1
BF07	ThinkAgile 4U 8S	No	No	1

The following table lists the supported processors.

For details about these processors, including configuration rules, see the SR950 product guide:

<https://lenovopress.com/lp1054-thinksystem-sr950-server-xeon-sp-gen-2#processors>

Table 5. Processor choices

Part number	Feature	Description	Maximum supported		
			VX7820	VX 4U	VX 4U HANA
4XG7A14952	B4HN	Intel Xeon Gold 5215 10C 85W 2.5GHz Processor	4	4	8
4XG7A14966	B4P9	Intel Xeon Gold 5215L 10C 85W 2.5GHz Processor	4	4	8
4XG7A14951	B4HM	Intel Xeon Gold 5217 8C 115W 3.0GHz Processor	4	4	8
4XG7A14950	B4HL	Intel Xeon Gold 5218 16C 125W 2.3GHz Processor	4	4	8
4XG7A37044	B6BS	Intel Xeon Gold 5218B 16C 125W 2.3GHz Processor	4	4	8
4XG7A14961	B4P3	Intel Xeon Gold 5218T 16C 105W 2.1GHz Processor	4	4	8
4XG7A14949	B4HK	Intel Xeon Gold 5220 18C 125W 2.2GHz Processor	4	4	8
4XG7A16677	B6CW	Intel Xeon Gold 5220S 18C 125W 2.7GHz Processor	4	4	8

Part number	Feature	Description	Maximum supported		
			VX7820	VX 4U	VX 4U HANA
4XG7A16671	B6CQ	Intel Xeon Gold 5220T 18C 105W 1.9GHz Processor	4	4	8
4XG7A16662	B5S1	Intel Xeon Gold 5222 4C 105W 3.8GHz Processor	4	4	8
4XG7A16676	B6CV	Intel Xeon Gold 6222V 20C 115W 1.8GHz Processor	4	4	8
4XG7A16667	B6CL	Intel Xeon Gold 6226 12C 125W 2.7GHz Processor	4	4	8
4XG7A14944	B4HJ	Intel Xeon Gold 6230 20C 125W 2.1GHz Processor	4	4	8
4XG7A16663	B5RY	Intel Xeon Gold 6230N 20C 125W 2.3GHz Processor	4	4	8
4XG7A16670	B6CP	Intel Xeon Gold 6230T 20C 125W 2.1GHz Processor	4	4	8
4XG7A16666	B6CK	Intel Xeon Gold 6234 8C 130W 3.3GHz Processor	4	4	8
4XG7A16665	B6CJ	Intel Xeon Gold 6238 22C 140W 2.1GHz Processor	4	4	8
4XG7A16672	B6CR	Intel Xeon Gold 6238L 22C 140W 2.1GHz Processor	4	4	8
4XG7A14960	B4P2	Intel Xeon Gold 6238T 22C 125W 1.9GHz Processor	4	4	8
4XG7A14947	B4HH	Intel Xeon Gold 6240 18C 150W 2.6GHz Processor	4	4	8
4XG7A16673	B6CS	Intel Xeon Gold 6240L 18C 150W 2.6GHz Processor	4	4	8
4XG7A14954	B4NV	Intel Xeon Gold 6240Y 18/14/8C 150W 2.6GHz Processor	4	4	8
4XG7A14946	B4HG	Intel Xeon Gold 6242 16C 150W 2.8GHz Processor	4	4	8
4XG7A14945	B4HF	Intel Xeon Gold 6244 8C 150W 3.6GHz Processor	4	4	8
4XG7A14944	B4HE	Intel Xeon Gold 6248 20C 150W 2.5GHz Processor	4	4	8
4XG7A14942	B4HC	Intel Xeon Gold 6252 24C 150W 2.1GHz Processor	4	4	8
4XG7A16674	B6CT	Intel Xeon Gold 6252N 24C 150W 2.3GHz Processor	4	4	8
4XG7A14943	B4HD	Intel Xeon Gold 6254 18C 200W 3.1GHz Processor	4	4	8
4XG7A16675	B6CU	Intel Xeon Gold 6262V 24C 135W 1.9GHz Processor	4	4	8
4XG7A16661	B5RZ	Intel Xeon Platinum 8253 16C 125W 2.2GHz Processor	4	4	8
4XG7A16660	B5S2	Intel Xeon Platinum 8256 4C 105W 3.8GHz Processor	4	4	8
4XG7A63481	B4HB	Intel Xeon Platinum 8260 24C 165W 2.4GHz Processor	4	4	8
4XG7A14957	B4P7	Intel Xeon Platinum 8260L 24C 165W 2.4GHz Processor	4	4	8
4XG7A14953	B4NU	Intel Xeon Platinum 8260Y 24/20/16C 165W 2.4GHz Processor	4	4	8
4XG7A14940	B4HA	Intel Xeon Platinum 8268 24C 205W 2.9GHz Processor	4	4	8
4XG7A14939	B4H9	Intel Xeon Platinum 8270 26C 205W 2.7GHz Processor	4	4	8
4XG7A14934	B4H4	Intel Xeon Platinum 8276 28C 165W 2.2GHz Processor	4	4	8
4XG7A14963	B4P6	Intel Xeon Platinum 8276L 28C 165W 2.2GHz Processor	4	4	8
4XG7A14937	B4H7	Intel Xeon Platinum 8280 28C 205W 2.7GHz Processor	4	4	8
4XG7A14962	B4P5	Intel Xeon Platinum 8280L 28C 205W 2.7GHz Processor	4	4	8

Memory

The VX7820 and VX 4U Certified Nodes systems support the following memory options. The systems support 24 or 48 DIMMs with four processors. VX 4U HANA systems support 96 DIMMs with eight processors.

For details about these options, including configuration rules, see the SR950 product guide:

<https://lenovopress.com/lp1054-thinksystem-sr950-server-xeon-sp-gen-2#memory>

Table 6. Memory options

Part number	Feature	Description	Maximum supported		
			VX7820	VX 4U	VX 4U HANA
2933 MHz RDIMMs					
4ZC7A08707	B4LY	ThinkSystem 16GB TruDDR4 2933 MHz (1Rx4 1.2V) RDIMM	48	48	96
4ZC7A08708	B4H2	ThinkSystem 16GB TruDDR4 2933MHz (2Rx8 1.2V) RDIMM	48	48	96
4ZC7A08709	B4H3	ThinkSystem 32GB TruDDR4 2933MHz (2Rx4 1.2V) RDIMM	48	48	96
4ZC7A08710	B4H4	ThinkSystem 64GB TruDDR4 2933MHz (2Rx4 1.2V) RDIMM	48	48	96
2933 MHz 3DS RDIMMs					
4ZC7A15113	B587	ThinkSystem 128GB TruDDR4 2933MHz (4Rx4 1.2V) 3DS RDIMM	48	48	96
4ZC7A08727	B4Y3	ThinkSystem 256GB TruDDR4 2933MHz (8Rx4 1.2V) 3DS RDIMM	48	48	96
2933 MHz Performance+ RDIMMs					
4X77A12184	B5N6	ThinkSystem 16GB TruDDR4 Performance+ 2933MHz (2Rx8 1.2V) RDIMM	48	48	96
4X77A12185	B5N7	ThinkSystem 32GB TruDDR4 Performance+ 2933MHz (2Rx4 1.2V) RDIMM	48	48	96
4X77A12186	B5N8	ThinkSystem 64GB TruDDR4 Performance+ 2933MHz (2Rx4 1.2V) RDIMM	48	48	96
2933 MHz Performance+ 3DS RDIMMs					
4X77A12187	B5N9	ThinkSystem 128GB TruDDR4 Performance+ 2933MHz (4Rx4 1.2V) 3DS RDIMM	48	48	96
4X77A64957	B5NA	ThinkSystem 256GB TruDDR4 Performance+ 2933MHz (8Rx4 1.2V) 3DS RDIMM	48	48	96

Internal storage

The VX7820 and VX 4U Certified Nodes support up to 24x 2.5-inch hot-swap drive bays, accessible from the front of the system, as shown in the following figure. Drive bays are installed in sets of 4 drives based on the backplanes.

Each backplane is either:

- 4x SAS/SATA, or
- 2x SAS/SATA + 2x SAS/SATA/NVMe

A minimum of 2 backplanes (8 drive bays) is required.

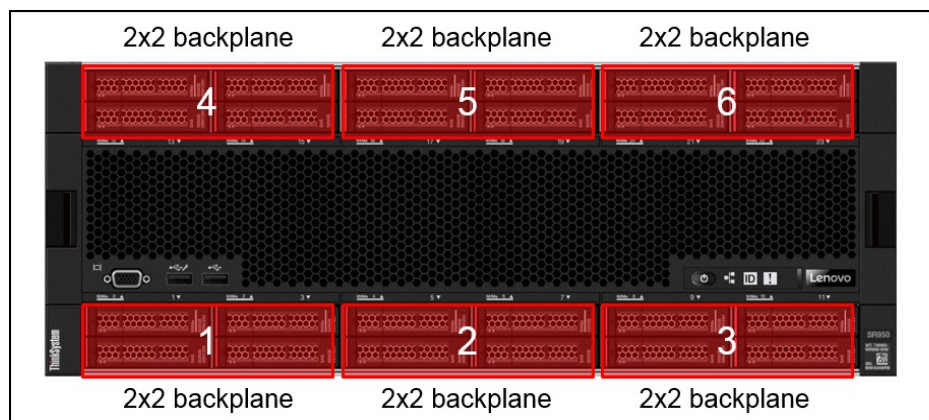


Figure 4. Location of backplanes

Ordering information is listed in the following table.

Table 7. Drive backplanes

Part number	Feature	Description	Maximum supported		
			VX7820	VX 4U	VX 4U HANA
7XB7A03966	AUN6	ThinkSystem 2.5" SAS/SATA 2x2 Bay Backplane Kit Support for 4x SAS/SATA drives	6	6	6
7XB7A03965	AUN5	ThinkSystem 2.5" SAS/SATA/NVMe 2x2 Bay Backplane Kit Support for 2x SAS/SATA drives and 2x SAS/SATA/NVMe drives	6	6	6

The server also supports either one or two M.2 drives for OS boot purposes, installed in an M.2 adapter, internal to the server.

For details about these components, including configuration rules, see the SR950 product guide:

<https://lenovopress.com/lp1054-thinksystem-sr950-server-xeon-sp-gen-2#internal-storage>

Disk Groups

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

Table 8. Disk Groups

Drive Selection Rules	VX7820	VX 4U	VX 4U HANA
Model Type	All Flash (AF)	All Flash (AF)	All Flash (AF)
Maximum number of drives	24	24	24
Number of Disk Groups	2 - 5	2 - 5	2 - 4
Number of Cache drives per Disk Group	1	1	1
Number of Capacity drives per Disk Group	2 - 7	2 - 7	2 - 7
Allowed Capacity Drive quantities:			
1 Disk Group (1 Cache drive)	No support	No support	No support
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
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
4 Disk Groups (4 Cache drives)	8, 12, 16 or 20	8, 12, 16 or 20	8, 12, 16 or 20
5 Disk Groups (5 Cache drives)	5, 10 or 15	5, 10 or 15	No support

Controllers for internal storage

The VX7820 and VX 4U Certified Nodes systems support the following storage controller options.

Table 9. Controllers for internal storage

Part number	Feature	Description	Maximum supported		
			VX7820	VX 4U	VX 4U HANA
7Y37A01088	AUNL	ThinkSystem 430-8i SAS/SATA 12Gb HBA	2	2	2
4Y37A78601	BM51	ThinkSystem 440-8i SAS/SATA PCIe Gen4 12Gb HBA	2	2	2
7Y37A01089	AUNM	ThinkSystem 430-16i SAS/SATA 12Gb HBA	2	2	2
4Y37A78602	BM50	ThinkSystem 440-16i SAS/SATA PCIe Gen4 12Gb HBA	2	2	2

Internal drive options

This section lists the supported drives:

- [Boot drives](#)
- [Internal drives for VX7820](#)
- [Internal drives for VX 4U Certified Node](#)
- [Internal drives for VX 4U for SAP HANA Certified Node](#)

Boot drives

The VX7820 and VX 4U Certified Nodes systems support the following drive for boot functions.

Table 10. Boot drives

Part number	Feature	Description	Maximum supported		
			VX7820	VX 4U	VX 4U HANA
4XB7A17071	B8HS	ThinkSystem M.2 5300 240GB SATA 6Gbps Non-Hot Swap SSD	2	2	2
4XB7A17073	B919	ThinkSystem M.2 5300 480GB SATA 6Gbps Non-Hot Swap SSD	2	2	2

Internal drives for VX7820 Appliance

The following table lists the drives supported in the VX7820 Appliance. Drives are classified as either Cache drives, Capacity drives, or both.

Table 11. Drives supported in the VX7820 Appliance

Part number	Feature	Description	All Flash Storage	
			Cache	Capacity
2.5-inch hot-swap 12 Gb SAS SSDs				
4XB7A70006	BG07	ThinkSystem 2.5" Nytro 3732 400GB Performance SAS 12Gb Hot Swap SSD	24	24
4XB7A70005	BG06	ThinkSystem 2.5" Nytro 3732 800GB Performance SAS 12Gb Hot Swap SSD	24	24
4XB7A70004	BG05	ThinkSystem 2.5" Nytro 3732 1.6TB Performance SAS 12Gb Hot Swap SSD	24	24
4XB7A70003	BG04	ThinkSystem 2.5" Nytro 3732 3.2TB Performance SAS 12Gb Hot Swap SSD	24	24
4XB7A10230	B4Y5	ThinkSystem 2.5" SS530 800GB Performance SAS 12Gb Hot Swap SSD	24	24
4XB7A17062	B8HU	ThinkSystem 2.5" PM1645a 800GB Mainstream SAS 12Gb Hot Swap SSD	24	24
4XB7A17063	B8J4	ThinkSystem 2.5" PM1645a 1.6TB Mainstream SAS 12Gb Hot Swap SSD	24	24
4XB7A17064	B8JD	ThinkSystem 2.5" PM1645a 3.2TB Mainstream SAS 12Gb Hot Swap SSD	24	24
4XB7A38175	B91A	ThinkSystem 2.5" PM1643a 960GB Entry SAS 12Gb Hot Swap SSD	No	24
4XB7A38176	B91B	ThinkSystem 2.5" PM1643a 1.92TB Entry SAS 12Gb Hot Swap SSD	No	24
4XB7A17054	B91C	ThinkSystem 2.5" PM1643a 3.84TB Entry SAS 12Gb Hot Swap SSD	24	24
4XB7A17055	B91D	ThinkSystem 2.5" PM1643a 7.68TB Entry SAS 12Gb Hot Swap SSD	24	24
4XB7A17056	BC4R	ThinkSystem 2.5" PM1643a 15.36TB Entry SAS 12Gb Hot Swap SSD	24	24
2.5-inch hot-swap 6 Gb SATA SSDs				
4XB7A17125	BA7Q	ThinkSystem 2.5" S4620 480GB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A17126	BA4T	ThinkSystem 2.5" S4620 960GB Mixed Use SATA 6Gb HS SSD	24	24

Part number	Feature	Description	All Flash Storage	
			Cache	Capacity
4XB7A17127	BA4U	ThinkSystem 2.5" S4620 1.92TB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A17128	BK7L	ThinkSystem 2.5" S4620 3.84TB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A17088	B8HY	ThinkSystem 2.5" 5300 480GB Mainstream SATA 6Gb Hot Swap SSD	24	24
4XB7A17089	B8J6	ThinkSystem 2.5" 5300 960GB Mainstream SATA 6Gb Hot Swap SSD	24	24
4XB7A17090	B8JE	ThinkSystem 2.5" 5300 1.92TB Mainstream SATA 6Gb Hot Swap SSD	24	24
4XB7A17091	B8J7	ThinkSystem 2.5" 5300 3.84TB Mainstream SATA 6Gb Hot Swap SSD	24	24
4XB7A13634	B49M	ThinkSystem 2.5" S4610 480GB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A13635	B49N	ThinkSystem 2.5" S4610 960GB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A13636	B49P	ThinkSystem 2.5" S4610 1.92TB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A13637	B49Q	ThinkSystem 2.5" S4610 3.84TB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A72438	BM8B	ThinkSystem 2.5" PM893 480GB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A72439	BM8A	ThinkSystem 2.5" PM893 960GB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A72440	BM89	ThinkSystem 2.5" PM893 1.92TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A72441	BM88	ThinkSystem 2.5" PM893 3.84TB Read Intensive SATA 6Gb HS SSD	24	24
4XB7A72442	BM87	ThinkSystem 2.5" PM893 7.68TB Read Intensive SATA 6Gb HS SSD	24	24
4XB7A17101	BA7G	ThinkSystem 2.5" S4520 480GB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A17102	BA7H	ThinkSystem 2.5" S4520 960GB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A17103	BA7J	ThinkSystem 2.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A17104	BK77	ThinkSystem 2.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A17105	BK78	ThinkSystem 2.5" S4520 7.68TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A17076	B8JM	ThinkSystem 2.5" 5300 480GB Entry SATA 6Gb Hot Swap SSD	No	24
4XB7A17077	B8HP	ThinkSystem 2.5" 5300 960GB Entry SATA 6Gb Hot Swap SSD	No	24
4XB7A17078	B8J5	ThinkSystem 2.5" 5300 1.92TB Entry SATA 6Gb Hot Swap SSD	24	24
4XB7A17079	B8JP	ThinkSystem 2.5" 5300 3.84TB Entry SATA 6Gb Hot Swap SSD	24	24
4XB7A17080	B8J2	ThinkSystem 2.5" 5300 7.68TB Entry SATA 6Gb Hot Swap SSD	No	24
4XB7A10249	B49A	ThinkSystem 2.5" S4510 960GB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A13622	B49B	ThinkSystem 2.5" S4510 1.92TB Read Intensive SATA 6Gb HS SSD	No	24

Part number	Feature	Description	All Flash Storage	
			Cache	Capacity
4XB7A13623	B49C	ThinkSystem 2.5" S4510 3.84TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A10197	B34K	ThinkSystem 2.5" PM883 960GB Entry SATA 6Gb Hot Swap SSD	No	24
4XB7A10198	B34L	ThinkSystem 2.5" PM883 1.92TB Entry SATA 6Gb Hot Swap SSD	No	24
4XB7A10199	B34M	ThinkSystem 2.5" PM883 3.84TB Entry SATA 6Gb Hot Swap SSD	24	24
4XB7A10200	B4D2	ThinkSystem 2.5" PM883 7.68TB Entry SATA 6Gb Hot Swap SSD	24	24
2.5-inch hot-swap PCIe 4.0 NVMe SSDs				
4XB7A17152	BCFV	ThinkSystem 2.5" U.2 P5600 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12	12
4XB7A17153	BCFR	ThinkSystem 2.5" U.2 P5600 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12	12
4XB7A17154	BCFS	ThinkSystem 2.5" U.2 P5600 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12	12
4XB7A17145	BCFT	ThinkSystem 2.5" U.2 P5500 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	12
4XB7A17146	BCFW	ThinkSystem 2.5" U.2 P5500 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	12
4XB7A17147	BCFU	ThinkSystem 2.5" U.2 P5500 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	12
2.5-inch hot-swap PCIe 3.0 NVMe SSDs				
7N47A00081	AUMJ	ThinkSystem 2.5" U.2 P4800X 375GB Write Intensive NVMe PCIe 3.0 x4 HS SSD	12	12
7N47A00083	B2ZJ	ThinkSystem 2.5" U.2 P4800X 750GB Write Intensive NVMe PCIe 3.0 x4 HS SSD	12	12
4XB7A13936	B589	ThinkSystem U.2 Intel P4610 1.6TB Mainstream NVMe PCIe3.0 x4 Hot Swap SSD	12	12
4XB7A10204	B58G	ThinkSystem 2.5" U.2 P4510 2.0TB Read Intensive NVMe PCIe 3.0 x4 HS SSD	No	12
4XB7A10205	B58H	ThinkSystem U.2 Intel P4510 4.0TB Entry NVMe PCIe3.0 x4 Hot Swap SSD	No	12

Internal drives for VX 4U Certified Node

The following table lists the drives supported in the VX 4U Certified Node. Drives are classified as either Cache drives, Capacity drives, or both.

Table 12. Drives supported in the VX 4U Certified Node

Part number	Feature	Description	All Flash Storage	
			Cache	Capacity
2.5-inch hot-swap 12 Gb SAS SSDs				
4XB7A70006	BG07	ThinkSystem 2.5" Nytro 3732 400GB Performance SAS 12Gb Hot Swap SSD	24	24

Part number	Feature	Description	All Flash Storage	
			Cache	Capacity
4XB7A70005	BG06	ThinkSystem 2.5" Nytro 3732 800GB Performance SAS 12Gb Hot Swap SSD	24	24
4XB7A70004	BG05	ThinkSystem 2.5" Nytro 3732 1.6TB Performance SAS 12Gb Hot Swap SSD	24	24
4XB7A70003	BG04	ThinkSystem 2.5" Nytro 3732 3.2TB Performance SAS 12Gb Hot Swap SSD	24	24
4XB7A10230	B4Y5	ThinkSystem 2.5" SS530 800GB Performance SAS 12Gb Hot Swap SSD	24	24
4XB7A17062	B8HU	ThinkSystem 2.5" PM1645a 800GB Mainstream SAS 12Gb Hot Swap SSD	24	24
4XB7A17063	B8J4	ThinkSystem 2.5" PM1645a 1.6TB Mainstream SAS 12Gb Hot Swap SSD	24	24
4XB7A17064	B8JD	ThinkSystem 2.5" PM1645a 3.2TB Mainstream SAS 12Gb Hot Swap SSD	24	24
4XB7A38175	B91A	ThinkSystem 2.5" PM1643a 960GB Entry SAS 12Gb Hot Swap SSD	No	24
4XB7A38176	B91B	ThinkSystem 2.5" PM1643a 1.92TB Entry SAS 12Gb Hot Swap SSD	No	24
4XB7A17054	B91C	ThinkSystem 2.5" PM1643a 3.84TB Entry SAS 12Gb Hot Swap SSD	24	24
4XB7A17055	B91D	ThinkSystem 2.5" PM1643a 7.68TB Entry SAS 12Gb Hot Swap SSD	24	24
4XB7A17056	BC4R	ThinkSystem 2.5" PM1643a 15.36TB Entry SAS 12Gb Hot Swap SSD	24	24
2.5-inch hot-swap 6 Gb SATA SSDs				
4XB7A17125	BA7Q	ThinkSystem 2.5" S4620 480GB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A17126	BA4T	ThinkSystem 2.5" S4620 960GB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A17127	BA4U	ThinkSystem 2.5" S4620 1.92TB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A17128	BK7L	ThinkSystem 2.5" S4620 3.84TB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A17088	B8HY	ThinkSystem 2.5" 5300 480GB Mainstream SATA 6Gb Hot Swap SSD	24	24
4XB7A17089	B8J6	ThinkSystem 2.5" 5300 960GB Mainstream SATA 6Gb Hot Swap SSD	24	24
4XB7A17090	B8JE	ThinkSystem 2.5" 5300 1.92TB Mainstream SATA 6Gb Hot Swap SSD	24	24
4XB7A17091	B8J7	ThinkSystem 2.5" 5300 3.84TB Mainstream SATA 6Gb Hot Swap SSD	24	24
4XB7A13634	B49M	ThinkSystem 2.5" S4610 480GB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A13635	B49N	ThinkSystem 2.5" S4610 960GB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A13636	B49P	ThinkSystem 2.5" S4610 1.92TB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A13637	B49Q	ThinkSystem 2.5" S4610 3.84TB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A72438	BM8B	ThinkSystem 2.5" PM893 480GB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A72439	BM8A	ThinkSystem 2.5" PM893 960GB Read Intensive SATA 6Gb HS SSD	No	24

Part number	Feature	Description	All Flash Storage	
			Cache	Capacity
4XB7A72440	BM89	ThinkSystem 2.5" PM893 1.92TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A72441	BM88	ThinkSystem 2.5" PM893 3.84TB Read Intensive SATA 6Gb HS SSD	24	24
4XB7A72442	BM87	ThinkSystem 2.5" PM893 7.68TB Read Intensive SATA 6Gb HS SSD	24	24
4XB7A17101	BA7G	ThinkSystem 2.5" S4520 480GB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A17102	BA7H	ThinkSystem 2.5" S4520 960GB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A17103	BA7J	ThinkSystem 2.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A17104	BK77	ThinkSystem 2.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A17105	BK78	ThinkSystem 2.5" S4520 7.68TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A17076	B8JM	ThinkSystem 2.5" 5300 480GB Entry SATA 6Gb Hot Swap SSD	No	24
4XB7A17077	B8HP	ThinkSystem 2.5" 5300 960GB Entry SATA 6Gb Hot Swap SSD	No	24
4XB7A17078	B8J5	ThinkSystem 2.5" 5300 1.92TB Entry SATA 6Gb Hot Swap SSD	24	24
4XB7A17079	B8JP	ThinkSystem 2.5" 5300 3.84TB Entry SATA 6Gb Hot Swap SSD	24	24
4XB7A17080	B8J2	ThinkSystem 2.5" 5300 7.68TB Entry SATA 6Gb Hot Swap SSD	No	24
4XB7A10249	B49A	ThinkSystem 2.5" S4510 960GB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A13622	B49B	ThinkSystem 2.5" S4510 1.92TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A13623	B49C	ThinkSystem 2.5" S4510 3.84TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A10197	B34K	ThinkSystem 2.5" PM883 960GB Entry SATA 6Gb Hot Swap SSD	No	24
4XB7A10198	B34L	ThinkSystem 2.5" PM883 1.92TB Entry SATA 6Gb Hot Swap SSD	No	24
4XB7A10199	B34M	ThinkSystem 2.5" PM883 3.84TB Entry SATA 6Gb Hot Swap SSD	24	24
4XB7A10200	B4D2	ThinkSystem 2.5" PM883 7.68TB Entry SATA 6Gb Hot Swap SSD	24	24
2.5-inch hot-swap PCIe 4.0 NVMe SSDs				
4XB7A17152	BCFV	ThinkSystem 2.5" U.2 P5600 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12	12
4XB7A17153	BCFR	ThinkSystem 2.5" U.2 P5600 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12	12
4XB7A17154	BCFS	ThinkSystem 2.5" U.2 P5600 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12	12
4XB7A17145	BCFT	ThinkSystem 2.5" U.2 P5500 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	12
4XB7A17146	BCFW	ThinkSystem 2.5" U.2 P5500 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	12
4XB7A17147	BCFU	ThinkSystem 2.5" U.2 P5500 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	12

Part number	Feature	Description	All Flash Storage	
			Cache	Capacity
2.5-inch hot-swap PCIe 3.0 NVMe SSDs				
7N47A00081	AUMJ	ThinkSystem 2.5" U.2 P4800X 375GB Write Intensive NVMe PCIe 3.0 x4 HS SSD	12	12
7N47A00083	B2ZJ	ThinkSystem 2.5" U.2 P4800X 750GB Write Intensive NVMe PCIe 3.0 x4 HS SSD	12	12
4XB7A13936	B589	ThinkSystem U.2 Intel P4610 1.6TB Mainstream NVMe PCIe3.0 x4 Hot Swap SSD	12	12
4XB7A10204	B58G	ThinkSystem 2.5" U.2 P4510 2.0TB Read Intensive NVMe PCIe 3.0 x4 HS SSD	No	12
4XB7A10205	B58H	ThinkSystem U.2 Intel P4510 4.0TB Entry NVMe PCIe3.0 x4 Hot Swap SSD	No	12

Internal drives for VX 4U Certified Node for SAP HANA

The following table lists the drives supported in the VX 4U Certified Node for SAP HANA. Drives are classified as either Cache drives, Capacity drives, or both.

Table 13. Drives supported in the VX 4U Certified Node for SAP HANA

Part number	Feature	Description	All Flash Storage	
			Cache	Capacity
2.5-inch hot-swap 12 Gb SAS SSDs				
4XB7A70006	BG07	ThinkSystem 2.5" Nytro 3732 400GB Performance SAS 12Gb Hot Swap SSD	24	24
4XB7A70005	BG06	ThinkSystem 2.5" Nytro 3732 800GB Performance SAS 12Gb Hot Swap SSD	24	24
4XB7A70004	BG05	ThinkSystem 2.5" Nytro 3732 1.6TB Performance SAS 12Gb Hot Swap SSD	24	24
4XB7A70003	BG04	ThinkSystem 2.5" Nytro 3732 3.2TB Performance SAS 12Gb Hot Swap SSD	24	24
4XB7A10230	B4Y5	ThinkSystem 2.5" SS530 800GB Performance SAS 12Gb Hot Swap SSD	24	24
4XB7A17062	B8HU	ThinkSystem 2.5" PM1645a 800GB Mainstream SAS 12Gb Hot Swap SSD	24	24
4XB7A17063	B8J4	ThinkSystem 2.5" PM1645a 1.6TB Mainstream SAS 12Gb Hot Swap SSD	24	24
4XB7A17064	B8JD	ThinkSystem 2.5" PM1645a 3.2TB Mainstream SAS 12Gb Hot Swap SSD	24	24
4XB7A38175	B91A	ThinkSystem 2.5" PM1643a 960GB Entry SAS 12Gb Hot Swap SSD	No	24
4XB7A38176	B91B	ThinkSystem 2.5" PM1643a 1.92TB Entry SAS 12Gb Hot Swap SSD	No	24
4XB7A17054	B91C	ThinkSystem 2.5" PM1643a 3.84TB Entry SAS 12Gb Hot Swap SSD	24	24
4XB7A17055	B91D	ThinkSystem 2.5" PM1643a 7.68TB Entry SAS 12Gb Hot Swap SSD	24	24

Part number	Feature	Description	All Flash Storage	
			Cache	Capacity
4XB7A17056	BC4R	ThinkSystem 2.5" PM1643a 15.36TB Entry SAS 12Gb Hot Swap SSD	24	24
2.5-inch hot-swap 6 Gb SATA SSDs				
4XB7A17088	B8HY	ThinkSystem 2.5" 5300 480GB Mainstream SATA 6Gb Hot Swap SSD	24	24
4XB7A17089	B8J6	ThinkSystem 2.5" 5300 960GB Mainstream SATA 6Gb Hot Swap SSD	24	24
4XB7A17090	B8JE	ThinkSystem 2.5" 5300 1.92TB Mainstream SATA 6Gb Hot Swap SSD	24	24
4XB7A17091	B8J7	ThinkSystem 2.5" 5300 3.84TB Mainstream SATA 6Gb Hot Swap SSD	24	24
4XB7A13634	B49M	ThinkSystem 2.5" S4610 480GB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A13635	B49N	ThinkSystem 2.5" S4610 960GB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A13636	B49P	ThinkSystem 2.5" S4610 1.92TB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A13637	B49Q	ThinkSystem 2.5" S4610 3.84TB Mixed Use SATA 6Gb HS SSD	24	24
4XB7A72438	BM8B	ThinkSystem 2.5" PM893 480GB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A72439	BM8A	ThinkSystem 2.5" PM893 960GB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A72440	BM89	ThinkSystem 2.5" PM893 1.92TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A72441	BM88	ThinkSystem 2.5" PM893 3.84TB Read Intensive SATA 6Gb HS SSD	24	24
4XB7A72442	BM87	ThinkSystem 2.5" PM893 7.68TB Read Intensive SATA 6Gb HS SSD	24	24
4XB7A17104	BK77	ThinkSystem 2.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A17105	BK78	ThinkSystem 2.5" S4520 7.68TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A17076	B8JM	ThinkSystem 2.5" 5300 480GB Entry SATA 6Gb Hot Swap SSD	No	24
4XB7A17077	B8HP	ThinkSystem 2.5" 5300 960GB Entry SATA 6Gb Hot Swap SSD	No	24
4XB7A17078	B8J5	ThinkSystem 2.5" 5300 1.92TB Entry SATA 6Gb Hot Swap SSD	24	24
4XB7A17079	B8JP	ThinkSystem 2.5" 5300 3.84TB Entry SATA 6Gb Hot Swap SSD	24	24
4XB7A17080	B8J2	ThinkSystem 2.5" 5300 7.68TB Entry SATA 6Gb Hot Swap SSD	No	24
4XB7A10249	B49A	ThinkSystem 2.5" S4510 960GB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A13622	B49B	ThinkSystem 2.5" S4510 1.92TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A13623	B49C	ThinkSystem 2.5" S4510 3.84TB Read Intensive SATA 6Gb HS SSD	No	24
4XB7A10197	B34K	ThinkSystem 2.5" PM883 960GB Entry SATA 6Gb Hot Swap SSD	No	24
4XB7A10198	B34L	ThinkSystem 2.5" PM883 1.92TB Entry SATA 6Gb Hot Swap SSD	No	24
4XB7A10199	B34M	ThinkSystem 2.5" PM883 3.84TB Entry SATA 6Gb Hot Swap SSD	24	24

Part number	Feature	Description	All Flash Storage	
			Cache	Capacity
4XB7A10200	B4D2	ThinkSystem 2.5" PM883 7.68TB Entry SATA 6Gb Hot Swap SSD	24	24
2.5-inch hot-swap PCIe 4.0 NVMe SSDs				
4XB7A17152	BCFV	ThinkSystem 2.5" U.2 P5600 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12	12
4XB7A17153	BCFR	ThinkSystem 2.5" U.2 P5600 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12	12
4XB7A17154	BCFS	ThinkSystem 2.5" U.2 P5600 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12	12
4XB7A17145	BCFT	ThinkSystem 2.5" U.2 P5500 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	12
4XB7A17146	BCFW	ThinkSystem 2.5" U.2 P5500 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	12
4XB7A17147	BCFU	ThinkSystem 2.5" U.2 P5500 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	12
2.5-inch hot-swap PCIe 3.0 NVMe SSDs				
7N47A00081	AUMJ	ThinkSystem 2.5" U.2 P4800X 375GB Write Intensive NVMe PCIe 3.0 x4 HS SSD	12	12
7N47A00083	B2ZJ	ThinkSystem 2.5" U.2 P4800X 750GB Write Intensive NVMe PCIe 3.0 x4 HS SSD	12	12
4XB7A13936	B589	ThinkSystem U.2 Intel P4610 1.6TB Mainstream NVMe PCIe3.0 x4 Hot Swap SSD	12	12
4XB7A10204	B58G	ThinkSystem 2.5" U.2 P4510 2.0TB Read Intensive NVMe PCIe 3.0 x4 HS SSD	No	12
4XB7A10205	B58H	ThinkSystem U.2 Intel P4510 4.0TB Entry NVMe PCIe3.0 x4 Hot Swap SSD	No	12

Network adapters

The VX7820 and VX 4U Certified Nodes systems support the following networking options.

For details about these options, including configuration rules, see the SR950 product guide:

<https://lenovopress.com/lp1054-thinksystem-sr950-server-xeon-sp-gen-2#network-adapters#i-o-expansion>

<https://lenovopress.com/lp1054-thinksystem-sr950-server-xeon-sp-gen-2#network-adapters#network-adapters>

Table 14. LOM network adapters

Part number	Feature	Description	Maximum supported		
			VX7820	VX 4U	VX 4U HANA
Gigabit Ethernet					
7ZT7A00544	AUKG	ThinkSystem 1Gb 2-port RJ45 LOM	1	1	1
7ZT7A00545	AUKH	ThinkSystem 1Gb 4-port RJ45 LOM	1	1	1
10 Gb Ethernet					
7ZT7A00546	AUKJ	ThinkSystem 10Gb 2-port SFP+ LOM	1	1	1
7ZT7A00547	AUKK	ThinkSystem 10Gb 4-port SFP+ LOM	1	1	1
7ZT7A00548	AUKL	ThinkSystem 10Gb 2-port Base-T LOM	1	1	1
7ZT7A00549	AUKM	ThinkSystem 10Gb 4-port Base-T LOM	1	1	1

Table 15. ML2 network adapters

Part number	Feature	Description	Maximum supported		
			VX7820	VX 4U	VX 4U HANA
10 Gb Ethernet					
00JY940	ATRH	Intel X710-DA2 ML2 2x10GbE SFP+ Adapter	2	2	2
7ZT7A00497	AUKQ	ThinkSystem Broadcom NX-E ML2 10Gb 2-Port Base-T Ethernet Adapter	2	2	2
01CV770	AU7Z	Emulex VFA5.2 ML2 2x10 GbE SFP+ Adapter and FCoE/iSCSI SW	2	2	2
25 Gb Ethernet					
7ZT7A00507	AUKU	ThinkSystem Mellanox ConnectX-4 Lx 10/25GbE SFP28 2-Port ML2 Ethernet Adapter	2	2	2
00MN990	ATZR	Mellanox ConnectX-4 Lx 10/25GbE SFP28 1-port ML2 Adapter	2	2	2

Table 16. PCIe network adapters

Part number	Feature	Description	Maximum supported		
			VX7820	VX 4U	VX 4U HANA
Gigabit Ethernet					
7ZT7A00482	AUZX	ThinkSystem Broadcom 5720 1GbE RJ45 2-Port PCIe Ethernet Adapter	14	14	14
7ZT7A00484	AUZV	ThinkSystem Broadcom 5719 1GbE RJ45 4-Port PCIe Ethernet Adapter	14	14	14
7ZT7A00533	AUZZ	ThinkSystem I350-F1 PCIe 1Gb 1-Port SFP Ethernet Adapter	14	14	14
7ZT7A00534	AUZY	ThinkSystem I350-T2 PCIe 1Gb 2-Port RJ45 Ethernet Adapter	14	14	14
7ZT7A00535	AUZW	ThinkSystem I350-T4 PCIe 1Gb 4-Port RJ45 Ethernet Adapter	14	14	14
10 Gb Ethernet - 10GBASE-T					

Part number	Feature	Description	Maximum supported		
			VX7820	VX 4U	VX 4U HANA
7ZT7A00496	AUKP	ThinkSystem Broadcom 57416 10GBASE-T 2-Port PCIe Ethernet Adapter	14	14	14
00MM860	ATPX	Intel X550-T2 Dual Port 10GBase-T Adapter	14	14	14
4XC7A08225	B31G	ThinkSystem QLogic QL41134 PCIe 10Gb 4-Port Base-T Ethernet Adapter	14	14	14
10 Gb Ethernet - SFP+					
7ZT7A00537	AUKX	ThinkSystem Intel X710-DA2 PCIe 10Gb 2-Port SFP+ Ethernet Adapter	14	14	14
7ZT7A00493	AUKN	ThinkSystem Emulex OCE14104B-NX PCIe 10Gb 4-Port SFP+ Ethernet Adapter	9	9	9
00AG570	AT7S	Emulex VFA5.2 2x10 GbE SFP+ PCIe Adapter	14	14	14
25 Gb Ethernet					
7ZT7A00505	AUKS	ThinkSystem Broadcom 57412 25GbE SFP28 1-Port PCIe Ethernet Adapter	14	14	14
4XC7A08238	B5T0	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter	14	14	14
7XC7A05523	B0WY	ThinkSystem Intel XXV710-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	14	14	14
01GR250	AUAJ	Mellanox ConnectX-4 Lx 10/25GbE SFP28 2-port PCIe Ethernet Adapter	14	14	14
4XC7A08229	B31C	ThinkSystem Mellanox ConnectX-5 Ex 25/40GbE 2-port Low-Latency Adapter	11	11	11
4XC7A08228	B21R	ThinkSystem QLogic QL41262 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	14	14	14
4XC7A62580	BE4U	ThinkSystem Mellanox ConnectX-6 Lx 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	14	14	14
40 Gb Ethernet					
00MM950	ATRN	Mellanox ConnectX-4 Lx 1x40GbE QSFP+ Adapter	14	14	14
4XC7A08229	B31C	ThinkSystem Mellanox ConnectX-5 Ex 25/40GbE 2-port Low-Latency Adapter	11	11	11
100 Gb Ethernet					
4XC7A08248	B8PP	ThinkSystem Mellanox ConnectX-6 Dx 100GbE QSFP56 2-port PCIe Ethernet Adapter	11	11	11
00MM960	ATRP	Mellanox ConnectX-4 2x100GbE/EDR IB QSFP28 VPI Adapter	11	11	11
4C57A14177	B4R9	ThinkSystem Mellanox ConnectX-6 HDR100/100GbE QSFP56 1-port PCIe VPI Adapter	14	14	14
4C57A14178	B4RA	ThinkSystem Mellanox ConnectX-6 HDR100/100GbE QSFP56 2-port PCIe VPI Adapter	14	14	14

Operating system support

The ThinkAgile VX7820 Appliance supports the following operating systems:

- VMware ESXi 6.5 U3
- VMware ESXi 6.7 U3
- VMware ESXi 7.0
- VMware ESXi 7.0 U1
- VMware ESXi 7.0 U2
- VMware ESXi 7.0 U3

The ThinkAgile VX 4U Certified Node supports the following operating systems:

- VMware ESXi 6.5 U3
- VMware ESXi 6.7 U3
- VMware ESXi 7.0
- VMware ESXi 7.0 U1
- VMware ESXi 7.0 U2
- VMware ESXi 7.0 U3

The ThinkAgile VX 4U Certified Node for SAP HANA supports the following operating systems:

- VMware ESXi 6.5 U3
- VMware ESXi 6.7 U3
- VMware ESXi 7.0
- VMware ESXi 7.0 U1
- VMware ESXi 7.0 U2
- VMware ESXi 7.0 U3

For further details, including any restrictions, see the OS Interoperability Guide:

<https://lenovopress.com/osig#term=vx%2520purley%25204u%2520%2522gen%25202%2522&support=all>

Software

VMware vSAN, vSphere, and vCenter Server software are required for ThinkAgile VX Series Appliances (Integrated Systems) and Certified Nodes. For Appliances/Integrated Systems, you are required to purchase VMware vSAN licenses for VX Series from Lenovo. 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.

For the VX 4U Certified Node for SAP HANA, HANA software licenses are purchased separately from SAP. Also, SUSE Linux Enterprise Server or Red Hat Enterprise Linux Server licenses are needed for deploying virtual machines for the SAP HANA virtualized environment. Optional Lenovo Professional Services are available to deploy SAP HANA software stack at the customer site.

Warranty and Support

The VX7820 and VX 4U Certified Nodes have a 3-year warranty based on the machine type:

- 7Z12 - 3 year warranty
- 7Z13 - 3 year warranty

The ThinkAgile VX Series Appliances can be configured with a three- or five-year hardware warranty with 24x7 ThinkAgile Advantage 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 17. 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)
Annual Remote Health Check	
5MS7B00178	ThinkAgile VX 1X Annual Remote Health Check (up to 4 node cluster)
5MS7B00179	ThinkAgile VX 1X Annual Remote Health Check (additional node)
5MS7B00059	ThinkAgile VX 1X Annual Remote Health Check & Update (up to 4 node cluster)
5MS7B00060	ThinkAgile VX 1X Annual 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/>

The SAP HANA onsite deployment that is provided by Lenovo Professional Services is optional for the ThinkAgile VX 4U Certified Node for SAP HANA.

Regulatory compliance

The VX7820 and VX 4U Certified Nodes conform to the following standards:

- FCC - Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003, issue 6, Class A
- UL/IEC 60950-1
- CSA C22.2 No. 60950-1
- IEC 62368-1 2014(CB Certificate and CB Test Report)
- NOM-019
- Argentina IEC60950-1
- Japan VCCI, Class A
- Australia/New Zealand AS/NZS CISPR 32, Class A; AS/NZS 60950.1
- China CCC GB4943.1, GB9254 Class A, GB17625.1
- Taiwan BSMI CNS13438, Class A; CNS14336-1 CNS15663
- Korea KN32, Class A; KN35
- Russia, Belorussia and Kazakhstan, TR CU 020/2011 (for EMC) and TR CU 004/2011 (for safety)
- IEC 60950-1 (CB Certificate and CB Test Report)
- CE Mark (EN55032 Class A, EN60950-1, EN55024, EN61000-3-2, EN61000-3-3)
- CISPR 32, Class A
- TUV-GS (EN60950-1, IEC60950-1, EK1-ITB2000)
- RoHS Directive
- Energy Star 2.1
- ErP lot3
- JESL

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/>

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 SR950 product guide:
<https://lenovopress.com/lp1054-thinksystem-sr950-server-xeon-sp-gen-2>
- Interactive 3D Tour of the ThinkSystem SR950:
<https://lenovopress.com/lp0674-3d-tour-thinksystem-sr950>
- Lenovo Press video walk-through of the ThinkSystem SR950:
<https://lenovopress.com/lp0702-thinksystem-sr950-server-video-walkthrough>

Related product families

Product families related to this document are the following:

- [4-Socket Rack Servers](#)
- [ThinkAgile VX Series for VMware vSAN](#)

Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area. Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service. Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

Lenovo (United States), Inc.
8001 Development Drive
Morrisville, NC 27560
U.S.A.
Attention: Lenovo Director of Licensing

LENOVO PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

The products described in this document are not intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. The information contained in this document does not affect or change Lenovo product specifications or warranties. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Lenovo or third parties. All information contained in this document was obtained in specific environments and is presented as an illustration. The result obtained in other operating environments may vary. Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-Lenovo Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this Lenovo product, and use of those Web sites is at your own risk. Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

© Copyright Lenovo 2022. All rights reserved.

This document, LP1490, was created or updated on April 5, 2022.

Send us your comments in one of the following ways:

- Use the online Contact us review form found at:
<https://lenovopress.lenovo.com/LP1490>
- Send your comments in an e-mail to:
comments@lenovopress.com

This document is available online at <https://lenovopress.lenovo.com/LP1490>.

Trademarks

Lenovo and the Lenovo logo are trademarks or registered trademarks of Lenovo in the United States, other countries, or both. A current list of Lenovo trademarks is available on the Web at <https://www.lenovo.com/us/en/legal/copytrade/>.

The following terms are trademarks of Lenovo in the United States, other countries, or both:

Lenovo®
AnyBay®
Lenovo Services
ThinkAgile
ThinkSystem
TruDDR4
XClarity®

The following terms are trademarks of other companies:

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

Linux® is the trademark of Linus Torvalds in the U.S. and other countries.

Microsoft®, SQL Server®, and SharePoint® are trademarks of Microsoft Corporation in the United States, other countries, or both.

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