

Lenovo ThinkAgile VX2320 Appliance (Xeon SP Gen 1) Product Guide (withdrawn product)

Lenovo ThinkAgile VX Series appliances combine industry-leading hyperconverged infrastructure software from VMware with Lenovo enterprise platforms that feature the first generation of the Intel Xeon Processor Scalable family (Xeon SP Gen 1). VMware offers a unique, software-defined approach to hyper convergence, leveraging the hypervisor to deliver compute, storage and management in a tightly integrated software stack.

The ThinkAgile VX2320 is a 1U rack-mount appliance that supports up to two processors, up to 3 TB of 2666 MHz TruDDR4 memory, 4x SAS/SATA LFF hot-swap drive bays with an extensive choice of SAS/SATA SSDs and NL SAS HDDs, and flexible network connectivity options with 1 GbE RJ-45, 1/10 GbE RJ-45, 10 GbE SFP+, and 10/25 GbE SFP28 ports.

The ThinkAgile VX2320 appliance is suitable for various types of workloads for small and medium sized businesses.

The ThinkAgile VX2320 appliance is shown in the following figure.



Figure 1. Lenovo ThinkAgile VX2320 Appliance

Did you know?

The ThinkAgile VX Series appliances are built on industry-leading Lenovo ThinkSystem servers that feature enterprise-class reliability, management, and security.

The ThinkAgile VX Series appliances offer ThinkAgile Advantage Single Point of Support for quick 24/7 problem reporting and resolution.

Key features

The ThinkAgile VX Series appliances 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.
- 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 VX Series appliances 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.

Components and connectors

The following figure shows the front view of the VX2320 appliance.

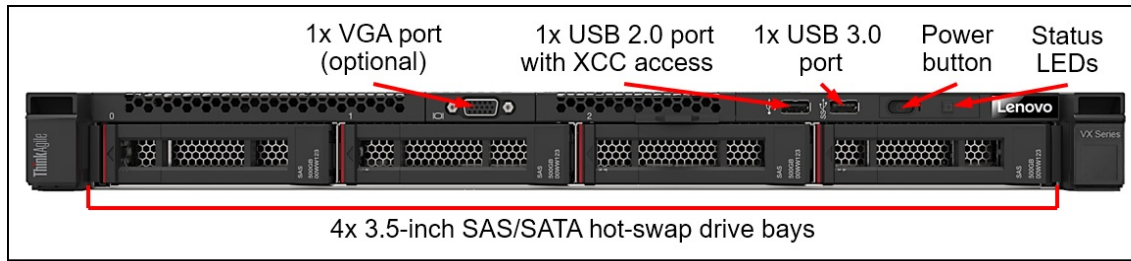


Figure 2. VX2320 front view

The front of the VX2320 appliance includes the following components:

- 4x LFF hot-swap drive bays
- One VGA port (optional)
- One USB 2.0 port with XClarity Controller access
- One USB 3.0 port
- A Power button
- Status LEDs that display the status of the system

The following figure shows the rear view of the VX2320 appliance.

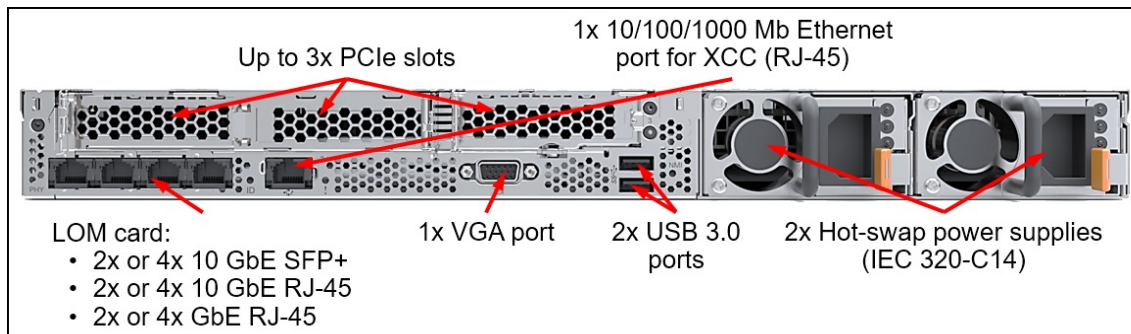


Figure 3. VX2320 rear view

The rear of the VX2320 appliance includes the following components:

- Up to three PCIe expansion slots
- One LOM card slot
- One 1 GbE port for XClarity Controller
- One VGA port
- Two USB 3.0 ports
- Up to two hot-swap power supplies

System specifications

The following table lists the system specifications of the ThinkAgile VX2320 appliance.

Table 1. VX2320 system specifications

| Attribute | Specification |
|-------------|---|
| Form factor | 1U Rack-mount. |
| Processor | One or two Intel Xeon Bronze, Silver, Gold, or Platinum Gen 1 processors. |
| Chipset | Intel C624. |

| Attribute | Specification |
|---------------------|--|
| Memory | Up to 24 DIMMs. Support for 8 GB, 16 GB, and 32 GB TruDDR4 2666 MHz RDIMMs or 64 GB TruDDR4 2666 MHz LRDIMMs. |
| Memory capacity | <ul style="list-style-type: none"> With RDIMMs: Up to 768 GB with 24x 32 GB RDIMMs and two processors. With LRDIMMs: Up to 1.5 TB with 24x 64 GB LRDIMMs and two processors. With 3DS RDIMMs: Up to 3 TB with 24x 128 GB 3DS RDIMMs and two processors. |
| 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, requires Intel Xeon Gold or Platinum processors), patrol scrubbing, and demand scrubbing. |
| Drive bays | 4x 3.5-inch SAS/SATA hot-swap. |
| Internal storage | 1 drive group: 1 cache drive + from 2 to 3 capacity drives. |
| Drive capacities | <ul style="list-style-type: none"> Cache drives: <ul style="list-style-type: none"> 12 Gbps SAS SSDs up to 3.84 TB (2.5" SSD in a 3.5" tray). 6 Gbps SATA SSDs up to 3.84 TB (2.5" SSD in a 3.5" tray). Capacity drives: 12 Gbps NL SAS HDDs up to 16 TB. <p>Note: All capacity drives in the appliance must be of the same type and capacity.</p> |
| Storage capacity | Up to 48 TB (3x 16 TB HDDs). |
| Storage controller | 1x 430-8i HBA (12 Gbps SAS/6 Gbps SATA). |
| Network interfaces | <ul style="list-style-type: none"> 1 GbE RJ-45 ports: 2 - 4 (LOM). 1/10 GbE RJ-45 ports: 2 - 8 (LOM + Up to 2 network adapters). 10 GbE SFP+ ports: 2 - 8 (LOM + Up to 2 network adapters). 25 GbE SFP28 ports (7Y93 only): 1 - 4 (Up to 2 network adapters). <p>Note: The withdrawn VX2320 (7Y13) does not support 10/25 GbE ports.</p> |
| Boot drive | 2x M.2 non-hot-swap SSDs up to 480 GB (RAID-1). Note: The withdrawn VX2320 (7Y13) does not support 240 GB or 480 GB M.2 SSDs. |
| I/O expansion slots | Up to four slots. Slot 4 is the fixed slot on the system planar, and the remaining slots depend on the riser cards installed. The slots are as follows: <ul style="list-style-type: none"> Slot 1: PCIe 3.0 x8, ML2 x8, or ML2 x16; low profile (for a network adapter) Slot 2: PCIe 3.0 x16 or x8; low profile or full-height, half-length (for a network adapter) Slot 3: PCIe 3.0 x16; low profile (for a network adapter) Slot 4: PCIe 3.0 x8 (for an internal storage controller) |
| 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 (optional). Rear: 2x USB 3.0 ports, 1x VGA port, 1x RJ-45 10/100/1000 Mb Ethernet port for systems management. |
| Cooling | Five (one processor) or seven (two processors) hot-swap system fans with N+1 redundancy. |
| Power supply | One or two redundant hot-swap 750 W or 1100 W (100 - 240 V) High Efficiency Platinum power supplies, or 750 W (200 - 240 V) High Efficiency Titanium power supplies. |
| 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, HDDs, power supplies, and fans. |
| Systems management | Lenovo XClarity Controller (XCC) Enterprise (Pilot 4 chip), proactive platform alerts, light path diagnostics, Lenovo XClarity Administrator with Integrator for VMware vCenter, 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). Optional lockable front bezel. |

| Attribute | Specification |
|----------------------|--|
| Software | <p>Software licenses that must be purchased from Lenovo:</p> <ul style="list-style-type: none"> VMware vSAN: Standard, Advanced, Enterprise, or ROBO; or HCI Kit: Essentials, Standard, Advanced, Enterprise, or ROBO; or VMware Horizon: Advanced or Enterprise; or VMware Cloud Foundation (VCF): Basic, Standard, Advanced, Enterprise, or for VDI. <p>Software licenses that can be purchased from Lenovo or provided by the customer:</p> <ul style="list-style-type: none"> VMware vSphere: Standard, Enterprise Plus, or ROBO. VMware Horizon: Standard (optional). VMware vCenter Server: Foundation or Standard. |
| Hypervisors | <ul style="list-style-type: none"> 7Y13: VMware ESXi 6.5 U1 (factory preload). 7Y93: VMware ESXi 6.5 U2, 6.5 U3, 6.7, 6.7 U1, 6.7 U2, or 6.7 U3 (factory preload). |
| Warranty and support | Three- or five-year customer-replaceable unit and onsite limited hardware warranty with ThinkAgile Advantage Support and selectable service levels: 9x5 next business day (NBD) parts delivered, 9x5 NBD onsite response, 24x7 coverage with 2-hour or 4-hour onsite response, or 6-hour or 24-hour committed repair (select areas). Also available are YourDrive YourData, Premier Support, and Enterprise Software Support. |
| Software maintenance | One- (PRC only), three-, or five-year software support and subscription (matches the duration of the selected warranty period). |
| Dimensions | Height: 43 mm (1.7 in.), width: 434 mm (17.1 in.), depth: 715 mm (28.1 in.). |
| Weight | Maximum configuration: 18.8 kg (41.4 lb). |

Factory-integrated 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.

The following table lists the CTO base models of the ThinkAgile VX2320 appliances.

Product availability: The VX2320 (7Y13) appliances are no longer available for ordering. They are shown for reference purposes only.

Table 2. CTO base models

| Description | Machine Type/Model |
|-----------------------------|--------------------|
| ThinkAgile VX2320 | 7Y13CTO2WW |
| ThinkAgile VX2320 Appliance | 7Y93CTO2WW |

The following table lists the base chassis for the VX2320 appliance.

Table 3. Base chassis

| Description | Feature code |
|-------------------------------------|--------------|
| ThinkAgile VX 1U 3.5" 4 Bay Chassis | B1DL |

The VX2320 appliances ship with the following items:

- *Electronic Publications Flyer*
- Tool-less Slide Rail Kit (with or without 1U CMA depending on the rack installation option selected)
- One or two customer-selected power cables (depending on the quantity of the power supplies)

Processors

The ThinkAgile VX2320 appliances can be configured with one or two processors. The following table lists the processor options that are available for selection.

Table 4. Processor options

| Description | Part number* | Feature code* | Quantity (min / max) |
|--|--------------|---------------|----------------------|
| Intel Xeon Bronze processors | | | |
| Intel Xeon Bronze 3104 6C 85W 1.7GHz Processor | 7XG7A05528 | AWEJ | 1 / 2 |
| Intel Xeon Bronze 3106 8C 85W 1.7GHz Processor | 7XG7A05526 | AWEH | 1 / 2 |
| Intel Xeon Silver processors | | | |
| Intel Xeon Silver 4108 8C 85W 1.8GHz Processor | 7XG7A05527 | AWEG | 1 / 2 |
| Intel Xeon Silver 4109T 8C 70W 2.0GHz Processor | 7XG7A05530 | AWET | 1 / 2 |
| Intel Xeon Silver 4110 8C 85W 2.1GHz Processor | 7XG7A05531 | AWEE | 1 / 2 |
| Intel Xeon Silver 4112 4C 85W 2.6GHz Processor | 7XG7A05533 | AWEF | 1 / 2 |
| Intel Xeon Silver 4114 10C 85W 2.2GHz Processor | 7XG7A05534 | AWEC | 1 / 2 |
| Intel Xeon Silver 4114T 10C 85W 2.2GHz Processor | 7XG7A05535 | AWES | 1 / 2 |
| Intel Xeon Silver 4116 12C 85W 2.1GHz Processor | 7XG7A05532 | AWER | 1 / 2 |
| Intel Xeon Silver 4116T 12C 85W 2.1GHz Processor | 7XG7A05529 | AWEA | 1 / 2 |
| Intel Xeon Gold processors | | | |
| Intel Xeon Gold 5115 10C 85W 2.4GHz Processor | 7XG7A05551 | AWDU | 1 / 2 |
| Intel Xeon Gold 5117 14C 105W 2.0GHz Processor | 4XG7A09083 | B137 | 1 / 2 |
| Intel Xeon Gold 5118 12C 105W 2.3GHz Processor | 7XG7A05536 | AWEP | 1 / 2 |
| Intel Xeon Gold 5119T 14C 85W 1.9GHz Processor | 7XG7A05537 | AWEQ | 1 / 2 |
| Intel Xeon Gold 5120 14C 105W 2.2GHz Processor | 7XG7A05539 | AWE6 | 1 / 2 |
| Intel Xeon Gold 5120T 14C 105W 2.2GHz Processor | 7XG7A05538 | AWE8 | 1 / 2 |
| Intel Xeon Gold 5122 4C 105W 3.6GHz Processor | 7XG7A05547 | AWED | 1 / 2 |
| Intel Xeon Gold 6126 12C 125W 2.6GHz Processor | 7XG7A05546 | AWEL | 1 / 2 |
| Intel Xeon Gold 6128 6C 115W 3.4GHz Processor | 7XG7A05544 | AWEB | 1 / 2 |
| Intel Xeon Gold 6130 16C 125W 2.1GHz Processor | 7XG7A05543 | AWEN | 1 / 2 |
| Intel Xeon Gold 6130T 16C 125W 2.1GHz Processor | 7XG7A05542 | AWE4 | 1 / 2 |
| Intel Xeon Gold 6132 14C 140W 2.6GHz Processor | 7XG7A05561 | AWDY | 1 / 2 |
| Intel Xeon Gold 6134 8C 130W 3.2GHz Processor | 7XG7A05560 | AWE9 | 1 / 2 |
| Intel Xeon Gold 6134M 8C 130W 3.2GHz Processor | 4XG7A09070 | B0X4 | 1 / 2 |
| Intel Xeon Gold 6136 12C 150W 3.0GHz Processor | 7XG7A05559 | AWE3 | 1 / 2 |
| Intel Xeon Gold 6138 20C 125W 2.0GHz Processor | 7XG7A05541 | AWDZ | 1 / 2 |
| Intel Xeon Gold 6138T 20C 125W 2.0GHz Processor | 7XG7A05540 | AWEM | 1 / 2 |
| Intel Xeon Gold 6140 18C 140W 2.3GHz Processor | 7XG7A05558 | AWE1 | 1 / 2 |
| Intel Xeon Gold 6140M 18C 140W 2.3GHz Processor | 7XG7A05557 | AWE2 | 1 / 2 |
| Intel Xeon Gold 6142 16C 150W 2.6GHz Processor | 7XG7A05556 | AWDW | 1 / 2 |
| Intel Xeon Gold 6142M 16C 150W 2.6GHz Processor | 4XG7A09069 | B0X3 | 1 / 2 |

| Description | Part number* | Feature code* | Quantity (min / max) |
|---|--------------|---------------|----------------------|
| Intel Xeon Gold 6148 20C 150W 2.4GHz Processor | 7XG7A05553 | AWDX | 1 / 2 |
| Intel Xeon Gold 6150 18C 165W 2.7GHz Processor | 7XG7A05552 | AWDT | 1 / 2 |
| Intel Xeon Gold 6152 22C 140W 2.1GHz Processor | 7XG7A05550 | AWDV | 1 / 2 |
| Intel Xeon Platinum processors | | | |
| Intel Xeon Platinum 8153 16C 125W 2.0GHz Processor | 7XG7A05549 | AWDR | 1 / 2 |
| Intel Xeon Platinum 8156 4C 105W 3.6GHz Processor | 7XG7A05548 | AWDL | 1 / 2 |
| Intel Xeon Platinum 8158 12C 150W 3.0GHz Processor | 7XG7A05569 | AWDS | 1 / 2 |
| Intel Xeon Platinum 8160 24C 150W 2.1GHz Processor | 7XG7A05568 | AWDP | 1 / 2 |
| Intel Xeon Platinum 8160M 24C 150W 2.1GHz Processor | 7XG7A05567 | AWDQ | 1 / 2 |
| Intel Xeon Platinum 8160T 24C 150W 2.1GHz Processor | 7XG7A05566 | AWEK | 1 / 2 |
| Intel Xeon Platinum 8164 26C 150W 2.0GHz Processor | 7XG7A05565 | AWDM | 1 / 2 |
| Intel Xeon Platinum 8170 26C 165W 2.1GHz Processor | 7XG7A05564 | AWDK | 1 / 2 |
| Intel Xeon Platinum 8170M 26C 165W 2.1GHz Processor | 4XG7A09068 | B0X2 | 1 / 2 |
| Intel Xeon Platinum 8176 28C 165W 2.1GHz Processor | 7XG7A05563 | AWDH | 1 / 2 |
| Intel Xeon Platinum 8176M 28C 165W 2.1GHz Processor | 7XG7A05562 | AWDG | 1 / 2 |

* For CTO configurations, the feature code represents a processor, and fans and heatsinks are derived by the configuration tool. For field upgrades, the part number includes a processor, a heatsink, and two additional system fans.

The following table lists the specifications of the processors for the appliances.

Table 5. Processor specifications (HT = Hyper-Threading, TB = Turbo Boost, VT = Virtualization Technology)

| CPU model | Core frequency (Base / TB Max) | Number of cores / threads | Cache | Max DDR4 frequency | Max memory per socket | UPI speed | TDP | HT | TB | VT-x | VT-d |
|-------------------------------------|--------------------------------|---------------------------|----------|--------------------|-----------------------|-----------|-------|-----|-----|------|------|
| Intel Xeon Bronze processors | | | | | | | | | | | |
| 3104 | 1.7 / 1.7 GHz | 6 / 6 | 8.25 MB | 2133 MHz | 768 GB | 9.6 GT/s | 85 W | No | No | Yes | Yes |
| 3106 | 1.7 / 1.7 GHz | 8 / 8 | 11 MB | 2133 MHz | 768 GB | 9.6 GT/s | 85 W | No | No | Yes | Yes |
| Intel Xeon Silver processors | | | | | | | | | | | |
| 4108 | 1.8 / 3.0 GHz | 8 / 16 | 11 MB | 2400 MHz | 768 GB | 9.6 GT/s | 85 W | Yes | Yes | Yes | Yes |
| 4109T | 2.0 / 3.0 GHz | 8 / 16 | 11 MB | 2400 MHz | 768 GB | 9.6 GT/s | 70 W | Yes | Yes | Yes | Yes |
| 4110 | 2.1 / 3.0 GHz | 8 / 16 | 11 MB | 2400 MHz | 768 GB | 9.6 GT/s | 85 W | Yes | Yes | Yes | Yes |
| 4112 | 2.6 / 3.0 GHz | 4 / 8 | 8.25 MB | 2400 MHz | 768 GB | 9.6 GT/s | 85 W | Yes | Yes | Yes | Yes |
| 4114 | 2.2 / 3.0 GHz | 10 / 20 | 13.75 MB | 2400 MHz | 768 GB | 9.6 GT/s | 85 W | Yes | Yes | Yes | Yes |
| 4114T | 2.2 / 3.0 GHz | 10 / 20 | 13.75 MB | 2400 MHz | 768 GB | 9.6 GT/s | 85 W | Yes | Yes | Yes | Yes |
| 4116 | 2.1 / 3.0 GHz | 12 / 24 | 16.5 MB | 2400 MHz | 768 GB | 9.6 GT/s | 85 W | Yes | Yes | Yes | Yes |
| 4116T | 2.1 / 3.0 GHz | 12 / 24 | 16.5 MB | 2400 MHz | 768 GB | 9.6 GT/s | 85 W | Yes | Yes | Yes | Yes |
| Intel Xeon Gold processors | | | | | | | | | | | |
| 5115 | 2.4 / 3.2 GHz | 10 / 20 | 13.75 MB | 2400 MHz | 768 GB | 10.4 GT/s | 85 W | Yes | Yes | Yes | Yes |
| 5117 | 2.0 / 2.8 GHz | 14 / 28 | 19.25 MB | 2400 MHz | 768 GB | 10.4 GT/s | 105W | Yes | Yes | Yes | Yes |
| 5118 | 2.3 / 3.2 GHz | 12 / 24 | 16.5 MB | 2400 MHz | 768 GB | 10.4 GT/s | 105 W | Yes | Yes | Yes | Yes |
| 5119T | 1.9 / 3.2 GHz | 14 / 28 | 19.25 MB | 2400 MHz | 768 GB | 10.4 GT/s | 85 W | Yes | Yes | Yes | Yes |
| 5120 | 2.2 / 3.2 GHz | 14 / 28 | 19.25 MB | 2400 MHz | 768 GB | 10.4 GT/s | 105 W | Yes | Yes | Yes | Yes |
| 5120T | 2.2 / 3.2 GHz | 14 / 28 | 19.25 MB | 2400 MHz | 768 GB | 10.4 GT/s | 105 W | Yes | Yes | Yes | Yes |
| 5122 | 3.6 / 3.7 GHz | 4 / 8 | 16.5 MB | 2666 MHz | 768 GB | 10.4 GT/s | 105 W | Yes | Yes | Yes | Yes |
| 6126 | 2.6 / 3.7 GHz | 12 / 24 | 19.25 MB | 2666 MHz | 768 GB | 10.4 GT/s | 125 W | Yes | Yes | Yes | Yes |
| 6128 | 3.4 / 3.7 GHz | 6 / 12 | 19.25 MB | 2666 MHz | 768 GB | 10.4 GT/s | 115 W | Yes | Yes | Yes | Yes |
| 6130 | 2.1 / 3.7 GHz | 16 / 32 | 22 MB | 2666 MHz | 768 GB | 10.4 GT/s | 125 W | Yes | Yes | Yes | Yes |

| CPU model | Core frequency (Base / TB Max) | Number of cores / threads | Cache | Max DDR4 frequency | Max memory per socket | UPI speed | TDP | HT | TB | VT-x | VT-d |
|---------------------------------------|--------------------------------|---------------------------|----------|--------------------|-----------------------|-----------|-------|-----|-----|------|------|
| 6130T | 2.1 / 3.7 GHz | 16 / 32 | 22 MB | 2666 MHz | 768 GB | 10.4 GT/s | 125 W | Yes | Yes | Yes | Yes |
| 6132 | 2.6 / 3.7 GHz | 14 / 28 | 19.25 MB | 2666 MHz | 768 GB | 10.4 GT/s | 140 W | Yes | Yes | Yes | Yes |
| 6134 | 3.2 / 3.7 GHz | 8 / 16 | 24.75 MB | 2666 MHz | 768 GB | 10.4 GT/s | 130 W | Yes | Yes | Yes | Yes |
| 6134M | 3.2 / 3.7 GHz | 8 / 16 | 24.75 MB | 2666 MHz | 1.5 TB | 10.4 GT/s | 130 W | Yes | Yes | Yes | Yes |
| 6136 | 3.0 / 3.7 GHz | 12 / 24 | 24.75 MB | 2666 MHz | 768 GB | 10.4 GT/s | 150 W | Yes | Yes | Yes | Yes |
| 6138 | 2.0 / 3.7 GHz | 20 / 40 | 27.5 MB | 2666 MHz | 768 GB | 10.4 GT/s | 125 W | Yes | Yes | Yes | Yes |
| 6138T | 2.0 / 3.7 GHz | 20 / 40 | 27.5 MB | 2666 MHz | 768 GB | 10.4 GT/s | 125 W | Yes | Yes | Yes | Yes |
| 6140 | 2.3 / 3.7 GHz | 18 / 36 | 24.75 MB | 2666 MHz | 768 GB | 10.4 GT/s | 140 W | Yes | Yes | Yes | Yes |
| 6140M | 2.3 / 3.7 GHz | 18 / 36 | 24.75 MB | 2666 MHz | 1.5 TB | 10.4 GT/s | 140 W | Yes | Yes | Yes | Yes |
| 6142 | 2.6 / 3.7 GHz | 16 / 32 | 22 MB | 2666 MHz | 768 GB | 10.4 GT/s | 150 W | Yes | Yes | Yes | Yes |
| 6142M | 2.6 / 3.7 GHz | 16 / 32 | 22 MB | 2666 MHz | 1.5 TB | 10.4 GT/s | 150 W | Yes | Yes | Yes | Yes |
| 6144 | 3.5 / 4.2 GHz | 8 / 16 | 24.75 MB | 2666 MHz | 768 GB | 10.4 GT/s | 150 W | Yes | Yes | Yes | Yes |
| 6146 | 3.2 / 4.2 GHz | 12 / 24 | 24.75 MB | 2666 MHz | 768 GB | 10.4 GT/s | 165 W | Yes | Yes | Yes | Yes |
| 6148 | 2.4 / 3.7 GHz | 20 / 40 | 27.5 MB | 2666 MHz | 768 GB | 10.4 GT/s | 150 W | Yes | Yes | Yes | Yes |
| 6150 | 2.7 / 3.7 GHz | 18 / 36 | 24.75 MB | 2666 MHz | 768 GB | 10.4 GT/s | 165 W | Yes | Yes | Yes | Yes |
| 6152 | 2.1 / 3.7 GHz | 22 / 44 | 30.25 MB | 2666 MHz | 768 GB | 10.4 GT/s | 140 W | Yes | Yes | Yes | Yes |
| Intel Xeon Platinum processors | | | | | | | | | | | |
| 8153 | 2.0 / 2.8 GHz | 16 / 32 | 22 MB | 2666 MHz | 768 GB | 10.4 GT/s | 125 W | Yes | Yes | Yes | Yes |
| 8156 | 3.6 / 3.7 GHz | 4 / 8 | 16.5 MB | 2666 MHz | 768 GB | 10.4 GT/s | 105 W | Yes | Yes | Yes | Yes |
| 8158 | 3.0 / 3.7 GHz | 12 / 24 | 24.75 MB | 2666 MHz | 768 GB | 10.4 GT/s | 150 W | Yes | Yes | Yes | Yes |
| 8160 | 2.1 / 3.7 GHz | 24 / 48 | 33 MB | 2666 MHz | 768 GB | 10.4 GT/s | 150 W | Yes | Yes | Yes | Yes |
| 8160M | 2.1 / 3.7 GHz | 24 / 48 | 33 MB | 2666 MHz | 1.5 TB | 10.4 GT/s | 150 W | Yes | Yes | Yes | Yes |
| 8160T | 2.1 / 3.7 GHz | 24 / 48 | 33 MB | 2666 MHz | 768 GB | 10.4 GT/s | 150 W | Yes | Yes | Yes | Yes |
| 8164 | 2.0 / 3.7 GHz | 26 / 52 | 35.75 MB | 2666 MHz | 768 GB | 10.4 GT/s | 150 W | Yes | Yes | Yes | Yes |
| 8170 | 2.1 / 3.7 GHz | 26 / 52 | 35.75 MB | 2666 MHz | 768 GB | 10.4 GT/s | 165 W | Yes | Yes | Yes | Yes |
| 8170M | 2.1 / 3.7 GHz | 26 / 52 | 35.75 MB | 2666 MHz | 1.5 TB | 10.4 GT/s | 165 W | Yes | Yes | Yes | Yes |
| 8176 | 2.1 / 3.8 GHz | 28 / 56 | 38.5 MB | 2666 MHz | 768 GB | 10.4 GT/s | 165 W | Yes | Yes | Yes | Yes |
| 8176M | 2.1 / 3.8 GHz | 28 / 56 | 38.5 MB | 2666 MHz | 1.5 TB | 10.4 GT/s | 165 W | Yes | Yes | Yes | Yes |

Memory

The ThinkAgile VX2320 appliances support Lenovo TruDDR4 memory. TruDDR4 memory uses the highest-quality components sourced from Tier 1 DRAM suppliers and only memory that meets strict requirements is selected. It is compatibility tested and tuned to maximize performance and reliability.

The VX2320 supports up to 24 DIMMs. The following rules apply when selecting the memory configuration:

- The appliance supports RDIMMs, LRDIMMs, or 3DS RDIMMs; mixing different types of memory (RDIMMs, LRDIMMs, and 3DS RDIMMs) is not supported.
- All DIMMs in the appliance must be of the same type and capacity.
- All DIMMs in the appliance operate at the same speed up to 2666 MHz, which is determined by the maximum memory speed supported by the specific processor.
Note: Maximum memory speed can be achieved when Max performance mode is enabled in UEFI.
- The following maximum memory capacities supported by the appliance:
 - RDIMMs: 768 GB (384 GB per processor).
 - LRDIMMs: 1.5 TB (768 GB per processor).
 - 3DS RDIMMs: 3 TB (1.5 TB per processor).

The following memory protection technologies are supported:

- ECC
- SDDC (for x4-based memory DIMMs)
- ADDDC (for x4-based memory DIMMs; Gold and Platinum processors only)
- Patrol scrubbing
- Demand scrubbing

Single Device Data Correction (SDDC) works only in the independent channel mode (the default operational mode) and supports only x4-based memory DIMMs.

Adaptive Double Device Data Correction (ADDDC) works with x4-based memory DIMMs and requires two DIMM ranks per channel, Intel Xeon Gold or Platinum processors, and the Closed Page memory access mode.

The following table lists the memory options that are available for selection.

Table 6. Memory options

| Description | Part number | Feature code | Quantity* |
|--|-------------|--------------|--------------------------------------|
| RDIMMs | | | |
| ThinkSystem 8GB TruDDR4 2666 MHz (1Rx8 1.2V) RDIMM | 7X77A01301 | AUU1 | 4, 6, 8, 12 / 4, 6, 8, 12, 16, 24 |
| ThinkSystem 16GB TruDDR4 2666 MHz (1Rx4 1.2V) RDIMM | 7X77A01302 | AUNB | 4, 6, 8, 12 / 4, 6, 8, 12, 16, 24 |
| ThinkSystem 16GB TruDDR4 2666 MHz (2Rx8 1.2V) RDIMM | 7X77A01303 | AUNC | 4, 6, 8, 12 / 4, 6, 8, 12, 16, 24 |
| ThinkSystem 32GB TruDDR4 2666 MHz (2Rx4 1.2V) RDIMM | 7X77A01304 | AUND | 4, 6, 8, 12 / 4, 6, 8, 12, 16, 24 |
| LRDIMMs | | | |
| ThinkSystem 64GB TruDDR4 2666 MHz (4Rx4 1.2V) LRDIMM | 7X77A01305 | AUNE | 4, 6, 8, 12 / 4, 6, 8, 12, 16, 24 |
| 3DS RDIMMs | | | |
| ThinkSystem 128GB TruDDR4 2666 MHz (8Rx4 1.2V) 3DS RDIMM | 7X77A01307 | AUNF | 4, 6, 8, 12 / 4, 6, 8, 12, 16, 24 |

* The quantity shown is with one processor / two processors.

Internal storage

The ThinkAgile VX2320 appliance provides 4 LFF SAS/SATA hot-swap drive bays for configurable storage capacity, and it contains two internal M.2 SATA non-hot-swap SSDs for a hypervisor boot volume.

The following table lists the internal storage options for the VX2320 appliance.

Table 7. Internal storage options

| Description | Part number | Feature code | Quantity |
|---|-------------|--------------|----------|
| Backplanes | | | |
| ThinkSystem SR530/SR630 4x3.5" SATA/SAS Backplane | None* | AUW8 | 1 |
| M.2 enablement kit | | | |
| ThinkSystem M.2 with Mirroring Enablement Kit | 7Y37A01093 | AUMV | 1 |

* Factory-installed.

Configuration note: The M.2 with Mirroring Enablement Kit (7Y37A01093) is connected to the Intel PCH via the PCIe link, and the kit supports two M.2 SATA SSDs configured in a RAID-1 drive group for a hypervisor boot volume.

The following table lists M.2 drive selection options for the hypervisor boot volume.

Table 8. Drive options for hypervisor boot volume

| Description | Part number | Feature code | Quantity |
|--|-------------|--------------|----------|
| ThinkSystem M.2 128GB SATA 6Gbps Non-Hot-Swap SSD | 7N47A00130 | AUUV | 2 |
| ThinkSystem M.2 5100 240GB SATA 6Gbps Non-Hot Swap SSD | 4XB7A14049 | B5S4 | 2 |
| ThinkSystem M.2 5300 240GB SATA 6Gbps Non-Hot Swap SSD | 4XB7A17071 | B8HS | 2 |
| ThinkSystem M.2 5100 480GB SATA 6Gbps Non-Hot-Swap SSD | 7SD7A05703 | B11V | 2 |
| ThinkSystem M.2 5300 480GB SATA 6Gbps Non-Hot Swap SSD | 4XB7A17073 | B919 | 2 |

Configuration note: Two M.2 SATA SSDs are required for selection, and they must be of the same model and capacity. The withdrawn VX2320 (7Y13) appliance does not support M.2 5100 or 5300 SATA SSDs.

The following table lists the storage controllers for internal storage of the VX2320 appliance.

Table 9. Controllers for internal storage

| Description | Part number | Feature code | Quantity |
|--------------------------------------|-------------|--------------|----------|
| ThinkSystem 430-8i SAS/SATA 12Gb HBA | 7Y37A01088 | AUNL | 1 |

Configuration note: A low profile SAS HBA for internal storage occupies the dedicated PCIe x8 slot 4 on the system board.

Drives for internal storage

The following tables list the drive selection options.

Table 10. Drive selection options

| Description | Part number | Feature code | Quantity per drive group (min / max) |
|---|-------------|--------------|--------------------------------------|
| SSD selection (Cache tier): SAS 12Gb SSDs - SS300 Performance | | | |
| ThinkSystem 3.5" HUSMM32 400GB Performance SAS 12Gb Hot Swap SSD | 7N47A00997 | B16Z | 1 / 1 |
| ThinkSystem 3.5" HUSMM32 800GB Performance SAS 12Gb Hot Swap SSD | 7N47A00998 | B170 | 1 / 1 |
| ThinkSystem 3.5" HUSMM32 1.6TB Performance SAS 12Gb Hot Swap SSD | 7N47A00999 | B171 | 1 / 1 |
| SSD selection (Cache tier): SAS 12Gb SSDs - SS530 Performance | | | |
| ThinkSystem 3.5" SS530 800GB Performance SAS 12Gb Hot Swap SSD | 4XB7A10234 | B4Y8 | 1 / 1 |
| ThinkSystem 3.5" SS530 1.6TB Performance SAS 12Gb Hot Swap SSD | 4XB7A10235 | B4Y9 | 1 / 1 |
| ThinkSystem 3.5" SS530 3.2TB Performance SAS 12Gb Hot Swap SSD | 4XB7A10236 | B4YA | 1 / 1 |
| SSD selection (Cache tier): SAS 12Gb SSDs - PM1645 Mainstream | | | |
| ThinkSystem 3.5" PM1645 800GB Mainstream SAS 12Gb Hot Swap SSD | 4XB7A13657 | B4A3 | 1 / 1 |
| ThinkSystem 3.5" PM1645 1.6TB Mainstream SAS 12Gb Hot Swap SSD | 4XB7A13658 | B4A4 | 1 / 1 |
| ThinkSystem 3.5" PM1645 3.2TB Mainstream SAS 12Gb Hot Swap SSD | 4XB7A13659 | B4A5 | 1 / 1 |
| SSD selection (Cache tier): SAS 12Gb SSDs - PM1645a Mainstream | | | |

| Description | Part number | Feature code | Quantity per drive group (min / max) |
|--|-------------|--------------|--------------------------------------|
| ThinkSystem 3.5" PM1645a 800GB Mainstream SAS 12Gb Hot Swap SSD | 4XB7A17066 | B8HT | 1 / 1 |
| ThinkSystem 3.5" PM1645a 1.6TB Mainstream SAS 12Gb Hot Swap SSD | 4XB7A17043 | B8JN | 1 / 1 |
| ThinkSystem 3.5" PM1645a 3.2TB Mainstream SAS 12Gb Hot Swap SSD | 4XB7A17067 | B8JK | 1 / 1 |
| SSD selection (Cache tier): SAS 12Gb SSDs - PM1643 Capacity | | | |
| ThinkSystem 3.5" PM1643 3.84TB Capacity SAS 12Gb Hot Swap SSD | 4XB7A13649 | B4A8 | 1 / 1 |
| SSD selection (Cache tier): SAS 12Gb SSDs - PM1643a Entry | | | |
| ThinkSystem 3.5" PM1643a 3.84TB Entry SAS 12Gb Hot Swap SSD | 4XB7A17058 | B91E | 1 / 1 |
| SSD selection (Cache tier): SATA 6Gb SSDs - 5300 Mainstream | | | |
| ThinkSystem 3.5" 5300 480GB Mainstream SATA 6Gb Hot Swap SSD | 4XB7A17097 | B8JF | 1 / 1 |
| ThinkSystem 3.5" 5300 960GB Mainstream SATA 6Gb Hot Swap SSD | 4XB7A17098 | B8J0 | 1 / 1 |
| ThinkSystem 3.5" 5300 1.92TB Mainstream SATA 6Gb Hot Swap SSD | 4XB7A17099 | B8HR | 1 / 1 |
| ThinkSystem 3.5" 5300 3.84TB Mainstream SATA 6Gb Hot Swap SSD | 4XB7A17100 | B8HX | 1 / 1 |
| SSD selection (Cache tier): SATA 6Gb SSDs - S4600 Mainstream | | | |
| ThinkSystem 3.5" Intel S4600 1.92TB Mainstream SATA 6Gb Hot Swap SSD | 7SD7A05715 | B109 | 1 / 1 |
| SSD selection (Cache tier): SATA 6Gb SSDs - S4610 Mainstream | | | |
| ThinkSystem 3.5" Intel S4610 480GB Mainstream SATA 6Gb Hot Swap SSD | 4XB7A13640 | B49S | 1 / 1 |
| ThinkSystem 3.5" Intel S4610 960GB Mainstream SATA 6Gb Hot Swap SSD | 4XB7A13641 | B49T | 1 / 1 |
| ThinkSystem 3.5" Intel S4610 1.92TB Mainstream SATA 6Gb Hot Swap SSD | 4XB7A13642 | B49U | 1 / 1 |
| ThinkSystem 3.5" Intel S4610 3.84TB Mainstream SATA 6Gb Hot Swap SSD | 4XB7A13643 | B49V | 1 / 1 |
| SSD selection (Cache tier): SATA 6Gb SSDs - 5300 Entry | | | |
| ThinkSystem 3.5" 5300 960GB Entry SATA 6Gb Hot Swap SSD | 4XB7A17083 | B8JC | 1 / 1 |
| ThinkSystem 3.5" 5300 1.92TB Entry SATA 6Gb Hot Swap SSD | 4XB7A17084 | B8HZ | 1 / 1 |
| ThinkSystem 3.5" 5300 3.84TB Entry SATA 6Gb Hot Swap SSD | 4XB7A17085 | B8HQ | 1 / 1 |
| SSD selection (Cache tier): SATA 6Gb SSDs - S4510 Entry | | | |
| ThinkSystem 3.5" Intel S4510 960GB Entry SATA 6Gb Hot Swap SSD | 4XB7A13627 | B49F | 1 / 1 |
| ThinkSystem 3.5" Intel S4510 1.92TB Entry SATA 6Gb Hot Swap SSD | 4XB7A13628 | B49G | 1 / 1 |
| ThinkSystem 3.5" Intel S4510 3.84TB Entry SATA 6Gb Hot Swap SSD | 4XB7A13629 | B49H | 1 / 1 |
| HDD selection (Capacity tier): NL SAS 12Gb HDDs | | | |
| ThinkSystem 3.5" 1TB 7.2K SAS 12Gb Hot Swap 512n HDD | 7XB7A00041 | AUU4 | 2 / 3 |
| ThinkSystem 3.5" 2TB 7.2K SAS 12Gb Hot Swap 512n HDD | 7XB7A00042 | AUU5 | 2 / 3 |
| ThinkSystem 3.5" 4TB 7.2K SAS 12Gb Hot Swap 512n HDD | 7XB7A00043 | AUU6 | 2 / 3 |
| ThinkSystem 3.5" 6TB 7.2K SAS 12Gb Hot Swap 512e HDD | 7XB7A00044 | AUU7 | 2 / 3 |
| ThinkSystem 3.5" 8TB 7.2K SAS 12Gb Hot Swap 512e HDD | 7XB7A00045 | B0YR | 2 / 3 |
| ThinkSystem 3.5" 10TB 7.2K SAS 12Gb Hot Swap 512e HDD | 7XB7A00046 | AUUG | 2 / 3 |
| ThinkSystem 3.5" 12TB 7.2K SAS 12Gb Hot Swap 512e HDD | 7XB7A00067 | B117 | 2 / 3 |
| ThinkSystem 3.5" 14TB 7.2K SAS 12Gb Hot Swap 512e HDD | 4XB7A13906 | B496 | 2 / 3 |
| ThinkSystem 3.5" 16TB 7.2K SAS 12Gb Hot Swap 512e HDD | 4XB7A13911 | B7EZ | 2 / 3 |

Configuration notes:

- The appliance supports 1 drive group.
- A drive group contains 1 cache drive and from 2 to 3 capacity drives.
- All capacity drives in the appliance must be of the same type and capacity.

- The withdrawn VX2320 (7Y13) appliance also supports 2 TB, 4 TB, and 6 TB NL SAS HDDs.

I/O expansion

The VX2320 appliance supports one LOM card slot and up to four PCIe slots: one slot on the system planar that is dedicated to an internal storage controller and up to three PCIe slots with different riser cards installed into two riser sockets on the system planar (one riser socket supports installation of one riser card).

The slot form factors are as follows:

- LOM card slot
- Slot 1: PCIe 3.0 x8, ML2 x8, or ML2 x16; low profile
- Slot 2: PCIe 3.0 x16 or x8; low profile or full-height, half-length
- Slot 3: PCIe 3.0 x16; low profile
- Slot 4: PCIe 3.0 x8 (dedicated to an internal storage controller)

Configuration note: Slot 3 requires the second processor to be installed.

The locations of the PCIe slots are shown in the following figure.

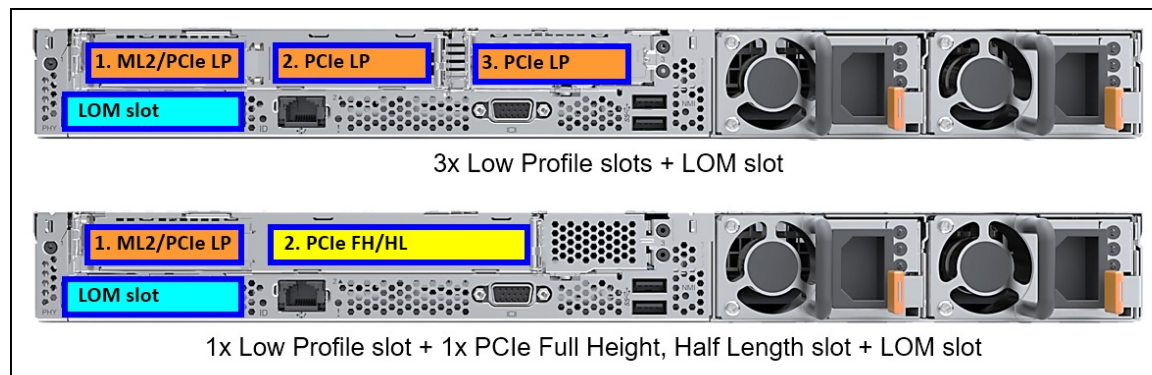


Figure 4. Slot locations

Riser Card 1 supplies Slots 1 and 2, and Riser Card 2 supplies Slot 3. The slots that are available for use depend on the number of riser cards that are installed and whether the second processor is installed, as shown in the following table.

Table 11. Slots available for use

| Riser Card 1 | Riser Card 2 | Slots available for use | |
|--|--------------|-------------------------|-------------|
| | | Processor 1 | Processor 2 |
| None | None | LOM, 4 | - |
| None | PCIe x16 | LOM, 4 | 3 |
| PCIe x8/x16, PCIe x8ML2/x16, or PCIe x16ML2/x8 | None | LOM, 1, 2, 4 | - |
| PCIe x8/x16, PCIe x8ML2/x16, or PCIe x16ML2/x8 | PCIe x16 | LOM, 1, 2, 4 | 3 |

The following table lists available PCIe riser card options.

Table 12. PCIe riser cards and miscellaneous options

| Description | Part number | Feature code | Maximum quantity |
|---|-------------|--------------|------------------|
| x8 Riser Card 1 options (Riser Card 1 supplies Slots 1 and 2) | | | |
| ThinkSystem SR530/SR570/SR630 x8/x16 PCIe LP+LP Riser 1 Kit | 7XH7A02682 | AUWC | 1 |
| ThinkSystem SR530/SR570/SR630 x8/x16 PCIe LP+FH Riser 1 Kit | 7XH7A05893 | None* | 1 |
| ThinkSystem SR630 x8ML2/x16 PCIe LP+LP Riser 1 Kit | 7XH7A02683 | AUWE | 1 |
| ThinkSystem SR630 x8ML2/x16 PCIe LP+FH Riser 1 Kit | 7XH7A05894 | None* | 1 |

| Description | Part number | Feature code | Maximum quantity |
|---|-------------|--------------|------------------|
| ThinkSystem SR630 x16ML2/x8 PCIe LP+LP Riser 1 Kit | 7XH7A02684 | AUWD | 1 |
| ThinkSystem SR630 x16ML2/x8 PCIe LP+FH Riser 1 Kit | 7XH7A05895 | None* | 1 |
| Riser Card 2 option (Riser Card 2 supplies Slot 3) | | | |
| ThinkSystem SR530/SR570/SR630 x16 PCIe LP Riser 2 Kit | 7XH7A02685 | AUWA | 1 |

* The LP+FH Riser 1 can be factory-installed by selecting the feature codes of the LP+LP Riser 1 (AUWC, AUWD, or AUWE) and LP+FH Bracket (AUWS).

Network connectivity

The ThinkAgile VX2320 appliances provide two- or four-port 1 GbE RJ-45, or 1/10 GbE RJ-45, or 10 GbE SFP+ network connectivity with the onboard Intel X722 NIC and a LOM card installed in the appliance. Two or four additional 1/10 GbE RJ-45, 10 GbE SFP+, or 10/25 GbE SFP28 ports can be selected, if required.

The following table lists the network adapter options that are available for selection.

Table 13. Network adapter selection options

| Description | Part number | Feature code | Qty* | I/O slots supported |
|--|-------------|--------------|-------|---------------------|
| 1 GbE RJ-45 LOM ports | | | | |
| ThinkSystem 1Gb 2-port RJ45 LOM | 7ZT7A00544 | AUKG | 0 / 1 | LOM slot |
| ThinkSystem 1Gb 4-port RJ45 LOM | 7ZT7A00545 | AUKH | 0 / 1 | LOM slot |
| 1/10 GbE RJ-45 LOM ports | | | | |
| ThinkSystem 10Gb 2-port Base-T LOM (RJ-45) | 7ZT7A00548 | AUKL | 0 / 1 | LOM slot |
| ThinkSystem 10Gb 4-port Base-T LOM (RJ-45) | 7ZT7A00549 | AUKM | 0 / 1 | LOM slot |
| 1/10 GbE RJ-45 adapter ports | | | | |
| Intel X550-T2 Dual Port 10GBase-T Adapter (RJ-45) | 00MM860 | ATPX | 0 / 2 | 1, 2, 3 |
| 10 GbE SFP+ LOM ports | | | | |
| ThinkSystem 10Gb 2-port SFP+ LOM | 7ZT7A00546 | AUKJ | 0 / 1 | LOM slot |
| ThinkSystem 10Gb 4-port SFP+ LOM | 7ZT7A00547 | AUKK | 0 / 1 | LOM slot |
| 10 GbE SFP+ adapter ports | | | | |
| Emulex VFA5.2 2x10 GbE SFP+ PCIe Adapter | 00AG570 | AT7S | 0 / 2 | 1, 2, 3 |
| Intel X710-DA2 PCIe 10Gb 2-Port SFP+ Ethernet Adapter | 7ZT7A00537 | AUKX | 0 / 2 | 1, 2, 3 |
| 10/25 GbE SFP28 adapter ports | | | | |
| Broadcom 57412 10/25GbE SFP28 1-Port PCIe Ethernet Adapter | 7ZT7A00505 | AUKS | 0 / 2 | 1, 2, 3 |
| Intel XXV710-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter | 7XC7A05523 | B0WY | 0 / 2 | 1, 2, 3 |
| Mellanox ConnectX-4 Lx 10/25GbE SFP28 2-Port PCIe Ethernet Adapter | 01GR250 | AUAJ | 0 / 2 | 1, 2, 3 |

* Quantity: Minimum / Maximum.

Configuration notes:

- PCIe network adapters are supported in the full-height and low profile PCIe x8 and x16 slots supplied by the Riser Cards 1 and 2.
- One of the network adapter options is required for selection. Additional ports can be selected, if needed.
- If two PCIe network adapters are selected, they must be of the same model.
- The withdrawn VX2320 (7Y13) appliance does not support 10/25 GbE SFP28 network adapters.
- Supported transceivers or DAC cables should be purchased for the SFP+ and SFP28 adapters, and UTP Category 6 or Category 5e cables should be purchased for the 10 GbE (Category 6) or 1 GbE (Category 5e) cables.

5e or 6) RJ-45 adapters. The maximum number of transceivers or cables that are supported per adapter equals the quantity of the adapter ports, and all adapter ports must have the same type of the transceiver or cable selected.

The following transceiver and cables can be purchased:

- [UTP cables for 10 GbE and 1 GbE RJ-45 adapters](#)
- [Transceivers and cables for 10 GbE SFP+ adapters](#)
- [Transceivers and cables for 25 GbE SFP28 adapters](#)

The following table lists cables for the 10 GbE and 1 GbE RJ-45 adapters.

Table 14. Cables for 10 GbE and 1 GbE RJ-45 adapters

| Description | Part number | Feature code |
|--|-------------|--------------|
| UTP Category 6 cables (Green) for 10 GbE and 1 GbE RJ-45 adapters | | |
| 0.75m Cat6 Green Cable | 00WE123 | AVFW |
| 1.0m Cat6 Green Cable | 00WE127 | AVFX |
| 1.25m Cat6 Green Cable | 00WE131 | AVFY |
| 1.5m Cat6 Green Cable | 00WE135 | AVFZ |
| 3m Cat6 Green Cable | 00WE139 | AVG0 |
| 10m Cat6 Green Cable | 90Y3718 | A1MT |
| 25m Cat6 Green Cable | 90Y3727 | A1MW |
| UTP Category 5e cables (Blue) for 1 GbE RJ-45 adapters | | |
| 0.75m Blue Cat5e Cable | 00WE111 | AVFT |
| 1.0m Blue Cat5e Cable | 00WE115 | AVFU |
| 1.25m Blue Cat5e Cable | 00WE119 | AVFV |
| 1.5m Blue Cat5e Cable | 40K8785 | 3802 |
| 3m Blue Cat5e Cable | 40K5581 | 3803 |
| 10m Blue Cat5e Cable | 40K8927 | 3804 |
| 25m Blue Cat5e Cable | 40K8930 | 3805 |
| UTP Category 5e cables (Green) for 1 GbE RJ-45 adapters | | |
| 0.75m Green Cat5e Cable | 00WE099 | AVFQ |
| 1.0m Green Cat5e Cable | 00WE103 | AVFR |
| 1.25m Green Cat5e Cable | 00WE107 | AVFS |
| 1.5m Green Cat5e Cable | 40K5643 | 3797 |
| 3m Green Cat5e Cable | 40K5793 | 3798 |
| 10m Green Cat5e Cable | 40K5794 | 3799 |
| 25m Green Cat5e Cable | 40K8869 | 3800 |

The following table lists transceivers and cables for the 10 GbE SFP+ adapters.

Table 15. Transceivers and cables for 10 GbE SFP+ adapters

| Description | Part number | Feature code |
|---|-------------|--------------|
| 10 GbE SFP+ SR transceivers for 10 GbE SFP+ adapters | | |
| Lenovo 10GBASE-SR SFP+ Transceiver | 46C3447 | 5053 |
| Lenovo 10GBASE-LR SFP+ Transceiver | 00FE331 | B0RJ |
| Optical cables for 10 GbE SFP+ SR transceivers | | |
| Lenovo 0.5m LC-LC OM3 MMF Cable | 00MN499 | ASR5 |
| Lenovo 1m LC-LC OM3 MMF Cable | 00MN502 | ASR6 |
| Lenovo 3m LC-LC OM3 MMF Cable | 00MN505 | ASR7 |
| Lenovo 5m LC-LC OM3 MMF Cable | 00MN508 | ASR8 |
| Lenovo 10m LC-LC OM3 MMF Cable | 00MN511 | ASR9 |
| Lenovo 15m LC-LC OM3 MMF Cable | 00MN514 | ASRA |
| Lenovo 25m LC-LC OM3 MMF Cable | 00MN517 | ASRB |
| Lenovo 30m LC-LC OM3 MMF Cable | 00MN520 | ASRC |
| Passive SFP+ DAC cables for 10 GbE SFP+ adapters | | |
| Lenovo 0.5m Passive SFP+ DAC Cable | 00D6288 | A3RG |
| Lenovo 1m Passive SFP+ DAC Cable | 90Y9427 | A1PH |
| Lenovo 1.5m Passive SFP+ DAC Cable | 00AY764 | A51N |
| Lenovo 2m Passive SFP+ DAC Cable | 00AY765 | A51P |
| Lenovo 3m Passive SFP+ DAC Cable | 90Y9430 | A1PJ |
| Lenovo 5m Passive SFP+ DAC Cable | 90Y9433 | A1PK |
| Lenovo 7m Passive SFP+ DAC Cable | 00D6151 | A3RH |
| Active SFP+ DAC cables for 10 GbE SFP+ adapters* | | |
| Lenovo 1m Active DAC SFP+ Cable | 00VX111 | AT2R |
| Lenovo 3m Active DAC SFP+ Cable | 00VX114 | AT2S |
| Lenovo 5m Active DAC SFP+ Cable | 00VX117 | AT2T |
| SFP+ active optical cables for 10 GbE SFP+ ports | | |
| Lenovo 1m SFP+ to SFP+ Active Optical Cable | 00YL634 | ATYX |
| Lenovo 3m SFP+ to SFP+ Active Optical Cable | 00YL637 | ATYY |
| Lenovo 5m SFP+ to SFP+ Active Optical Cable | 00YL640 | ATYZ |
| Lenovo 7m SFP+ to SFP+ Active Optical Cable | 00YL643 | ATZ0 |
| Lenovo 15m SFP+ to SFP+ Active Optical Cable | 00YL646 | ATZ1 |
| Lenovo 20m SFP+ to SFP+ Active Optical Cable | 00YL649 | ATZ2 |

* The Emulex VFA5.2 ML2 (00AG560) and PCIe (00AG570) network adapters do not support active SFP+ DAC cables.

The following table lists transceivers and cables for the 25 GbE SFP28 adapters.

Table 16. Transceivers and cables for 25 GbE SFP28 adapters

| Description | Part number | Feature code |
|--|-------------|--------------|
| 25 GbE SFP28 SR transceivers for 25 GbE SFP28 adapters | | |
| Lenovo 25GBase-SR SFP28 Transceiver | 7G17A03537 | AV1B |
| Optical cables for 25 GbE SFP28 SR transceivers | | |
| Lenovo 0.5m LC-LC OM3 MMF Cable | 00MN499 | ASR5 |
| Lenovo 1m LC-LC OM3 MMF Cable | 00MN502 | ASR6 |
| Lenovo 3m LC-LC OM3 MMF Cable | 00MN505 | ASR7 |
| Lenovo 5m LC-LC OM3 MMF Cable | 00MN508 | ASR8 |
| Lenovo 10m LC-LC OM3 MMF Cable | 00MN511 | ASR9 |
| Lenovo 15m LC-LC OM3 MMF Cable | 00MN514 | ASRA |
| Lenovo 25m LC-LC OM3 MMF Cable | 00MN517 | ASRB |
| Lenovo 30m LC-LC OM3 MMF Cable | 00MN520* | ASRC* |
| Passive copper cables for 25 GbE SFP28 network adapters | | |
| Lenovo 1m Passive 25G SFP28 DAC Cable | 7Z57A03557* | AV1W* |
| Lenovo 3m Passive 25G SFP28 DAC Cable | 7Z57A03558 | AV1X |
| Lenovo 5m Passive 25G SFP28 DAC Cable | 7Z57A03559 | AV1Y |
| Active optical cables for 25 GbE SFP28 network adapters* | | |
| Lenovo 3m 25G SFP28 Active Optical Cable | 7Z57A03541 | AV1F |
| Lenovo 5m 25G SFP28 Active Optical Cable | 7Z57A03542 | AV1G |
| Lenovo 10m 25G SFP28 Active Optical Cable | 7Z57A03543 | AV1H |
| Lenovo 15m 25G SFP28 Active Optical Cable | 7Z57A03544 | AV1J |
| Lenovo 20m 25G SFP28 Active Optical Cable | 7Z57A03545 | AV1K |

* Not supported with the Intel XXV710-DA2 PCIe 25Gb 2-Port SFP28 Ethernet Adapter (7XC7A05523).

Power supplies and cables

The VX2320 appliances can be configured with one or two power supplies. The following table lists the power supply options that are available for selection.

Table 17. Power supplies

| Description | Part number | Feature code | Quantity (min / max) |
|--|-------------|--------------|----------------------|
| ThinkSystem 750W (230/115V) Platinum Hot-Swap Power Supply | 7N67A00883 | AVWA | 1 / 2 |
| ThinkSystem 750W (230V) Titanium Hot-Swap Power Supply | 7N67A00884 | AVW9 | 1 / 2 |
| ThinkSystem 1100W (230V/115V) Platinum Hot-Swap Power Supply | 7N67A00885 | AVWB | 1 / 2 |

Configuration notes:

- Minimum of 1 and maximum of 2 power supplies per system.
- For N+N power redundancy, the power supplies should provide sufficient power without oversubscription for the selected appliance configuration. To ensure that the right power supply is chosen, you should always validate your appliance configuration using the latest version of the Lenovo Capacity Planner: <http://datacentersupport.lenovo.com/us/en/solutions/Invo-lcp>
- If two power supplies are installed, they must be identical.
- The power supplies support AC (Worldwide) and HVDC (China only) power sources.

The VX Series appliances ship with one or two customer-configured power cords (A hot-swap power supply option does not contain a power cord). The following table lists the rack power cables and line cords that can be ordered for the VX2320 appliances.

Table 18. Power cables

| Description | Part number | Feature code |
|--|-------------|--------------|
| Rack power cables | | |
| 1.0m, 10A/125-250V, C13 to IEC 320-C14 Rack Power Cable | 00Y3043 | A4VP |
| 1.0m, 13A/100-250V, C13 to IEC 320-C14 Rack Power Cable | 4L67A08367 | B0N5 |
| 1.2m, 16A/100-250V, 2 Short C13s to Short C20 Rack Power Cable | 47C2491 | A3SW |
| 1.5m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable | 39Y7937 | 6201 |
| 1.5m, 13A/100-250V, C13 to IEC 320-C14 Rack Power Cable | 4L67A08368 | B0N6 |
| 2.0m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable | 4L67A08365 | B0N4 |
| 2.0m, 13A/125V-10A/250V, C13 to IEC 320-C14 Rack Power Cable | 4L67A08369 | 6570 |
| 2.5m, 16A/100-250V, 2 Long C13s to Short C20 Rack Power Cable | 47C2492 | A3SX |
| 2.8m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable | 4L67A08366 | 6311 |
| 2.8m, 13A/125V-10A/250V, C13 to IEC 320-C14 Rack Power Cable | 4L67A08370 | 6400 |
| 2.8m, 10A/100-250V, C13 to IEC 320-C20 Rack Power Cable | 39Y7938 | 6204 |
| 2.8m, 16A/100-250V, 2 Short C13s to Long C20 Rack Power Cable | 47C2493 | A3SY |
| 4.1m, 16A/100-250V, 2 Long C13s to Long C20 Rack Power Cable | 47C2494 | A3SZ |
| 4.3m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable | 39Y7932 | 6263 |
| 4.3m, 13A/125V-10A/250V, C13 to IEC 320-C14 Rack Power Cable | 4L67A08371 | 6583 |
| Line cords | | |
| Argentina 2.8m, 10A/250V, C13 to IRAM 2073 Line Cord | 39Y7930 | 6222 |
| Argentina 4.3m, 10A/250V, C13 to IRAM 2073 Line Cord | 81Y2384 | 6492 |
| Australia/New Zealand 2.8m, 10A/250V, C13 to AS/NZS 3112 Line Cord | 39Y7924 | 6211 |
| Australia/New Zealand 4.3m, 10A/250V, C13 to AS/NZS 3112 Line Cord | 81Y2383 | 6574 |
| Brazil 2.8m, 10A/250V, C13 to NBR 14136 Line Cord | 69Y1988 | 6532 |
| Brazil 4.3m, 10A/250V, C13 to NBR14136 Line Cord | 81Y2387 | 6404 |
| China 2.8m, 10A/250V, C13 to GB 2099.1 Line Cord | 39Y7928 | 6210 |
| China 4.3m, 10A/250V, C13 to GB 2099.1 Line Cord | 81Y2378 | 6580 |
| Denmark 2.8m, 10A/250V, C13 to DK2-5a Line Cord | 39Y7918 | 6213 |
| Denmark 4.3m, 10A/250V, C13 to DK2-5a Line Cord | 81Y2382 | 6575 |
| Europe 2.8m, 10A/250V, C13 to CEE7-VII Line Cord | 39Y7917 | 6212 |
| Europe 4.3m, 10A/250V, C13 to CEE7-VII Line Cord | 81Y2376 | 6572 |
| India 2.8m, 10A/250V, C13 to IS 6538 Line Cord | 39Y7927 | 6269 |

| Description | Part number | Feature code |
|--|-------------|--------------|
| India 4.3m, 10A/250V, C13 to IS 6538 Line Cord | 81Y2386 | 6567 |
| Israel 2.8m, 10A/250V, C13 to SI 32 Line Cord | 39Y7920 | 6218 |
| Israel 4.3m, 10A/250V, C13 to SI 32 Line Cord | 81Y2381 | 6579 |
| Italy 2.8m, 10A/250V, C13 to CEI 23-16 Line Cord | 39Y7921 | 6217 |
| Italy 4.3m, 10A/250V, C13 to CEI 23-16 Line Cord | 81Y2380 | 6493 |
| Japan 2.8m, 12A/125V, C13 to JIS C-8303 Line cord | 46M2593 | A1RE |
| Japan 2.8m, 12A/250V, C13 to JIS C-8303 Line Cord | 4L67A08357 | 6533 |
| Japan 4.3m, 12A/125V, C13 to JIS C-8303 Line Cord | 39Y7926 | 6335 |
| Japan 4.3m, 12A/250V, C13 to JIS C-8303 Line Cord | 4L67A08362 | 6495 |
| Korea 2.8m, 12A/250V, C13 to KS C8305 Line Cord | 39Y7925 | 6219 |
| Korea 4.3m, 12A/250V, C13 to KS C8305 Line Cord | 81Y2385 | 6494 |
| South Africa 2.8m, 10A/250V, C13 to SABS 164 Line Cord | 39Y7922 | 6214 |
| South Africa 4.3m, 10A/250V, C13 to SABS 164 Line Cord | 81Y2379 | 6576 |
| Switzerland 2.8m, 10A/250V, C13 to SEV 1011-S24507 Line Cord | 39Y7919 | 6216 |
| Switzerland 4.3m, 10A/250V, C13 to SEV 1011-S24507 Line Cord | 81Y2390 | 6578 |
| Taiwan 2.8m, 10A/125V, C13 to CNS 10917-3 Line Cord | 23R7158 | 6386 |
| Taiwan 2.8m, 10A/250V, C13 to CNS 10917-3 Line Cord | 81Y2375 | 6317 |
| Taiwan 2.8m, 15A/125V, C13 to CNS 10917-3 Line Cord | 81Y2374 | 6402 |
| Taiwan 4.3m, 10A/125V, C13 to CNS 10917-3 Line Cord | 4L67A08363 | AX8B |
| Taiwan 4.3m, 10A/250V, C13 to CNS 10917-3 Line Cord | 81Y2389 | 6531 |
| Taiwan 4.3m, 15A/125V, C13 to CNS 10917-3 Line Cord | 81Y2388 | 6530 |
| United Kingdom 2.8m, 10A/250V, C13 to BS 1363/A Line Cord | 39Y7923 | 6215 |
| United Kingdom 4.3m, 10A/250V, C13 to BS 1363/A Line Cord | 81Y2377 | 6577 |
| United States 2.8m, 10A/125V, C13 to NEMA 5-15P Line Cord | 90Y3016 | 6313 |
| United States 2.8m, 10A/250V, C13 to NEMA 6-15P Line Cord | 46M2592 | A1RF |
| United States 2.8m, 13A/125V, C13 to NEMA 5-15P Line Cord | 00WH545 | 6401 |
| United States 4.3m, 10A/125V, C13 to NEMA 5-15P Line Cord | 4L67A08359 | 6370 |
| United States 4.3m, 10A/250V, C13 to NEMA 6-15P Line Cord | 4L67A08361 | 6373 |
| United States 4.3m, 13A/125V, C13 to NEMA 5-15P Line Cord | 4L67A08360 | AX8A |

Configuration note: If the 1100 W AC power supplies (7N67A00885) in the VX2320 appliance are connected to a low-voltage power source (100 - 125 V), the only supported power cables are those that are rated above 10 A; cables that are rated at 10 A are not supported.

Rack installation

The VX Series appliances ship with a rail kit with or without CMA depending on the rack installation option selected. The following table lists the rack installation options that are available for the VX2320 appliances.

Table 19. Rack installation options

| Description | Part number | Feature code | Quantity (min / max) |
|---|-------------|--------------|----------------------|
| 4-post rail kits | | | |
| ThinkSystem Tool-less Slide Rail | 7M27A05702 | AXCA | 0 / 1 |
| ThinkSystem Tool-less Slide Rail Kit with 1U CMA | 7M27A05701 | AXCB | 0 / 1 |
| Cable management arm (CMA) upgrade | | | |
| ThinkSystem 1U CMA Upgrade Kit for Tool-less Slide Rail | 7M27A05699 | None^ | 0 / 1* |
| Front VGA port | | | |
| ThinkSystem SR530/SR630 Front VGA Connector (for 3.5" models) | None** | AUWU | 0 / 1 |
| Lockable front bezel | | | |
| ThinkSystem 1U Security Bezel | 7Z17A02581 | AUWR | 0 / 1 |

^ Field upgrade only.

* The CMA Upgrade Kit for Tool-less Slide Rail is supported with the Tool-less Slide Rail (7M27A05702) only.

** Factory-installed only; no field upgrade.

Configuration note: One of the rail kits is required for selection.

The following table summarizes the features of the rail kits that are available for selection.

Table 20. Rail kit features and specifications summary

| Feature | Tool-less Slide Rail | |
|---|---|-------------------|
| | Without CMA | With CMA |
| Part number | 7M27A05702 | 7M27A05701 |
| CMA | 7M27A05699 | Included |
| Rail length | 730 mm (28.74 in.) | 807 mm (31.8 in.) |
| Rail type | Full-out slide (ball bearing) | |
| Tool-less installation | Yes | |
| In-rack server maintenance | Yes | |
| 1U PDU support | Yes | |
| 0U PDU support | Limited* | |
| Rack type | IBM and Lenovo 4-post, IEC standard-compliant | |
| Mounting holes | Square or round | |
| Mounting flange thickness | 2 mm (0.08 in.) – 3.3 mm (0.13 in.) | |
| Distance between front and rear mounting flanges^ | 609.6 mm (24 in.) – 863.6 mm (34 in.) | |

* If a 0U PDU is used, the rack cabinet must be at least 1100 mm (43.31 in.) deep if no CMA is used, or at least 1200 mm (47.24 in.) deep if a CMA is used.

^ Measured when mounted on the rack, from the front surface of the front mounting flange to the rear most point of the rail.

Software

The ThinkAgile VX Series appliances support the following VMware HCI components:

- VMware vSphere ESXi hypervisor
- VMware vSAN distributed enterprise storage
- VMware vCenter Server centralized management

The VMware ESXi hypervisor is factory-preinstalled on the 2x M.2 SSDs configured in a RAID-1 drive group.

The following table lists the VMware ESXi hypervisor versions that are available for selection for the withdrawn VX2320 (7Y13).

Table 21. VMware ESXi hypervisor selection options: VX2320 (7Y13)

| Description | Feature code |
|--|--------------|
| VMware ESXi 6.5 U1 (Factory Installed) | AXFT |

The following table lists the VMware ESXi hypervisor versions that are available for selection.

Table 22. VMware ESXi hypervisor selection options: VX2320 (7Y93)

| Description | Feature code |
|--|--------------|
| VMware ESXi 6.5 U2 (Factory Installed) | B3VW |
| VMware ESXi 6.5 U3 (Factory installed) | B6U0 |
| VMware ESXi 6.7 (Factory Installed) | B3VX |
| VMware ESXi 6.7 U1 (Factory Installed) | B4XA |
| VMware ESXi 6.7 U2 (Factory Installed) | B6U1 |
| VMware ESXi 6.7 U3 (Factory installed) | B88T |

VMware vSAN, vSphere, and vCenter Server software licenses and support are required for ThinkAgile VX Series appliances. Customers are required to purchase VMware vSAN licenses for VX Series appliances from Lenovo. For VMware vSphere and vCenter Server, customers can use the existing VMware software licenses and active support contracts, or they can purchase software licenses and support from Lenovo or VMware.

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

- [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](#)
- [VMware License and Subscription with 1-year software support for PRC](#)

Configuration notes:

- The selection of vSAN licenses is required: Standalone licenses, HCI bundle licenses, VDI solution licenses, or VCF licenses.
Important: The Horizon 7 Standard license does not include vSAN; standalone vSAN license options must be selected with the Horizon 7 Standard.
- VMware software licenses that are available for selection include 1-year (the selection is available in PRC only), 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.

VMware vSAN License and Subscription

Lenovo offers the following VMware vSAN License and Subscription options that can be purchased for ThinkAgile VX Series appliances:

- *VMware Virtual SAN 6 Standard* provides support for hybrid and all-flash storage configurations.
- *VMware Virtual SAN 6 Advanced* provides support for hybrid and all-flash storage configurations with space efficiency features (compression, deduplication, and erasure coding).
- *VMware Virtual SAN 6 Enterprise* provides support for hybrid and all-flash storage configurations with space efficiency features (compression, deduplication, and erasure coding), stringent security (data-at-rest encryption), and advanced failure protection (stretched cluster).
- *VMware Virtual SAN 6 for Remote Office Branch Office (ROBO)* provides support for hybrid and all-flash storage configurations for up to 25 virtual machines at remote locations.

VMware vSAN selection options for the ThinkAgile VX Series appliances are listed in the following table.

Table 23. VMware vSAN selection options

| Description | Feature code |
|---|--------------|
| VMware Virtual SAN 6 Standard | B2Q7 |
| VMware Virtual SAN 6 Advanced | B2Q8 |
| VMware Virtual SAN 6 Enterprise | B2Q9 |
| VMware Virtual SAN 6 for Remote Office Branch Office (25 VM Pack) | B2QA |

The following table lists the VMware vSAN License and Subscription options that are derived by the configurator based on the selected quantity of processors, software edition, and warranty period.

Table 24. VMware vSAN License and Subscription options

| Description | Part number | Feature code |
|--|-------------|--------------|
| vSAN 6 Standard | | |
| VMware vSAN 6 Standard for 1 Processor w/3Yr Support | 7S06004TWW | B2C6 |
| VMware vSAN 6 Standard for 1 Processor w/5Yr Support | 7S060083WW | B2FG |
| vSAN 6 Advanced | | |
| VMware vSAN 6 Advanced for 1 Processor w/3Yr Support | 7S06004XWW | B2CA |
| VMware vSAN 6 Advanced for 1 Processor w/5Yr Support | 7S060087WW | B2FL |
| vSAN 6 Enterprise | | |
| VMware vSAN 6 Enterprise for 1 Processor w/3Yr Support | 7S060051WW | B2CE |
| VMware vSAN 6 Enterprise for 1 Processor w/5Yr Support | 7S06008BWW | B2FQ |
| vSAN 6 Standard for Remote Office Branch Office (ROBO) | | |
| VMware vSAN 6 Standard for Rmt Off Brnch Off 25VM Pk w/3Yr Support | 7S06004WWW | B2C9 |
| VMware vSAN 6 Standard for Rmt Off Brnch Off 25VM Pk w/5Yr Support | 7S060086WW | B2FK |

The following table compares features of the VMware vSAN software editions.

Table 25. VMware vSAN software editions feature comparison

| Feature | VMware vSAN software edition | | |
|---|-----------------------------------|----------|------------|
| | Standard | Advanced | Enterprise |
| Licensing for data center | Processor-based (per 1 processor) | | |
| Licensing for ROBO | VM-based (per 25 VMs)* | | |
| Cluster size | 2 - 64 | 2 - 64 | 2 - 64 |
| Storage-Policy Based Management | Yes | Yes | Yes |
| Flash Read/Write Caching | Yes | Yes | Yes |
| Distributed RAID | Yes | Yes | Yes |
| Virtual Distributed Switch | Yes | Yes | Yes |
| Rack Awareness | Yes | Yes | Yes |
| vSphere Replication | Yes | Yes | Yes |
| Software Checksum | Yes | Yes | Yes |
| All-Flash Hardware | Yes | Yes | Yes |
| iSCSI Target Service | Yes | Yes | Yes |
| IOPS Limit | Yes | Yes | Yes |
| Deduplication and Compression | No | Yes** | Yes** |
| RAID-5/6 Erasure Coding | No | Yes** | Yes** |
| Data-at-Rest Encryption | No | No | Yes |
| Stretched Cluster with Local Failure Protection | No | No | Yes |

* A maximum of 25 VMs is supported at any single location under the ROBO license. Two or more nodes can be used in a cluster under the ROBO license, however, the maximum number of VMs at the location must not exceed 25.

** Requires All-Flash configurations; hybrid configurations not supported.

VMware vSphere License and Subscription

Lenovo offers the following VMware vSphere License and Subscription options that can be purchased for ThinkAgile VX Series appliances:

- *VMware vSphere 6 Standard* provides an entry-level solution for basic server consolidation and business continuity.
- *VMware vSphere 6 Enterprise Plus* offers resource management with enhanced application availability and performance for server virtualization and cloud solutions.
- *VMware vSphere 6 Remote Office Branch Office (ROBO) Standard* provides remote site server virtualization with business continuity and backup features.
- *VMware vSphere 6 Remote Office Branch Office Advanced* provides remote site server virtualization that offers business continuity and backup with advanced features such as standardization of host configurations.

VMware vSphere selection options for the ThinkAgile VX Series appliances are listed in the following table.

Table 26. VMware vSphere selection options

| Description | Feature code |
|---|--------------|
| VMware vSphere 6 Standard | B2Q0 |
| VMware vSphere 6 Enterprise Plus | B2Q1 |
| VMware vSphere 6 Remote Office Branch Office Standard | B2Q3 |
| VMware vSphere 6 Remote Office Branch Office Advanced | B2Q4 |

The following table lists the VMware vSphere License and Subscription options that are derived by the configurator based on the selected quantity of processors, software edition, and warranty period.

Table 27. VMware vSphere License and Subscription options

| Description | Part number | Feature code |
|--|-------------|--------------|
| vSphere 6 Standard | | |
| VMware vSphere 6 Standard for 1 Processor w/3Yr Support | 7S06003DWW | B2AS |
| VMware vSphere 6 Standard for 1 Processor w/5Yr Support | 7S06006PWW | B2E2 |
| vSphere 6 Enterprise Plus | | |
| VMware vSphere 6 Enterprise Plus for 1 Processor w/3Yr Support | 7S06003EWW | B2AT |
| VMware vSphere 6 Enterprise Plus for 1 Processor w/5Yr Support | 7S06006QWW | B2E3 |
| vSphere 6 Remote Office Branch Office Standard | | |
| VMware vSphere 6 Remote Office Branch Office Standard (25 VM Pack) w/3Yr S&S | 7S06003KWW | B2AY |
| VMware vSphere 6 Remote Office Branch Office Standard (25 VM Pack) w/5Yr S&S | 7S06006VWW | B2E8 |
| vSphere 6 Remote Office Branch Office Advanced | | |
| VMware vSphere 6 Remote Office Branch Office Advanced (25 VM Pack) w/3Yr S&S | 7S06003LWW | B2AZ |
| VMware vSphere 6 Remote Office Branch Office Advanced (25 VM Pack) w/5Yr S&S | 7S06006WWW | B2E9 |

The following table compares features of the VMware vSphere software editions.

Table 28. VMware vSphere software editions feature comparison

| Feature | VMware vSphere software edition | | | |
|--|-----------------------------------|-----------------|-----------------------|---------------|
| | Standard | Enterprise Plus | ROBO Standard | ROBO Advanced |
| Licensing | Processor-based (per 1 processor) | | VM-based (per 25 VMs) | |
| Hypervisor | Yes | Yes | Yes | Yes |
| vMotion | Yes | Yes | Yes | Yes |
| Storage vMotion | Yes | Yes | Yes | Yes |
| Cross-Switch vMotion | Yes | Yes | No | No |
| Fault Tolerance | 2 vCPU | 8 vCPU | 2 vCPU | 4 vCPU |
| Data Protection and Replication | Yes | Yes | Yes | Yes |
| Virtual Volumes | Yes | Yes | Yes | Yes |
| Storage-Policy Based Management | Yes | Yes | Yes | Yes |
| APIs for Storage Awareness | Yes | Yes | No | No |
| APIs for Array Integration, Multipathing | Yes | Yes | No | No |

| Feature | VMware vSphere software edition | | | |
|---|---------------------------------|-----------------|---------------|---------------|
| | Standard | Enterprise Plus | ROBO Standard | ROBO Advanced |
| Content Library | Yes | Yes | No | No |
| vCenter High Availability | Yes* | Yes* | No | No |
| vCenter Backup and Restore | Yes* | Yes* | No | No |
| vCenter Server Appliance Migration Tool | Yes* | Yes* | No | No |
| Virtual Machine Encryption | No | Yes | No | No |
| Proactive High Availability | No | Yes | No | No |
| vSphere Integrated Containers | No | Yes | No | Yes |
| Distributed Resource Scheduler (DRS) | No | Yes | No | No |
| Distributed Power Management | No | Yes | No | No |
| Big Data Extensions | No | Yes | No | No |
| Distributed Switch | No | Yes | No | Yes |
| Storage DRS | No | Yes | No | No |
| I/O Controls (Network and Storage) and SR-IOV | No | Yes | No | No |
| Host Profiles and Auto Deploy | No | Yes | No | Yes |
| Flash Read Cache | No | Yes | No | No |
| Cross-vCenter and Long Distance vMotion | No | Yes | No | No |
| vGPU | No | Yes | No | No |

* Requires vCenter Server Standard.

VMware HCI Kit License and Subscription

Lenovo offers the following VMware HCI license bundles for ThinkAgile VX Series appliances that include both vSphere and vSAN License and Subscription options:

- VMware HCI Kit Essentials (For 3 nodes):
 - vSphere Essentials Plus
 - vSAN Standard
- VMware HCI Kit Standard (Per CPU):
 - vSphere Standard
 - vSAN Standard
- VMware HCI Kit Advanced (Per CPU):
 - vSphere Enterprise Plus
 - vSAN Advanced
- VMware HCI Kit Enterprise (Per CPU):
 - vSphere Enterprise Plus
 - vSAN Enterprise

Note: *VMware vSphere Essentials Plus* provides server virtualization and consolidation with centralized management and business continuity for up to three nodes, and it includes the following features: vSphere Hypervisor, vMotion, Cross-Switch vMotion, High Availability, Data Protection and Replication, and vCenter Server Essentials.

VMware HCI Kit selection options for the ThinkAgile VX Series appliances are listed in the following table.

Table 29. VMware HCI Kit selection options

| Description | Feature code |
|---|--------------|
| VMware 6 HCI Kit Essentials for 3 Nodes (each node with up to two processors) | BAKF |
| VMware 6 HCI Kit Standard | BAKE |
| VMware 6 HCI Kit Advanced | B2PY |
| VMware 6 HCI Kit Enterprise | B2PZ |

The following table lists the VMware HCI Kit License and Subscription options that are derived by the configurator based on the selected quantity of processors, software edition, and warranty period.

Table 30. VMware HCI Kit License and Subscription options

| Description | Part number | Feature code |
|---|-------------|--------------|
| HCI Kit Essentials | | |
| VMware HCI Kit Essentials for 3 Nodes w/3Yr Support | 7S0600A9WW | S04F |
| VMware HCI Kit Essentials for 3 Nodes w/5Yr Support | 7S0600ACWW | S04J |
| HCI Kit Standard | | |
| VMware HCI Kit Standard (Per CPU) w/3Yr Support | 7S060057WW | B2CL |
| VMware HCI Kit Standard (Per CPU) w/5Yr Support | 7S06008HWW | B2FW |
| HCI Kit Advanced | | |
| VMware HCI Kit Advanced (Per CPU) w/3Yr Support | 7S060058WW | B2CM |
| VMware HCI Kit Advanced (Per CPU) w/5Yr Support | 7S06008JWW | B2FX |
| HCI Kit Enterprise | | |
| VMware HCI Kit Enterprise (Per CPU) w/3Yr Support | 7S060059WW | B2CN |
| VMware HCI Kit Enterprise (Per CPU) w/5Yr Support | 7S06008KWW | B2FY |

VMware Horizon 7 License and Subscription

Lenovo offers the following VMware Horizon 7 License and Subscription options for Virtual Desktop Infrastructure (VDI) deployments that can be purchased for the ThinkAgile VX Series appliances:

- *VMware Horizon 7 Standard* delivers simple, powerful VDI with great user experience, and it includes VMware vSphere Desktop (delivers the full range of vSphere 6 Enterprise Plus features for desktop workloads) and vCenter Server for Desktop.
- *VMware Horizon 7 Advanced* delivers desktops and applications for physical and virtual machines through a unified workspace, and it includes VMware vSphere Desktop, vCenter Server for Desktop, and vSAN Advanced for Desktop with All-Flash.
- *VMware Horizon 7 Enterprise* delivers desktops and applications with closed-loop management and automation, and it includes VMware vSphere Desktop, vCenter Server for Desktop, and vSAN Advanced for Desktop with All-Flash.

The Standard license is available in 10-user or 100-user packs for concurrent users, and the Advanced and Enterprise licenses are available in 10-user or 100-user packs for concurrent or named users.

VMware Horizon 7 selection options for the ThinkAgile VX Series appliances are listed in the following table.

Table 31. VMware Horizon 7 selection options

| Description | Feature code |
|--|--------------|
| VMware vSphere 7 Horizon Standard (concurrent users) | B2Z3 |
| VMware vSphere 7 Horizon Advanced (concurrent users) | B2Z4 |
| VMware vSphere 7 Horizon Advanced (named users) | B2Z5 |
| VMware vSphere 7 Horizon Enterprise (concurrent users) | B2Z6 |
| VMware vSphere 7 Horizon Enterprise (named users) | B2Z7 |

The following table lists the VMware Horizon License and Subscription options that are derived by the configurator based on the selected number of users, software edition, and warranty period.

Table 32. VMware Horizon License and Subscription options

| Description | Part number | Feature code |
|--|-------------|--------------|
| Horizon 7 Standard | | |
| VMware Horizon 7 Standard 10 Concurrent User Pack w/3Yr Support | 7S06003VWW | B2B8 |
| VMware Horizon 7 Standard 10 Concurrent User Pack w/5Yr Support | 7S060075WW | B2EJ |
| VMware Horizon 7 Standard 100 Concurrent User Pack w/3Yr Support | 7S06003WWW | B2B9 |
| VMware Horizon 7 Standard 100 Concurrent User Pack w/5Yr Support | 7S060076WW | B2EK |
| Horizon 7 Advanced | | |
| VMware Horizon 7 Advanced 10 Concurrent User Pack w/3Yr Support | 7S06003ZWW | B2BC |
| VMware Horizon 7 Advanced 10 Concurrent User Pack w/5Yr Support | 7S060079WW | B2EN |
| VMware Horizon 7 Advanced 10 Named User Pack w/3Yr Support | 7S060041WW | B2BE |
| VMware Horizon 7 Advanced 10 Named User Pack w/5Yr Support | 7S06007BWW | B2EQ |
| VMware Horizon 7 Advanced 100 Concurrent User Pack w/3Yr Support | 7S060040WW | B2BD |
| VMware Horizon 7 Advanced 100 Concurrent User Pack w/5Yr Support | 7S06007AWW | B2EP |
| VMware Horizon 7 Advanced 100 Named User Pack w/3Yr Support | 7S060042WW | B2BF |
| VMware Horizon 7 Advanced 100 Named User Pack w/5Yr Support | 7S06007CWW | B2ER |
| Horizon 7 Enterprise | | |
| VMware Horizon 7 Enterprise 10 Concurrent User Pack w/3Yr Support | 7S060047WW | B2BL |
| VMware Horizon 7 Enterprise 10 Concurrent User Pack w/5Yr Support | 7S06007HWW | B2EW |
| VMware Horizon 7 Enterprise 10 Named User Pack w/3Yr Support | 7S060049WW | B2BN |
| VMware Horizon 7 Enterprise 10 Named User Pack w/5Yr Support | 7S06007KWW | B2EY |
| VMware Horizon 7 Enterprise 100 Concurrent User Pack w/3Yr Support | 7S060048WW | B2BM |
| VMware Horizon 7 Enterprise 100 Concurrent User Pack w/5Yr Support | 7S06007JWW | B2EX |
| VMware Horizon 7 Enterprise 100 Named User Pack w/3Yr Support | 7S06004AWW | B2BP |
| VMware Horizon 7 Enterprise 100 Named User Pack w/5Yr Support | 7S06007LWW | B2EZ |

The following table compares key features of the VMware Horizon software editions.

Table 33. VMware Horizon software editions feature comparison

| Feature | VMware Horizon software edition | | |
|---|----------------------------------|----------|------------|
| | Standard | Advanced | Enterprise |
| Licensing | User-based (per 10 or 100 users) | | |
| Concurrent Users | Yes | Yes | Yes |
| Named Users | No | Yes | Yes |
| Windows Virtual Desktops | Yes | Yes | Yes |
| Linux Virtual Desktops | No | No | Yes |
| Packaged Applications | Yes | Yes | Yes |
| Hosted Applications | No | Yes | Yes |
| Session-based Desktops | No | Yes | Yes |
| Single Sign-On for Application and Desktop Access | No | Yes | Yes |
| Image Management for Physical Desktop | No | Yes | Yes |
| Virtualization Pack for Skype for Business | No | Yes | Yes |
| Session Collaboration | No | No | Yes |
| Real-time Application Delivery | No | No | Yes |
| Just-in-Time Delivery with Instant Clone Technology | No | No | Yes |
| User, Profile, and Policy Management | No | No | Yes |
| Health Monitoring and Performance Analytics | No | No | Yes |
| Capacity Management: Planning and Optimization | No | No | Yes |
| Help Desk Tool | No | No | Yes |

VMware Cloud Foundation

Lenovo offers VMware Cloud Foundation for hybrid cloud deployments of the ThinkAgile VX Series appliances. VMware Cloud Foundation is an integrated software platform that automates the deployment and lifecycle management of a complete software-defined data center (SDDC) in hyperconverged environments.

The following Cloud Foundation License and Subscription options are offered:

- *Cloud Foundation Basic* includes vSphere Enterprise Plus, vSAN Advanced, NSX Data Center Professional, and SDDC Manager.
- *Cloud Foundation Standard* includes vSphere Enterprise plus, vSAN Advanced, NSX Data Center Advanced, vRealize Suite Standard, vRealize Network Insight Advanced, and SDDC Manager.
- *Cloud Foundation Advanced* includes vSphere Enterprise plus, vSAN Advanced, NSX Data Center Advanced, vRealize Suite Enterprise, vRealize Network Insight Advanced, and SDDC Manager.
- *Cloud Foundation Enterprise* includes vSphere Enterprise plus, vSAN Enterprise, NSX Data Center Enterprise plus, vRealize Suite Enterprise, vRealize Network Insight Enterprise, and SDDC Manager.
- *Cloud Foundation for VDI* includes SDDC Manager for Desktop and NSX Data Center Advanced or Enterprise plus for Desktop, and it comes with or without Horizon Enterprise.

Configuration note: vCenter Server that is required for Cloud Foundation is licensed separately; only one vCenter Server license is required for all vCenter Servers deployed in a Cloud Foundation system.

VMware VCF selection options for the ThinkAgile VX Series appliances are listed in the following table.

Table 34. VMware VCF selection options

| Description | Feature code |
|--|--------------|
| VMware Cloud Foundation Basic (1 CPU) | BAAM |
| VMware Cloud Foundation Standard (1 CPU) | BAAN |
| VMware Cloud Foundation Advanced (1 CPU) | BAAP |
| VMware Cloud Foundation Enterprise (1 CPU) | BAAQ |
| VCF for VDI: SDDC Manager, NSX DC ADV, and Horizon ENT (concurrent users) | BAAR |
| VCF for VDI: SDDC Manager and NSX DC ADV w/o Horizon ENT (concurrent users) | BAAS |
| VCF for VDI: SDDC Manager and NSX DC ENT+ w/o Horizon ENT (concurrent users) | BAAT |

The following table lists the VMware Cloud Foundation License and Subscription options that are derived by the configurator based on the selected number of users (for concurrent user [CCU]-based licenses), quantity of processors (for processor-based licenses), software edition, and warranty period.

Table 35. VMware Cloud Foundation License and Subscription options

| Description | Part number | Feature code |
|---|-------------|--------------|
| VMware Cloud Foundation Basic | | |
| VMware Cloud Foundation Basic (Per CPU) w/3Yr Subscription and Support | 7S0600D1WW | S1RR |
| VMware Cloud Foundation Basic (Per CPU) w/5Yr Subscription and Support | 7S0600D2WW | S1RS |
| VMware Cloud Foundation Standard | | |
| VMware Cloud Foundation Standard (Per CPU) w/3Y Subscription and Support | 7S0600DNWW | S1SC |
| VMware Cloud Foundation Standard (Per CPU) w/5Y Subscription and Support | 7S0600DPWW | S1SD |
| VMware Cloud Foundation Advanced | | |
| VMware Cloud Foundation Advanced (Per CPU) w/3Y Subscription and Support | 7S0600DRWW | S1SF |
| VMware Cloud Foundation Advanced (Per CPU) w/5Y Subscription and Support | 7S0600DSWW | S1SG |
| VMware Cloud Foundation Enterprise | | |
| VMware Cloud Foundation Enterprise (Per CPU) w/3Y Subscription and Support | 7S0600DUWW | S1SJ |
| VMware Cloud Foundation Enterprise (Per CPU) w/5Y Subscription and Support | 7S0600DVWW | S1SK |
| VMware Cloud Foundation for VDI with NSX Data Center Advanced and Horizon Enterprise | | |
| VCF for VDI: SDDC Mgr, NSX DC ADV, and Horizon ENT 10 pack (Per CCU) w/3Y S&S | 7S0600D7WW | S1RX |
| VCF for VDI: SDDC Mgr, NSX DC ADV, and Horizon ENT 10 pack (Per CCU) w/5Y S&S | 7S0600D8WW | S1RY |
| VCF for VDI: SDDC Mgr, NSX DC ADV, and Horizon ENT 100 pack (Per CCU) w/3Y S&S | 7S0600D4WW | S1RU |
| VCF for VDI: SDDC Mgr, NSX DC ADV, and Horizon ENT 100 pack (Per CCU) w/5Y S&S | 7S0600D5WW | S1RV |
| VMware Cloud Foundation for VDI with NSX Data Center Advanced (no Horizon included) | | |
| VCF for VDI: SDDC Mgr and NSX DC ADV w/o Horizon ENT 10 pack (per CCU) w/3Y S&S | 7S0600DDWW | S1S3 |
| VCF for VDI: SDDC Mgr and NSX DC ADV w/o Horizon ENT 10 pack (per CCU) w/5Y S&S | 7S0600DEWW | S1S4 |
| VCF for VDI: SDDC Mgr and NSX DC ADV w/o Horizon ENT 100 pack (per CCU) w/3Y S&S | 7S0600DAWW | S1Z7 |
| VCF for VDI: SDDC Mgr and NSX DC ADV w/o Horizon ENT 100 pack (per CCU) w/5Y S&S | 7S0600DBWW | S1Z8 |
| VMware Cloud Foundation for VDI with NSX Data Center Enterprise plus (no Horizon included) | | |
| VCF for VDI: SDDC Mgr and NSX DC ENT+ w/o Horizon ENT 10 pack (Per CCU) w/3Y S&S | 7S0600DKWW | S1S9 |
| VCF for VDI: SDDC Mgr and NSX DC ENT+ w/o Horizon ENT 10 pack (Per CCU) w/5Y S&S | 7S0600DLWW | S1SA |

| Description | Part number | Feature code |
|---|-------------|--------------|
| VCF for VDI: SDDC Mgr and NSX DC ENT+ w/o Horizon ENT 100 pack (Per CCU) w/3Y S&S | 7S0600DGWW | S1S6 |
| VCF for VDI: SDDC Mgr and NSX DC ENT+ w/o Horizon ENT 100 pack (Per CCU) w/5Y S&S | 7S0600DHWW | S1S7 |

VMware vCenter Server License and Subscription

VMware vCenter Server provides centralized management of vSphere environments to simplify day-to-day operations and reduce the complexity of managing virtual infrastructure.

vCenter Server is required for managing ThinkAgile VX Series appliances. The nodes can be added to an existing installation of vCenter Server, or the software license for the vCenter Server instance can be purchased from Lenovo by selecting one the following License and Subscription options:

- VMware vCenter Server 6 Foundation for vSphere 6 (Per Instance) (manages up to 4 hosts)
- VMware vCenter Server 6 Standard for vSphere 6 (Per Instance) (unlimited hosts)

The vCenter Server license purchased from Lenovo includes three or five years of support and subscription (matches the duration of the selected hardware warranty period).

VMware vCenter Server selection options for the ThinkAgile VX Series appliances are listed in the following table.

Table 36. VMware vCenter Server selection options

| Description | Feature code |
|------------------------------------|--------------|
| VMware vCenter Server 6 Foundation | B2Q6 |
| VMware vCenter Server 6 Standard | B2Q5 |

The following table lists the VMware vCenter License and Subscription options that are derived by the configurator based on the selected software edition and warranty period.

Table 37. VMware vCenter Server License and Subscription options

| Description | Part number | Feature code |
|--|-------------|--------------|
| vCenter Server Foundation | | |
| VMware vCenter Srv 6 Fdn for vSph 6 (Per Instance) w/3Yr Support | 7S06003PWW | B2B2 |
| VMware vCenter Srv 6 Fdn for vSph 6 (Per Instance) w/5Yr Support | 7S06006ZWW | B2EC |
| vCenter Server Standard | | |
| VMware vCenter Srv 6 Std for vSph 6 (Per Instance) w/3Yr Support | 7S06003NWW | B2B1 |
| VMware vCenter Srv 6 Std for vSph 6 (Per Instance) w/5Yr Support | 7S06006YWW | B2EB |

VMware vCenter Server offers the following key features:

- Centralized management of virtualized hosts and virtual machines from a single console.
- Centralized inventory of virtual machines, hosts, datastores and networks.
- Alerts and notifications can trigger automated workflows to remedy and preempt problems.
- Host profiles standardize and simplify configuration and management of VMware ESXi hosts.
- Resource management for virtual machines allows to control allocation of processor, memory, disk and network resources.
- Continuously monitors utilization across resource pools and intelligently allocates available resources among virtual machines according to predefined rules
- Automatically restarts virtual machines that have failed without manual intervention with VMware vSphere HA.
- Maintains records of significant configuration changes and exports reports for event tracking.
- Patch management enforces compliance to patch standards through automated scanning and patching of online ESXi hosts and select Microsoft and Linux virtual machines.

VMware License and Subscription with 1-year software support for PRC

The following table lists ordering information for the additional VMware License and Subscription options with 1-year software support that are available for selection in PRC only.

Table 38. VMware License and Subscription options with 1-year software support

| Description | Part number | Feature code |
|--|-------------|--------------|
| vSAN 6 | | |
| VMware vSAN 6 Standard for 1 Processor w/1Yr Support | 7S06001HWW | B28W |
| VMware vSAN 6 Advanced for 1 Processor w/1Yr Support | 7S06001MWW | B290 |
| VMware vSAN 6 Enterprise for 1 Processor w/1Yr Support | 7S06001RWW | B294 |
| VMware vSAN 6 Enterprise Plus for 1 Processor w/1Y Support | 7S0600FRWW | S226 |
| vSAN 6 for Remote Office Branch Office | | |
| VMware vSAN 6 Standard for Rmt Off Brnch Off 25VM Pk w/1Yr Support | 7S06001LWW | B28Z |
| VMware vSAN 6 Advanced for Rmt Off Brnch Off 25VM Pk w/1Yr Support | 7S06001QWW | B293 |
| VMware vSAN 6 Enterprise for Rmt Off Brnch Off 25VM Pk w/1Yr Support | 7S06001UWW | B297 |
| vSAN 6 for Desktop | | |
| VMware vSAN 6 Standard for Desktop 10 Conc User Pk w/1Yr Support | 7S06001JWW | B28X |
| VMware vSAN 6 Standard for Desktop 100 Conc User Pk w/1Yr Support | 7S06001KWW | B28Y |
| VMware vSAN 6 Advanced for Desktop 10 Conc User Pk w/1Yr Support | 7S06001NWW | B291 |
| VMware vSAN 6 Advanced for Desktop 100 Conc User Pk w/1Yr Support | 7S06001PWW | B292 |
| VMware vSAN 6 Enterprise for Desktop 10 Conc User Pk w/1Yr Support | 7S06001SWW | B295 |
| VMware vSAN 6 Enterprise for Desktop 100 Conc User Pk w/1Yr Support | 7S06001TWW | B296 |
| vSphere 6 | | |
| VMware vSphere 6 Standard for 1 Processor w/1Yr Support | 7S060003WW | B27G |
| VMware vSphere 6 Enterprise Plus for 1 Processor w/1Yr Support | 7S060004WW | B27H |
| VMware vSphere 6 Remote Off Branch Off Std (25 VM Pk) w/1Yr Support | 7S060009WW | B27N |
| VMware vSphere 6 Remote Off Branch Off Adv (25 VM Pk) w/1Yr Support | 7S06000AWW | B27P |
| Horizon 7 | | |
| VMware Horizon 7 Standard 10 Concurrent User Pack w/1Yr Support | 7S06000KWW | B27Y |

| Description | Part number | Feature code |
|---|-------------|--------------|
| VMware Horizon 7 Standard 100 Concurrent User Pack w/1Yr Support | 7S06000LWW | B27Z |
| VMware Horizon 7 Advanced 10 Concurrent User Pack w/1Yr Support | 7S06000PWW | B282 |
| VMware Horizon 7 Advanced 10 Named User Pack w/1Yr Support | 7S06000RWW | B284 |
| VMware Horizon 7 Advanced 100 Concurrent User Pack w/1Yr Support | 7S06000QWW | B283 |
| VMware Horizon 7 Advanced 100 Named User Pack w/1Yr Support | 7S06000SWW | B285 |
| VMware Horizon 7 Enterprise 10 Concurrent User Pack w/1Yr Support | 7S06000XWW | B28A |
| VMware Horizon 7 Enterprise 10 Named User Pack w/1Yr Support | 7S06000ZWW | B28C |
| VMware Horizon 7 Enterprise 100 Concurrent User Pack w/1Yr Support | 7S06000YWW | B28B |
| VMware Horizon 7 Enterprise 100 Named User Pack w/1Yr Support | 7S060010WW | B28D |
| VMware Cloud Foundation | | |
| VMware Cloud Foundation Basic (Per CPU) w/1Yr Subscription and Support | 7S0600D0WW | S1RQ |
| VMware Cloud Foundation Standard (Per CPU) w/1Y Subscription and Support | 7S0600DMWW | S1SB |
| VMware Cloud Foundation Advanced (Per CPU) w/1Y Subscription and Support | 7S0600DQWW | S1SE |
| VMware Cloud Foundation Enterprise (Per CPU) w/1Y Subscription and Support | 7S0600DTWW | S1SH |
| VMware Cloud Foundation for VDI | | |
| VCF for VDI: SDDC Mgr, NSX DC ADV, and Horizon ENT 10 pack (Per CCU) w/1Y S&S | 7S0600D6WW | S1RW |
| VCF for VDI: SDDC Mgr, NSX DC ADV, and Horizon ENT 100 pack (Per CCU) w/1Y S&S | 7S0600D3WW | S1RT |
| VCF for VDI: SDDC Mgr and NSX DC ADV w/o Horizon ENT 10 pack (per CCU) w/1Y S&S | 7S0600DCWW | S1S2 |
| VCF for VDI: SDDC Mgr and NSX DC ADV w/o Horizon ENT 100 pack (per CCU) w/1Y S&S | 7S0600D9WW | S1RZ |
| VCF for VDI: SDDC Mgr and NSX DC ENT+ w/o Horizon ENT 10 pack (Per CCU) w/1Y S&S | 7S0600DJWW | S1S8 |
| VCF for VDI: SDDC Mgr and NSX DC ENT+ w/o Horizon ENT 100 pack (Per CCU) w/1Y S&S | 7S0600DFWW | S1S5 |
| vCenter Server | | |
| VMware vCenter Srv 6 Fdn for vSph 6 (Per Instance) w/1Yr Support | 7S06000DWW | B27S |
| VMware vCenter Srv 6 Std for vSph 6 (Per Instance) w/1Yr Support | 7S06000CWW | B27R |

Systems management

The ThinkAgile VX Series appliances support the following systems management tools:

- [Lenovo XClarity Controller](#)
- [Light path diagnostics](#)
- [Lenovo XClarity Administrator and XClarity Pro](#)
- [Lenovo XClarity Integrator for VMware vCenter](#)
- [Lenovo XClarity Energy Manager](#)

Lenovo XClarity Controller

The ThinkAgile VX Series appliances contain Lenovo XClarity Controller (XCC) Enterprise, which provides advanced service-processor control, monitoring, and alerting functions.

XClarity Controller Enterprise offers the following capabilities for the ThinkAgile VX Series appliances:

- Gathering and viewing system information and inventory
- Monitoring system status and health
- Alerting and notifications
- Event logging
- Syslog alerting
- Configuring security
- Updating system firmware

- Real-time power usage monitoring
- Displaying graphics for real-time and historical power usage data and temperature
- Capping power usage
- Remotely controlling power (Power on, Power off, Restart)

The XClarity Controller provides remote server management through the following interfaces:

- Intelligent Platform Management Interface (IPMI) Version 2.0
- Simple Network Management Protocol (SNMP) Version 3
- Common Information Model (CIM)
- Data Center Manageability Interface (DCMI) Version 1.5
- Redfish REpresentational State Transfer (REST) API
- Web browser with HTML5 support
- Command-line interface
- Virtual Operator Panel with XClarity Mobile App via the front USB port with XClarity Controller access

Virtual Operator Panel provides quick access to system status, firmware, network, health, and alerts information. With proper authentication, it also allows to configure systems management and network settings and to control system power (Power on, Power off, Restart). The Virtual Operator Panel can be accessed from the XClarity Mobile App running on the Android or iOS mobile device that is connected to the front USB port with XClarity Controller access (See [Components and connectors](#)).

Light path diagnostics

The ThinkAgile VX2320 appliances include basic light path diagnostics, which provides the system LEDs on the front of the node and the LEDs near the monitored components (for example, the DIMM error LEDs on the system board).

Lenovo XClarity Administrator and XClarity Pro

Lenovo XClarity Administrator is a centralized systems management solution that helps administrators deliver infrastructure faster. This solution integrates easily with Lenovo x86 servers, appliances, certified nodes, Top-of-Rack Ethernet switches, and storage systems, providing automated agent-less discovery, inventory, monitoring, and alerts across multiple systems. In addition, some managed endpoints support firmware updates and configuration management.

Lenovo XClarity Administrator is used for managing ThinkAgile VX Series appliances, and it comes with the Lenovo XClarity Pro subscription license that provides software support for XClarity Administrator and XClarity Integrator for VMware for the duration of the selected warranty period.

Lenovo XClarity Administrator offers the following features:

- Auto-discovery and monitoring of the ThinkAgile VX Series appliances
- Firmware updates and compliance enforcement
- External alerts and notifications via SNMP traps, syslog remote logging, and e-mail
- Secure connections to managed endpoints
- NIST 800-131A or FIPS 140-2 compliant cryptographic standards between the management solution and managed endpoints
- Integration into existing higher-level management systems such as cloud automation and orchestration tools through REST APIs, providing extensive external visibility and control over hardware resources
- An intuitive, easy-to-use GUI
- Scripting support with Windows PowerShell, providing command-line visibility and control over hardware resources

For more information, refer to the Lenovo XClarity Administrator Product Guide:

<http://lenovopress.com/tips1200>

Lenovo XClarity Integrator for VMware vCenter

Lenovo XClarity Integrator for VMware vCenter is a software plug-in module for Lenovo XClarity Administrator that allows administrators to manage physical infrastructure from leading external virtualization management software tool from VMware.

Lenovo XClarity Integrator for VMware vCenter offers the following features:

- Ability to discover, manage, and monitor Lenovo appliance hardware from the virtualization management tool
- Deployment of firmware updates to VX Series appliances from the virtualization management tool
- Non-disruptive server maintenance in clustered environments that reduces workload downtime by dynamically migrating workloads from affected hosts during rolling server updates or reboots
- Greater service level uptime and assurance in clustered environments during unplanned hardware events by dynamically triggering workload migration from impacted hosts when impending hardware failures are predicted

For more information, refer to the Lenovo XClarity Integrator for VMware vCenter web page:

<https://support.lenovo.com/us/en/solutions/lvno-vmware>

Lenovo XClarity Energy Manager

Lenovo XClarity Energy Manager provides a stand-alone, web-based agent-less power management console that provides real time data and enables you to observe, plan and manage power and cooling for Lenovo servers, appliances, and certified nodes. Using built-in intelligence, XClarity Energy Manager identifies server power consumption trends and ideal power settings, and it performs cooling analysis so that customers can define and optimize their power-saving policies.

Lenovo XClarity Energy Manager offers the following capabilities:

- Monitors room, row, rack, and device levels in the data center
- Reports vital system information, such as power, temperature and resource utilization
- Monitors inlet temperature to locate hot spots, reducing the risk of data or device damage
- Provides finely-grained controls to limit platform power in compliance with IT policy
- Generates alerts when a user-defined threshold is reached

Lenovo XClarity Energy Manager license is included in the XClarity Controller Enterprise upgrade.

For more information, refer to the Lenovo XClarity Energy Manager web page:

<http://datacentersupport.lenovo.com/us/en/solutions/lvno-lxem>

Physical specifications

The ThinkAgile VX2320 appliances have the following dimensions and weight (approximate):

- Height: 43 mm (1.7 in.)
- Width: 434 mm (17.1 in.)
- Depth: 715 mm (28.1 in.)
- Weight (maximum): 18.8 kg (41.4 lb)

Operating environment

The ThinkAgile VX2320 appliances comply with ASHRAE class A2 specifications. The appliance performance might be impacted when the operating temperature is outside the ASHRAE A2 specifications. Some VX2320 appliances comply with ASHRAE class A3 and class A4 specifications. To comply with ASHRAE A3 and A4 specifications, the appliances must meet the following hardware configuration requirements:

- Two power supplies installed.
- Processors with TDP more than or equal to 150 W not installed.
- Intel Xeon 4112, 5122, 6126, 6128, 6132, 6134, 6134M, and 8156 processors not installed.

The ThinkAgile VX2320 appliances are supported in the following environment:

- Air temperature:
 - Operating:
 - ASHRAE Class A4: 5 °C - 45 °C (41 °F - 113 °F); for altitudes above 900 m (2,953 ft), decrease the maximum ambient temperature by 1 °C for every 125-m (410-ft) increase in altitude
 - ASHRAE Class A3: 5 °C - 40 °C (41 °F - 104 °F); for altitudes above 900 m (2,953 ft), decrease the maximum ambient temperature by 1 °C for every 175-m (574-ft) increase in altitude
 - ASHRAE Class A2: 10 °C - 35 °C (50 °F - 95 °F); for altitudes above 900 m (2,953 ft), decrease the maximum ambient temperature by 1 °C for every 300-m (984-ft) increase in altitude
 - Non-operating: 5 °C - 45 °C (41 °F - 113 °F)
 - Storage: -40 °C - +60 °C (-40 °F - 140 °F)
- Maximum altitude: 3,050 m (10,000 ft)
- Humidity:
 - Operating:
 - ASHRAE Class A4: 8% - 90% (non-condensing); maximum dew point: 24 °C (75 °F)
 - ASHRAE Class A3: 8% - 85% (non-condensing); maximum dew point: 24 °C (75 °F)
 - ASHRAE Class A2: 8% - 80% (non-condensing); maximum dew point: 21 °C (70 °F)
 - Storage: 8% - 90% (non-condensing)
- Electrical:
 - 100 - 127 (nominal) V AC; 50 Hz / 60 Hz (except 750 W Titanium power supplies)
 - 200 - 240 (nominal) V AC; 50 Hz / 60 Hz
 - 180 - 300 V DC (supported in China only)
- Acoustics (maximum configuration, operating): 6.0 bels
- Vibration:
 - Operating: 0.21 G rms at 5 Hz to 500 Hz for 15 minutes across 3 axes
 - Non-operating: 1.04 G rms at 2 Hz to 200 Hz for 15 minutes across 6 surfaces
- Shock:
 - Operating: 15 G for 3 milliseconds in each direction (positive and negative X, Y, and Z axes)
 - Non-operating:
 - 12 kg - 22 kg: 50 G for 152 in./sec velocity change across 6 surfaces
 - 23 kg - 31 kg: 35 G for 152 in./sec velocity change across 6 surfaces

The following table lists the maximum system power load, rated inlet current, and system heat output based on the power supply and source voltage.

Table 39. Rated system power, inlet current, and system heat output

| Power supply | Source voltage | Maximum power load per system (two power supplies) | Rated current per inlet | System heat output |
|-----------------|----------------|--|-------------------------|--------------------|
| 750 W Platinum | 100 - 127 V AC | 984 W | 8.4 A | 3357 BTU/hour |
| | 200 - 240 V AC | 958 W | 4.1 A | 3269 BTU/hour |
| | 180 - 300 V DC | 958 W | 3.5 A | 3269 BTU/hour |
| 750 W Titanium | 200 - 240 V AC | 949 W | 4.1 A | 3238 BTU/hour |
| | 180 - 300 V DC | 948 W | 3.5 A | 3235 BTU/hour |
| 1100 W Platinum | 100 - 127 V AC | 1382 W | 12 A | 4715 BTU/hour |
| | 200 - 240 V AC | 1408 W | 6 A | 4804 BTU/hour |
| | 180 - 300 V DC | 1408 W | 5.1 A | 4804 BTU/hour |

Regulatory compliance

The ThinkAgile VX Series appliances conform to the following regulations:

- United States FCC Part 15, Class A
- Canada ICES-003/NMB-03, Class A
- UL/CSA 60950-1
- Mexico NOM-019
- Argentina IEC60950-1
- Japan VCCI, Class A
- Australia/New Zealand AS/NZS CISPR 22, Class A
- China CCC GB4943.1, GB9254 Class A, GB17625.1
- Taiwan BSMI CNS13438, Class A; CNS14336-1
- Korea KN22, Class A; KN24
- Russia/GOST ME01; IEC-60950-1; GOST R 51318.22, 51318.24, 51317.3.2, and 51317.3.3
- IEC 60950-1 (CB Certificate and CB Test Report)
- Europe CE Mark (EN55022 Class A, EN60950-1, EN55024, EN61000-3-2, EN61000-3-3)
- CISPR 22, Class A
- Germany TUV-GS (EN60950-1/IEC60950-1, EK1-ITB2000)
- Reduction of Hazardous Substances (ROHS)
- Energy Star 3.0 (excluding configurations with Bronze 3104, Silver 4112, Gold 5122, or Platinum 8156 processors)

Note: For more information on the Energy Star 3.0 certification, refer to the *Energy Star 3.0 Certifications for ThinkSystem Servers* publication:
<http://lenovopress.com/lp1230>

Warranty and support

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 base warranty provides 9x5 Next Business Day response with parts delivered. Lenovo's additional support services provide a sophisticated, unified support structure for a customer's data center, with an experience consistently ranked number one in customer satisfaction worldwide.

The following Lenovo support services are available for selection:

- **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 capabilities:
 - Direct technician-to-technician access through a dedicated phone line.
 - 24x7x365 remote support.
 - Single point of contact service.
 - End to end case management.
 - 3rd Party collaborative software support.
 - Online case tools and live chat support.
 - On-demand remote system analysis.
- **Warranty service level upgrades (Preconfigured Support)** are available to meet the on-site response time targets that match the criticality of customer's systems:
 - 3 or 5 years of service coverage.
 - **Foundation Service:** 9x5 service coverage with next business day onsite response, with optional YourDrive YourData.
 - **Essential Service:** 24x7 service coverage with 4-hour onsite response or 24-hour committed repair (available only in select regions), bundled with YourDrive YourData.
 - **Advanced Service:** 24x7 service coverage with 2-hour onsite response or 6-hour committed repair (available only in select regions), bundled with YourDrive YourData.
- **Managed Services**

Lenovo Managed Services provide continuous 24x7 remote monitoring (plus 24x7 call center availability) and proactive management of a customer's 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 and operating system device driver levels, and software as needed. Lenovo will also maintain records of latest patches, critical updates, and firmware levels, to ensure customer's systems are providing business value through optimized performance.
- **Technical Account Management (TAM)**

A Lenovo Technical Account Manager helps customers optimize operations of their data centers based on a deep understanding of customer's business. Customers gain direct access to a Lenovo TAM, who serves as their single point of contact to expedite service requests, provide status updates, and furnish reports to track incidents over time. Also, a TAM helps proactively make service recommendations and manage service relationship with Lenovo to make certain that customer's needs are met.

- **Enterprise Software Support**

Lenovo Enterprise Software Support is an additional support service that provides 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 compatibility and interoperability issues, isolate causes of problems, report defects to software vendors, and more.

- **YourDrive YourData**

Lenovo's YourDrive YourData service is a multi-drive retention offering that ensures that customer's data is always under their control, regardless of the number of drives that are installed in their Lenovo server. In the unlikely event of a drive failure, customers retain possession of their drive while Lenovo replaces the failed drive part. Customer's data stays safely on customer premises, in their hands. The YourDrive YourData service can be purchased in convenient bundles with Foundation, Essential, or Advanced services.

- **Health Check**

Having a trusted partner who can perform regular and detailed health checks is central to maintaining efficiency and ensuring that customer 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.

Some regions might have different warranty terms and conditions than the standard warranty. This is due to local business practices or laws in the specific region. Local service teams can assist in explaining region-specific terms when needed. 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 support services are region-specific. Not all support services are available in every region. For information about Lenovo support services that are available in a specific region, refer to the following resources:

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

For service definitions, region-specific details, and service limitations, 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 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 appliances, 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 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 appliances 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

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

<http://www.lenovo.com/us/en/data-center/services/deployment>

Ethernet LAN switches

The following table lists the Ethernet LAN switches that are offered by Lenovo that can be used with the ThinkAgile VX2320 appliances for network connectivity.

Table 40. Ethernet LAN switches

| Description | Part number |
|--|-------------|
| 1 Gb Ethernet switches (Out-of-band hardware management or 1 GbE host connectivity) | |
| Lenovo ThinkSystem NE0152T RackSwitch (Rear to Front) | 7Y810011WW |
| Lenovo ThinkSystem NE0152TO RackSwitch (Rear to Front, ONIE) | 7Z320O11WW |
| Lenovo RackSwitch G7028 (Rear to Front) | 7159BAX |
| Lenovo RackSwitch G7052 (Rear to Front) | 7159CAX |
| Lenovo CE0128TB Switch (3-Year Warranty) | 7Z340011WW |
| Lenovo CE0128TB Switch (Limited Lifetime Warranty) | 7Z360011WW |
| Lenovo CE0128PB Switch (3-Year Warranty) | 7Z340012WW |
| Lenovo CE0128PB Switch (Limited Lifetime Warranty) | 7Z360012WW |
| Lenovo CE0152TB Switch (3-Year Warranty) | 7Z350021WW |
| Lenovo CE0152TB Switch (Limited Lifetime Warranty) | 7Z370021WW |
| Lenovo CE0152PB Switch (3-Year Warranty) | 7Z350022WW |
| Lenovo CE0152PB Switch (Limited Lifetime Warranty) | 7Z370022WW |
| 10 Gb Ethernet switches (10 GbE host connectivity) | |
| Lenovo ThinkSystem NE1032 RackSwitch (Rear to Front) | 7159A1X |
| Lenovo ThinkSystem NE1032T RackSwitch (Rear to Front) | 7159B1X |
| Lenovo ThinkSystem NE1064TO RackSwitch (Rear to Front, ONIE) | 7Z330O11WW |
| Lenovo ThinkSystem NE1072T RackSwitch (Rear to Front) | 7159C1X |
| Lenovo RackSwitch G8272 (Rear to Front) | 7159CRW |
| 25 Gb Ethernet switches (25 GbE host connectivity) | |
| Lenovo ThinkSystem NE2572 RackSwitch (Rear to Front) | 7159E1X |
| Lenovo ThinkSystem NE2572O RackSwitch (Rear to Front, ONIE) | 7Z210O21WW |
| Lenovo ThinkSystem NE2580O RackSwitch (Rear to Front, ONIE) | 7Z330O21WW |
| 100 Gb Ethernet switches (40 GbE/100 GbE aggregation layer; 10 GbE/25 GbE breakout host connectivity) | |
| Lenovo ThinkSystem NE10032 RackSwitch (Rear to Front) | 7159D1X |
| Lenovo ThinkSystem NE10032O RackSwitch (Rear to Front, ONIE) | 7Z210O11WW |

For more information, see the list of Product Guides in the Top-of-rack Switches category:
<http://lenovopress.com/servers/options/switches#rt=product-guide>

Rack cabinets

The following table lists the rack cabinets that are currently offered by Lenovo that can be used for mounting the ThinkAgile VX2320 appliances and other IT infrastructure building blocks.

Table 41. Rack cabinets

| Description | Part number |
|--|-------------|
| 12U 1200mm Deep Micro Datacenter Rack (no sidewall compartments), 1YR Warranty | 7D2B0001WW |
| 12U 1200mm Deep Micro Datacenter Rack (no sidewall compartments), 3YR Warranty | 7D2N0001WW |
| 18U 1200mm Deep Micro Datacenter Rack (no sidewall compartments), 1YR Warranty | 7D2C0001WW |
| 18U 1200mm Deep Micro Datacenter Rack (no sidewall compartments), 3YR Warranty | 7D2P0001WW |
| 25U S2 Standard Rack (1000 mm deep; 2 sidewall compartments) | 93072RX |
| 25U Static S2 Standard Rack (1000 mm deep; 2 sidewall compartments) | 93072PX |
| 42U S2 Standard Rack (1000 mm deep; 6 sidewall compartments) | 93074RX |
| 42U 1100mm Enterprise V2 Dynamic Rack (6 sidewall compartments) | 93634PX |
| 42U 1100mm Enterprise V2 Dynamic Expansion Rack (6 sidewall compartments) | 93634EX |
| 42U 1200mm Deep Dynamic Rack (6 sidewall compartments) | 93604PX |
| 42U 1200mm Deep Static Rack (6 sidewall compartments) | 93614PX |
| 42U Enterprise Rack (1105 mm deep; 4 sidewall compartments) | 93084PX |
| 42U Enterprise Expansion Rack (1105 mm deep; 4 sidewall compartments) | 93084EX |

For more information, see the list of Product Guides in the Rack Cabinets category:
<http://lenovopress.com/servers/options/racks#rt=product-guide>

Power distribution units

The following table lists the power distribution units (PDUs) that are currently offered by Lenovo that can be used for distributing electrical power to the ThinkAgile VX2320 appliances and other IT infrastructure building blocks mounted in a rack cabinet.

Table 42. Power distribution units

| Description | Part number |
|--|-------------|
| 0U Basic PDUs | |
| 0U 36 C13/6 C19 24A/200-240V 1 Phase PDU with NEMA L6-30P line cord | 00YJ776 |
| 0U 36 C13/6 C19 32A/200-240V 1 Phase PDU with IEC60309 332P6 line cord | 00YJ777 |
| 0U 21 C13/12 C19 32A/200-240V/346-415V 3 Phase PDU with IEC60309 532P6 cord | 00YJ778 |
| 0U 21 C13/12 C19 48A/200-240V 3 Phase PDU with IEC60309 460P9 line cord | 00YJ779 |
| Switched and Monitored PDUs | |
| 0U 20 C13/4 C19 Switched and Monitored 24A/200-240V/1Ph PDU w/ NEMA L6-30P cord | 00YJ781 |
| 0U 20 C13/4 C19 Switched and Monitored 32A/200-240V/1Ph PDU w/ IEC60309 332P6 cord | 00YJ780 |
| 0U 18 C13/6 C19 Switched and Monitored 32A/200-240/346-415V/3Ph PDU w/ IEC60309 532P6 cord | 00YJ782 |
| 0U 12 C13/12 C19 Switched and Monitored 48A/200-240V/3Ph PDU w/ IEC60309 460P9 cord | 00YJ783 |
| 1U 9 C19/3 C13 Switched and Monitored DPI PDU (without line cord) | 46M4002 |
| 1U 9 C19/3 C13 Switched and Monitored 60A 3Ph PDU with IEC 309 3P+Gnd cord | 46M4003 |
| 1U 12 C13 Switched and Monitored DPI PDU (without line cord) | 46M4004 |
| 1U 12 C13 Switched and Monitored 60A 3 Phase PDU with IEC 309 3P+Gnd line cord | 46M4005 |
| Ultra Density Enterprise PDUs (9x IEC 320 C13 + 3x IEC 320 C19 outlets) | |

| Description | Part number |
|---|-------------|
| Ultra Density Enterprise C19/C13 PDU Module (without line cord) | 71762NX |
| Ultra Density Enterprise C19/C13 PDU 60A/208V/3ph with IEC 309 3P+Gnd line cord | 71763NU |
| C13 Enterprise PDUs (12x IEC 320 C13 outlets) | |
| DPI C13 Enterprise PDU+ (without line cord) | 39M2816 |
| DPI Single Phase C13 Enterprise PDU (without line cord) | 39Y8941 |
| C19 Enterprise PDUs (6x IEC 320 C19 outlets) | |
| DPI Single Phase C19 Enterprise PDU (without line cord) | 39Y8948 |
| DPI 60A 3 Phase C19 Enterprise PDU with IEC 309 3P+G (208 V) fixed line cord | 39Y8923 |
| Front-end PDUs (3x IEC 320 C19 outlets) | |
| DPI 30amp/125V Front-end PDU with NEMA L5-30P line cord | 39Y8938 |
| DPI 30amp/250V Front-end PDU with NEMA L6-30P line cord | 39Y8939 |
| DPI 32amp/250V Front-end PDU with IEC 309 2P+Gnd line cord | 39Y8934 |
| DPI 60amp/250V Front-end PDU with IEC 309 2P+Gnd line cord | 39Y8940 |
| DPI 63amp/250V Front-end PDU with IEC 309 2P+Gnd line cord | 39Y8935 |
| Universal PDUs (7x IEC 320 C13 outlets) | |
| DPI Universal 7 C13 PDU (with 2 m IEC 320-C19 to C20 rack power cord) | 00YE443 |
| Line cords for PDUs that ship without a line cord | |
| DPI 30a Line Cord (NEMA L6-30P) | 40K9614 |
| DPI 32a Line Cord (IEC 309 P+N+G) | 40K9612 |
| DPI 32a Line Cord (IEC 309 3P+N+G) | 40K9611 |
| DPI 60a Cord (IEC 309 2P+G) | 40K9615 |
| DPI 63a Cord (IEC 309 P+N+G) | 40K9613 |
| DPI Australian/NZ 3112 Line Cord (32A) | 40K9617 |
| DPI Korean 8305 Line Cord (30A) | 40K9618 |

For more information, see the list of Product Guides in the Power Distribution Units category:
<http://lenovopress.com/servers/options/pdu#rt=product-guide>

Uninterruptible power supply units

The following table lists the uninterruptible power supply (UPS) units that are currently offered by Lenovo that can be used for providing electrical power protection to the ThinkAgile VX2320 appliances and other IT infrastructure building blocks.

Table 43. Uninterruptible power supply units

| Description | Part number |
|--|-------------|
| Worldwide models | |
| RT1.5kVA 2U Rack or Tower UPS (100-125VAC) (8x NEMA 5-15R 12A outlets) | 55941AX |
| RT1.5kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A outlets) | 55941KX |
| RT2.2kVA 2U Rack or Tower UPS (100-125VAC) (8x NEMA 5-20R 16A outlets) | 55942AX |
| RT2.2kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 1x IEC 320 C19 16A outlets) | 55942KX |
| RT3kVA 2U Rack or Tower UPS (100-125VAC) (6x NEMA 5-20R 16A, 1x NEMA L5-30R 24A outlets) | 55943AX |
| RT3kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 1x IEC 320 C19 16A outlets) | 55943KX |
| RT5kVA 3U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 2x IEC 320 C19 16A outlets) | 55945KX |
| RT6kVA 3U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 2x IEC 320 C19 16A outlets) | 55946KX |
| RT8kVA 6U Rack or Tower UPS (200-240VAC) (4x IEC 320-C19 16A outlets) | 55948KX |
| RT11kVA 6U Rack or Tower UPS (200-240VAC) (4x IEC 320-C19 16A outlets) | 55949KX |
| RT8kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC) (4x IEC 320-C19 16A outlets) | 55948PX |
| RT11kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC) (4x IEC 320-C19 16A outlets) | 55949PX |
| ASEAN, HTK, INDIA, and PRC models | |
| ThinkSystem RT3kVA 2U Standard UPS (200-230VAC) (2x C13 10A, 2x GB 10A, 1x C19 16A outlets) | 55943KT |
| ThinkSystem RT3kVA 2U Long Backup UPS (200-230VAC) (2x C13 10A, 2x GB 10A, 1x C19 16A outlets) | 55943LT |
| ThinkSystem RT6kVA 5U UPS (200-230VAC) (2x C13 10A outlets, 1x Terminal Block output) | 55946KT |
| ThinkSystem RT10kVA 5U UPS (200-230VAC) (2x C13 10A outlets, 1x Terminal Block output) | 5594XKT |

For more information, see the list of Product Guides in the Uninterruptible Power Supply Units category:
<http://lenovopress.com/servers/options/ups#rt=product-guide>

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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:

<http://www.lenovofs.com>

Related publications and links

For more information, see these resources:

- Lenovo ThinkAgile VX Series
<http://www3.lenovo.com/us/en/p/WMD00000340>
- Lenovo Data Center Solution Configurator (DCSC):
<http://dcsc.lenovo.com>
- ThinkAgile VX - Best Recipes
<http://datacentersupport.lenovo.com/us/en/solutions/HT505302>
- VMware documentation
<https://docs.vmware.com/>
- Lenovo Data Center Support
<http://datacentersupport.lenovo.com>

Related product families

Product families related to this document are the following:

- [Hyperconverged Infrastructure](#)
- [Hyperconverged Infrastructure](#)
- [ThinkAgile VX Series for VMware](#)
- [VMware Alliance](#)

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