

Lenovo ThinkEdge SE360 V2 Server Product Guide

The ThinkEdge SE360 V2 is a purpose-built server that is half the width and significantly shorter than a traditional server, making it ideal for deployment in tight spaces. It can be mounted on a wall, ceiling, placed on a desk or mounted in a rack. The ThinkEdge SE360 V2 puts increased processing power, storage and network closer to where data is generated, allowing actions resulting from the analysis of that data to take place more quickly.

The SE360 V2 is designed to handle a wide range of workloads, such as: Augmented Reality, CDN, Edge AI & MRP, Machine Learning, NFV, Online Gaming, Realtime processing, Smart surveillance, Video Analytic & Streaming.



Figure 1. Lenovo ThinkEdge SE360 V2 (shown with wireless LAN antennas)

[360° View](#)

[Full 3D Tour](#)

Did you know?

Customers looking for computing solutions at the edge of their networks often have to compromise -- to use either datacenter-class equipment which is too large and power hungry, or PC based equipment which can't run their enterprise level applications. The ThinkEdge SE360 V2 fits the space between those two extremes. Its compact design, low power usage, and high performance are just the right combination for edge locations. The SE360 V2 can be mounted on a wall, rack, ceiling and placed on a desk. It is also designed to operate in rugged environments from -20°C to up to 65°C.

Key features

The ThinkEdge SE360 V2 is a purpose-built server that is half the width and significantly shorter than a traditional server, making it ideal for deployment in tight spaces. The small footprint with integrated AC/DC can be mounted on a wall, ceiling, in a rack or placed on a desk.

The ThinkEdge SE360 V2 server puts increased processing power, storage and network closer to where data is generated, allowing actions resulting from the analysis of that data to take place more quickly. The server has wired connections for 1GbE, 10GbE/25GbE and optionally supporting wireless LAN (WLAN) to enable connectivity to Wi-Fi clients.

Since these edge servers are typically deployed outside of secure data centers, they include technology that encrypts the data stored on the device if it is tampered with, only enabling authorized users to access it.

Scalability and performance

The SE360 V2 offers numerous features to boost performance, improve scalability and reduce costs:

- Support a single processor from the Intel Xeon D Processor family. Supports processors up to 16 cores, core speeds of up to 2.1 GHz, and TDP ratings of up to 100W.
- Intelligent and adaptive system performance with Intel Turbo Boost Technology 2.0 allows processor cores to run at maximum speeds during peak workloads by temporarily going beyond processor TDP.
- Intel Hyper-Threading Technology boosts performance for multithreaded applications by enabling simultaneous multithreading within each processor core, up to two threads per core.
- Intel Virtualization Technology integrates hardware-level virtualization hooks that allow operating system vendors to better use the hardware for virtualization workloads.
- Support for up to 4 TruDDR4 memory DIMMs and up to 256 GB of memory using 64 GB DIMMs.
- Up to 8 M.2 data drives -- NVMe -- provide efficient and rugged storage for edge workloads.
- Supports 1 or 2 additional M.2 NVMe drives for OS boot and applications, allowing the convenience of separating application code from data.
- The use of NVMe drives increased performance over SATA drives, in terms of throughput, bandwidth, and latency.
- 1GbE I/O board or 10GbE/25GbE SFP28 I/O board to support low and high-speed networking to back-end servers.
- One PCIe 4.0 x16 slot for a GPU or LAN adapter provides I/O flexibility as needed. Two PCIe 4.0 x16 slot for GPU or other adapter types
- Support for the NVIDIA A2 , NVIDIA L4 or Qualcomm Cloud AI 100 for enhanced workloads at the edge of your network.

Availability and serviceability

The SE360 V2 provides many features to simplify serviceability and increase system uptime:

- Supports remote management, including remote control functions down to the UEFI level (most models) makes managing the edge servers easy even without onsite IT personnel.
- ECC memory and memory RAS features including Single Device Data Correction (SDDC, also known as Chipkill).
- RAID redundancy for greater system uptime.
- Two external redundant AC Adapter power supplies and N+1 redundant fans to provide improved availability.
- Remote management can be performed by using wireless connectivity
- Built-in XClarity Controller continuously monitors system parameters, triggers alerts, and performs recovery actions in case of failures to minimize downtime.
- Built-in diagnostics in UEFI, using Lenovo XClarity Provisioning Manager, speed up troubleshooting

tasks to reduce service time.

- Lenovo XClarity Provisioning Manager collects and saves service data to USB key drive or remote CIFS share folder, for troubleshooting and to reduce service time.
- Auto restart in the event of a loss of AC power
- Support for the XClarity Administrator Mobile app running on a supported smartphone and connected to the server through the service-enabled USB port, enables additional local systems management functions.
- Three-year customer-replaceable unit and onsite limited warranty, 9 x 5 next business day. Optional service upgrades are available.

Manageability and security

Systems management features simplify local and remote management of the SE360 V2:

- The server includes XClarity Controller 2 (XCC2) to monitor server availability. Optional upgrade to XCC Platinum to provide remote control (keyboard video mouse) functions, support for the mounting of remote media files (ISO and IMG image files), boot capture, power capping and new XCC2 Platinum features. New XCC2 Platinum features include System Guard, new security modes including a CNSA-compliant mode, FIPS 140-3 and NIST 800-193 support, and a new Neighbor Group feature.
- Lenovo XClarity Administrator offers comprehensive hardware management tools that help to increase uptime, reduce costs and improve productivity through advanced server management capabilities.
- IT Administrators can securely claim and activate the SE360 V2 remotely through the ThinkShield Key Vault Portal, available on the web. They can also manage and unlock their global IoT edge fleet for initial operation and in case of tamper. The ThinkShield Edge Mobile Management app enables Edge Users to securely claim and activate the ThinkSystem SE360 V2 in an easy to use Web UI. ThinkShield 2.0 support.
- New UEFI-based Lenovo XClarity Provisioning Manager, accessible from F1 during boot, provides system inventory information, graphical UEFI Setup, platform update function, RAID Setup wizard, operating system installation function, and diagnostic functions.
- Support for Lenovo XClarity Energy Manager, which captures real-time power and temperature data from the server and provides automated controls to lower energy costs.
- Integrated Trusted Platform Module (TPM) 2.0 support enables advanced cryptographic methods, such as digital signatures and remote attestation.
- Supports Secure Boot to ensure only a digitally signed operating system can be used.
- Industry-standard Advanced Encryption Standard (AES) NI support for faster, stronger encryption.
- Intel Execute Disable Bit functionality can prevent certain classes of malicious buffer overflow attacks when combined with a supported operating system.
- Intel Trusted Execution Technology provides enhanced security through hardware-based resistance to malicious software attacks, allowing an application to run in its own isolated space, protected from all other software running on a system.

View in Augmented Reality

View the SE360 V2 in augmented reality (AR) using your smartphone or tablet.

Simply follow these steps:

1. Scan the QR code* with the camera app on your phone
2. Point your phone at a flat surface
3. Wait a few seconds for the model to appear

Once the server appears, you can move your phone around it. You can also drag or rotate the server to reposition it.



For more information about the AR viewer, see the article "Introducing the Augmented Reality Viewer for Lenovo Servers", available from <https://lenovopress.lenovo.com/lp1952>

* If you're viewing this document on your phone or tablet, simply tap the QR code

Components and connectors

The ports on the front of the SE360 V2 server depend on which network module is installed.

The following figure shows server with the 1GbE board network module installed. With this network module, the server supports a variety of wired connectivity capabilities: four 1GbE Ethernet ports, two 2.5 Gb Ethernet ports, and 1 port management LAN.

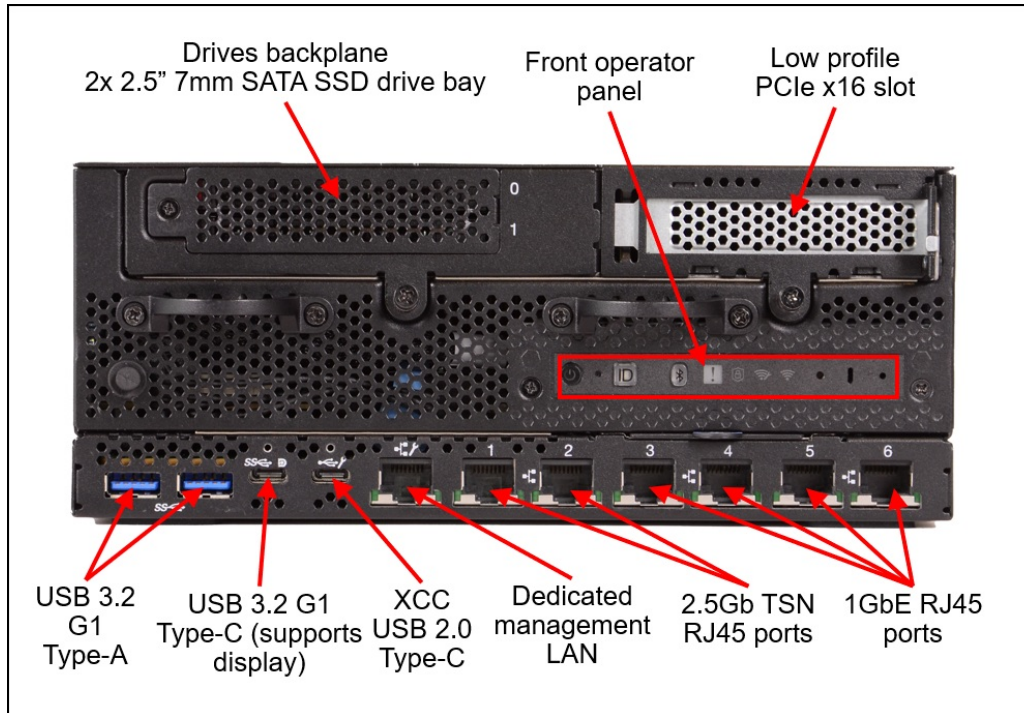


Figure 2. Front view of the Lenovo ThinkEdge SE360 V2 server with 1GbE network module

The following figure shows server with the 10/25GbE network module installed. With this network module, the server supports a variety of wired connectivity capabilities: four 10/25GbE Ethernet ports, two 2.5 Gb Ethernet ports, and 1 port management LAN.

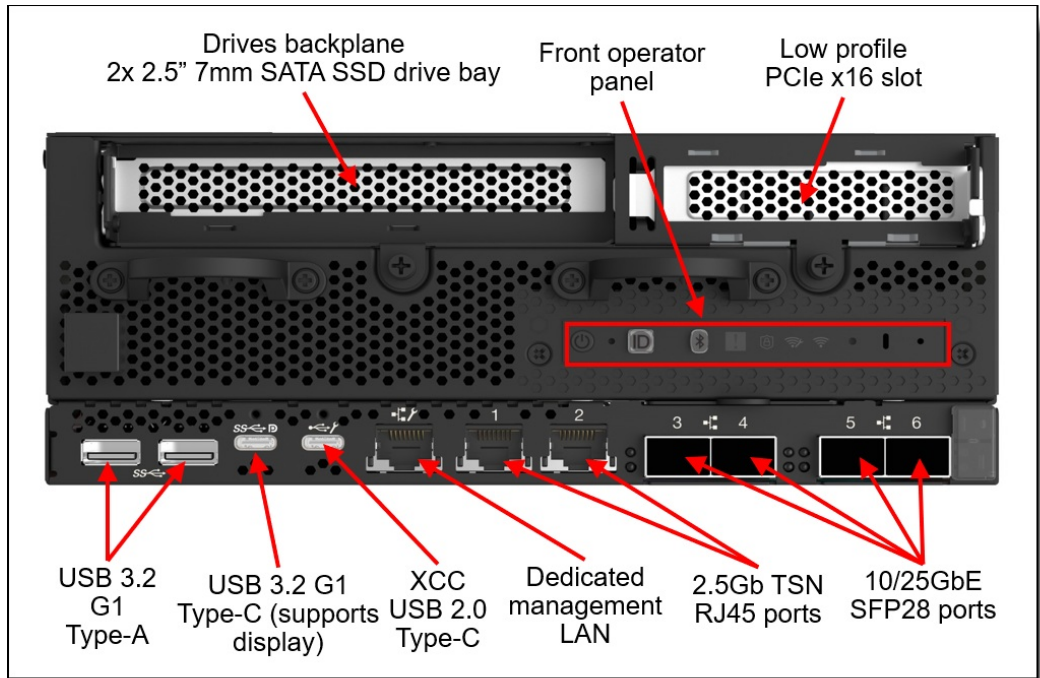


Figure 3. Front view of the Lenovo ThinkEdge SE360 V2 server with 10/25GbE network module
 The following figure shows the rear of the SE360 V2 server.

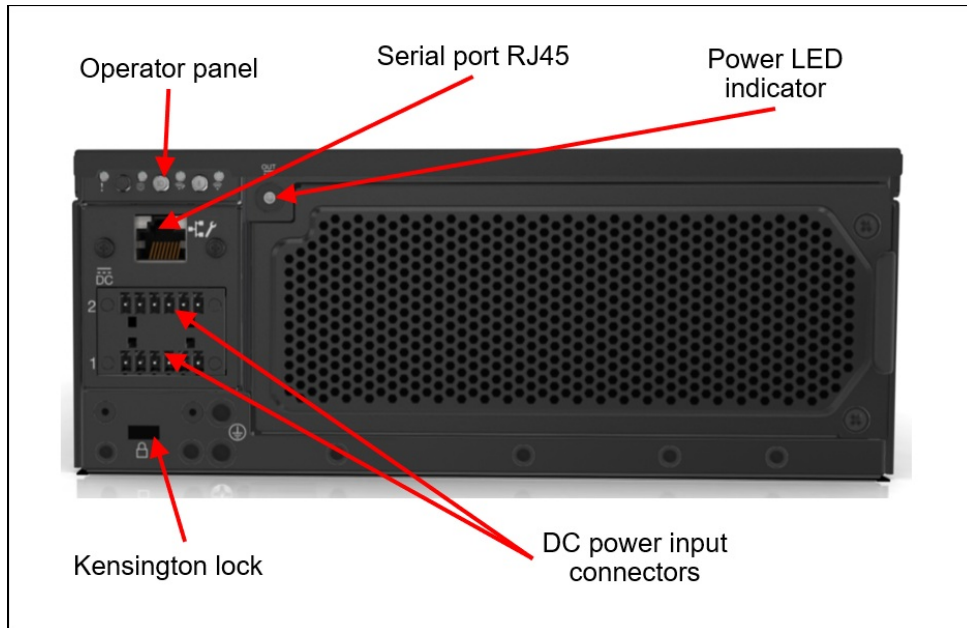


Figure 4. Rear view of the Lenovo ThinkEdge SE360 V2 with DC input connector
The following figure shows the rear of the SE360 V2 with AC input.

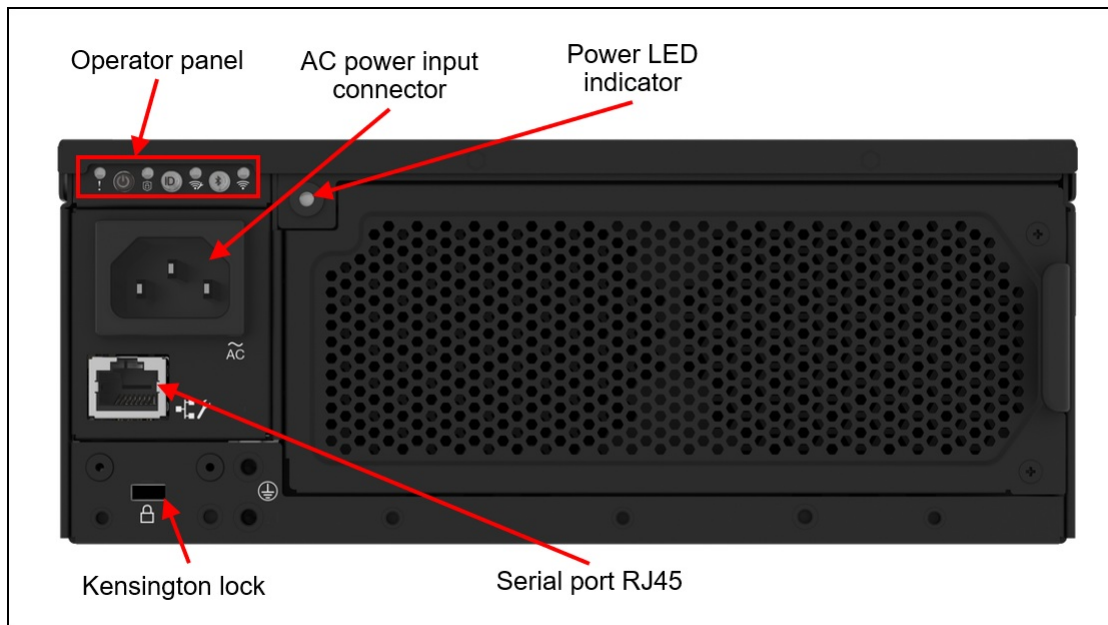


Figure 5. Rear view of the Lenovo ThinkEdge SE360 V2 with AC input connector

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

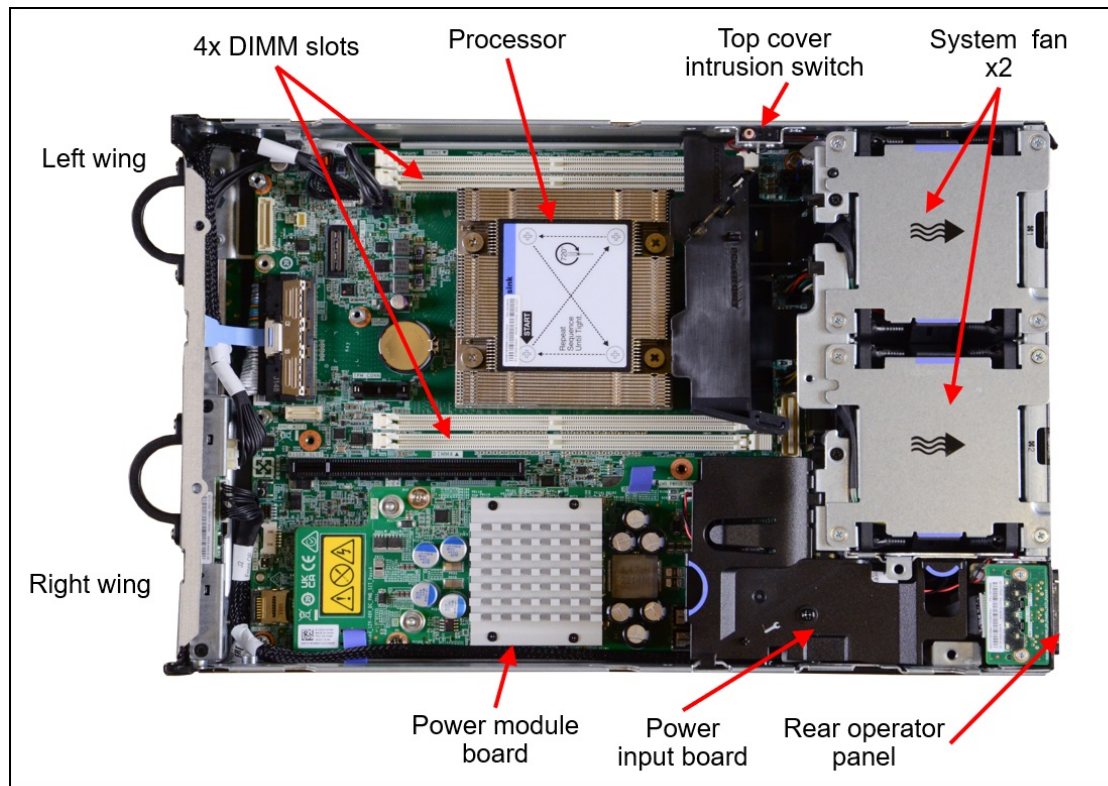


Figure 6. Top internal view of the Lenovo ThinkEdge SE360 V2

The following figure shows the bottom drives.

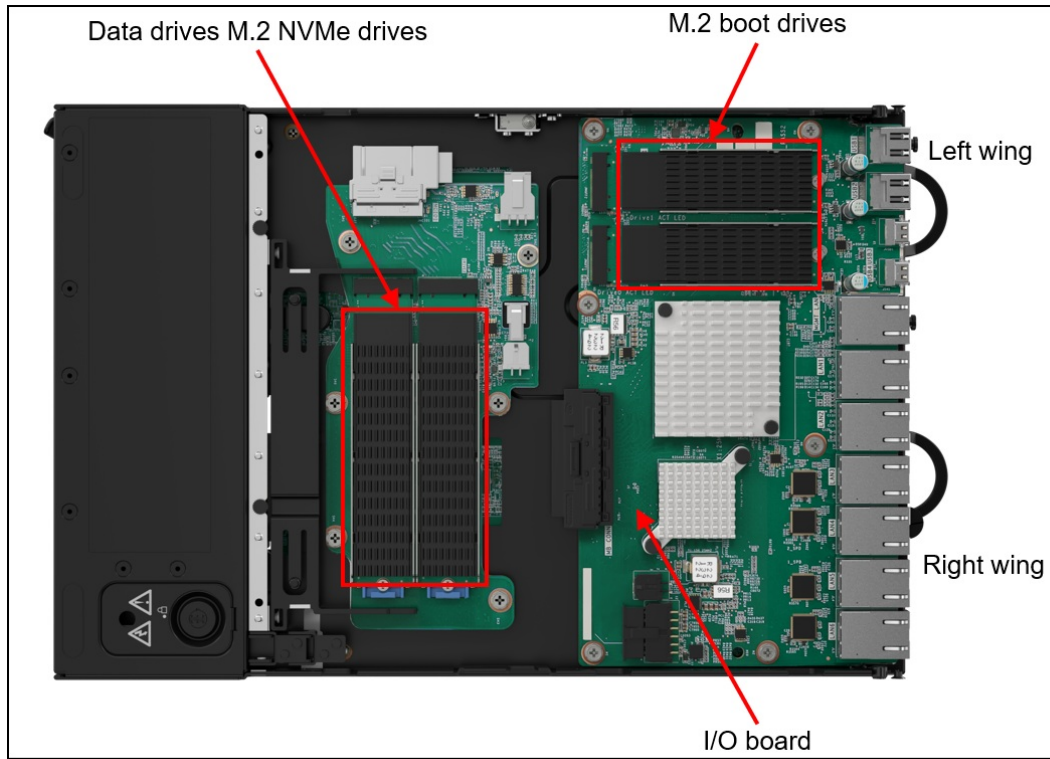


Figure 7. Bottom internal view SE360 V2

System architecture

The following figure shows the architectural block diagram of the SE360 V2 system, showing the major components and connections.

Tip: The wrench icons show where the local and remote management functions are enabled

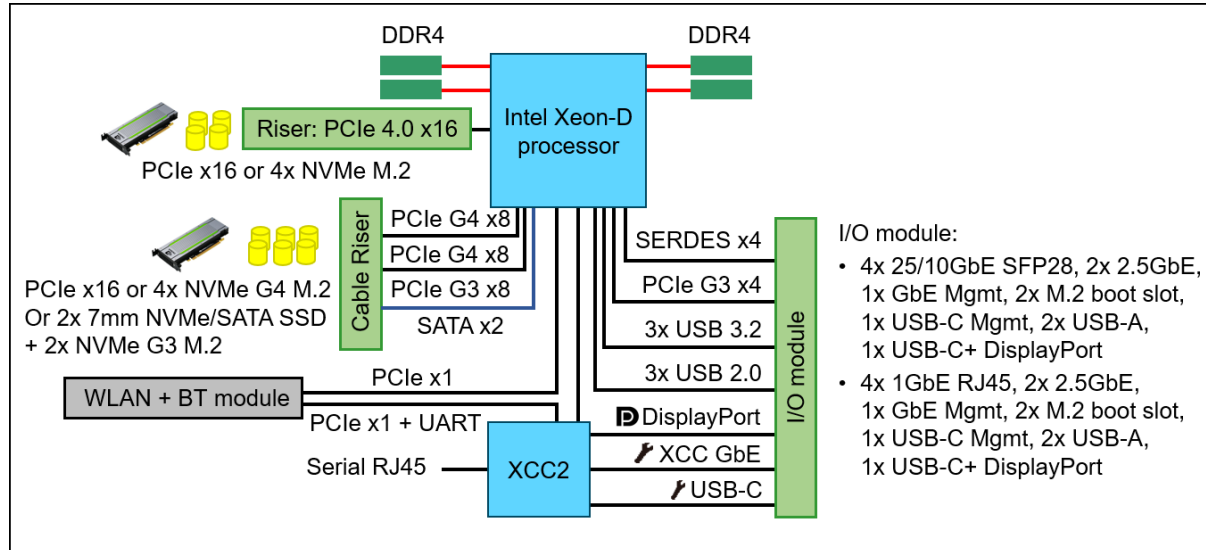


Figure 8. SE360 V2 system board - architectural block diagram

The system board connects to a network module which provides all wired and wireless network connections. Two network modules are offered. 1Gb I/O Board Module, 25G/10G IO Board Module. The block diagrams are shown in the following figures. All wired connections are at the front of the server.

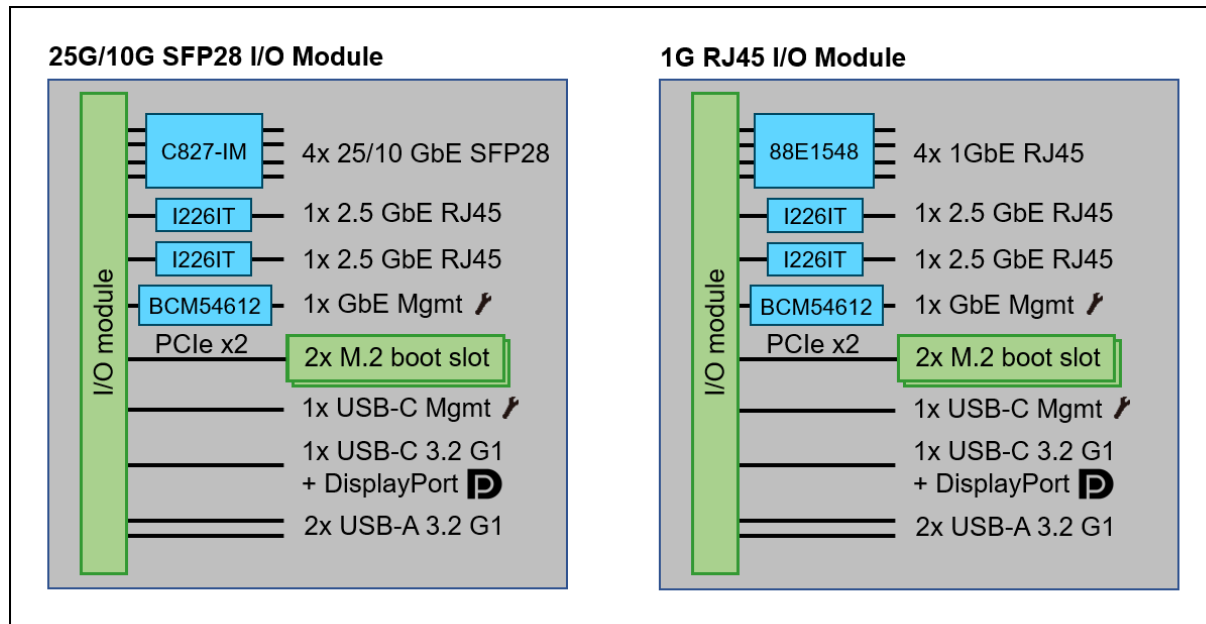


Figure 9. SE360 V2 network modules - architectural block diagrams

Standard specifications

The following table lists the standard specifications.

Table 1. Standard specifications

Components	Specification
Machine types	7DAM - SE360 V2 - 3 year warranty 7DBN - SE360 V2 2U2N Enclosure - 3 year warranty
Form factor	ThinkEdge, 2U high
Processor	One Intel Xeon D-2700 Series processor (formerly codenamed "Icelake D"). Supports processors up to 16 cores, core speeds of up to 2.1 GHz, and TDP ratings of up to 100W. Processor is soldered onto system board.
Memory	4 DIMM slots. The processor has 4 memory channels, with 1 DIMM per channel. Lenovo TruDDR4 DIMMs operating at 3200 MHz. RDIMMs are supported
Memory maximum	Up to 256GB with 4x 64GB RDIMMs
Memory protection	ECC, SDDC (for x4-based memory DIMMs)
Drive bays	2.5-inch 7mm drive bays: <ul style="list-style-type: none"> •Up to 2x 2.5-inch 7mm hot-swap bays (NVMe/SATA) Internal drives for Data drive: <ul style="list-style-type: none"> •Up to 8x 2280/22110 NVMe M.2 drives Internal drives for OS boot: <ul style="list-style-type: none"> •I/O module supporting up to two 2280 NVMe M.2 drives
Maximum data storage	NVMe drives: <ul style="list-style-type: none"> •30.72 TB using 8x 3.84TB M.2 NVMe SSD drives or 7.68 TB using 2x 3.84 7mm NVMe drives SATA drives: <ul style="list-style-type: none"> •15.36 TB using 2x 7.68TB 7mm SATA SSD drives
Storage controller	<ul style="list-style-type: none"> • Boot drives: <ul style="list-style-type: none"> ◦ Onboard NVMe controller supporting RAID 0, 1 (with Intel VROC RAID support) • Data drives: <ul style="list-style-type: none"> ◦ Onboard SATA controller supporting RAID 0, 1 (with Intel VROC RAID support) ◦ Onboard NVMe controller supporting RAID 0, 1, 5, 10 (with Intel VROC RAID support)
Network interfaces	Networking depends the network module selected: <ul style="list-style-type: none"> • System Front View with 1G IO board: 4x 1GbE RJ45, 2x 2.5GbE RJ45, dedicated port for remote management, 1x 1GbE RJ45 can be shared with the XCC management processor. • System Front View with 25G/10G IO board: 4x 10 / 25GbE SFP, 2x 2.5GbE RJ45, dedicated port for remote management • Wireless/Bluetooth <ul style="list-style-type: none"> ◦ Four wireless SMA connectors for WLAN ◦ One wireless SMA connector for Bluetooth ◦ WLAN 128/192-bits encrypted WPA2, WPA3 802.11 a/b/g/n/ac/ax The PCIe 4.0 x16 slot can also be used for an additional network card if desired
PCI Expansion slots	Up to two PCIe 4.0 x16 slots: <ul style="list-style-type: none"> • One full height half length + One half height half length or two half height half length

Components	Specification
Ports	Front: 2x USB 3.2 Gen 1 (5 Gbps) Type-A ports, 1x USB 3.2 Gen 1 (5 Gbps) Type-C, 1x USB 2.0 Type-C connector Rear: 1x RJ-45 RS-232 serial console connector for OS/BIOS or XCC
Cooling	Two non hot-swap 80mm FANs, N+1 redundant in most configurations.
Power supply	AC-DC converter embedded: <ul style="list-style-type: none"> • External AC Power Supply (230V/115V) (5°C to 40°C with node, not supported in Rack) • Direct DC Power Connection (12-48V) (-20°C to 65°C) • Internal AC Power Supply (230V/115V) (-20°C to 65°C)
Video	Embedded graphics with 16 MB memory with 2D hardware accelerator, integrated into the XClarity Controller 2 management controller. Maximum resolution is 1920x1200 32bpp at 60Hz.
Systems management	Operator panel with status LEDs. Dedicated ports for local management (USB type-C for use with mobile app) and remote management (RJ45 Ethernet ports). Remote management can also be performed from a wireless connection (disabled by default). XClarity Controller 2 (XCC2) embedded management controller, XClarity Administrator centralized infrastructure delivery, XClarity Integrator plugins, and XClarity Energy Manager centralized server power management. Optional XClarity Controller Advanced to enable remote control functions. ThinkShield Edge Mobile Management mobile app and XClarity Mobile app for local onsite SE360 V2 server management.
Security features	TPM 2.0 (WW) / TCM Nation Z (China only).
Operating systems supported	Alma Linux, Canonical Ubuntu, Ubuntu enterprise, Microsoft Windows Server, Red Hat Enterprise Linux, Rocky Linux, SUSE Linux Enterprise Server, VMware ESXi. See the Operating system support section for specifics.
Mounting options	Standalone, desktop mount, DIN Rail or Wall mount, ceiling mount and Standard Rack (2U2N).
Limited warranty	Three-year customer-replaceable unit and onsite limited warranty with 9x5 next business day (NBD).
Service and support	Optional service upgrades are available through Lenovo Services: 4-hour or 2-hour response time, 6-hour fix time, 1-year or 2-year warranty extension, software support for Lenovo hardware and some third-party applications.
Dimensions	Height 84.5 mm (3.33 in.), width: 212 mm (8.35 in.), depth: 317.5 mm (12.5 in.)
Weight	Max weight: 6.5kg (14.33 lbs) – without external AC adapter Max weight: 6.572kg (14.5 lbs) – with 2 external AC adapter

Models

ThinkEdge SE360 V2 models can be configured by using the [Lenovo Data Center Solution Configurator \(DCSC\)](#).

Topics in this section:

- [CTO models](#)
- [CTO models for Ubuntu](#)
- [Enclosure models](#)
- [Preconfigured models](#)

CTO models

Configure-to-order (CTO) models are used to create models with factory-integrated server customizations. One CTO model is available for the SE360 V2 as listed in the following table:

- The CTO1WW base CTO model is for general business and is selectable by choosing **General Purpose** mode in DCSC.

Controlled GPU models: The "Controlled GPU" base CTO models listed in the table are the only models that support high-performance GPUs and accelerators. These models are classified under US Government ECCN regulations and have limited market and customer availability. All other base models do not support high-performance GPUs.

The following table lists the base CTO models of the ThinkEdge SE360 V2 server

Table 2. Base CTO models

Machine Type/Model General purpose	Description
7DAMCTO1WW	ThinkEdge SE360 V2 - 3yr Warranty
7DAMCTOAWW	ThinkEdge SE360 V2 with Controlled GPU

CTO models for Ubuntu

The SE360 V2 can run Ubuntu, however OS-based wireless LAN is not supported. For ease of configuration, the following Base CTO models have been announced to assist building a configuration that can be used with Ubuntu.

Note: SE360 V2 models with Ubuntu do not support X86 WLAN. However XCC WLAN to remotely manage BMC is available.

The following table lists the only CTO models of the ThinkEdge SE360 V2 server supporting Ubuntu

Table 3. Base CTO models for SE360 V2 with Ubuntu

Machine Type/Model	Description
7DAMCTOBWW	ThinkEdge SE360 V2 3Y Ubuntu with Controlled GPU
7DAMCTO2WW	ThinkEdge SE360 V2 3Y Ubuntu

Enclosure models

The following table lists the base CTO models of the Enclosures.

Table 4. Enclosure CTO models

Machine Type/Model General purpose	Description
7DBNCTO1WW	Lenovo ThinkEdge SE360 V2 2U2N Enclosure

Preconfigured models

The following tables list the available models, grouped by region.

- [Models for Australia and New Zealand](#)
- [Models for Japan](#)
- [Models for USA and Canada](#)
- [Models for EMEA countries](#)

Refer to the Specifications section for information about standard features of the server.

Models for Australia and New Zealand

The following table lists the models for the Asia Pacific region: Australia, Bangladesh, Brunei, Hong Kong, India, Japan, Korea, Sri Lanka, Malaysia, New Zealand, Philippines, Singapore, Thailand, Taiwan, Vietnam

Table 5. Models for New Zealand markets

Model	Intel processors	Memory	Network module	Boot drives	Data drive	Power supply	Power cords	XCC2	Mount
Standard models with a 3-year warranty (machine type 7DAM)									
7DAMA00MAU	D-2733NTCPU	1x 16GB	4x1Gb	Open	Open	1 x300W	Yes	Std	Desktop

Models for Japan

Table 6. Models for Japan market

Model	Intel processors	Memory	Network module	Boot drives	Data drive	Power supply	Power cords	XCC2	Mount
Standard models with a 3-year warranty (machine type 7DAM)									
7DAMA00VJP	D-2733NTCPU	1x 16GB	4x1Gb	Open	Open	2 x300W	Yes	Std	Desktop

Models for USA and Canada

Table 7. Models for USA and Canada

Model	Intel processors	Memory	Network module	Boot drives	Data drive	Power supply	Power cords	XCC2	Mount
Standard models with 3-year warranty (machine type 7DAM)									
7DAMA019EA	D-2733NTCPU	1x 32GB	4x25Gb	Open	Open	1x 300W	Yes	Std	Desktop

Models for EMEA countries

Table 8. Models for EMEA countries

Model	Intel processors	Memory	Network module	Boot drives	Data drive	Power supply	Power cords	XCC2	Mount
Standard models with 3-year warranty (machine type 7DAM)									
7DAMA01AEA	D-2733NTCPU	1x 32GB	4x25Gb	Open	Open	1x 500W	Yes	Plat	Desktop
7DAMA019EA	D-2733NTCPU	1x 32GB	4x25Gb	Open	Open	1x 500W	Yes	Plat	Desktop
7DAMA01BEA	D-2733NTCPU	1x 32G	4x1GB	Open	Open	2x 300W	Yes	Plat	Desktop

Processors

The SE360 V2 supports processors in the Intel Xeon D-2700 family of processors (formerly codenamed "Icelake D"). The server supports one processor and the processor is soldered on the system board.

The table below lists the supported processors.

All supported processors have the following characteristics:

- AI capable: Intel AVX-512, VNNI, OpenVINO
- Intel Turbo Boost 3.1
- Intel Hyper-Threading Technology
- Intel Virtualization Technology (VT-c, VT-x, VT-d)
- Intel AES New Instructions
- Intel Trusted Execution Technology
- Converged Boot Guard (CBnT)
- Intel Software Guard Extensions (SGX)
- Intel Boot Guard
- Faster Boot with Slim Bootloader
- Time Coordinated Computing (TCC)

Part numbers: There are no part numbers for processors because there are no field upgrades supported.

Table 9. Processor options for the SE360 V2

Feature code*	Description
BS3W / BS41	ThinkEdge SE350 V2/SE360 V2 Planar with Intel Xeon D-2733NT 8C 80W 2.1 GHz
BS3V / BS40	ThinkEdge SE350 V2/SE360 V2 Planar with Intel Xeon D-2712T 4C 65W 1.9 GHz
BS3Z / BS44	ThinkEdge SE360 V2 Planar with Intel Xeon D-2752TER 12C 77W 1.8 GHz**
BS3X / BS42	ThinkEdge SE350 V2/SE360 V2 Planar with Intel Xeon D-2775TE 16C 100W 2.0 GHz

* The second feature code is for CTO orders from NA and LA geographies, and for Brazil

**12C processor supports - 20C to 65C degree configuration. The other processors support 0C-55C degree configuration only

The following table lists the features of the supported processors.

Table 10. Processor specifications

Intel model	Cores / Threads	HT	TB	Base Frequency	Max Turbo Frequency	L3 Cache	Ethernet mode	Memory channels	Memory bus	TDP
D-2712T	4 / 8	Y	Y	1.90 GHz	3.0 GHz	15 MB	50 G	4	2667 MHz	65 W
D-2733NT	8 / 16	Y	Y	2.10 GHz	3.20 GHz	15 MB	50 G	4	2667 MHz	80 W
D-2752TER	12 / 24	Y	Y	1.80 GHz	2.80 GHz	20 MB	50 G	4	2933 MHz	77 W
D-2775TE	16 / 32	Y	Y	2.00 GHz	3.1 GHz	25 MB	100 G	4	2933 MHz	100 W

Note: 10/25GbE I/O module LAN speed depends on CPU ethernet mode, 4x 10GbE (max 50 G) or 4x 25GbE (max 100G)

Note: **20-core processor support:** The server also supports 20-core processors. The 20-core is only available on demand. Please contact your Lenovo sales representative

Memory options

The server uses processors with 4 memory channels and supports 1 DIMM per channel, for a total of 4 DIMMs. The server supports up to 256GB of memory using 4x 64 GB RDIMMs.

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

Lenovo TruDDR4 memory uses the highest quality components that are sourced from Tier 1 DRAM suppliers and only memory that meets the strict requirements of Lenovo is selected. It is compatibility tested and tuned to maximize performance and reliability. From a service and support standpoint, Lenovo TruDDR4 memory automatically assumes the system warranty, and Lenovo provides service and support worldwide.

Table 11. Supported memory options

Part number	Feature code	Description	Minimum supported	Maximum supported
RDIMMs				
4X77A08635	B966	ThinkSystem 64GB TruDDR4 3200 MHz (2Rx4 1.2V) RDIMM	1	4
4X77A08634	B965	ThinkSystem 32GB TruDDR4 3200 MHz (2Rx8 1.2V) RDIMM	1	4
4X77A08632	B963	ThinkSystem 16GB TruDDR4 3200 MHz (2Rx8 1.2V) RDIMM	1	4
4X77A08633	B964	ThinkSystem 32GB TruDDR4 3200 MHz (2Rx4 1.2V) RDIMM	1	4
4X77A83361	BS5C	ThinkSystem 32GB TruDDR4 3200 MHz (2Rx4 1.2V) RDIMM Extended Temperature	1	4

The following rules apply when selecting the memory configuration:

- DIMM installation sequence 1, 4, 2 & 3
- One DIMM per channel only
- Three DIMMs are not supported
- The server supports RDIMMs
- Mix of 2Rx4 and 2Rx8 based DIMMs across channels are not supported
- Mix of 16GB 2Rx8 & 32GB 2Rx8 across channels are supported
- Mix of 32GB 2Rx4 & 64GB 2Rx4 across channels are supported
- Memory mirroring and memory rank sparing are not supported
- Server supports Independent mode
- Rank sparing, ADDC, channel mirroring, hemisphere modes, and 2LM are not supported with Software Guard Extensions (SGX)
- Extended Temperature DIMM must selected with 12 Core MB
- Extended Temperature DIMM support -20C to 65C degree configuration while other DIMM support 0-55C only.
- ThinkSystem 32GB TruDDR4 3200 MHz (2Rx4 1.2V) RDIMM Extended Temperature not allow to mix with other DIMMs even across channel.
- ThinkSystem 32GB TruDDR4 3200 MHz (2Rx4 1.2V) RDIMM Extended Temperature must select with 12Core MB_CPU

The following memory protection technologies are supported:

- ECC detection/correction

I/O expansion

The SE360 V2 supports riser cage (or riser assembly) for I/O and storage.

The SE360 V2 has seven types of riser cage that supply 7mm Backplane or PCIe slot or M.2 adapter or space for Geotracking. The following figure shows the location of the riser cage.

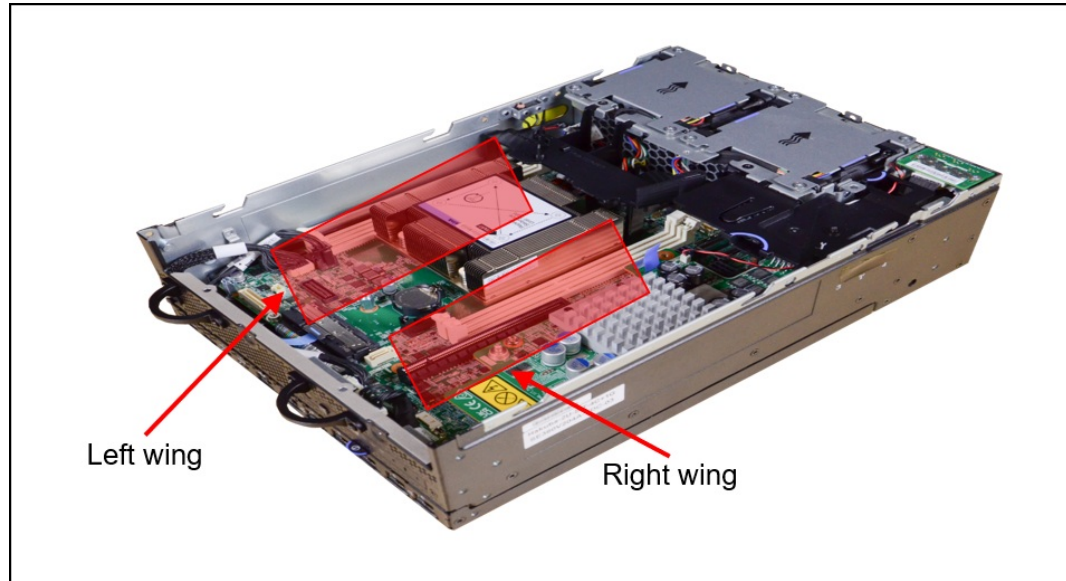


Figure 10. Location of riser cage SE360 V2

The two halves of the riser, referred to as "wings", support 7mm Backplane or PCIe slot or M.2 data drive adapter depending on the riser. The left wing is on the left side and the right wing is on the right side as viewed from the front of the server. You must select a riser card in the server.

Table 12. SE360 V2 riser card selections

Part number	Feature code	Description	Maximum supported
4XF7A86293	BS5J	ThinkEdge SE360 V2 Riser Assembly (PCIe Riser + 7mm Backplane)	1
4XF7A86292	BS5H	ThinkEdge SE360 V2 Riser Assembly (M.2 Riser)	1
4XF7A86291	BS5F	ThinkEdge SE360 V2 Riser Assembly (M.2 Riser + PCIe Riser)	1
4XF7A86290	BS5D	ThinkEdge SE360 V2 Riser Assembly (PCIe Riser + PCIe Riser)	1
4XF7A86294	BS5K	ThinkEdge SE360 V2 Riser Assembly (M.2 Riser + 7mm Backplane)	1
4XF7A86288	BS5E	ThinkEdge SE360 V2 Riser Assembly (PCIe Riser + PCIe Riser) w/ Geotracking	1
4XF7A86289	BS5G	ThinkEdge SE360 V2 Riser Assembly (M.2 Riser + PCIe Riser) w/ Geotracking	1

The following are images of the supported riser cage

Riser assembly (PCIe Riser + 7mm Backplane): When viewed from the underside, is shown in the following figure. The figure shows the left wing supports SATA/NVMe 7mm SSD drives and the right wing offers a PCIe 4.0 x16 Low Profile slot for supported adapters.

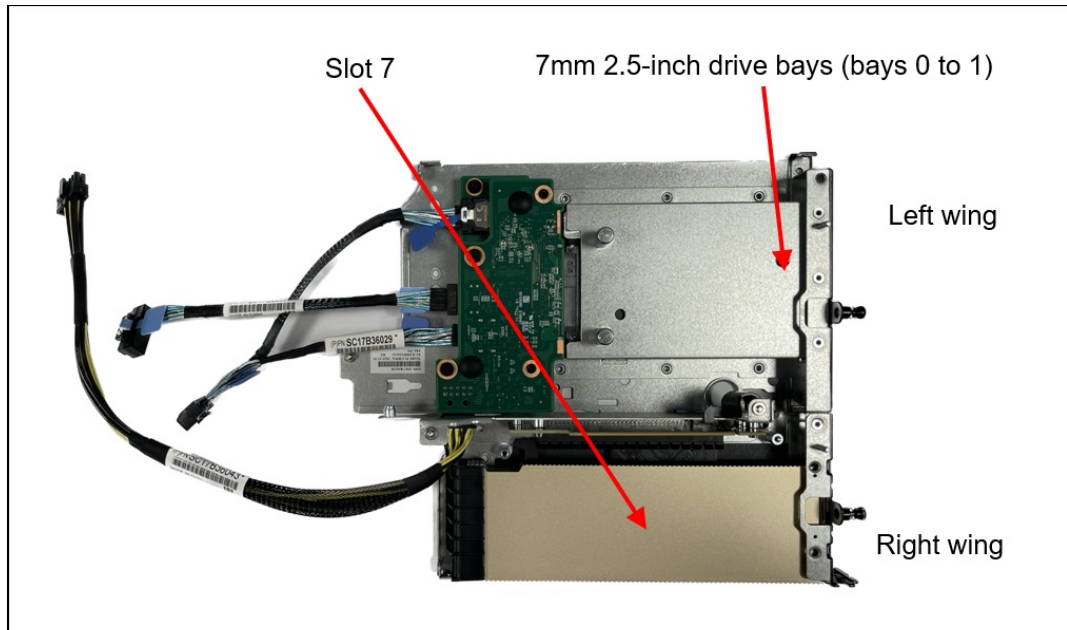


Figure 11. ThinkSystem SE360 V2 PCIe Riser Cage (feature BS5J)

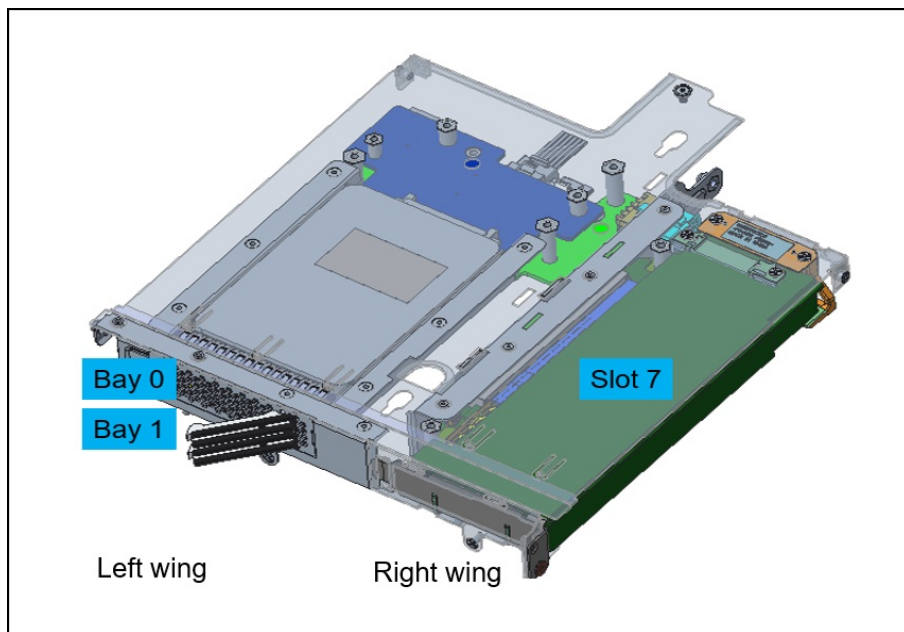


Figure 12. ThinkEdge SE360 V2 Riser Assembly (PCIe Riser + 7mm Backplane) (feature BS5J)

Riser Assembly (M.2 Riser): The left wing support up to 4x 2280/22110 NVMe M.2 drives and right wing support up to 4x 2280/22110 NVMe M.2 drives, which can support up to 8x M.2 drives on riser totally.

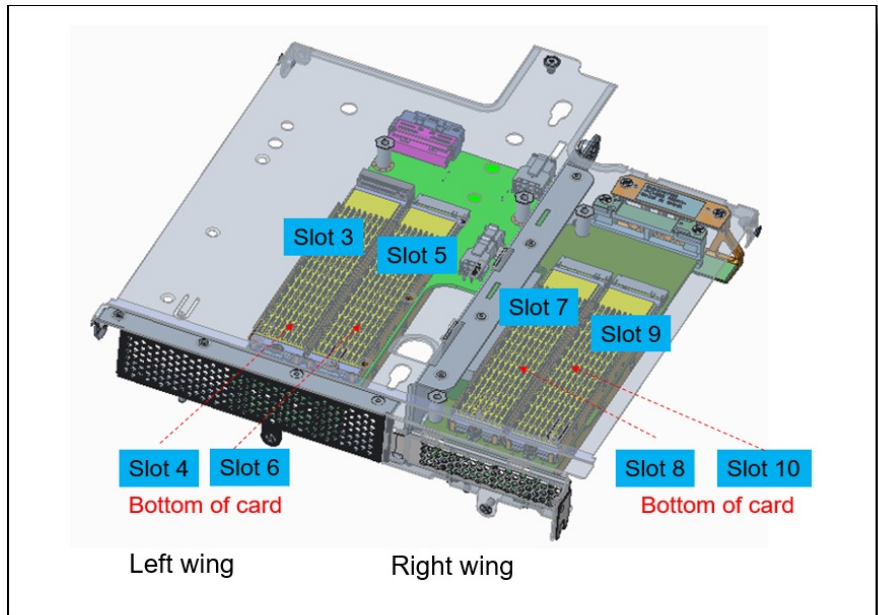


Figure 13. ThinkEdge SE360 V2 Riser Assembly (M.2 Riser) (feature BS5H)

Riser Assembly (M.2 Riser + PCIe Riser): The left wing offers a PCIe 4.0 x16 full high half length slot for supported adapters and right wing support up to 4x 2280/22110 NVMe M.2 drives.

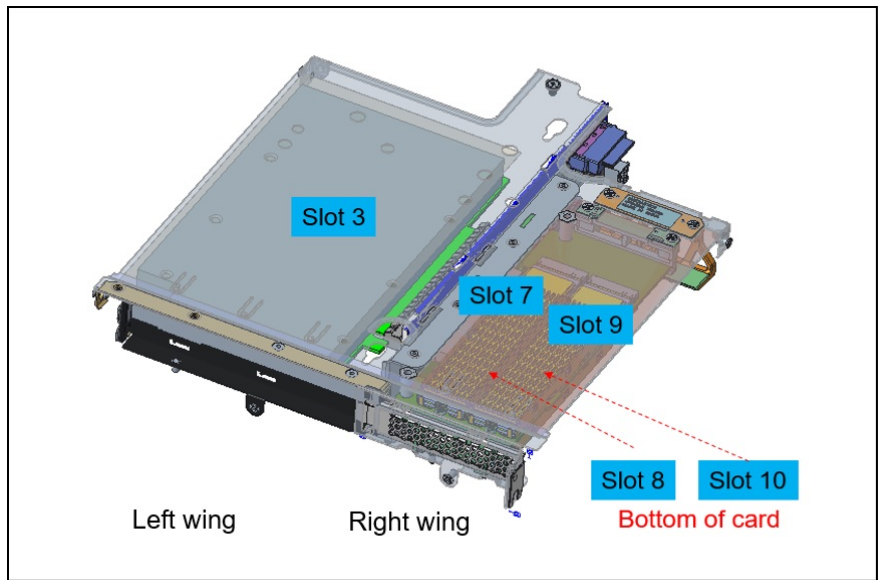


Figure 14. ThinkEdge SE360 V2 Riser Assembly (M.2 Riser + PCIe Riser) (feature BS5F)

Riser Assembly (PCIe Riser + PCIe Riser): The left wing offers a PCIe 4.0 x16 full high half length slot for supported adapters and right wing offers a PCIe 4.0 x16 Low Profile slot for supported adapters, this riser can support up to 2x PCIe adapter totally.

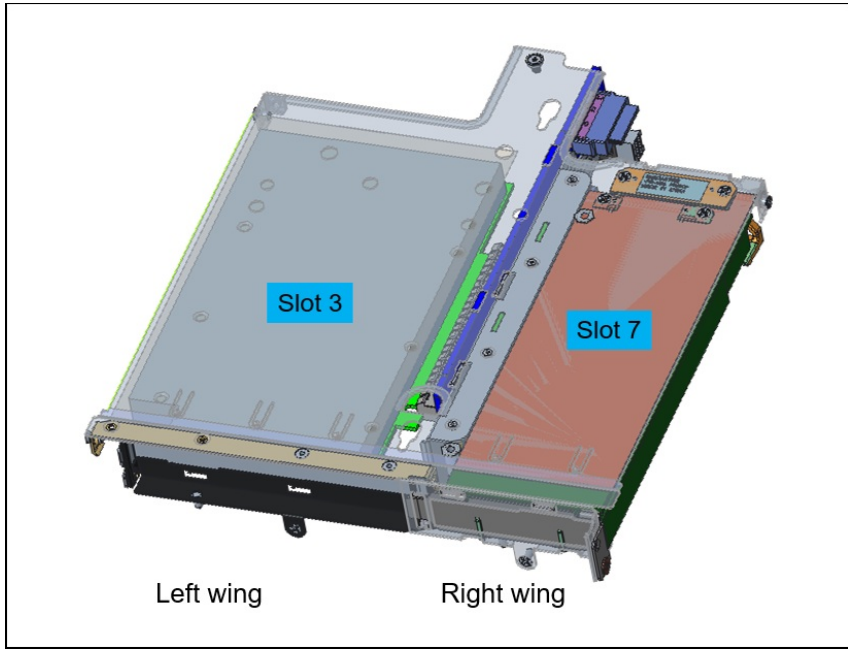


Figure 15. ThinkEdge SE360 V2 Riser Assembly (PCIe Riser + PCIe Riser) (feature BS5D)

Riser Assembly (M.2 Riser + 7mm Backplane): The left wing supports SATA/NVMe 7mm SSD drives and the right wing support up to 4x 2280/22110 NVMe M.2 drives.

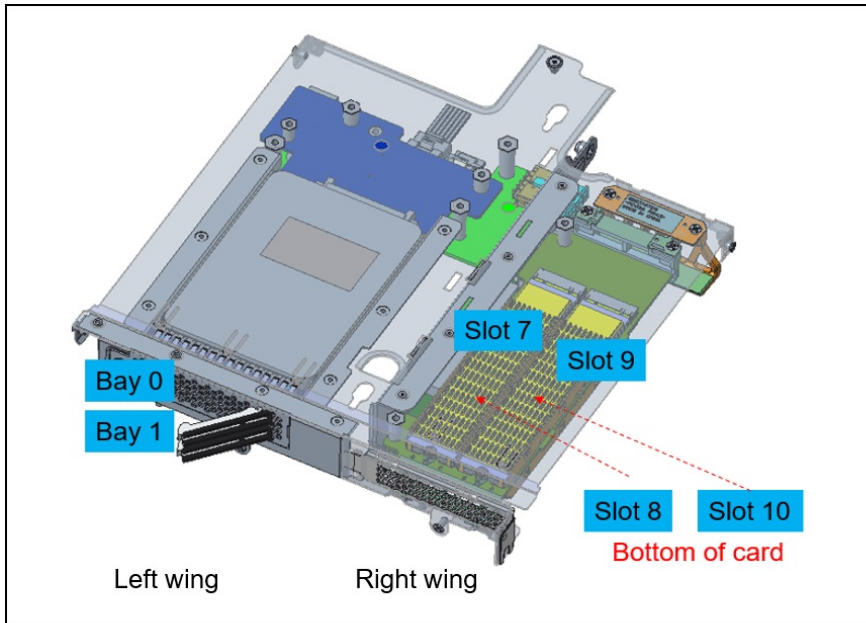


Figure 16. ThinkEdge SE360 V2 Riser Assembly (M.2 Riser + 7mm Backplane) (feature BS5K)

Riser Assembly (PCIe Riser + PCIe Riser) w/ Geotracking: The left wing and right wing offers two PCIe 4.0 x16 Low Profile slot for supported adapters and left wing have space for Geotracking, this riser can support up to 2x PCIe adapter totally.

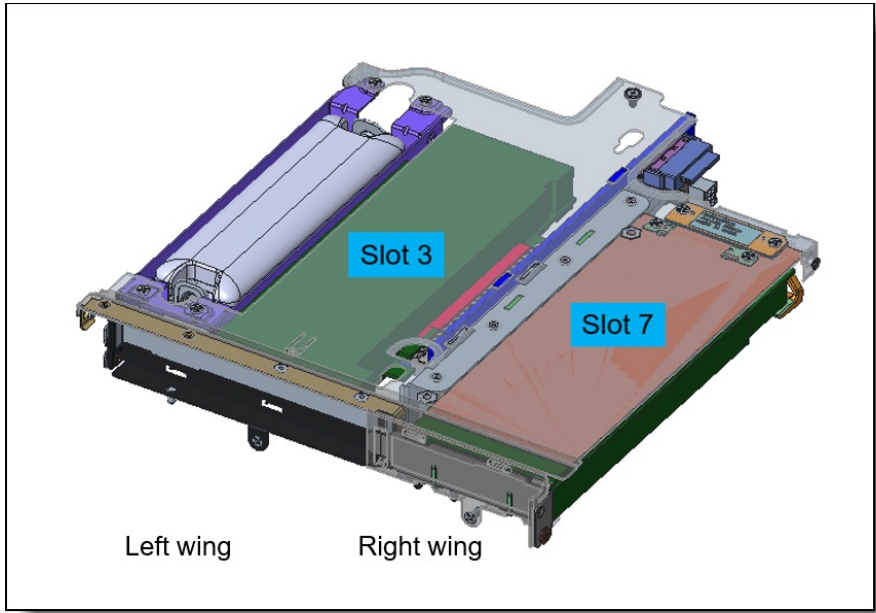


Figure 17. ThinkEdge SE360 V2 Riser Assembly (PCIe Riser + PCIe Riser) w/ Geotracking (feature BS5E)
 Riser Assembly (M.2 Riser + PCIe Riser) w/ Geotracking: The left wing have space for Geotracking with one PCIe 4.0 x16 Low Profile slot for supported adapters and right wing support up to 4x 2280/22110 NVMe M.2 drives.

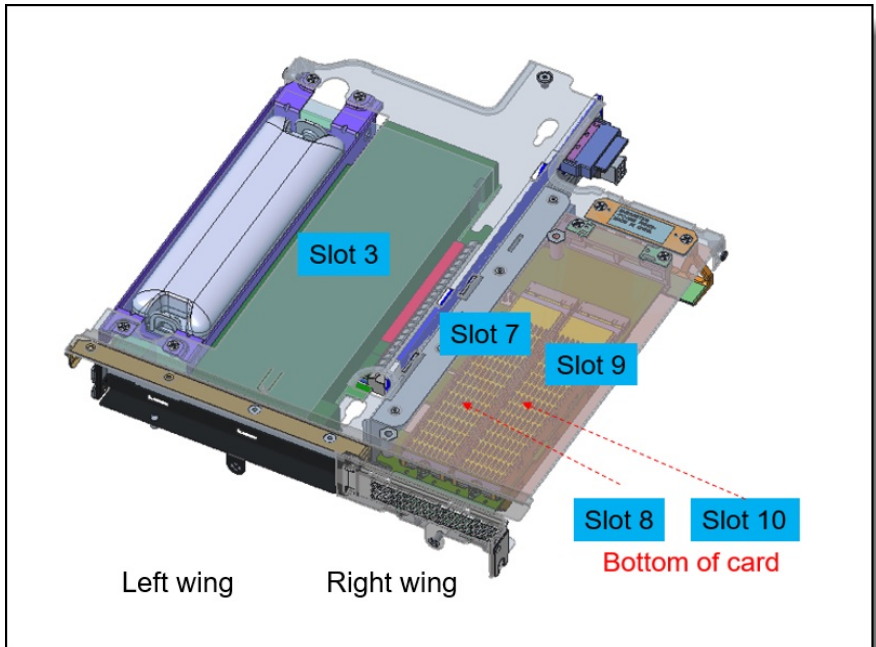


Figure 18. ThinkEdge SE360 V2 Riser Assembly (M.2 Riser + PCIe Riser) w/ Geotracking (feature BS5G)

Internal storage

The internal storage of the SE360 V2 server is implemented as M.2 NVMe drives and 7mm SATA/NVMe SSD. The drives are defined as either boot drives or data drives, based on their intended use in the server.

Internal drives are as follows:

- Data drives are installed in left wing or right wing of riser cage and in bottom M.2 adapter. System can support up to 8x NVMe M.2 data drives total.
- Left wing: up to 2x SATA/NVMe 2.5-inch 7mm drives or up to 4x M.2 PCIe 4.0 drives with M.2 adapter.
- Right wing: up to 4x M.2 PCIe 4.0 drives with M.2 adapter.
- Bottom M.2 adapter (M.2 cabled adapter module BS5M): up to 2x M.2 PCIe 3.0 drives with M.2 adapter. However due to thermal limitations bottom adapter BS5M is not supported when Riser Assembly (M.2 Riser) (feature BS5H) is installed in server.

Note: Left wing and right wing M.2 adapter design use one M.2 holder to assembly M.2 SSD on top/bottom side, which means M.2 SSD length must be the same as 2280/22110 that assembled on one holder.

Boot drives are installed on I/O module with dedicated slot, either one or two 2280 NVMe M.2 drives are supported.

Ordering information for the adapter module is listed in the following table.

Table 13. Adapter module

Part number	Feature code	Description	Maximum supported
CTO only	BS5M	ThinkEdge SE360 V2 M.2 Cabled Adapter Module	1

Controllers for internal storage

The SE360 V2 supports the following for internal storage:

- Onboard NVMe controller supporting RAID 0, 1 (with Intel VROC RAID support) - boot drives
- Onboard SATA* controller supporting RAID 0, 1 (with Intel VROC RAID support) - data drives
- Onboard NVMe** controller supporting RAID 0, 1, 5, 10 (with Intel VROC RAID support) - data drives

*Up to 2 SATA SSD are supported

**RAID 5 minimum 4 drives are required. RAID 10 minimum 4 drives are required.

Additional RAID notes:

- For a maximum of 8 SSDs two VROC RAID are needed.
- SE360 V2 RAID volume can't cross NVMe controller.
- Not allow to support RAID between below 3 NVMe controller.
- Data RAID NVMe controller: Slot3, Slot4, Slot5, Slot6
- Data RAID NVMe controller: Slot7, Slot8, Slot9, Slot10
- Data RAID NVMe controller: Slot11, Slot12, Bay0, Bay1

Intel VROC onboard RAID

Intel VROC (Virtual RAID on CPU) is a feature of the Intel processor that enables RAID support.

There are two separate functions of VROC in the SE360 V2:

- Intel VROC SATA RAID, formerly known as Intel RSTe

- Intel VROC NVMe RAID

VROC SATA RAID (RSTe) is available and supported with all SATA drives, both SATA SSDs and SATA HDDs. It offers a 6 Gb/s connection to each drive and on the SE360 V2 implements RAID levels 0 and 1. RAID 1 is limited to 2 drives per array. Hot-spare functionality is also supported.

VROC NVMe RAID offers RAID support for any NVMe drives directly connected to the ports on the server's system board. On the SE360 V2, it implements RAID levels 0, 1, 5, and 10. RAID 1 is limited to 2 drives per array, and RAID 10 is limited to 4 drives per array. Hot-spare functionality is also supported.

The following options are available as follows:

- VROC NVMe RAID on the SE360 V2 by default is disabled and does not support NVMe RAID. In configurator selecting "none" would mean default, same as JBOD.
- Selecting VROC Standard, feature code BR9B/BS7M, to support RAID-0/1/10.
- Selecting VROC Premium, feature code B96G/BS7N, to support RAID-0/1/5/10.

VROC Standard or Premium are fulfilled as a Feature on Demand (FoD) license and is activated via the XCC management processor user interface.

Table 14. VROC upgrade

Part number	Feature code	Description
4L47A39164	B96G / BS7N	Intel VROC (VMD NVMe RAID) Premium / Premium for M.2
4L47A83669	BR9B / BS7M	Intel VROC (VMD NVMe RAID) Standard / Standard for M.2

VROC Premium is only needed on the SE360 V2 for RAID-5 support with NVMe drives. You do not need the VROC Premium license upgrade under any of the following conditions:

- If you have SATA drives connected to the onboard SATA ports, you do not need VROC Premium.
- If you are using RAID 0, 1 or 10 with NVMe drives, you do not need VROC Premium.

Virtualization support: Virtualization support for Intel VROC is as follows:

- **VROC SATA RAID (RSTe)** : VROC SATA RAID is not supported by virtualization hypervisors such as ESXi, KVM, Xen, and Hyper-V. Virtualization is only supported on the onboard SATA ports in AHCI (non-RAID) mode.
- **VROC (VMD) NVMe RAID** : VROC (VMD) NVMe RAID is supported by ESXi, KVM, Xen, and Hyper-V. ESXi support is limited to RAID 1 only; other RAID levels are not supported. Windows and Linux OSes support VROC RAID NVMe, both for host boot functions and for guest OS function, and RAID-0, 1, 5, and 10 are supported.

Internal drive options

The following table lists the supported drive options.

- 7mm drive bays:
 - 7mm 2.5-inch hot-swap 6 Gb SATA SSDs
 - 7mm 2.5-inch hot-swap PCIe 4.0 NVMe SSDs
- M.2 drives for boot and data:
 - 2280/22110 NVMe M.2 drives

The following table lists the supported drive options.

Table 15. Supported list of drives

Part number	Feature code	Description	Max Qty
7mm 2.5-inch hot-swap 6 Gb SATA SSDs			
4XB7A17106	BK79	ThinkSystem 7mm S4520 240GB Read Intensive SATA 6Gb HS SSD	2
4XB7A17107	BK7A	ThinkSystem 7mm S4520 480GB Read Intensive SATA 6Gb HS SSD	2
4XB7A17108	BK7B	ThinkSystem 7mm S4520 960GB Read Intensive SATA 6Gb HS SSD	2
4XB7A78622	BM8E	ThinkSystem 7mm S4520 1.92TB Read Intensive SATA 6Gb HS SSD	2
4XB7A78623	BM8D	ThinkSystem 7mm S4520 3.84TB Read Intensive SATA 6Gb HS SSD	2
4XB7A78624	BM8C	ThinkSystem 7mm S4520 7.68TB Read Intensive SATA 6Gb HS SSD	2
4XB7A82264	BQ1U	ThinkSystem 7mm 5400 PRO 240GB Read Intensive SATA 6Gb HS SSD	2
4XB7A82265	BQ1V	ThinkSystem 7mm 5400 PRO 480GB Read Intensive SATA 6Gb HS SSD	2
4XB7A82266	BQ1W	ThinkSystem 7mm 5400 PRO 960GB Read Intensive SATA 6Gb HS SSD	2
4XB7A82267	BR13	ThinkSystem 7mm 5400 PRO 1.92TB Read Intensive SATA 6Gb HS SSD	2
4XB7A82268	BR12	ThinkSystem 7mm 5400 PRO 3.84TB Read Intensive SATA 6Gb HS SSD	2
4XB7A82269	BR11	ThinkSystem 7mm 5400 PRO 7.68TB Read Intensive SATA 6Gb HS SSD	2
7mm U.3 2.5-inch hot-swap PCIe 4.0 NVMe SSDs			
4XB7A82851	BS45	ThinkSystem 7mm U.3 7450 MAX 800GB Mixed Use NVMe PCIe 4.0 x4 HS SSD	2
4XB7A82853	BPZ4	ThinkSystem 7mm U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	2
4XB7A82855	BPZ5	ThinkSystem 7mm U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	2
4XB7A82856	BPZ6	ThinkSystem 7mm U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	2
7mm U.2 hot-swap PCIe 4.0 NVMe SSDs			
4XB7A90096	BXMN	ThinkSystem 7mm U.2 PM9A3 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	2
4XB7A90097	BXMM	ThinkSystem 7mm U.2 PM9A3 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	2
4XB7A90098	BXML	ThinkSystem 7mm U.2 PM9A3 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	2
2280/22110 NVMe M.2 drives			
4XB7A82674	BQUJ*	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink) (2280)	2
	BSW7**		8
4XB7A83139	BS46*	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	2
	BSW6**		8
4XB7A82676	BQUL**	ThinkSystem M.2 7450 MAX 800GB Mixed Use NVMe PCIe 4.0 x4 NHS SSD (with Heatsink) (2280)	8
4XB7A82675	BQUK**	ThinkSystem M.2 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink) (22110)	8
4XB7A82852	BRFZ**	ThinkSystem M.2 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink) (22110)	8
4XB7A90118	BYTD	ThinkSystem M.2 PM9A3 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	8
4XB7A90119	BYTE	ThinkSystem M.2 PM9A3 1.92TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	8
4XB7A90120	BYTF	ThinkSystem M.2 PM9A3 3.84TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	8
M.2 N-30m2 Read Intensive NVMe PCIe 3.0 x4 NHS SSD			
	BYLL*		2

Part number	Feature code	Description	Max Qty
4XB7A90720		ThinkSystem M.2 N-30m2 480GB Read Intensive NVMe PCIe 3.0 x4 NHS SSD	
	BZEE**		8
4XB7A90721	BYLM*	ThinkSystem M.2 N-30m2 960GB Read Intensive NVMe PCIe 3.0 x4 NHS SSD	2
	BZEF**	(Industrial)	8
4XB7A90722	BYLN*	ThinkSystem M.2 N-30m2 1.92TB Read Intensive NVMe PCIe 3.0 x4 NHS SSD	2
	BZEG**	(Industrial)	8
4XB7A91531	C0B1**	ThinkSystem M.2 N-30m2 3.84TB Read Intensive NVMe PCIe 3.0 x4 NHS SSD (Industrial)	8

* Boot drive

** Data drive

Optical drive

The server supports the external USB optical drive listed in the following table.

Table 16. External optical drive

Part number	Feature code	Description
7XA7A05926	AVV8	ThinkSystem External USB DVD RW Optical Disk Drive

The drive is based on the Lenovo Slim DVD Burner DB65 drive and supports the following formats: DVD-RAM, DVD-RW, DVD+RW, DVD+R, DVD-R, DVD-ROM, DVD-R DL, CD-RW, CD-R, CD-ROM.

Serial port

The server supports RJ45 connector at rear side with RS-232 serial port function.

Below console cable able to provide DB-9 female interface connection.

Table 17. RJ45 to DB-9 female cable

Part number	Feature code	Description
CTO only	B6EX	ThinkEdge 1.2m RJ45 to RS232 Console Cable

Network Modules

The network ports on the front of the SE360 V2 are provided by a Network Module, a board that plugs into the system board by a dedicated connector. See the [Internal view](#) for the location of the cable. The Network Modules are listed in the following table.

Table 18. Network Modules

Part number	Feature code	Description
CTO only	BS58	ThinkEdge SE360 V2 4x 1Gb, 2x 2.5Gb(TSN) I/O Module
CTO only	BS57	ThinkEdge SE360 V2 4x 10/25Gb, 2x 2.5Gb(TSN) I/O Module
CTO only	BS66	ThinkEdge SE360 V2 IO Cover Assembly for 1GbE I/O Module
CTO only	BS65	ThinkEdge SE360 V2 IO Cover Assembly for 10/25GbE I/O Module

The 1GbE I/O module has the following characteristics:

- 1GbE I/O module board
 - Two USB 3.2 Gen1 Type-A connectors
 - USB 3.2 Gen 1 Type-C connector (for display)
 - USB 2.0 Gen 1 Type-C connector with Lenovo XClarity Controller (XCC) management
 - One XCC system management port (1GbE RJ-45)
 - Four 1GbE RJ-45 connectors (LAN 3 to 6). LAN 6 with shared-NIC feature for Lenovo XClarity Controller
 - Two 2.5GbE RJ-45 connectors
 - Note:
 - 2.5Gb RJ45 ports support 100Mbps data transfer, but link speed LED keep dark, do not support 10Mbps.
 - 2.5Gb port can support 1Gb speed as well with LED behaviors normally.
 - 1Gb RJ45 port support 100M bps if link peer does not force speed on 100Mbps since Icelake D doesn't support 100M half-duplex and link LED is always green status, while ACT LED keeps green and wont blinking when transferring data; do not support 10Mbps

The 1GbE I/O network module is shown in the following figure.

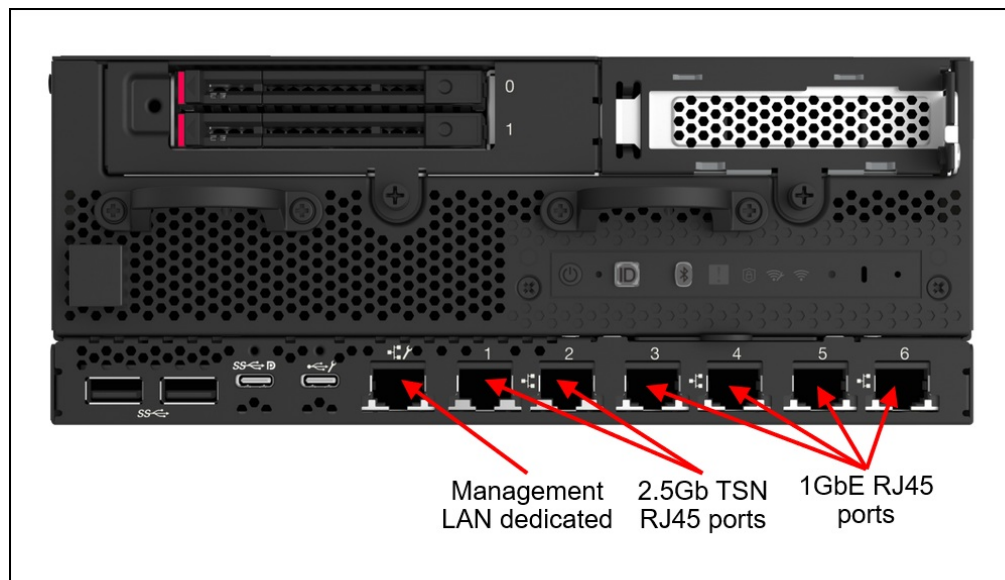


Figure 19. Ports of the available 1GbE I/O network module

The 10/25GbE I/O network module has the following characteristics:

- 10/25GbE SFP28 I/O module board

- Two USB 3.2 Gen 1 Type-A connectors
- USB 3.2 Gen 1 Type-C connector (supporting display)
- USB 2.0 Gen 1 Type-C connector with Lenovo XClarity Controller (XCC) management
- One XCC system management port (1GbE RJ-45)
- Four 10/25GbE SFP28 connectors
- 10G/25G port don't support 10M/100M bps
- Two 2.5GbE RJ-45 connectors

The 10/25GbE I/O network module is shown in the following figure.

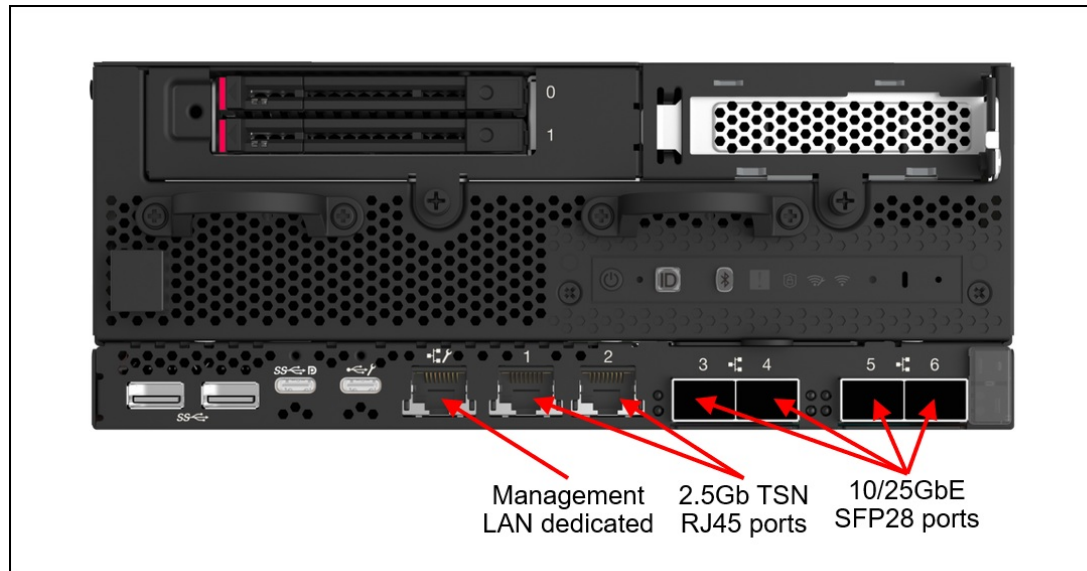


Figure 20. Ports of the available 10/25GbE I/O network module

The Wireless Network Module has the following characteristics:

- Support for wireless solution for data transmission and remote management
- No LTE/5G wireless connection support
- Support CPU WLAN and XCC WLAN with Bluetooth
 - By default both CPU WLAN and XCC WLAN with Bluetooth functions are disabled
 - CPU WLAN need install OS driver to enabled, XCC WLAN and Bluetooth can be enabled and configured in the XCC Web
 - WLAN 128/192-bits encrypted WPA2, 802.11 a/b/g/n/ac/ax
 - XCC Bluetooth support for activation to unlock server
 - CPU WLAN is able to make Wireless connectivity. Not only to connect to internet, but also be used as a backup network in the event that wired connections are offline
- BMC WLAN + Bluetooth:
 - M.2 2230 WLAN card, industrial grade
 - Enablement/ Inventory controlled by XCC
 - Cannot support country code auto-detection
 - Enabling Bluetooth selectively for mobile app activation
 - Cannot support AP mode for security consideration
- X86 WLAN
 - M.2 2230 WLAN card, Industrial grade
 - Set by Intel UEFI

- Support country code auto-detection
- Enablement/Inventory is not controlled by XCC
- Support soft AP mode for WLAN clients to connect (max: 8 clients)
- Note:
 - CPU WLAN based on Intel AX210 module which have OS dependency as noted below:
 - Microsoft Windows Server
 - Red Hat Enterprise Linux
 - SUSE Linux Enterprise Server

Table 19. Ordering the Wireless network module

Part number	Feature code	Description	Quantity required
CTO only	BS59	ThinkEdge SE360 V2 Wireless Module	1
4XF7A91007	BS5A	ThinkEdge SE360 V2 WLAN Antenna	4

Market availability: Government regulations in different countries relevant to wireless radio frequency for WLAN as “homologation”, or telecom regulation or wireless RF compliance and the criteria is laid out by government. Wireless may not be available in all markets/region due to homologation requirements. Please contact your Lenovo sales representative.

Rack installation: The Wireless network module is not supported when the servers are installed in the 2U rack enclosure.

The block diagrams of the Network Modules are shown in the [System architecture](#) section.

The following are the supported transceivers for the Network Modules.

Table 20. Transceivers for Network Modules

Part number	Feature code	Description
10Gb transceivers		
4TC7A78615	BNDR	ThinkSystem Accelink 10G SR SFP+ Ethernet transceiver
46C3447	5053	SFP+ SR Transceiver
00MY034	ATTJ	Lenovo Dual Rate 1G/10GB SFP Transceiver
25Gb transceivers		
4M27A67041	BFH2	Lenovo 25Gb SR SFP28 Ethernet Transceiver
7G17A03537	AV1B	Lenovo Dual Rate 10G/25G SR SFP28 Transceiver

The SFP28 ports of the Network Modules support the following fiber optic cables and direct-attach copper (DAC) cables.

Table 21. Optical cables and DAC cables

Part number	Feature code	Description
LC-LC OM3 Fiber Optic Cables (these cables require a 10 GbE SFP+ SR transceiver)		
00MN499	ASR5	Lenovo 0.5m LC-LC OM3 MMF Cable
00MN502	ASR6	Lenovo 1m LC-LC OM3 MMF Cable
00MN505	ASR7	Lenovo 3m LC-LC OM3 MMF Cable
00MN508	ASR8	Lenovo 5m LC-LC OM3 MMF Cable
00MN511	ASR9	Lenovo 10m LC-LC OM3 MMF Cable
00MN514	ASRA	Lenovo 15m LC-LC OM3 MMF Cable
00MN517	ASRB	Lenovo 25m LC-LC OM3 MMF Cable
00MN520	ASRC	Lenovo 30m LC-LC OM3 MMF Cable
OM4 LC to LC Cables (these cables require a transceiver)		
4Z57A10845	B2P9	Lenovo 0.5m LC-LC OM4 MMF Cable
4Z57A10846	B2PA	Lenovo 1m LC-LC OM4 MMF Cable
4Z57A10847	B2PB	Lenovo 3m LC-LC OM4 MMF Cable
4Z57A10848	B2PC	Lenovo 5m LC-LC OM4 MMF Cable
4Z57A10849	B2PD	Lenovo 10m LC-LC OM4 MMF Cable
4Z57A10850	B2PE	Lenovo 15m LC-LC OM4 MMF Cable
4Z57A10851	B2PF	Lenovo 25m LC-LC OM4 MMF Cable
4Z57A10852	B2PG	Lenovo 30m LC-LC OM4 MMF Cable
SFP+ 10Gb Passive DAC Cables		
00AY764	A51N	1.5m Passive DAC SFP+ Cable
00AY765	A51P	2m Passive DAC SFP+ Cable
90Y9430	A1PJ	3m Passive DAC SFP+ Cable
25G SFP28 Active Optical Cables		
7Z57A03541	AV1F	Lenovo 3m 25G SFP28 Active Optical Cable
7Z57A03542	AV1G	Lenovo 5m 25G SFP28 Active Optical Cable
7Z57A03543	AV1H	Lenovo 10m 25G SFP28 Active Optical Cable
7Z57A03544	AV1J	Lenovo 15m 25G SFP28 Active Optical Cable
7Z57A03545	AV1K	Lenovo 20m 25G SFP28 Active Optical Cable
100G QSFP28 Breakout Active Optical Cables		
7Z57A03551	AV1R	Lenovo 3m 100G to 4x25G Breakout Active Optical Cable
7Z57A03552	AV1S	Lenovo 5m 100G to 4x25G Breakout Active Optical Cable
7Z57A03553	AV1T	Lenovo 10m 100G to 4x25G Breakout Active Optical Cable
7Z57A03554	AV1U	Lenovo 15m 100G to 4x25G Breakout Active Optical Cable
7Z57A03555	AV1V	Lenovo 20m 100G to 4x25G Breakout Active Optical Cable

The following table lists the direct-attach copper (DAC) cables that are supported in the 25GbE port.

Table 22. Copper cables

Part number	Feature code	Description
SFP+ 10Gb Passive DAC Cables		
00D6288	A3RG	0.5m Passive DAC SFP+ Cable
90Y9427	A1PH	1m Passive DAC SFP+ Cable
00AY764	A51N	1.5m Passive DAC SFP+ Cable
00AY765	A51P	2m Passive DAC SFP+ Cable
90Y9430	A1PJ	3m Passive DAC SFP+ Cable
90Y9433	A1PK	5m Passive DAC SFP+ Cable
00D6151	A3RH	7m Passive DAC SFP+ Cable
SFP28 25Gb Passive DAC Cables		
7Z57A03557	AV1W	Lenovo 1m Passive 25G SFP28 DAC Cable
7Z57A03558	AV1X	Lenovo 3m Passive 25G SFP28 DAC Cable
7Z57A03559	AV1Y	Lenovo 5m Passive 25G SFP28 DAC Cable
QSFP28 100G-to-4x25G Breakout Cables		
7Z57A03564	AV22	Lenovo 1m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable
7Z57A03565	AV23	Lenovo 3m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable
7Z57A03566	AV24	Lenovo 5m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable

The RJ45 ports of the Network Modules support the following Category 6 (CAT 6) cables.

Table 23. CAT6 cables

Part number	Feature code	Description
CAT6 Green Cables		
00WE123	AVFW	0.75m CAT6 Green Cable
00WE127	AVFX	1.0m CAT6 Green Cable
00WE131	AVFY	1.25m CAT6 Green Cable
00WE135	AVFZ	1.5m CAT6 Green Cable
00WE139	AVG0	3m CAT6 Green Cable
90Y3715	A1MS	10m Yellow Cat6 Cable
90Y3718	A1MT	10m Green Cat6 Cable
90Y3721	A1MU	10m Blue Cat6 Cable
90Y3724	A1MV	25m Yellow Cat6 Cable
90Y3727	A1MW	25m Green Cat6 Cable
90Y3730	A1MX	25m Blue Cat6 Cable
CAT6 RJ45/RJ45		
4X97A83980	BRW9	Lenovo 750mm Cat6 RJ45 White Cable without Jacket
4X97A83981	BRWA	Lenovo 1000mm Cat6 RJ45 White Cable without Jacket
4X97A83982	BRWB	Lenovo 1250mm Cat6 RJ45 White Cable without Jacket
4X97A83983	BRWC	Lenovo 1500mm Cat6 RJ45 White Cable without Jacket
4X97A83984	BRWD	Lenovo 3000mm Cat6 RJ45 White Cable without Jacket

Network adapters

The following table lists additional supported network adapters that can be installed in the PCIe slot when the PCIe Riser (feature BS5J, BS5F, BS5D, BS5E or BS5G) is selected.

Table 24. Supported PCIe Network Adapters

Part number	Feature code	Description	Maximum supported
Gigabit Ethernet			
7ZT7A00535	AUZW	ThinkSystem I350-T4 PCIe 1Gb 4-Port RJ45 Ethernet Adapter	2
10 GbE			
4XC7A79699	BMXB	ThinkSystem Intel X710-T4L 10GBase-T 4-Port PCIe Ethernet Adapter	2
10/25 GbE			
4XC7A08295	BCD6	ThinkSystem Intel E810-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	2

For more information, including the transceivers and cables that each adapter supports, see the list of [Lenovo Press Product Guides](#) in the Networking adapters category.

GPU adapters

The following table lists additional supported GPUs that can be installed in the PCIe slot when the PCIe Riser (feature BS5J, BS5F, BS5D, BS5E, or BS5G) is selected.

Table 25. Supported GPUs

Part number	Feature code	Description	Maximum supported
CTO only	BP05	ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU w/o CEC	2
4X67A86130	BU00	ThinkSystem Intel Flex 140 12GB Gen4 Passive GPU	2
4X67A81547	BQZT	ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU w/o CEC	2
4X67A84824	BS2C	ThinkSystem NVIDIA L4 24GB PCIe Gen4 Passive GPU	2
4X67A84009	BS49	ThinkSystem Qualcomm Cloud AI 100	2

Configuration notes:

- Some NVIDIA A Series GPUs are available as two feature codes, one with a CEC chip and one without a CEC chip (ones without the CEC chip have "w/o CEC" in the name). The CEC is a secondary Hardware Root of Trust (RoT) module that provides an additional layer of security, which can be used by customers who have high regulatory requirements or high security standards. NVIDIA uses a multi-layered security model and hence the protection offered by the primary Root of Trust embedded in the GPU is expected to be sufficient for most customers. The CEC defeatured products still offer Secure Boot, Secure Firmware Update, Firmware Rollback Protection, and In-Band Firmware Update Disable. Specifically, without the CEC chip, the GPU does not support Key Revocation or Firmware Attestation. CEC and non-CEC GPUs of the same type of GPU can be mixed in field upgrades.

For information about the GPU, see the ThinkSystem GPU Summary, available at: <https://lenovopress.com/lp0768-thinksystem-thinkagile-gpu-summary>

Cooling

The SE360 V2 server has two non-hot swap 80mm dual motor fan solution, supports N+1 redundancy.

Power supplies

The SE360 V2 supports three type of power input path as following components and options:

- External AC Power Supply (230V/115V) (5°C to 40°C)
 - Details regarding the use of AC adapters:
 - One or two AC adapters are supported.
 - When two AC adapters are connected, the second AC adapter is redundant.
 - In case of failure of an AC adapter, system will throttle if power budget is above adapter capacity.
 - AC Adapters need bridge cable to connection with system, can't connect adapter with system directly.
 - AC Adapters do not include a line cord. See the next section for available power cords.
 - 300W adapter supports the following configuration:
 - 8Core CPU MB
 - 4x DIMM
 - 1x PCIe card (up to 60W)
 - 2x 7mm SATA
 - riser cage
 - 1G IO Board
 - 2x M.2 NVMe Boot drive
- Direct DC Power Connection (12-48V) (-20°C to 65°C)
 - Details regarding the use of DC power:
 - One or two DC power input source are supported.
 - When two DC power input are connected, the second DC input is redundant.
 - In case of failure of DC input, system will throttle if power budget is above DC input capacity.
 - DC Terminal block cable for DC power source connection with system.
- Internal AC Power Supply (230V/115V) (-20°C to 65°C)
 - Details regarding the use of internal AC power supply:
 - One AC power input source is supported only.
 - Internal AC Power supply does not support power redundancy or hot swap.
 - Power supply does not include a line cord. See the next section for available power cords.

Ordering information is listed in the following table.

Select internal AC input solution if CELP(China Environmental Labelling Program) certification is needed, this is for China Market only

Table 26. Power options

Part number	Feature code	Description	Maximum supported
External AC Power Supply (230V/115V)			
CTO only	BS4B	ThinkEdge SE360 V2 12-48V DC Power Module Board	1
CTO only	BS5N	ThinkEdge SE360 V2 DC Power Input Board	1
4X27A88607	BW2K	ThinkEdge 300W 230V/115V External Power Supply	2
4X97A88738	BW2J	ThinkEdge SE360 V2 External 300W Bridge Cable	2
CTO only	BS50	ThinkEdge SE360 V2 DC Power Input Board to DC Power Module Board Cable	1
Direct DC Power Connection (12-48V)			
CTO only	BS4B	ThinkEdge SE360 V2 12-48V DC Power Module Board	1
CTO only	BS5N	ThinkEdge SE360 V2 DC Power Input Board	1
4L67A91005	BS5P	ThinkEdge SE360 V2 External DC Terminal Block Cable	2
CTO only	BS50	ThinkEdge SE360 V2 DC Power Input Board to DC Power Module Board Cable	1
AC power - internal power supply			
CTO only	BUGU	ThinkEdge SE360 V2 AC Power Input Board	1
CTO only	BW8U	ThinkEdge SE360 V2 500W 230V/115V Non-Hot Swap Power Supply	1

Power cords

Line cords and rack power cables can be ordered as listed in the following table.

Table 27. Power cords

Part number	Feature code	Description
Power cord for AC adapters		
39Y7930	6222	2.8m, 10A/250V, C13 to IRAM 2073 (Argentina) Line Cord
81Y2384	6492	4.3m 10A/220V, C13 to IRAM 2073 (Argentina) Line Cord
39Y7924	6211	2.8m, 10A/250V, C13 to AS/NZ 3112 (Australia/NZ) Line Cord
81Y2383	6574	4.3m, 10A/230V, C13 to AS/NZS 3112 (Aus/NZ) Line Cord
69Y1988	6532	2.8m, 10A/250V, C13 to NBR 14136 (Brazil) Line Cord
81Y2387	6404	4.3m, 10A/250V, C13 - 2P+Gnd (Brazil) Line Cord
39Y7928	6210	2.8m, 220-240V, C13 to GB 2099.1 (China) Line Cord
81Y2378	6580	4.3m, 10A/220V, C13 to GB 2099.1 (China) Line Cord
39Y7918	6213	2.8m, 10A/250V, C13 to DK2-5a (Denmark) Line Cord
81Y2382	6575	4.3m, 10A/230V, C13 to DK2-5a (Denmark) Line Cord
39Y7917	6212	2.8m, 10A/230V, C13 to CEE7-VII (Europe) Line Cord
81Y2376	6572	4.3m, 10A/230V, C13 to CEE7-VII (Europe) Line Cord
39Y7927	6269	2.8m, 10A/250V, C13(2P+Gnd) (India) Line Cord
81Y2386	6567	4.3m, 10A/240V, C13 to IS 6538 (India) Line Cord
39Y7920	6218	2.8m, 10A/250V, C13 to SI 32 (Israel) Line Cord
81Y2381	6579	4.3m, 10A/230V, C13 to SI 32 (Israel) Line Cord
39Y7921	6217	2.8m, 220-240V, C13 to CEI 23-16 (Italy/Chile) Line Cord

Part number	Feature code	Description
81Y2380	6493	4.3m, 10A/230V, C13 to CEI 23-16 (Italy/Chile) Line Cord
46M2593	A1RE	2.8m, 12A/125V, C13 to JIS C-8303 (Japan) Line Cord
4L67A08357	6533	2.8m, 200V, C13 to JIS C-8303 (Japan) Line Cord
39Y7926	6335	4.3m, 12A/100V, C13 to JIS C-8303 (Japan) Line Cord
4L67A08362	6495	4.3m, 12A/200V, C13 to JIS C-8303 (Japan) Line Cord
39Y7922	6214	2.8m, 10A/250V, C13 to SABS 164 (S Africa) Line Cord
81Y2379	6576	4.3m, 10A/230V, C13 to SABS 164 (South Africa) Line Cord
39Y7925	6219	2.8m, 220-240V, C13 to KETI (S Korea) Line Cord
81Y2385	6494	4.3m, 12A/220V, C13 to KSC 8305 (S. Korea) Line Cord
39Y7919	6216	2.8m, 10A/250V, C13 to SEV 1011-S24507 (Swiss) Line Cord
81Y2390	6578	4.3m, 10A/230V, C13 to SEV 1011-S24507 (Sws) Line Cord
23R7158	6386	2.8m, 10A/125V, C13 to CNS 10917-3 (Taiwan) Line Cord
81Y2375	6317	2.8m, 10A/240V, C13 to CNS 10917-3 (Taiwan) Line Cord
4L67A08363	AX8B	4.3m, 10A 125V, C13 to CNS 10917 (Taiwan) Line Cord
81Y2389	6531	4.3m, 10A/250V, C13 to 76 CNS 10917-3 (Taiwan) Line Cord
39Y7923	6215	2.8m, 10A/250V, C13 to BS 1363/A (UK) Line Cord
81Y2377	6577	4.3m, 10A/230V, C13 to BS 1363/A (UK) Line Cord
90Y3016	6313	2.8m, 10A/120V, C13 to NEMA 5-15P (US) Line Cord
4L67A08359	6370	4.3m, 10A/125V, C13 to NEMA 5-15P (US) Line Cord
4L67A08361	6373	4.3m, 10A/250V, C13 to NEMA 6-15P (US) Line Cord
46M2592	A1RF	2.8m, 10A/250V, C13 to NEMA 6-15P Line Cord
Rack jumper cables for AC adapters		
00Y3043	A4VP	1.0m, C13 to C14 Jumper Cord, Rack Power Cable
4L67A08365	B0N4	2.0m, 10A/100-250V, C13 to C14 Jumper Cord
4L67A08366	6311	2.8m, 10A/100-250V, C13 to C14 Jumper Cord
39Y7937	6201	1.5m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable
39Y7932	6263	4.3m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable
Rack Y-type jumper cables for AC adapters		
00Y3046	A4VQ	1.345m, 2X C13 to C14 Jumper Cord, Rack Power Cable
00Y3047	A4VR	2.054m, 2X C13 to C14 Jumper Cord, Rack Power Cable

Systems management

The SE360 V2 contains an integrated service processor, XClarity Controller (XCC), which provides advanced control, monitoring, and alerting functions. The XCC is based on the Pilot4 XE401 baseboard management controller (BMC) using a dual-core ARM Cortex A9 service processor.

Topics in this section:

- [Local management](#)
- [Lenovo XClarity Mobile](#)
- [Remote management](#)
- [XCC2 Platinum](#)
- [Lenovo XClarity Provisioning Manager](#)
- [Lenovo XClarity Administrator](#)
- [Lenovo XClarity Essentials](#)
- [Lenovo XClarity Energy Manager](#)
- [Lenovo Capacity Planner](#)

Local management

The SE360 V2 offers a front operator panel with key LED status indicators, as shown in the following figure.

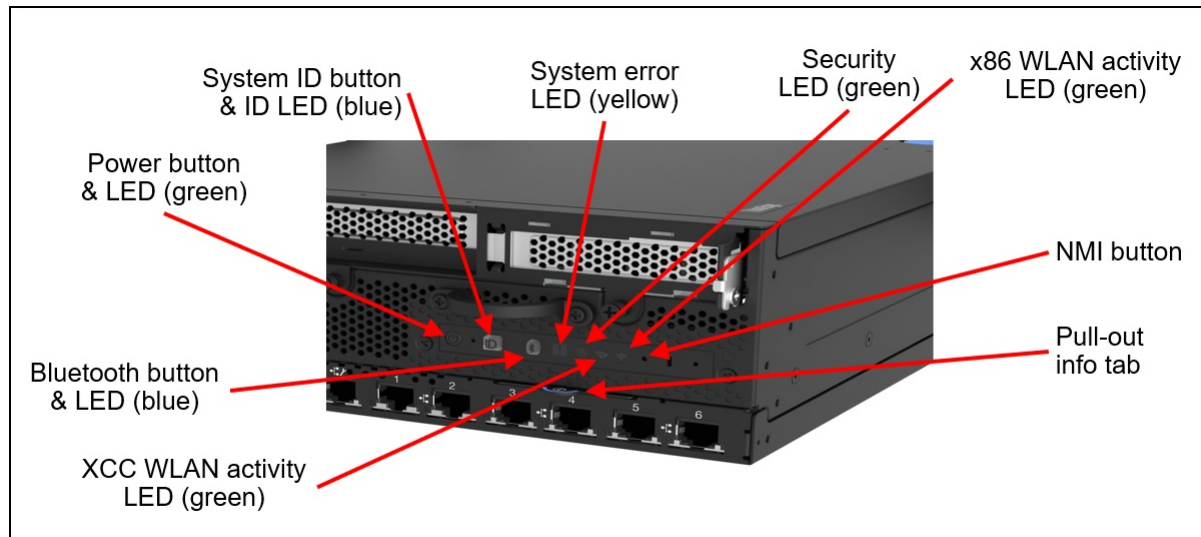


Figure 21. Front operator panel

The buttons on the front of the server:

- Power button
- Identification button - turns on the LED housed within the button as well as passing the signal to the XCC for display remotely in XClarity Administrator
- NMI reset pinhole - sends a NMI signal to the processor thereby causing a blue-screen trap of the operating system

The LEDs on the front of the server are as follows:

- Power LED (green) - indicated activation and power status, as follows:
 - Off - Server does not have power applied
 - Fast flash (4 times per second) - Either server has just had power applied and is not ready to be powered on yet, or the server has not been activated yet
 - Slow flash (once per second) - Server is ready to be powered on
 - On solid - Server is powered on

- Security LED - (green) - indicates system security status.
 - Solid on - the server is operating with security enabled
 - Blinking - the server is in lockdown mode. Activate or unlock the system for operation or activation. See [activate or unlock](#) system.
 - Off - No security feature is enabled on the server.

The front of the server also houses an information pull-out tab (also known as the network access tag). See [Figure 2](#) for the location. A label on the tab shows the network information (MAC address and other data) to remotely access the XCC service processor.

The SE360 V2 also supports optional connection to local VGA monitor.

Table 28. USB type-C to VGA cable


Part number	Feature code	Description
4X97A86591	BS4E	ThinkEdge 130mm USB-C to VGA Display Cable

System status with XClarity Mobile

The SE360 V2 also supports local systems management using the XClarity Mobile app. The app includes a tethering function where you can connect your Android or iOS device to the server via the USB type-C port on the server.

You will need a mobile device with a supported operating system installed (iOS 12 or later, Android 5.0 or later), plus the USB charging cable that comes with your phone. You will also need the USB type-C type-A cable that ships with the SE360 V2.

The steps to connect the mobile device are as follows:

1. Connect the mobile device via your USB cable. You will also need the USB type-C to type-A cable (FC:BS4D) cable to the SE360 V2's USB type-C port with the management symbol 
2. In iOS or Android settings, enable Personal Hotspot or USB Tethering
3. Launch the Lenovo XClarity Mobile app

Once connected you can see the following information:

- Server status including error logs (read only, no login required)
- Server management functions (XClarity login credentials required)

The supported USB cable is listed in the following table.

Table 29. USB type-C cable

Part number	Feature code	Description
4X97A88620	BS4D	ThinkEdge USB-C to USB-A Console Cable

Remote management

Remote server management is provided through industry-standard interfaces:

- Intelligent Platform Management Interface (IPMI) Version 2.0
- Simple Network Management Protocol (SNMP) Version 3 (no SET commands; no SNMP v1)
- Common Information Model (CIM-XML)
- Representational State Transfer (REST) support
- Redfish support (DMTF compliant)
- Web browser - HTML 5-based browser interface (Java and ActiveX not required) using a responsive

design (content optimized for device being used - laptop, tablet, phone) with NLS support

The SE360 V2 offers a MicroSD card port on the system board to enable the use of a MicroSD card for additional storage for use with the XCC2 controller. XCC2 can use the storage as a Remote Disc on Card (RDOC) device (up to 32GB of storage). It can also be used to store firmware updates (including N-1 firmware history) for ease of deployment.

Tip: Without a MicroSD card installed, the XCC2 controller will have 100MB of available RDOC storage.

Ordering information for the supported Micro SD card is listed in the following table.

Table 30. MicroSD card

Part number	Feature code	Description
4X77A77064	BNWP	ThinkSystem MicroSD 32GB Class 10 Flash Memory Card
4X77A92672	C0BC	ThinkSystem MicroSD 64GB Class 10 Flash Memory Card

XCC2 Platinum

The XCC2 service processor in the SE360 V2 supports an upgrade to a Platinum level of features. Compared to the XCC functions of ThinkSystem and earlier systems, Platinum adds the same features as Enterprise and Advanced levels in ThinkSystem, plus additional features.

XCC2 Platinum adds the following Enterprise and Advanced functions:

- Remotely viewing video with graphics resolutions up to 1600x1200 at 75 Hz with up to 23 bits per pixel, regardless of the system state
- Remotely accessing the server using the keyboard and mouse from a remote client
- International keyboard mapping support
- Syslog alerting
- Redirecting serial console via SSH
- Component replacement log (Maintenance History log)
- Access restriction (IP address blocking)
- Lenovo SED security key management
- Displaying graphics for real-time and historical power usage data and temperature
- Boot video capture and crash video capture
- Virtual console collaboration - Ability for up to 6 remote users to be log into the remote session simultaneously
- Remote console Java client
- Mapping the ISO and image files located on the local client as virtual drives for use by the server
- Mounting the remote ISO and image files via HTTPS, SFTP, CIFS, and NFS
- Power capping
- System utilization data and graphic view
- Single sign on with Lenovo XClarity Administrator
- Update firmware from a repository
- License for XClarity Energy Manager

XCC2 Platinum also adds the following features that are new to XCC2:

- System Guard - Monitor hardware inventory for unexpected component changes, and simply log the event or prevent booting
- Enterprise Strict Security mode - Enforces CNSA 1.0 level security

- Neighbor Group - Enables administrators to manage and synchronize configurations and firmware level across multiple servers

Ordering information is listed in the following table. XCC2 Platinum is a software license upgrade - no additional hardware is required.

Table 31. XCC2 Platinum license upgrade

Part number	Feature code	Description
CTO only	BRPJ	Lenovo XClarity Controller 2 (XCC2) Platinum Upgrade

With XCC Platinum, for CTO orders, you can request that System Guard be enabled in the factory and the first configuration snapshot be recorded. To add this to an order, select feature code listed in the following table. The selection is made in the Security tab of the DCSC configurator.

Table 32. Enable System Guard in the factory (CTO orders)

Feature code	Description
BUT2	Install System Guard

For more information about System Guard, see https://pubs.lenovo.com/xcc2/NN1ia_c_systemguard

Lenovo XClarity Provisioning Manager

Lenovo XClarity Provisioning Manager (LXPM) is a UEFI-based application embedded in ThinkSystem servers and accessible via the F1 key during system boot.

LXPM provides the following functions:

- Graphical UEFI Setup
- System inventory information and VPD update
- System firmware updates (UEFI and XCC)
- RAID setup wizard
- OS installation wizard (including unattended OS installation)
- Diagnostics functions

Lenovo XClarity Administrator

Lenovo XClarity Administrator is a centralized resource management solution designed to reduce complexity, speed response, and enhance the availability of Lenovo systems and solutions. It provides agent-free hardware management for ThinkSystem servers, in addition to ThinkServer, System x, and Flex System servers. The administration dashboard is based on HTML 5 and allows fast location of resources so tasks can be run quickly.

Because Lenovo XClarity Administrator does not require any agent software to be installed on the managed endpoints, there are no CPU cycles spent on agent execution, and no memory is used, which means that up to 1GB of RAM and 1 - 2% CPU usage is saved, compared to a typical managed system where an agent is required.

Lenovo XClarity Administrator is an optional software component for the SE360 V2. The software can be downloaded and used at no charge to discover and monitor the SE360 V2 and to manage firmware upgrades.

If software support is required for Lenovo XClarity Administrator, or premium features such as configuration management and operating system deployment are required, Lenovo XClarity Pro software subscription should be ordered. Lenovo XClarity Pro is licensed on a per managed system basis, that is, each managed Lenovo system requires a license.

The following table lists the Lenovo XClarity software license options.

Table 33. Lenovo XClarity Pro ordering information

Part number	Feature code	Description
00MT201	1339	Lenovo XClarity Pro, per Managed Endpoint w/1 Yr SW S&S
00MT202	1340	Lenovo XClarity Pro, per Managed Endpoint w/3 Yr SW S&S
00MT203	1341	Lenovo XClarity Pro, per Managed Endpoint w/5 Yr SW S&S
7S0X000HWW	SAYV	Lenovo XClarity Pro, per Managed Endpoint w/6 Yr SW S&S
7S0X000JWW	SAYW	Lenovo XClarity Pro, per Managed Endpoint w/7 Yr SW S&S

Lenovo XClarity Administrator offers the following standard features that are available at no charge:

- Auto-discovery and monitoring of Lenovo systems
- 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 with Windows PowerShell, providing command-line visibility and control over hardware resources

Lenovo XClarity Administrator offers the following premium features that require an optional Pro license:

- Pattern-based configuration management that allows to define configurations once and apply repeatedly without errors when deploying new servers or redeploying existing servers without disrupting the fabric
- Bare-metal deployment of operating systems and hypervisors to streamline infrastructure provisioning

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

<http://lenovopress.com/tips1200>

Lenovo XClarity Integrators

Lenovo also offers software plug-in modules, Lenovo XClarity Integrators, to manage physical infrastructure from leading external virtualization management software tools including those from Microsoft and VMware.

These integrators are offered at no charge, however if software support is required, a Lenovo XClarity Pro software subscription license should be ordered.

Lenovo XClarity Integrators offer the following additional features:

- Ability to discover, manage, and monitor Lenovo server hardware from VMware vCenter or Microsoft System Center
- Deployment of firmware updates and configuration patterns to Lenovo x86 [rack servers](#) and Flex System 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 about all the available Lenovo XClarity Integrators, see the Lenovo XClarity Administrator Product Guide: <https://lenovopress.com/tips1200-lenovo-xclarity-administrator>

Lenovo XClarity Essentials

Lenovo offers the following XClarity Essentials software tools that can help you set up, use, and maintain the server at no additional cost:

- **Lenovo Essentials OneCLI**
OneCLI is a collection of server management tools that uses a command line interface program to manage firmware, hardware, and operating systems. It provides functions to collect full system health information (including health status), configure system settings, and update system firmware and drivers.
- **Lenovo Essentials UpdateXpress**
The UpdateXpress tool is a standalone GUI application for firmware and device driver updates that enables you to maintain your server firmware and device drivers up-to-date and help you avoid unnecessary server outages. The tool acquires and deploys individual updates and UpdateXpress System Packs (UXSPs) which are integration-tested bundles.
- **Lenovo Essentials Bootable Media Creator**
The Bootable Media Creator (BOMC) tool is used to create bootable media for offline firmware update.

For more information and downloads, visit the Lenovo XClarity Essentials web page: <http://support.lenovo.com/us/en/documents/LNVO-center>

Lenovo XClarity Energy Manager

Lenovo XClarity Energy Manager (LXEM) is a power and temperature management solution for data centers. It is an agent-free, web-based console that enables you to monitor and manage power consumption and temperature in your data center through the management console. It enables server density and data center capacity to be increased through the use of power capping.

LXEM is a licensed product. A single-node LXEM license is included with the XClarity Controller Enterprise upgrade as described in the [Remote Management](#) section. If your server does not have the XCC Enterprise upgrade, Energy Manager licenses can be ordered as shown in the following table.

Table 34. Lenovo XClarity Energy Manager

Part number	Description
4L40E51621	Lenovo XClarity Energy Manager Node License (1 license needed per server)

For more information about XClarity Energy Manager, see the following resources:

- **Lenovo Support page:**
<https://datacentersupport.lenovo.com/us/en/solutions/Invo-lxem>
- **User Guide for XClarity Energy Manager:**
<https://pubs.lenovo.com/lxem/>

Lenovo Capacity Planner

Lenovo Capacity Planner is a power consumption evaluation tool that enhances data center planning by enabling IT administrators and pre-sales professionals to understand various power characteristics of racks, servers, and other devices. Capacity Planner can dynamically calculate the power consumption, current, British Thermal Unit (BTU), and volt-ampere (VA) rating at the rack level, improving the planning efficiency for large scale deployments.

For more information, refer to the Capacity Planner web page:

<http://datacentersupport.lenovo.com/us/en/solutions/Invo-lcp>

Security

Topics in this section:

- [Security features](#)
- [Top cover](#)
- [Intrusion switch](#)
- [System Lockdown Mode](#)
- [SED encryption in factory orders](#)
- [System Guard](#)
- [Geotracking module](#)
- [Platform Firmware Resiliency - Lenovo ThinkShield](#)

Security features

The SE360 V2 offers a number of security features, both electronic and physical.

Electronic security features include:

- Automatic actions on tamper detection in the event of an intrusion or movement, the server can be configured in XCC to perform actions, including server shutdown and disabling remote access to the XCC from the network ports.
- Self-encrypting (SED) are supported on M.2 and 2.5" SSD. M.2 drives that ensure data is secured when the drives are powered off
- Administrator password and a power-on password in UEFI
- Root of Trust (RoT) module providing Platform Firmware Resiliency (PFR) and Onboard Trusted Platform Module (TPM) supporting TPM 2.0 enables advanced cryptographic functionality in the operating system and applications.
- For China users, the server has an internal TCM port that supports a Nationz TPM 2.0 module. Available CTO only.
- The server is NIST SP 800-147B compliant.

Ordering information for the security components is listed in the following table.

Table 35. Security components

Part number	Feature code	Description
CTO only	B8LE	ThinkSystem NationZ TPM 2.0 for PRC
4XF7A88740	BS5S	ThinkEdge SE360 V2 Kensington Lock Kit

Physical security features:

- Lockable top / bottom cover
- Front security bezel with key lock (optional, available as a field upgrade). See [Security bezel](#).
- Intrusion detection. See [Intrusion switch](#).
- Motion detection

The server has an onboard G-sensor accelerometer (disabled by default) that will generate an event if the server is moved. As part of the setup process in XCC, you specify the orientation of the server - desktop, ceiling or wall mount. You can also specify the sensitivity of the motion detection. The motion detection feature is standard.

- Support for a Kensington lock and cable

The server has a slot on the rear side of the server which a customer-supplied Kensington lock and cable can be attached to, to help prevent theft of the server.

The following image shows Kensington lock in the rear of the SE360 V2.



Figure 22. Kensington lock in the back of the SE360 V2

- Intrusion arm/disarm feature

The security keylock can be used as an electronic switch to disarm the intrusion switch detection, so that authorized servicing of the hardware can be performed without triggering the security actions.

Front bezel with key lock

- Optional component that mounts on the front of the server that restricts access to networking connectors on the front of the server. See [Mounting components](#) for more information.

For additional information, see ThinkEdge Security, available from: <https://lenovopress.lenovo.com/lp1725-thinkedge-security>

Note: Customers who purchased server with former firmware prior to November 2023, can seamlessly upgrade to latest firmware to take advantage of latest security features or contact your local Lenovo sales representative or business partner.

Top cover

The SE360 V2 server supports a top cover and depending on the solution a specific cover may be used.

The following image shows the top cover (BS69) and the the location of this component.

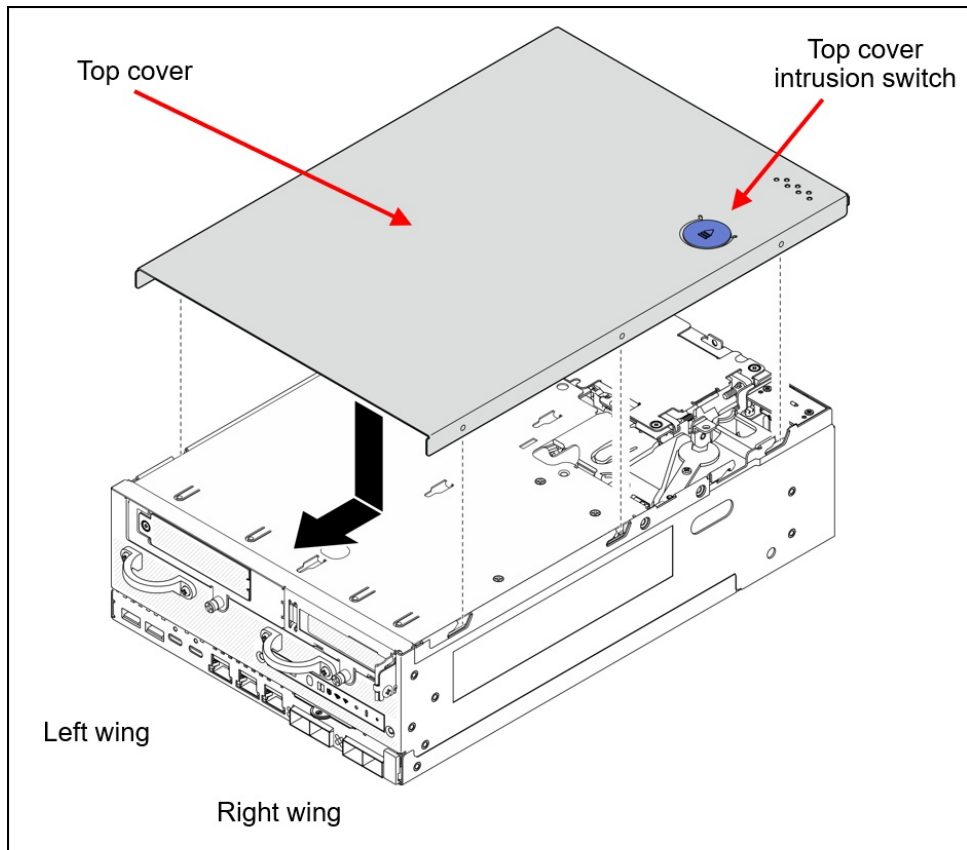


Figure 23. Top cover for SE360 V2

The following table lists the supported top covers.

Table 36. Top cover ordering information

Part number	Feature code	Description	Quantity required
CTO only	BS69	ThinkEdge SE360 V2 Top Cover	1 per server
CTO only	BS6A	ThinkEdge SE360 V2 Top Cover for Geotracking	1 per server

For additional information on Top Cover installation, see the [Configuration Installation Guide](#)

Intrusion switch

The server supports an intrusion switch that rests against the top cover. The following images show the location of this component. In the event that the cover is removed, a Warning event is recorded in XClarity Controller and actions can be taken to secure the server.

The intrusion switch is included in all orders.

The SE360 V2 offers a number of security features, both electronic and physical.

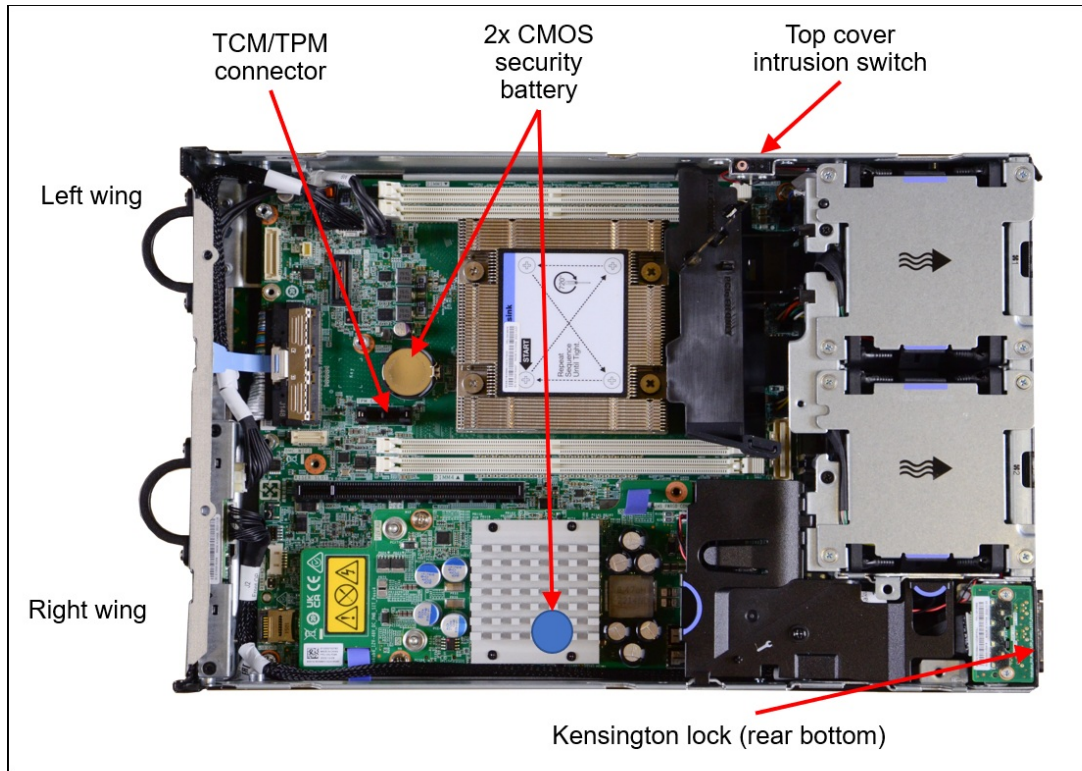


Figure 24. Security features of the SE360 V2

The following image shows the bottom view of the SE360 V2.

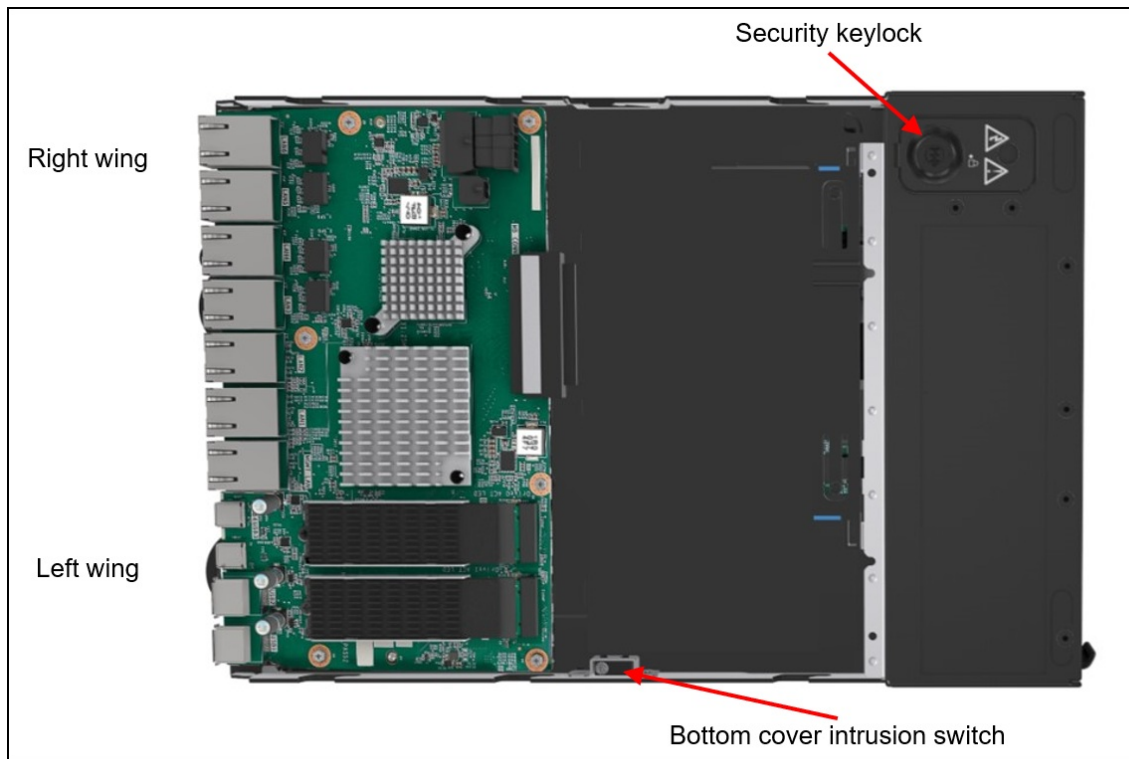


Figure 25. Security features of the SE360 V2

System Lockdown Mode

System Lockdown Mode is an optional security feature of the SE360 V2 that ensures that the system is only used by its intended recipient and that all data and applications remains secure.

System Lockdown Mode is an optional feature that can be remotely managed in two ways:

- ThinkShield Key Vault Portal Managed. This provides a centralised remote management approach, allowing the administrator to remotely managed multiple systems and to register ownership of systems to their company, which reduces the system’s value is stolen.
- XClarity Controller Managed. This provides remote management level control to an individual system using XCC web interface, OneCLI or Redfish.

To select ThinkShield Key Vault Portal Managed in factory orders, select feature BYBR, as listed in the following table. The default in DCSC is to select XClarity Controller Managed, feature BYBQ.

Table 37. Feature codes to activate System Lockdown mode

Feature code	Description	Purpose
BYBR	ThinkShield Key Vault Portal Managed	System Lockdown Mode is enabled in the factory (Activation required on delivery). The server remains secured and in System Lockdown Mode until registered and activated with the ThinkEdge Key Vault Portal. Unauthorized tampering of the server will result in the server being locked down and the data secured, and will remain in this state until reauthenticated with the Key Vault Portal.
BYBQ	XClarity Controller Managed	Default choice in DCSC. System Lockdown Mode is not enabled in the factory. Configures the server security to be managed by the XCC2 management processor. Server will boot at first power on and, by default, will not be locked down on any tamper event. You can configure tamper detection in the XCC2 interface if desired. The server can be converted to be managed ThinkShield Key Vault Portal at a later stage if desired (one-way conversion).

If System Lockdown is enabled in the factory, the system will be delivered in system lockdown mode and will require activation before operation. There are three ways the server can be activated:

- Using a mobile device (iOS or Android) connect to the server to the USB management port on the front of the server and running the [ThinkShield Edge Mobile Management app](#).
- Connecting the system to the Internet via the XCC management port on the front of the server and accessing the [ThinkShield Key Vault Portal](#) from a web browser on another system.
- In a disconnected mode, where neither a mobile device or an internet connection to the SE360 V2 are available.

For more information, see ThinkEdge Security, available from:

<https://lenovopress.lenovo.com/lp1725-thinkedge-security>

Converting from XCC Managed to Portal Managed : Is it possible to convert a system from XCC Managed security to ThinkShield Key Vault Portal Managed via the XCC management interface, however the reverse is not possible. Once a server is in ThinkShield Key Vault Portal Managed mode, it cannot be converted back to XClarity Controller Managed.

The SE360 V2 offers a Security LED that indicates the status of the server:

- LED on: Security is enabled; System is operational.
- LED blinking: Security is enabled and the server is in lockdown, either due to being delivered from the factory in lockdown mode or has entered lockdown as a result of a tamper event. System must be

activated or reactivated before becoming operational.

- LED off: Security is disabled; System is operational.

SED encryption in factory orders

The SE360 V2 also optionally supports enabling SED drive encryption in the factory using feature BYBS as listed in the following table. This feature enables SED on the selected drives and sets and SED Authentication Key (SED AK).

Tip: SED encryption is a function that is independent of System Lockdown Control.

Table 38. System Lockdown Mode

Feature code	Description	Purpose
BYBS	SED Enabled	Enables SED drive encryption on all factory installed drives and sets an SED Authentication Key (AK).

System Guard

The System Guard feature takes a snapshot of the hardware component inventory as trusted reference, then monitors for any deviation from the reference snapshot.

When deviation occurs, it can report an event to the user, optionally, can also prevent the server from booting into the OS and prompt the user for response.

- System Guard is only enabled with XCC2 on V3 code
- Server supports this feature (BUT2) when XCC Platinum enabled only.
- The System Guard feature is disabled by default

System Guard is a feature of XCC Platinum. Sytem Guard (BUT2) should only be selectable if XCC Platinum (BRPJ) is selected.

Table 39. XCC platinum and System Guard details

Feature code	Description
BRPJ	XCC Platinum
BUT2	Enable System Guard

Geotracking module

Geotracking module is an Airgain device so customers need to check on Airgain website on which countries they can sell to before purchasing, buy it and get service support from vendor directly.

- Lenovo [user guide](#) will provide guide for how to install the Geotracking module
- Lenovo XClarity won't manage this Airgain module for privacy data consideration
- All Geotracking privacy data won't be managed by Lenovo, it is the deal and agreement between customers and Airgain
- No plan to support it with SE360 V2 enclosure for wireless signal consideration

Tip: Geotracking module is a Third Party device. As such, third party options are excluded from Lenovo Statement of Limited Warranty. Engage third party for support.

The following image shows the Geotracking installation location in the SE360 V2 server.

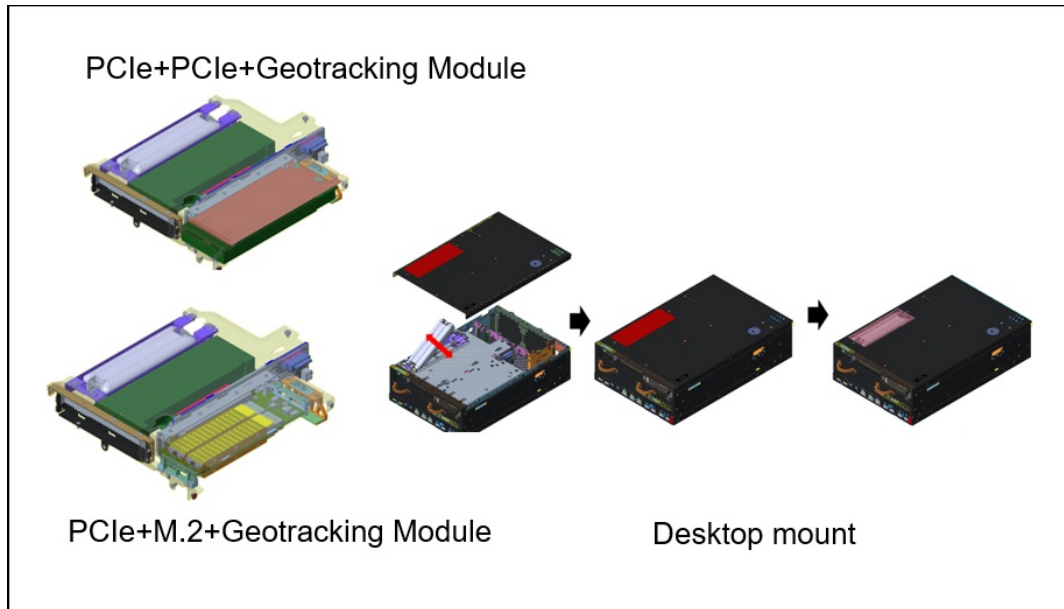


Figure 26. Geotracking device by third party Airgain

Choose ThinkEdge SE360 V2 with two dedicated risers (all with lower profile GPU cards) and the dedicated top cover for Geotracking module installation:

- ThinkEdge SE360 V2 Riser Assembly (M.2 Riser + PCIe Riser + Geotracking, 4XF7A86289)
- ThinkEdge SE360 V2 Riser Assembly (PCIe Riser + PCIe Riser + Geotracking, 4XF7A86288)
- ThinkEdge SE360 V2 Top Cover for Geotracking (4XF7A86667)

For a high level information for Geotracking top cover at pubs refer to this [link](#).

The following are some links for additional information from third party:

- Lenovo and Airgain jointly website: <https://www.airgain.com/partners/asset-tracker-solution-partners/lenovo/>
- Asset tracker: <https://www.airgain.com/partners/asset-tracker-solution-partners/>
- Warranty from Airgain: <https://www.airgain.com/Documentation/Legal/TC-AssetTracker.pdf>
- How to order: <https://www.airgain.com/wp-content/uploads/2023/09/lenovo-order-process.pdf>

Platform Firmware Resiliency - Lenovo ThinkShield

Lenovo's ThinkShield Security is a transparent and comprehensive approach to security that extends to all dimensions of our data center products: from development, to supply chain, and through the entire product lifecycle.

The ThinkEdge SE360 V2 includes Platform Firmware Resiliency (PFR) hardware Root of Trust (RoT) which enables the system to be NIST SP800-193 compliant. This offering further enhances key platform subsystem protections against unauthorized firmware updates and corruption, to restore firmware to an integral state, and to closely monitor firmware for possible compromise from cyber-attacks.

PFR operates upon the following server components:

- UEFI image – the low-level server firmware that connects the operating system to the server hardware
- XCC image – the management “engine” software that controls and reports on the server status separate from the server operating system
- FPGA image – the code that runs the server’s lowest level hardware controller on the motherboard

The Lenovo Platform Root of Trust Hardware performs the following three main functions:

- Detection – Measures the firmware and updates for authenticity
- Recovery – Recovers a corrupted image to a known-safe image
- Protection – Monitors the system to ensure the known-good firmware is not maliciously written

These enhanced protection capabilities are implemented using a dedicated, discrete security processor whose implementation has been rigorously validated by leading third-party security firms. Security evaluation results and design details are available for customer review – providing unprecedented transparency and assurance.

The SE360 V2 includes support for Secure Boot, a UEFI firmware security feature developed by the UEFI Consortium that ensures only immutable and signed software are loaded during the boot time. The use of Secure Boot helps prevent malicious code from being loaded and helps prevent attacks, such as the installation of rootkits. Lenovo offers the capability to enable secure boot in the factory, to ensure end-to-end protection. Alternatively, Secure Boot can be left disabled in the factory, allowing the customer to enable it themselves at a later point, if desired.

The following table lists the relevant feature code(s).

Table 40. Secure Boot options

Part number	Feature code	Description	Purpose
CTO only	AUK7	TPM 2.0 and Secure Boot	Configure the system in the factory with Secure Boot enabled.
CTO only	B0MK	Enable TPM 2.0	Configure the system without Secure Boot enabled. Customers can enable Secure Boot later if desired.
CTO only	C1GD	ST45 V3 TPM 2.0 for WW	

Tip: If Secure Boot is not enabled in the factory, it can be enabled later by the customer. However once Secure Boot is enabled, it cannot be disabled.

Mounting options

The SE360 V2 is designed to be used in a variety of locations - table top - and on other mounting options.

In this section:

- [Mounting components](#)
- [Desktop mount](#)
- [Wall or ceiling mount](#)
- [Short-depth 2U rack installation](#)
- [Mounting options and power](#)

For additional information on desktop or stand alone mounting option refer to the following section.

Mounting components

Many of the mounting options share the same components.

Node sleeve

The node sleeve, shown below, holds the SE360 V2 server when mounted on the wall. The server is then slid into the node sleeve and secured with additional thumbscrews.

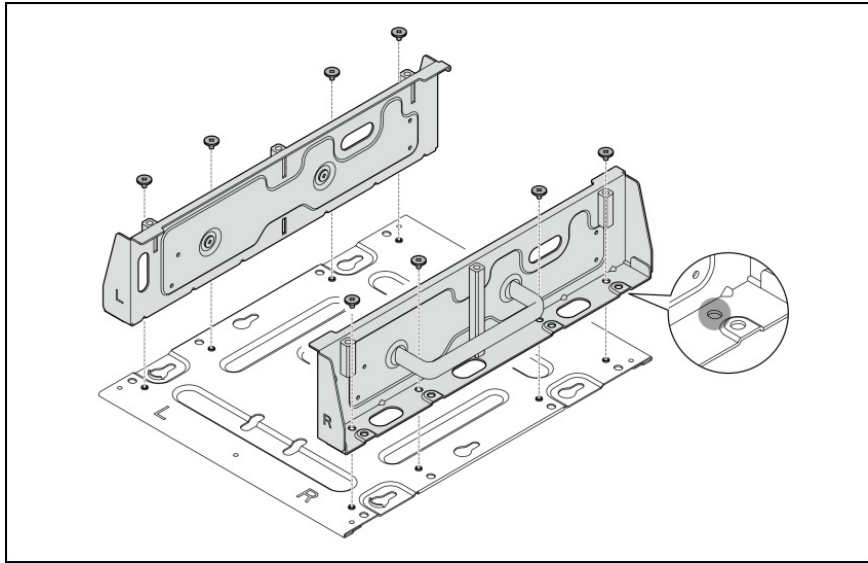


Figure 27. Node sleeve

Table 41. Node Sleeve ordering information

Part number	Feature code	Description	Quantity required
4XF7A86295	BS5Q	ThinkEdge SE360 V2 Node Sleeve	1 per server

Security bezel

The security bezel is an optional component that mounts on the front of the node sleeve to help prevent physical access to the front components of the server. The bezel includes a lock-and-key mechanism for security.

Security bezel can prevent LAN cable plug or unplug after installed in node sleeve.

SE360 V2 supports two types of security bezel to support different I/O module board.

Tip: The use of the locking bezel requires a node sleeve.

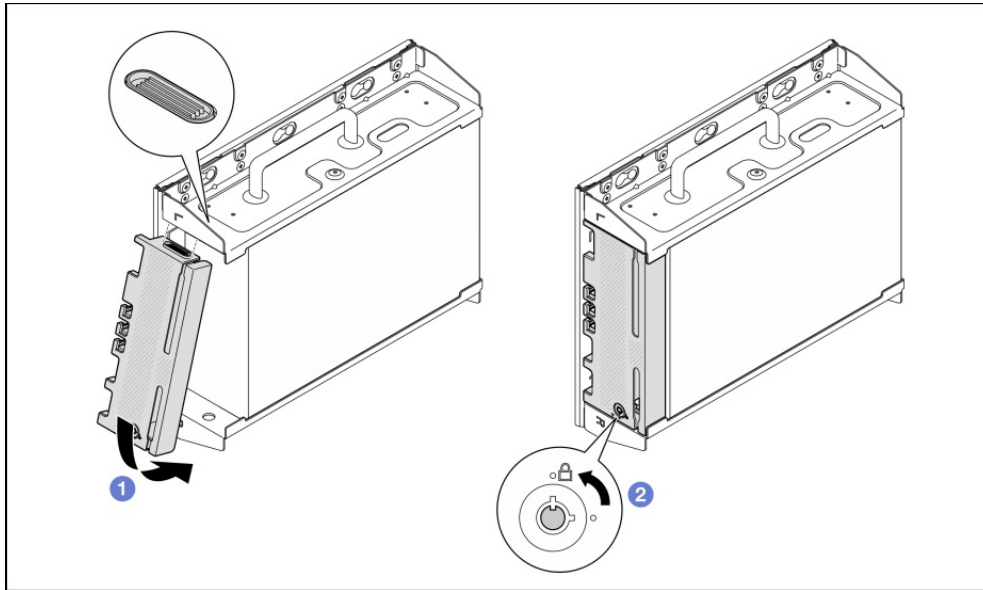


Figure 28. Security Bezel

The following image shows the supported mounting / installation options for the ThinkEdge SE360 V2 server.

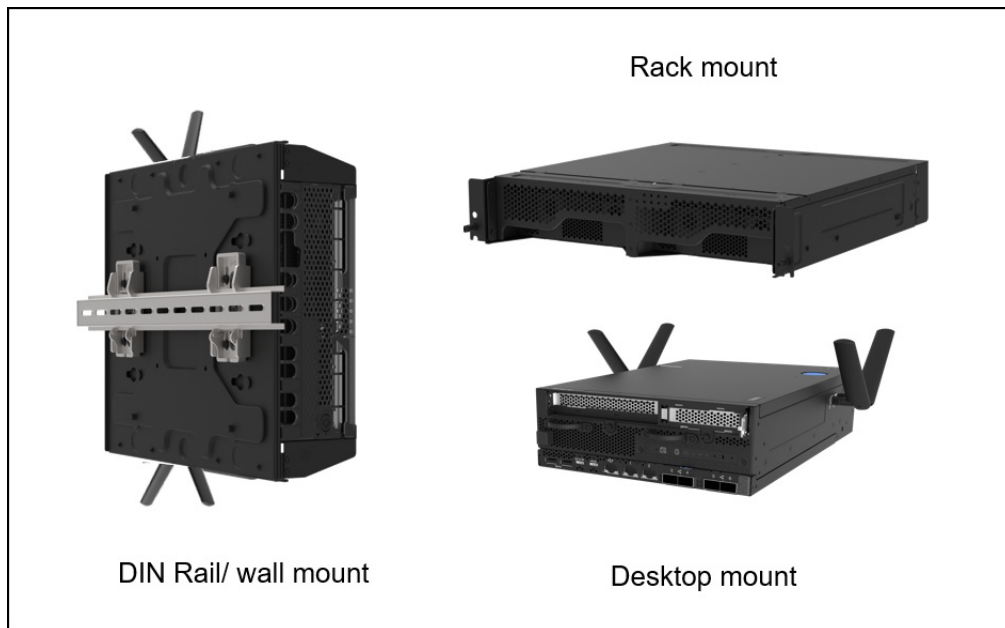


Figure 29. Installation options for ThinkEdge SE360 V2 server

The following table shows a list of components for mounting server, bezel and airflow.

Table 42. Components for mounting

Part number	Feature code	Description	Maximum
Wall/Ceiling Mount Mode			
4XF7A86295	BS5Q	ThinkEdge SE360 V2 Node Sleeve	1
DIN RAIL Mount Mode			
4XF7A86295	BS5Q	ThinkEdge SE360 V2 Node Sleeve	1
4M17A37285	B87S	ThinkEdge DIN Mount Kit (Extreme Shock & Vibe)	1
Security Bezel			
4B37A86299	BT92	ThinkEdge SE360 V2 Security Bezel for 10/25GbE I/O Module	1
4B37A86298	BT91	ThinkEdge SE360 V2 Security Bezel for 1GbE I/O Module	1
Rear to front airflow feature			
4XF7A91006	BS5V	ThinkEdge SE360 V2 Fan Assembly (Rear to Front)	1
4XF7A91958	BS5T	ThinkEdge SE360 V2 Air Flow Sensor Module	1
4XF7A86287	BS5U	ThinkEdge SE360 V2 Dust Filter Assembly (Rear)	1

Desktop mount

Desktop mounting has the server oriented horizontally with self-adhesive rubber pads mounted to its underside.

- Air flow of node system in this mount type can be front to rear or rear to front.
- Rear to front air flow can select airflow sensor to check rear dust filter status.

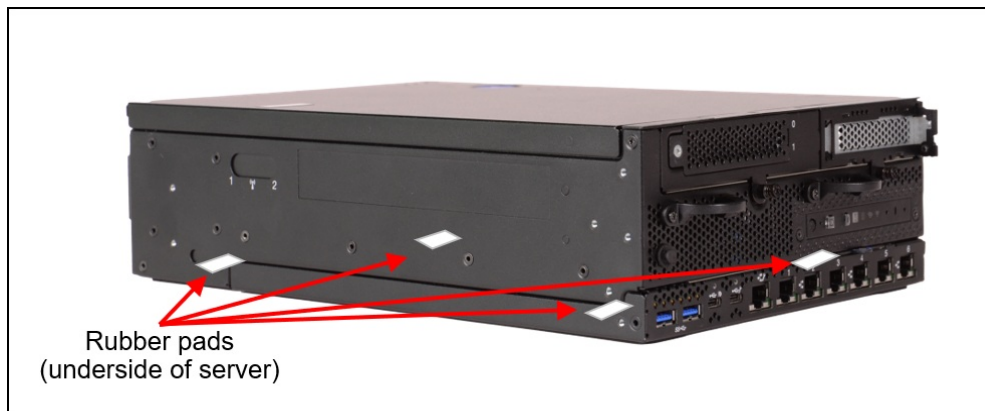


Figure 30. SE360 V2 with Rubber Feet option

The following table shows a list of components for mounting server and airflow.

Table 43. Components for mounting and options

Part number	Feature code	Description	Maximum
Desktop mount			
4M17A37610	B6Q3	ThinkEdge Rubber Feet (contains 4 rubber pads)	1
Rear to front airflow feature			
4XF7A91006	BS5V	ThinkEdge SE360 V2 Fan Assembly (Rear to Front)	1
4M17A37285	B87S	ThinkEdge DIN Mount Kit (Extreme Shock & Vibe)	1
4XF7A86287	BS5U	ThinkEdge SE360 V2 Dust Filter Assembly (Rear)	1
Front to rear airflow feature			
4XF7A91007	BS5W	ThinkEdge SE360 V2 Fan Assembly (Front to Rear)	1

Wall or ceiling mount

The SE360 V2 can be mounted on a wall or the ceiling, using the node sleeve. When wall mounted, the server needs to be installed into the node sleeve first.

When wall/ceiling mounted, the node sleeve can be mounted directly on the wall/ceiling. A DIN mount kit is needed for DIN rail.

Air flow of node system in this mount type must be rear to front and can select airflow sensor to check rear dust filter status.

The components needed for a wall or ceiling mount are shown in the following table. See the [Mounting components](#) section for details about the node sleeve and security bezel.

Table 44. Wall or ceiling mount

Part number	Feature code	Description	Quantity required
4XF7A86295	BS5Q	ThinkEdge SE360 V2 Node Sleeve	1 per server
4XF7A86287	BS5U	ThinkEdge SE360 V2 Dust Filter Assembly (Rear)	1 per server

The DIN Rail and SE360 V2 inside node sleeve is shown in the following figure.

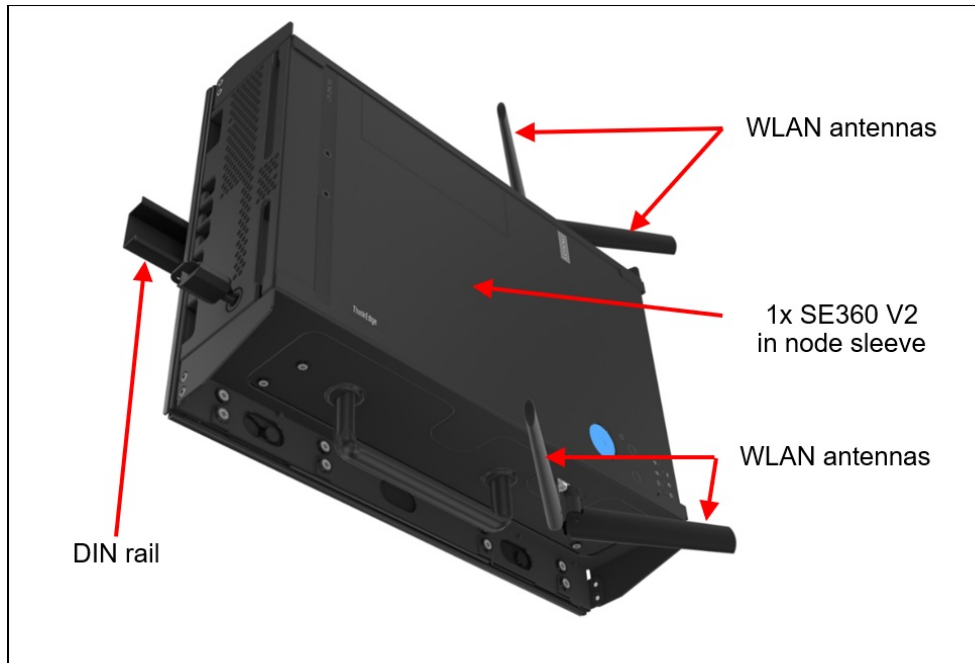


Figure 31. DIN Rail Kit and mounted node

Short-depth 2U rack installation

Two SE360 V2 servers can also be mounted in a short-depth rack or a 2-post rack. In such a configuration, the servers occupy 2U of rack space. The components are mounted in the ThinkEdge SE360 V2 2U2N Enclosure, machine type 7DBN.

Notes:

- The 2U2N Enclosure is available in DCSC using CTO base model 7DBNCTO1WW
- The Wireless Network Module is not supported as there is insufficient physical space for the antennas
- The 2U2N Enclosure comes with two node fillers to ensure correct airflow if a node space is not populated

The following figure shows two SE360 V2 servers installed in the 2U2N Enclosure.

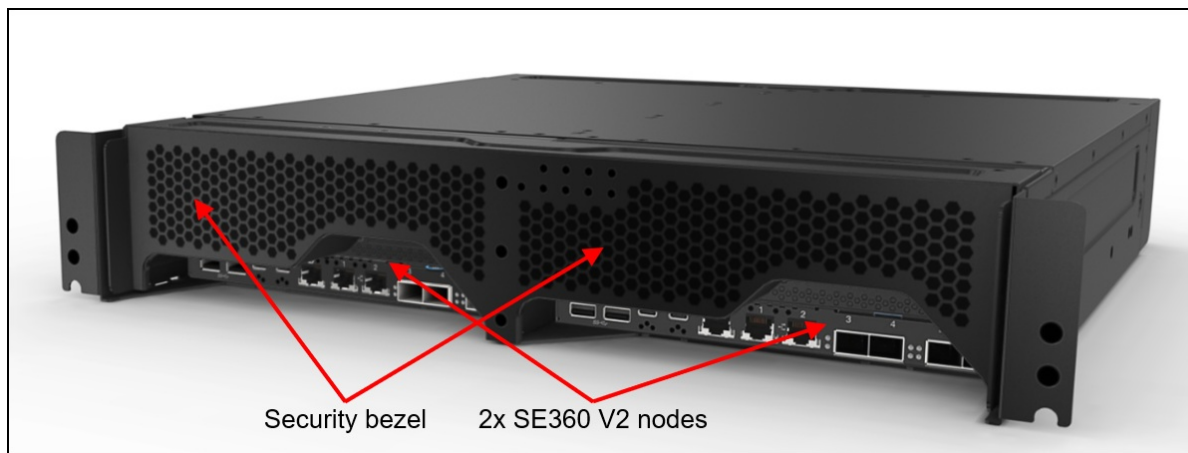


Figure 32. ThinkEdge SE360 V2 2U2N Enclosure

The following table lists the components used in the 2U rack installation.

Table 45. Components for the 2U2N Enclosure

Part number	Feature code	Description	Quantity required
2U2N Enclosure components			
CTO / model only*	7DBN BSMQ	ThinkEdge SE360 V2 2U2N Enclosure	1 per enclosure
4XF7A94044	7DBN BSN0	ThinkEdge SE360 V2 Enclosure Shipping Bracket	1 per enclosure
4XF7A86297	7DBN BT94	ThinkEdge SE360 V2 Rack Front Top Filter	1 per server
	7DBN BSMR	ThinkEdge SE360 V2 Rack Front Bottom Filter	1 per server

* Available via configure-to-order (CTO) or via predefined enclosure models

The following table summarizes the specifications of the available rail kits

Table 46. Specifications of rail kits for short-depth installations

Feature	ThinkEdge 1000mm Friction Rail Kit v2	ThinkEdge 600mm Ball Bearing Rail Kit	ThinkEdge 2-Post Friction Rail Kit	ThinkEdge 1000mm Friction Rail Kit
Part number	4XF7A90718	4XF7A81942	4XF7A81941	4XF7A81940
CMA	None	None	None	None
Rail length	751 mm (29.56 in)	454 mm (17.87 in)	484 mm (19.1 in.)	751 mm (29.56 in)
Rail type	Full-out slide rail (friction)	Full-out slide rail (ball bearing)	Half-out slide rail (friction)	Full-out slide rail (friction)
Slide travel	480 mm (18.9 in)	485 mm (19.1 in)	270 mm (10.6 in.)	480 mm (18.9 in)
Tool-less installation	Yes	Yes	No (screw-in)	Yes
In-rack server maintenance	No	No	No	No
1U PDU support	Yes	Yes	Yes	Yes
0U PDU support	Yes	Not applicable	Not applicable	Yes
Rack type	Four-post IBM and Lenovo standard rack	Four-post 600 mm depth standard rack	2-post rack	Four-post IBM and Lenovo standard rack
Mounting holes	Square or round	Square or round	Square, round, or threaded	Square or round
Mounting flange thickness	2 - 3.3 mm (0.08 - 0.13 in)	2 - 3.3 mm (0.08 - 0.13 in)	76 - 279 mm (3 - 11 in)	2 - 3.3 mm (0.08 - 0.13 in)
Max distance between front and rear mounting flanges	610 - 864 mm (24 - 34 in)	380 - 500mm (15 - 19.7 in)	Not applicable	610 - 864 mm (24 - 34 in)

Mounting options and power

The following table list supported mounting options and their corresponding supported power type.

Table 47. Mounting options and supported power type

Power type / PSU	Desktop	Rack mount	Wall mount/ ceiling mount	DIN-rail mount
Wireless module	Yes	No	Yes	Yes
Electrical input				
AC & 300W external	Yes	No	No	No
DC power source input	Yes	Yes	Yes	Yes
AC power source input	Yes	Yes	Yes	Yes
System fan				
Front-to-rear air flow direction	Yes	Yes	No	No
Rear-to-front air flow direction	Yes	No	Yes	Yes
Optional components enabling dust filter measurement feature*				
Air flow sensor board	Yes	No	Yes	Yes
Rear dust filter	Yes	No	Yes	Yes

* The components are supported only when fans with rear-to-front air flow direction are installed

For additional information on mounting options for different power solutions, see the [Configuration Guide](#)

Operating system support

The SE360 V2 supports the following operating systems:

- Microsoft Windows Server 2019
- Microsoft Windows Server 2022
- Microsoft Windows Server 2025
- Red Hat Enterprise Linux 8.6
- Red Hat Enterprise Linux 8.8
- Red Hat Enterprise Linux 8.10
- Red Hat Enterprise Linux 9.0
- Red Hat Enterprise Linux 9.2
- Red Hat Enterprise Linux 9.4
- Red Hat Enterprise Linux 9.5
- SUSE Linux Enterprise Server 15 SP4
- SUSE Linux Enterprise Server 15 SP5
- SUSE Linux Enterprise Server 15 SP6
- SUSE Linux Enterprise Server 15 Xen SP4
- SUSE Linux Enterprise Server 15 Xen SP5
- Ubuntu 20.04 LTS 64-bit
- Ubuntu 22.04 LTS 64-bit
- Ubuntu 24.04 LTS 64-bit
- VMware ESXi 7.0 U3
- VMware ESXi 8.0 U1
- VMware ESXi 8.0 U2
- VMware ESXi 8.0 U3

The SE360 V2 is also tested with Windows 10 and Windows 11.

For a complete list of supported, certified and tested operating systems, plus additional details and links to relevant web sites, see the Operating System Interoperability Guide:

<https://lenovopress.lenovo.com/osig#support=all>

For configure-to-order configurations, the SE360 V2 can be preloaded with VMware ESXi. Ordering information is listed in the following table.

Table 48. VMware ESXi preload

Part number	Feature code	Description
CTO only	BMEY	VMware ESXi 7.0 U3 (Factory Installed)
CTO only	BYC7	VMware ESXi 8.0 U2 (Factory Installed)
CTO only	BZ97	VMware ESXi 8.0 U3 (Factory Installed)

Configuration rule:

- An ESXi preload cannot be selected if the configuration includes an NVIDIA GPU (ESXi preload cannot include the NVIDIA driver)

You can download supported VMware vSphere hypervisor images from the following web page and install it using the instructions provided:

https://vmware.lenovo.com/content/custom_iso/

Hyperconverged infrastructure support

Lenovo ThinkEdge systems can be used in hyperconverged solutions either as part of a Lenovo configured and optimized Lenovo ThinkAgile solution, or as a user-configured system.

Refer to the following links for full details.

VMware vSAN

SE360 V2 supports vSAN OSA. For more information refer to this page:
[vSAN Original Storage Architecture \(OSA\)](#)

SE360 V2 supports vSAN ESA. For more information refer to this page:
[vSAN Express Storage Architecture \(ESA\) ReadyNode Configurator](#)

Microsoft Azure Stack HCI

SE360 V2 is listed in Microsoft Azure Stack HCI catalog. For more information refer to this page:
<https://azurestackhcisolutions.azure.microsoft.com/#!/catalog/details/8b9c87d9-f31a-484f-843f-ac603e745309>

Physical and electrical specifications

Dimensions and weight of the SE360 V2 server:

Node

- Height: 84.5 mm (3.33 inches)
- Width: 212 mm (8.35 inches)
- Depth: 317.5 mm (12.5 inches)

Node with node sleeve

- Height: 95.95 mm (3.78 inches)
- Width: 295 mm (11.61 inches)
- Depth: 345.7 mm (13.61 inches)

Weight

- Maximum weight: 6.5kg (14.33 lbs) – without external AC adapter
- Maximum weight: 6.572kg (14.5 lbs) – with 2 external AC adapter

Dimensions and weight of the 2U2N Enclosure:

- Height: 87 mm (3.4 in.)
- Height: 87 mm (3.43 inches)
- Width: 482.1 mm (18.98 inches)
- Depth: 466 mm (18.35 inches)
- Weight: Maximum (with two nodes installed): 16.66 kg (36.73 lbs)

The shipping (cardboard packaging) dimensions of the SE360 V2 are as follows:

- Width: 400 mm (15.7 inches)
- Height: 240 mm (9.4 inches)
- Depth: 500 mm (19.7 inches)

Electrical specifications:

- The models with DC/DC power module board (Output 12V): one of the following
 - Dual 12-48V variable DC power source input
 - Up to two 300W (230V/115V) external power adapters
 - NOTE: When one or two 300W external power adapters are installed, keep ambient temperature lower than 40°C, and the following configuration is required:
 - 8 core processor
 - Four memory modules
 - Up to one ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU
 - Up to two 7mm SATA drives
 - Up to two M.2 NVMe boot drives installed on 1GbE I/O module board
- The models with internal power supply (AC power module board):
 - Single 500W (230V/115V) AC power source input with electric parameters:
 - 90Vac to 265Vac (full range voltage) and 47Hz to 63Hz
- Electrical Input - 20V 300W external adapters
 - 90 to 137 (low range) V AC, 47 Hz to 63 Hz
 - 180 to 265 (high range) V AC, 47 Hz or 63 Hz

Operating environment

Summary of the environmental specifications of server. Depending on the model, some features might not be available, or some specifications might not apply.

Topics in this section:

- [Acoustical noise emissions](#)
- [Acoustical mode](#)
- [Ambient temperature management](#)
- [Environment](#)
- [Shock and vibration](#)
- [Particulate contamination](#)
- [Airflow](#)
- [Dust filter](#)
- [Replacement port dust covers](#)
- [Coin battery](#)

Acoustical noise emissions

The server has the following acoustic noise emissions declaration:

- Sound power level (L_{WAd})
 - Idling:
 - Min: 5.4 Bel
 - Typical: 5.4 Bel
 - Max: 5.5 Bel
 - Operating:
 - Min: 5.7 Bel
 - Typical: 6.1 Bel
 - Max: 7.2 Bel
- Sound pressure level (L_{pAm}):
 - Idling:
 - Min: 43.6 dBA
 - Typical: 43.6 dBA
 - Max: 44.5 dBA
 - Operating:
 - Min 45.8 dBA
 - Typical: 50.0 dBA
 - Max: 61.1 dBA

NOTE:

- These sound levels were measured in controlled acoustical environments according to procedures specified by ISO7779 and are reported in accordance with ISO 9296. The operating profile is represented by 80% CPU TDP or 70%/30% storage read/write or 100% GPU workload.
- The declared acoustic sound levels are based on the specified configurations, which may change depending on configuration/conditions.
 - Min: 1x 80W CPU, 2x 16GB RDIMMs, 1GbE I/O module board, 1 x NVMe M.2 boot drive , 2x SATA SSDs, 2x NVMe M.2 data drives, DC power module board (PMB), no dust filter, rear-to-front fan direction
 - Typical: 1x 80W CPU, 4x 16GB RDIMMs, 10/25GbE I/O module board, 1 x NVMe M.2 boot drive, 1x NVIDIA A2 GPU, 4x NVMe M.2 data drives, no dust filter, DC power module board (PMB), rear-to-front fan direction
 - Max: 1x 100W CPU, 4x 64GB RDIMMs, 10/25GbE I/O module board, 2 x NVMe M.2 boot drives, 2x NVIDIA A2 GPU, 2x NVMe M.2 data drives, DC power module board (PMB), no dust filter, rear-to-front fan direction
- Government regulations (such as those prescribed by OSHA or European Community Directives) may

govern noise level exposure in the workplace and may apply to you and your server installation. The actual sound pressure levels in your installation depend upon a variety of factors, including the number of racks in the installation; the size, materials, and configuration of the room; the noise levels from other equipment; the room ambient temperature, and employee's location in relation to the equipment. Further, compliance with such government regulations depends on a variety of additional factors, including the duration of employees' exposure and whether employees wear hearing protection. Lenovo recommends that you consult with qualified experts in this field to determine whether you are in compliance with the applicable regulations.

Acoustical mode

ThinkEdge SE360 V2 supports three acoustic modes with different acoustic performance.

- **Disabled:** The server operates at default fan speeds.
- **Mode 1:** The operation of system fans is optimized to lower the overall noise level of the server.
 - Mode 1 supports ambient temperature lower than 35°C.
 - In Mode 1, the server operates with sound pressure level of 50 dBA at 25°C.
 - Performance degradation may occur at heavy workloads.
- **Mode 2:** The operation of system fans is optimized to lower the overall noise level of the server further than Mode 1.
 - Mode 2 supports configurations with 4-core or 8-core processor at ambient temperature lower than 35°C.
 - In Mode 2, the server operates with sound pressure level of 45 dBA at 25°C.
 - Performance degradation may occur at heavy workloads.

To change the acoustic mode, enter the Setup Utility and go to **System settings > Operating Modes > Acoustic mode.**

Ambient temperature management

- Most of the configurations of SE360 V2 support operating at temperature of 55°C or lower. Specific configuration supports operating at -20°C to 65°C. See Environment for the details of configuration supporting extended operation temperature.
- The following components can operate at temperature of 55°C or lower and require proper ambient temperature to prevent performance degradation:
 - When one of the following components is installed, keep ambient temperature lower than 45°C for proper operation. If the ambient temperature is over 45°C, performance degradation or throttled event might occur.
 - 16 core processor
 - NVMe M.2 drives
 - NVMe U.3 drives
- When one of the following drives is installed in Slot 7 to 10 (M.2 Bay 6 to 9) with heavy workload, keep ambient temperature lower than 40°C for proper operation. If the ambient temperature is over 40°C, performance degradation or throttled event might occur.
 - NVMe M.2 drives
 - NVMe U.3 drives
- When a 300W external power adapter is installed, keep ambient temperature lower than 40°C to prevent performance degradation. If the ambient temperature is over 40°C, performance degradation or throttled event might occur.
- The following components can operate at temperature of 50°C or lower. Keep ambient temperature lower than 45°C to prevent performance degradation:
 - ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU
 - ThinkSystem NVIDIA L4 PCIe Gen4 Passive GPU

- ThinkSystem Qualcomm Cloud AI 100 can operate at temperature of 45°C or lower.

For CTO orders, specify the operational temperature requirement and the shock & vibration requirement, by selecting the feature codes listed in the following table. Selecting the higher temperature and shock/vibration values will ensure the correct heat/vibration tolerant components are selected.

Table 49. Environmental requirements for CTO orders

Feature code	Description
Operational temperature selections	
BW2H	System Operational Temperature 5C to 40C / 41F to 104F
B8ZU	System Operational Temperature 0C to 55C / 32F to 131F
BS6W	System Operational Temperature -20C to 65C (supports 70C for up to 16 Hours) / -4F to 149F (supports 158F for up to 16 Hours)

Environment

ThinkEdge SE360 V2 complies with ASHRAE Class A4 specifications. System performance may be impacted when operating temperature is outside AHSARE A4 specification or fan failed condition with ambient temperature over 25°C

- ThinkEdge SE360 V2 is supported in the following environment:
 - Air temperature:
 - Operating
 - ASHARE Class H1: 5°C to 25°C (41°F to 77°F); the maximum ambient temperature decreases by 1°C for every 500 m (1640 ft) increase in altitude above 900 m (2,953 ft).
 - ASHARE Class A2: 10°C to 35°C (50°F to 95°F); the maximum ambient temperature decreases by 1°C for every 300 m (984 ft) increase in altitude above 900 m (2,953 ft).
 - ASHARE Class A3: 5°C to 40°C (41°F to 104°F); the maximum ambient temperature decreases by 1°C for every 175m (574 ft) increase in altitude above 900 m (2,953 ft).
 - ASHARE Class A4: 5°C to 45°C (41°F to 113°F); the maximum ambient temperature decreases by 1°C for every 125m (410 ft) increase in altitude above 900 m (2,953 ft).
 - Server off: 5°C to 45°C (41°F to 113°F)
 - Extended operation temperature (with limited configuration):
 - Server on: -20°C to 65°C (-4°F to 149°F), to 70°C for 16 hours(158°F)
 - Server off: -20°C to 65°C (-4°F to 149°F)

Notes: The configurations with one of the following PCIe adapters do not comply with **IP3X** standard:

- ThinkSystem Qualcomm Cloud AI 100
- ThinkSystem Intel Flex 140 12GB Gen4 Passive GPU
- ThinkSystem Intel X710-T4L 10GBase-T 4-Port PCIe Ethernet Adapter
- ThinkSystem Intel E810-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter

Attention: Airborne particulates and reactive gases acting alone or in combination with other environmental factors

such as humidity or temperature might pose a risk to the server. For information about the limits for particulates and gases, see “[SE360 V2 user guide](#)”.

The following table indicates what environmental conditions (ambient temperature) are supported with supported options, such as: processors, memory, the M.2 drives and GPUs.

Table 50. Drive and GPU support based on environmental selections (ambient temperature)

Part number	Description	5°C to 35°C	36°C to 40°C	41°C to 45°C	46°C to 50°C	51°C to 55°C	56°C to 65°C
Processor on Planar							
CTO only	ThinkEdge SE350 V2/SE360 V2 Planar with Intel Xeon D-2712T 4C 65W 1.9 GHz	Yes	Yes	Yes	Yes	Yes	No
CTO only	ThinkEdge SE350 V2/SE360 V2 Planar with Intel Xeon D-2733NT 8C 80W 2.1 GHz	Yes	Yes	Yes	Yes	Yes	No
CTO only	ThinkEdge SE360 V2 Planar with Intel Xeon D-2752TER 12C 77W 1.8 GHz	Yes	Yes	Yes	Yes	Yes	Yes†
CTO only	ThinkEdge SE350 V2/SE360 V2 Planar with Intel Xeon D-2775TE 16C 100W 2.0 GHz	Yes	Yes	Yes	Yes†	Yes†	No
Memory							
4X77A08632	ThinkSystem 16GB TruDDR4 3200 MHz (2Rx8 1.2V) RDIMM	Yes	Yes	Yes	Yes	Yes	No
4X77A08633	ThinkSystem 32GB TruDDR4 3200 MHz (2Rx4 1.2V) RDIMM	Yes	Yes	Yes	Yes	Yes	No
4X77A08634	ThinkSystem 32GB TruDDR4 3200 MHz (2Rx8 1.2V) RDIMM	Yes	Yes	Yes	Yes	Yes	No
4X77A08635	ThinkSystem 64GB TruDDR4 3200 MHz (2Rx4 1.2V) RDIMM	Yes	Yes	Yes	Yes	Yes	No
4X77A83361	ThinkSystem 32GB TruDDR4 3200 MHz (2Rx4 1.2V) RDIMM Extended Temperature	Yes	Yes	Yes	Yes	Yes	Yes†
7mm SATA SSD - Intel S4520							
4XB7A17106	ThinkSystem 7mm S4520 240GB Read Intensive SATA 6Gb HS SSD	Yes	Yes	Yes	Yes	Yes	No
4XB7A17107	ThinkSystem 7mm S4520 480GB Read Intensive SATA 6Gb HS SSD	Yes	Yes	Yes	Yes	Yes	No
4XB7A17108	ThinkSystem 7mm S4520 960GB Read Intensive SATA 6Gb HS SSD	Yes	Yes	Yes	Yes	Yes	No
4XB7A78622	ThinkSystem 7mm S4520 1.92TB Read Intensive SATA 6Gb HS SSD	Yes	Yes	Yes	Yes	Yes	No
4XB7A78623	ThinkSystem 7mm S4520 3.84TB Read Intensive SATA 6Gb HS SSD	Yes	Yes	Yes	Yes	Yes	No
4XB7A78624	ThinkSystem 7mm S4520 7.68TB Read Intensive SATA 6Gb HS SSD	Yes	Yes	Yes	Yes	Yes	No
7mm SATA SSD - Micron 5400							
4XB7A82264	ThinkSystem 7mm 5400 PRO 240GB Read Intensive SATA 6Gb HS SSD	Yes	Yes	Yes	Yes	Yes	No
4XB7A82265	ThinkSystem 7mm 5400 PRO 480GB Read Intensive SATA 6Gb HS SSD	Yes	Yes	Yes	Yes	Yes	No
4XB7A82266	ThinkSystem 7mm 5400 PRO 960GB Read Intensive SATA 6Gb HS SSD	Yes	Yes	Yes	Yes	Yes	No
4XB7A82267	ThinkSystem 7mm 5400 PRO 1.92TB Read Intensive SATA 6Gb HS SSD	Yes	Yes	Yes	Yes	Yes	No
4XB7A82268	ThinkSystem 7mm 5400 PRO 3.84TB Read Intensive SATA 6Gb HS SSD	Yes	Yes	Yes	Yes	Yes	No

Part number	Description	5°C to 35°C	36°C to 40°C	41°C to 45°C	46°C to 50°C	51°C to 55°C	56°C to 65°C
4XB7A82269	ThinkSystem 7mm 5400 PRO 7.68TB Read Intensive SATA 6Gb HS SSD	Yes	Yes	Yes	Yes	Yes	No
7mm NVMe SSD - Micron 7450							
4XB7A82851	ThinkSystem 7mm U.3 7450 MAX 800GB Mixed Use NVMe PCIe 4.0 x4 HS SSD	Yes	Yes	Yes	Yes†	Yes†	No
4XB7A82853	ThinkSystem 7mm U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Yes	Yes	Yes	Yes†	Yes†	No
4XB7A82855	ThinkSystem 7mm U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Yes	Yes	Yes	Yes†	Yes†	No
4XB7A82856	ThinkSystem 7mm U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Yes	Yes	Yes	Yes†	Yes†	No
7mm NVMe SSD - Samsung PM9A3							
4XB7A90096	ThinkSystem 7mm U.2 PM9A3 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Yes	Yes	Yes	No	No	No
4XB7A90097	ThinkSystem 7mm U.2 PM9A3 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Yes	Yes	Yes	No	No	No
4XB7A90098	ThinkSystem 7mm U.2 PM9A3 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Yes	Yes	Yes	No	No	No
M.2 NVMe SSD - Micron 7450 (Data Drive)							
4XB7A83139	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	Yes	Yes	Yes†	Yes†	Yes†	No
4XB7A82676	ThinkSystem M.2 7450 MAX 800GB Mixed Use NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	Yes	Yes	Yes†	Yes†	Yes†	No
4XB7A82674	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	Yes	Yes	Yes†	Yes†	Yes†	No
4XB7A82675	ThinkSystem M.2 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	Yes	Yes	Yes†	Yes†	Yes†	No
4XB7A82852	ThinkSystem M.2 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	Yes	Yes	Yes†	Yes†	Yes†	No
M.2 NVMe SSD - Micron 7450 (Boot Drive)							
4XB7A82674	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	Yes	Yes	Yes	Yes	Yes	No
4XB7A83139	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	Yes	Yes	Yes	Yes	Yes	No
M.2 NVMe SSD - Samsung PM9A3							
4XB7A90118	ThinkSystem M.2 PM9A3 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	Yes	Yes	Yes†	No	No	No
4XB7A90119	ThinkSystem M.2 PM9A3 1.92TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	Yes	Yes	Yes†	No	No	No
4XB7A90120	ThinkSystem M.2 PM9A3 3.84TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	Yes	Yes	Yes†	No	No	No
M.2 NVMe SSD - Swissbit N-30m2 (Data Drive)							
4XB7A90720	ThinkSystem M.2 N-30m2 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (Industrial)	Yes	Yes	Yes†	Yes†	Yes†	Yes†
4XB7A90721	ThinkSystem M.2 N-30m2 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (Industrial)	Yes	Yes	Yes†	Yes†	Yes†	Yes†

Part number	Description	5°C to 35°C	36°C to 40°C	41°C to 45°C	46°C to 50°C	51°C to 55°C	56°C to 65°C
4XB7A90722	ThinkSystem M.2 N-30m2 1.92TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (Industrial)	Yes	Yes	Yes†	Yes†	Yes†	Yes†
4XB7A91531	ThinkSystem M.2 N-30m2 3.84TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (Industrial)	Yes	Yes	Yes†	Yes†	Yes†	Yes†
M.2 NVMe SSD - Swissbit N-30m2 (Boot Drive)							
4XB7A90720	ThinkSystem M.2 N-30m2 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (Industrial)	Yes	Yes	Yes	Yes	Yes	Yes†
4XB7A90721	ThinkSystem M.2 N-30m2 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (Industrial)	Yes	Yes	Yes	Yes	Yes	Yes†
4XB7A90722	ThinkSystem M.2 N-30m2 1.92TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (Industrial)	Yes	Yes	Yes	Yes	Yes	Yes†
GPU							
4X67A81547	ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU w/o CEC	Yes	Yes	Yes	Yes†	No	No
4X67A84824	ThinkSystem NVIDIA L4 24GB PCIe Gen4 Passive GPU	Yes	Yes	Yes	Yes†	No	No
4X67A84009	ThinkSystem Qualcomm Cloud AI 100	Yes	Yes	Yes	No	No	No
Network adapters							
7ZT7A00535	Lenovo ThinkSystem I350-T4 PCIe 1Gb 4-Port RJ45 Ethernet Adapter By Intel	Yes	Yes	Yes	Yes	Yes	No
4XC7A08295	ThinkSystem Intel E810-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	Yes	Yes	Yes	Yes	Yes	No
4XC7A79699	ThinkSystem Intel X710-T4L 10GBASE-T 4-Port PCIe Ethernet Adapter	Yes	Yes	Yes	Yes	Yes	No

† Performance might slightly decrease with this temperature region

Shock and vibration

Table 51. Shock and vibration specifications

Mounting type of ThinkEdge SE360 V2	Shock (when the server is in operation)	Shock (when the server is not in operation, such as in shipping)	Vibration (when the server is in operation)	Vibration (when the server is not in operation, such as in shipping)
Desktop mount (standing alone)	Half-sine wave, 15G 11ms	Trapezoidal wave, 50G 167 inch/sec	5-100 Hz, 0.15 Grms, 30 mins	2-200 Hz, 1.04 Grms, 15 mins
Rack mount (2U2N enclosure)	Half-sine wave, 15G 3ms	Free-fall drop height: 100mm Equivalent shock: 70 inch/sec, 2-3 ms	5-500 Hz, 0.21 Grms, 15mins	2-200Hz, 0.8 Grms, 15mins
DIN-rail mount	Half-sine wave, 15G 11ms	Not applicable	5-100 Hz, 0.15 Grms, 30 mins	Not applicable
Wall mount	Half-sine wave, 40G 6ms Half-sine wave, 30G 11ms	Not applicable	1.91 Grms, 10-500 Hz, 30 mins 1.04 Grms, 10-500 Hz, 1 hr	Not applicable
Ceiling mount	Not applicable	Not applicable	1.91 Grms, 10-500z, 30 mins 1.04 Grms, 10-500z, 1 hr	Not applicable

Particulate contamination

- SE360 V2 supports a dust filter installed at rear of the node. The dust filter has a Minimum Efficiency Rating Value (MERV) of 5, per ASHRAE 52.2-2017 / 80% Average Arrestance per ASHRAE 52.1-1992.
- SE360 V2 2U2N Enclosure supports a set of dust filters installed in the front shipping bracket. The dust filter set has a Minimum Efficiency Rating Value (MERV) of 5, per ASHRAE 52.2-2017 / 80% Average Arrestance per ASHRAE 52.1-1992.
- SE360 V2 complies with IP3X Ingress Protection per ANSI/IEC60529-2020 Degrees of Protection Provided by Enclosures (IP Code)
- Note: The configurations with one of the following PCIe adapters do not comply with IP3X standard:
 - ThinkSystem Qualcomm Cloud AI 100
 - ThinkSystem Intel Flex 140 12GB Gen4 Passive GPU
 - ThinkSystem Intel X710-T4L 10GBase-T 4-Port PCIe Ethernet Adapter
 - ThinkSystem Intel E810-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter

Attention: Airborne particulates (including metal flakes or particles) and reactive gases acting alone or in combination with other environmental factors such as humidity or temperature might pose a risk to the device that is described in this document.

Risks that are posed by the presence of excessive particulate levels or concentrations of harmful gases include damage that might cause the device to malfunction or cease functioning altogether. This specification sets forth limits for particulates and gases that are intended to avoid such damage. The limits must not be viewed or used as definitive limits, because numerous other factors, such as temperature or moisture content of the air, can influence the impact of particulates or environmental corrosives and gaseous contaminant transfer. In the absence of specific limits that are set forth in this document, you must implement practices that maintain particulate and gas levels that are consistent with the protection of human health and safety. If Lenovo determines that the levels of particulates or gases in your environment have caused damage to the device, Lenovo may condition provision of repair or replacement of devices or parts on implementation of appropriate remedial measures to mitigate such environmental contamination. Implementation of such remedial measures is a customer responsibility.

Table 52. Limits for particulates and gases.

Contaminant	Limits
Reactive gases	<p>Severity level G1 as per ANSI/ISA 71.04-1985¹:</p> <ul style="list-style-type: none"> The copper reactivity level shall be less than 200 Angstroms per month ($\text{\AA}/\text{month} \approx 0.0035 \mu\text{g}/\text{cm}^2\text{-hour}$ weight gain).² The silver reactivity level shall be less than 200 Angstroms per month ($\text{\AA}/\text{month} \approx 0.0035 \mu\text{g}/\text{cm}^2\text{-hour}$ weight gain).³ The reactive monitoring of gaseous corrosivity must be conducted approximately 5 cm (2 in.) in front of the rack on the air inlet side at one-quarter and three-quarter frame height off the floor or where the air velocity is much higher.
Airborne particulates	<p>Data centers must meet the cleanliness level of ISO 14644-1 class 8.</p> <p>For data centers without airside economizer, the ISO 14644-1 class 8 cleanliness might be met by choosing one of the following filtration methods:</p> <ul style="list-style-type: none"> The room air might be continuously filtered with MERV 8 filters. Air entering a data center might be filtered with MERV 11 or preferably MERV 13 filters. <p>For data centers with airside economizers, the choice of filters to achieve ISO class 8 cleanliness depends on the specific conditions present at that data center.</p> <ul style="list-style-type: none"> The deliquescent relative humidity of the particulate contamination should be more than 60% RH.⁴ Data centers must be free of zinc whiskers⁵

Notes:

¹ANSI/ISA-71.04-1985.*Environmental conditions for process measurement and control systems: Airborne contaminants*. Instrument Society of America, Research Triangle Park, North Carolina, U.S.A.

²The derivation of the equivalence between the rate of copper corrosion growth in the thickness of the corrosion product in $\text{\AA}/\text{month}$ and the rate of weight gain assumes that Cu_2S and Cu_2O grow in equal proportions

³The derivation of the equivalence between the rate of silver corrosion growth in the thickness of the corrosion product in $\text{\AA}/\text{month}$ and the rate of weight gain assumes that Ag_2S is the only corrosion product.

⁴The deliquescent relative humidity of particulate contamination is the relative humidity at which the dust absorbs enough water to become wet and promote ionic conduction.

⁵Surface debris is randomly collected from 10 areas of the data center on a 1.5 cm diameter disk of sticky electrically conductive tape on a metal stub. If examination of the sticky tape in a scanning electron microscope reveals no zinc whiskers, the data center is considered free of zinc whiskers.

Airflow

The SE360 V2 supports two types of air-flow which can be front to rear (F2R) or rear to front(R2F)

Table 53. Reversible airflow

Feature code	Description
BS5V	ThinkEdge SE360 V2 Fan Assembly (Rear to Front)
BS5W	ThinkEdge SE360 V2 Fan Assembly (Front to Rear)

Rear dust filter and air flow sensor when SE360 V2 server is setup as R2F

Table 54. Air flow sensor

Feature code	Description
BS5T	ThinkEdge SE360 V2 Air Flow Sensor Module

Dust filter

SE360 V2 supports a dust filter installed at rear of the node. The dust filter has a Minimum Efficiency Rating Value (MERV) of 5, per ASHRAE 52.2-2017 / 80% Average Arrestance per ASHRAE 52.1-1992.

Note: For more information, go to https://pubs.labs.lenovo.com/se360-v2/dust_filter_measurement

Table 55. Dust filter

Part number	Feature code	Description
4XF7A86287	BS5U	ThinkEdge SE360 V2 Dust Filter Assembly (Rear)

Replacement port dust covers

By default, the server includes dust covers for all front I/O ports, to reduce the impact of dust in your environment. If needed, you can order replacement covers. Ordering information is listed in the following table.

Table 56. Replacement port dust covers

Part number	Description	Contents
4XF7A94042	ThinkEdge SE350 V2/SE360 V2 Port Dust Cover Kit	<ul style="list-style-type: none"> • Eight RJ45 port covers • Four SFP28 port covers • Two USB Type-A port covers • Two USB Type-C port covers • Two power connector port covers for SE350 V2 • One Bluetooth antenna port covers for SE360 V2 • One safety screw for SE350 V2

Coin battery

Ordering information for coin battery field upgrades are listed in the following table.

Tip: The server ships with the necessary coin batteries.

Table 57. Field upgrade options

Part number	Description
4X57A87776*	ThinkEdge CR2032 3V High Temperature (-40C to 125C) Coin Battery

* This option allows customers to stock additional batteries as spare parts should they be needed

Warranty upgrades and post-warranty support

The ThinkEdge SE360 V2 has 3-year warranty based on the machine type of the system:

- 7DAM- 3 year warranty

The ThinkEdge SE360 V2 2U2N Enclosure has the following warranty:

- 7DBN- 3 year warranty

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

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

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

Services

Lenovo Data Center Services empower you at every stage of your IT lifecycle. From expert advisory and strategic planning to seamless deployment and ongoing support, we ensure your infrastructure is built for success. Our comprehensive services accelerate time to value, minimize downtime, and free your IT staff to focus on driving innovation and business growth.

Note: Some service options may not be available in all markets or regions. For more information, go to <https://lenovocator.com/>. For information about Lenovo service upgrade offerings that are available in your region, contact your local Lenovo sales representative or business partner.

In this section:

- [Lenovo Advisory Services](#)
- [Lenovo Plan & Design Services](#)
- [Lenovo Deployment, Migration, and Configuration Services](#)
- [Lenovo Support Services](#)
- [Lenovo Managed Services](#)
- [Lenovo Sustainability Services](#)

Lenovo Advisory Services

Lenovo Advisory Services simplify the planning process, enabling customers to build future-proofed strategies in as little as six weeks. Consultants provide guidance on projects including VM migration, storage, backup and recovery, and cost management to accelerate time to value, improve cost efficiency, and build a flexibly scalable foundation.

- **Assessment Services**

An Assessment helps solve your IT challenges through an onsite, multi-day session with a Lenovo technology expert. We perform a tools-based assessment which provides a comprehensive and thorough review of a company's environment and technology systems. In addition to the technology based functional requirements, the consultant also discusses and records the non-functional business requirements, challenges, and constraints. Assessments help organizations like yours, no matter how large or small, get a better return on your IT investment and overcome challenges in the ever-changing technology landscape.

- **Design Services**

Professional Services consultants perform infrastructure design and implementation planning to support your strategy. The high-level architectures provided by the assessment service are turned into low level designs and wiring diagrams, which are reviewed and approved prior to implementation. The implementation plan will demonstrate an outcome-based proposal to provide business capabilities through infrastructure with a risk-mitigated project plan.

Lenovo Plan & Design Services

Unlock faster time to market with our tailored, strategic design workshops to align solution approaches with your business goals and technical requirements. Leverage our deep solution expertise and end-to-end delivery partnership to meet your goals efficiently and effectively.

Lenovo Deployment, Migration, and Configuration Services

Optimize your IT operations by shifting labor-intensive functions to Lenovo's skilled technicians for seamless on-site or remote deployment, configuration, and migration. Enjoy peace of mind, faster time to value, and comprehensive knowledge sharing with your IT staff, backed by our best-practice methodology.

- **Deployment Services for Storage and ThinkAgile**

A comprehensive range of remote and onsite options tailored specifically for your business needs to ensure your storage and ThinkAgile hardware are fully operational from the start.

- **Hardware Installation Services**

A full-range, comprehensive setup for your hardware, including unpacking, inspecting, and positioning components to ensure your equipment is operational and error-free for the most seamless and efficient installation experience, so you can quickly benefit from your investments.

- **DM/DG File Migration Services**

Take the burden of file migration from your IT's shoulders. Our experts will align your requirements and business objectives to the migration plans while coordinating with your team to plan and safely execute the data migration to your storage platforms.

- **DM/DG/DE Health Check Services**

Our experts perform proactive checks of your Firmware and system health to ensure your machines are operating at peak and optimal efficiency to maximize up-time, avoid system failures, ensure the security of IT solutions and simplify maintenance.

- **Factory Integrated Services**

A suite of value-added offerings provided during the manufacturing phase of a server or storage system that reduces time to value. These services aim at improving your hardware deployment experience and enhance the quality of a standard configuration before it arrives at your facility.

Lenovo Support Services

In addition to response time options for hardware parts, repairs, and labor, Lenovo offers a wide array of additional support services to ensure your business is positioned for success and longevity. Our goal is to reduce your capital outlays, mitigate your IT risks, and accelerate your time to productivity.

- **Premier Support for Data Centers**

Your direct line to the solution that promises the best, most comprehensive level of support to help you fully unlock the potential of your data center.

- **Premier Enhanced Storage Support (PESS)**

Gain all the benefits of Premier Support for Data Centers, adding dedicated storage specialists and resources to elevate your storage support experience to the next level.

- **Committed Service Repair (CSR)**

Our commitment to ensuring the fastest, most seamless resolution times for mission-critical systems that require immediate attention to ensure minimal downtime and risk for your business. This service is only available for machines under the Premier 4-Hour Response SLA.

- **Multivendor Support Services (MVS)**

Your single point of accountability for resolution support across vast range of leading Server, Storage, and Networking OEMs, allowing you to manage all your supported infrastructure devices seamlessly from a single source.

- **Keep Your Drive (KYD)**

Protect sensitive data and maintain compliance with corporate retention and disposal policies to ensure your data is always under your control, regardless of the number of drives that are installed in your Lenovo server.

- **Technical Account Manager (TAM)**

Your single point of contact to expedite service requests, provide status updates, and furnish reports to track incidents over time, ensuring smooth operations and optimized performance as your business grows.

- **Enterprise Software Support (ESS)**

Gain comprehensive, single-source, and global support for a wide range of server operating systems and Microsoft server applications.

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

Lenovo Managed Services

Achieve peak efficiency, high security, and minimal disruption with Lenovo's always-on Managed Services. Our real-time monitoring, 24x7 incident response, and problem resolution ensure your infrastructure operates seamlessly. With quarterly health checks for ongoing optimization and innovation, Lenovo's remote active monitoring boosts end-user experience and productivity by keeping your data center's hardware performing at its best.

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

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

Lenovo Sustainability Services

- **Asset Recovery Services**

Lenovo Asset Recovery Services (ARS) provides a secure, seamless solution for managing end-of-life IT assets, ensuring data is safely sanitized while contributing to a more circular IT lifecycle. By maximizing the reuse or responsible recycling of devices, ARS helps businesses meet sustainability goals while recovering potential value from their retired equipment. For more information, see the [Asset Recovery Services offering page](#).

- **CO2 Offset Services**

Lenovo's CO2 Offset Services offer a simple and transparent way for businesses to take tangible action on their IT footprint. By integrating CO2 offsets directly into device purchases, customers can easily support verified climate projects and track their contributions, making meaningful progress toward their sustainability goals without added complexity.

- **Lenovo Certified Refurbished**

Lenovo Certified Refurbished offers a cost-effective way to support IT circularity without compromising on quality and performance. Each device undergoes rigorous testing and certification, ensuring reliable performance and extending its lifecycle. With Lenovo's trusted certification, you gain peace of mind while making a more sustainable IT choice.

Lenovo TruScale

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

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

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

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

Regulatory compliance

The SE360 V2 conforms to the following standards:

- ANSI/UL62368-1
- IEC 62368-1 (CB Certificate and CB Test Report)
- FCC - Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003, issue 7, Class A
- CSA C22.2 No. 62368-1
- CISPR 32, Class A, CISPR 35
- Japan VCCI, Class A
- Taiwan BSMI CNS15936, Class A; CNS15598-1; Section 5 of CNS15663
- CE, UKCA Mark (EN55032 Class A, EN62368-1, EN55024, EN55035, EN61000-3-2, EN61000-3-3, (EU) 617/2013, and EN IEC 63000 (RoHS))
- Korea KN32, Class A, KN35
- Russia, Belorussia and Kazakhstan, TP EAC 037/2016 (for RoHS)
- Russia, Belorussia and Kazakhstan, EAC: TP TC 004/2011 (for Safety); TP TC 020/2011 (for EMC)
- EAC Russia, Belorussia and Kazakhstan, TR CU 020/2011 and TR CU 004/2011
- Australia/New Zealand AS/NZS CISPR 32, Class A; AS/NZS 62368.1
- UL Green Guard, UL2819
- China CCC certificate, GB17625.1; GB4943.1; GB/T9254.1
- China CECP certificate, CQC3135
- China CELP certificate, HJ 2507-2011
- Japanese Energy-Saving Act
- Mexico NOM-019
- TUV-GS (EN62368-1, and EK1-ITB2000)
- India BIS 13252 (Part 1)
- Germany GS
- Brazil INMETRO
- South Africa NRCS LOA
- Ukraine UkrCEPRO
- Morocco CMIM Certification (CM)

Uninterruptible power supply units

The following table lists the uninterruptible power supply (UPS) units that are offered by Lenovo.

Table 58. Uninterruptible power supply units

Part number	Description
Rack-mounted or tower UPS units - 100-125VAC	
7DD5A001WW	RT1.5kVA 2U Rack or Tower UPS-G2 (100-125VAC)
7DD5A003WW	RT3kVA 2U Rack or Tower UPS-G2 (100-125VAC)
Rack-mounted or tower UPS units - 200-240VAC	
7DD5A002WW	RT1.5kVA 2U Rack or Tower UPS-G2 (200-240VAC)
7DD5A005WW	RT3kVA 2U Rack or Tower UPS-G2 (200-240VAC)
7DD5A007WW	RT5kVA 3U Rack or Tower UPS-G2 (200-240VAC)
7DD5A008WW	RT6kVA 3U Rack or Tower UPS-G2 (200-240VAC)
7DD5A00AWW	RT11kVA 6U Rack or Tower UPS-G2 (200-240VAC)

† Only available in China and the Asia Pacific market.

For more information, see the list of Product Guides in the UPS category:

<https://lenovopress.com/servers/options/ups>

Power distribution units

The following table lists the power distribution units (PDUs) that are offered by Lenovo.

Table 59. Power distribution units

Part number	Feature code	Description	ANZ	ASEAN	Brazil	EET	MEA	RUCIS	WE	HTK	INDIA	JAPAN	LA	NA	PRC
0U Basic PDUs															
4PU7A93176	C0QH	0U 36 C13 and 6 C19 Basic 32A 1 Phase PDU v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93169	C0DA	0U 36 C13 and 6 C19 Basic 32A 1 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93177	C0QJ	0U 24 C13/C15 and 24 C13/C15/C19 Basic 32A 3 Phase WYE PDU v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A93170	C0D9	0U 24 C13/C15 and 24 C13/C15/C19 Basic 32A 3 Phase WYE PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
0U Switched and Monitored PDUs															
4PU7A93181	C0QN	0U 21 C13/C15 and 21 C13/C15/C19 Switched and Monitored 48A 3 Phase Delta PDU v2 (60A derated)	N	Y	N	N	N	N	N	Y	N	Y	N	Y	N
4PU7A93174	C0D5	0U 21 C13/C15 and 21 C13/C15/C19 Switched and Monitored 48A 3 Phase Delta PDU (60A derated)	N	Y	N	Y	N	N	Y	Y	N	N	N	Y	N
4PU7A93178	C0QK	0U 20 C13 and 4 C19 Switched and Monitored 32A 1 Phase PDU v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93171	C0D8	0U 20 C13 and 4 C19 Switched and Monitored 32A 1 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93182	C0QP	0U 18 C13/C15 and 18 C13/C15/C19 Switched and Monitored 63A 3 Phase WYE PDU v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A93175	C0CS	0U 18 C13/C15 and 18 C13/C15/C19 Switched and Monitored 63A 3 Phase WYE PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93180	C0QM	0U 18 C13/C15 and 18 C13/C15/C19 Switched and Monitored 32A 3 Phase WYE PDU v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A93173	C0D6	0U 18 C13/C15 and 18 C13/C15/C19 Switched and Monitored 32A 3 Phase WYE PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93179	C0QL	0U 16 C13/C15 and 16 C13/C15/C19 Switched and Monitored 24A 1 Phase PDU v2 (30A derated)	N	Y	N	N	N	N	N	Y	N	Y	N	Y	N
4PU7A93172	C0D7	0U 16 C13/C15 and 16 C13/C15/C19 Switched and Monitored 24A 1 Phase PDU(30A derated)	N	Y	N	Y	N	N	Y	Y	N	N	N	Y	N
1U Switched and Monitored PDUs															
4PU7A90808	C0D4	1U 18 C19/C13 Switched and monitored 48A 3P WYE PDU V2 ETL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A81117	BNDV	1U 18 C19/C13 switched and monitored 48A 3P WYE PDU - ETL	N	N	N	N	N	N	N	N	N	N	N	Y	N
4PU7A90809	C0DE	1U 18 C19/C13 Switched and monitored 48A 3P WYE PDU V2 CE	N	N	N	N	N	Y	Y	N	N	N	N	N	N
4PU7A81118	BNDW	1U 18 C19/C13 switched and monitored 48A 3P WYE PDU - CE	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y

Part number	Feature code	Description	ANZ	ASEAN	Brazil	EET	MEA	RUCIS	WE	HTK	INDIA	JAPAN	LA	NA	PRC
4PU7A90810	C0DD	1U 18 C19/C13 Switched and monitored 80A 3P Delta PDU V2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A77467	BLC4	1U 18 C19/C13 Switched and Monitored 80A 3P Delta PDU	N	N	N	N	N	N	N	N	N	Y	N	Y	N
4PU7A90811	C0DC	1U 12 C19/C13 Switched and monitored 32A 3P WYE PDU V2	N	N	N	N	N	Y	Y	N	N	N	N	N	N
4PU7A77468	BLC5	1U 12 C19/C13 switched and monitored 32A 3P WYE PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A90812	C0DB	1U 12 C19/C13 Switched and monitored 60A 3P Delta PDU V2	N	N	N	N	N	N	N	N	N	Y	N	N	N
4PU7A77469	BLC6	1U 12 C19/C13 switched and monitored 60A 3P Delta PDU	N	N	N	N	N	N	N	N	N	N	N	Y	N
1U Ultra Density Enterprise PDUs (9x IEC 320 C13 + 3x IEC 320 C19 outlets)															
71763NU	6051	Ultra Density Enterprise C19/C13 PDU 60A/208V/3PH	N	N	Y	N	N	N	N	N	N	Y	Y	Y	N
71762NX	6091	Ultra Density Enterprise C19/C13 PDU Module	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U C13 Enterprise PDUs (12x IEC 320 C13 outlets)															
39Y8941	6010	DPI C13 Enterprise PDU Module (WW)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U Front-end PDUs (3x IEC 320 C19 outlets)															
39Y8938	6002	DPI Single-phase 30A/120V Front-end PDU (US)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8939	6003	DPI Single-phase 30A/208V Front-end PDU (US)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8934	6005	DPI Single-phase 32A/230V Front-end PDU (International)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8940	6004	DPI Single-phase 60A/208V Front-end PDU (US)	Y	N	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N
39Y8935	6006	DPI Single-phase 63A/230V Front-end PDU (International)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U NEMA PDUs (6x NEMA 5-15R outlets)															
39Y8905	5900	DPI 100-127V NEMA PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Line cords for 1U PDUs that ship without a line cord															
40K9611	6504	4.3m, 32A/380-415V, EPDU/IEC 309 3P+N+G 3ph wye (non-US) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9612	6502	4.3m, 32A/230V, EPDU to IEC 309 P+N+G (non-US) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9613	6503	4.3m, 63A/230V, EPDU to IEC 309 P+N+G (non-US) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9614	6500	4.3m, 30A/208V, EPDU to NEMA L6-30P (US) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9615	6501	4.3m, 60A/208V, EPDU to IEC 309 2P+G (US) Line Cord	N	N	Y	N	N	N	Y	N	N	Y	Y	Y	N
40K9617	6505	4.3m, 32A/230V, Souriau UTG Female to AS/NZ 3112 (Aus/NZ) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Part number	Feature code	Description	ANZ	ASEAN	Brazil	EET	MEA	RUCIS	WE	HTK	INDIA	JAPAN	LA	NA	PRC
40K9618	6506	4.3m, 32A/250V, Souriau UTG Female to KSC 8305 (S. Korea) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

For more information, see the Lenovo Press documents in the PDU category:
<https://lenovopress.com/servers/options/pdu>

KVM console options

The following table lists the supported KVM consoles.

Table 60. KVM console

Part number	Description
4XF7A84188	ThinkSystem 18.5" LCD Console (with US English keyboard)

The following table lists the available KVM switches and the options that are supported with them.

Table 62. KVM switches and options

Part number	Description
KVM Console switches	
1754D1X	Global 2x2x16 Console Manager (GCM16)
1754A2X	Local 2x16 Console Manager (LCM16)
1754A1X	Local 1x8 Console Manager (LCM8)
Cables for GCM and LCM Console switches	
46M5383	Virtual Media Conversion Option Gen2 (VCO2)
46M5382	Serial Conversion Option (SCO)

For more information, see the list of Product Guides in the KVM Switches and Consoles category:
<http://lenovopress.com/servers/options/kvm>

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

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

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

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

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

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

Seller training courses

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

1. **Partner Technical Webinar - SE350 Migration Strategy**

2024-11-04 | 60 minutes | Employees and Partners

In this 60-minute webinar Chris Laffy, our Senior Product Line Manager, shares his extensive insights and ideas on migration strategies from the original SE350 to its successors.

Published: 2024-11-04

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: 102524

2. **VTT: Edge - The SE350 EOL is Coming, Prepare Yourself and Your Customer September 2024**
2024-09-10 | 60 minutes | Employees Only

As of March 2025, the Lenovo ThinkEdge SE350 will be EOL. Join Geoff Hunt and Chris Laffey as they discuss how to help your ThinkEdge SE350 customers transition to other offerings, with a special focus on ThinkEdge SE350 V2 and SE360 V2. Topics will include:

- Positioning the SE350 V2 and SE360 V2 as alternates for the EOL SE350
- A technical view of the generational differences

Published: 2024-09-10

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DVEDG215

3. **Think AI Weekly: Lenovo Validated Design for Public Safety and Security Edge AI**
2024-09-05 | 60 minutes | Employees Only

In this session a panel from the Lenovo ISG/IDG ThinkEdge Team discuss vertical solutions enabled by edge computing. Alejandro Perez, Trent Richardson, and Chris Arenas focus on the Lenovo Validated Design for Public Safety and Security while reviewing the process and importance of Lenovo Validated Designs for the Edge

Published: 2024-09-05

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DTAIW117

4. **VTT Edge: Lenovo Validated Design for Public Safety and Security Edge & AI July 2024**
2024-08-05 | 60 minutes | Employees Only

The Lenovo ThinkEdge Team is collaborating with eco-system partners to design and validate Edge AI solutions across verticals. Join this session to learn about these efforts and the architecture of the first Lenovo Validated Design for Public Sector Safety and Security. The session will cover the following topics:

- Overview of the Lenovo Validated Designs (LVD) for Vertical Edge
- Public Sector Safety and Security LVD
- Business Key drivers and solution benefits
- Architecture and Technology Overview
- Relevant use cases
- Components and sizing details
- Validation results and pricing model

Published: 2024-08-05

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DVEDG214

5. **Partner Technical Webinar - ThinkEdge Portfolio**

2024-08-02 | 60 minutes | Employees and Partners

July 26, 2024 - Lenovo SA's (Alex Docherty, Marcus White, and Eugene Grandberry) discuss strategy around the Thinkedge Portfolio.

Published: 2024-08-02

Length: 60 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: 072624

6. **VTT Edge: Lenovo Customer Solution for ENOC Filling Stations and Retail June 2024**

2024-06-10 | 45 minutes | Employees Only

Join Massimo (Max) Angelucci, Lenovo Solution Architect, and Abdulkareem (AK) Alhawajreh, Lenovo Client Account Manager, as they discuss the journey of the sale, the customer business, and their challenges. They cover the considerations and decision points when architecting the solution and why the customer chose Lenovo Edge.

Published: 2024-06-10

Length: 45 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Course code: DVEDG213

7. **Lenovo Data Center Product Portfolio**

2024-05-29 | 20 minutes | Employees and Partners

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

Published: 2024-05-29

Length: 20 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: SXXW1110r7

8. **Think AI Weekly: School Safety at the Edge**

2024-05-13 | 60 minutes | Employees Only

Join Alejandro Perez, ISG/IDG Edge Business Development, Allen Holmes with ISG AI Business Development, and Lauren Allen ISG/IDG Go To Market Strategist as they discuss school security, AI computer vision and Lenovo ThinkEdge School solutions.

- AI solution capabilities for campus safety
- Safety solutions with ThinkEdge SE70 and SE450
- Walkthrough of La Jolla and other use cases

Published: 2024-05-13

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DTAIW103

9. **VTT: HCI at the Edge and Dick's Sporting Goods_May 2024**

2024-05-08 | 60 minutes | Employees Only

Join Adam Mandlebloom, ISG SDI Technical Product Manager, and Bryan Maskrey, ISG Technical Sales, as they explore Lenovo HCI solutions at the Edge and how one such solution is being positioned to resolve business challenges at a national retail company, Dick's Sporting Goods. Topics covered will include

- Hyperconverged Edge to Cloud today, and looking forward
- ThinkAgile for AI/ML - Cost effective GPU utilization
- Local Cluster Management integration
- Decision points and architecting the solution for Dick's Sporting Goods

Published: 2024-05-08

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DVEDG212

10. **VTT: Management of Low-End Edge - March 2024**

2024-03-13 | 64 minutes | Employees Only

XClarity Orchestrator supports the management of both ISG XCC-based servers and IDG low-end edge devices. This session will cover the architecture of the current solution, along with a demo. In addition, a proposed new architecture for future support of low-end edge devices will be covered

Published: 2024-03-13

Length: 64 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DVSYS207

11. Business Problems Addressed with Lenovo Data & Analytics Solutions

2024-01-31 | 20 minutes | Employees and Partners

Data is the quantities, characters, or symbols on which operations are performed by a computer, which is then stored and transmitted in the form of electrical signals and recorded on magnetic, optical, solid state, or mechanical recording media. All different types of organizations rely more and more on their data to gain valuable insights and improve their business. As expected, they will have challenges with gaining this insight. In this course we will discuss those challenges and problems our customers face and describe how Lenovo Data and Analytics Solutions can help customers solve each problem.

After completing this training, you will be able to define the following common problems for databases and big data and describe how Lenovo can help customers solve each problem: scalability, management, performance, protection, security, knowledge/skill, and technology evolution.

After completing this training, you will be able to define the following common problems for databases and big data and describe how Lenovo can help customers solve each problem: scalability, management, performance, protection, security, knowledge/skill, and technology evolution.

Published: 2024-01-31

Length: 20 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DSOLP200

12. Family Introduction: Edge Servers

2024-01-22 | 18 minutes | Employees and Partners

This course introduces the concept of edge servers. Edge servers are used at the edge of an IoT environment, where they perform pre-processing of data, and data forwarding to core environments.

Course Objectives:

- Describe the Internet of Things (IoT)
- Define an edge server
- Discuss edge server features

Published: 2024-01-22

Length: 18 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: SXXW1105

13. **VTT: VMware and Lenovo - Transforming Industries with VMware Edge Compute Jan. 2024**
2024-01-10 | 60 minutes | Employees Only

Join Josh David from VMware and Trent Richardson from Lenovo as they discuss the latest news from Project Bullwark, and what's new from the VMware Edge Compute Stack. Topics will include VMware Edge real-time capabilities, Edge Orchestration, and more. Josh and Trent will also discuss determining factors when choosing between the ThinkEdge SE350 V2 and ThinkEdge SE360 V2. Together they will explore what lies in the near future for Lenovo and VMware at the Edge.

Published: 2024-01-10
Length: 60 minutes

Start the training:
Employee link: [Grow@Lenovo](#)

Course code: DVEDG210

14. **Partner Technical Webinar - Tech World 23 Review**
2023-12-22 | 60 minutes | Employees and Partners

In this 60-minute replay, Kenny James, Lenovo Channel Sales Engineering Director, joined us to give a Channel CTO's perspective on this year's Tech World 2023 conference where the theme was AI for All.

Published: 2023-12-22
Length: 60 minutes

Start the training:
Employee link: [Grow@Lenovo](#)
Partner link: [Lenovo Partner Learning](#)

Course code: 121523

15. **Basics of the Edge Ecosystem for Sellers**
2023-12-15 | 20 minutes | Employees and Partners

The purpose of this learning module is to familiarize Lenovo field sales, inside sales and partners with the Edge ecosystem and how Lenovo fits into the Edge space.

- Explain the basics of an Edge Ecosystem
- Articulate the inherent challenges of Edge Computing
- Present how Lenovo fits in the Edge Ecosystem

Published: 2023-12-15
Length: 20 minutes

Start the training:
Employee link: [Grow@Lenovo](#)
Partner link: [Lenovo Partner Learning](#)

Course code: DTEF101

16. **The 10-minute Edge conversation for Lenovo Sellers**

2023-12-14 | 20 minutes | Employees and Partners

The purpose of this course is to enable sellers to have a 10 to 15-minute customer conversation addressing the relevancy of Edge solutions to the customer business.

Learning Objectives:

- Prepare for the initial customer conversation
- Hold a 10-minute Edge Operational Technology (OT) conversation
- Take the appropriate steps to progress the sale

Published: 2023-12-14

Length: 20 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DTEF103

17. **Intel and Lenovo Bringing AI Everywhere**

2023-12-13 | 50 minutes | Employees Only

Join Patrick Cassleman of Intel as he discusses how Lenovo and Intel can partner to help customers develop and deploy sustainable AI hardware and software from the edge to the cloud. Patrick will discuss Intel's full AI portfolio, plus available features and tools to help your customers attain sustainable AI.

Published: 2023-12-13

Length: 50 minutes

Start the training:

Employee link: Grow@Lenovo

Course code: DVEDG209

18. **VTT: Lenovo in the Era of the Edge-June 2023**

2023-12-04 | 60 minutes | Employees and Partners

Join Richard Jenkins from the Lenovo Edge Computing Business Development group as he discusses how Lenovo fits in the era of the Edge. Topics covered in this VTT session include:

- customer use cases at the Edge
- the needed consortium to build an Edge Solution
- Lenovo edge portfolio
- The advantages of LOC-A and XClarity at the Edge

Published: 2023-12-04

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DVEDG201

19. **VTT: ThinkEdge SE350V2 and ThinkEdge SE360 V2, Wave 2 - What's new for bringing AI and computing to the source of the data?**

2023-11-03 | 75 minutes | Employees Only

Join Aaron Shao, Sr. Product Manager from Lenovo ThinkEdge Business Unit, as he explores details of the added features for the SE350 V2 and SE360 V2 in Wave 2. Aaron will cover generation transition and product selling points as he discusses customer advantages of the SE350 V2 and SE360 V2 in the context of AI and compute.

Published: 2023-11-03

Length: 75 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Course code: DVEDG207

20. **VTT: Edge Product Innovation, ISVs, and Market trends - AP & PRC, Oct. 2023**

2023-10-12 | 60 minutes | Employees Only

Join Richard Jenkins from the AP Edge solutions group as he discusses the difference between Industrial Internet of things (IoT) and Operational Technology (OT). Richard takes a look at how both are relevant to combining edge servers with hybrid cloud architecture. Topics include:

- Integration of ISV Concepts
- Edge serving clusters and megaclusters
- Container designs for SE10, SE30 & SE50

Published: 2023-10-12

Length: 60 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Course code: DVEDG206

21. **VTT: Edge Product Innovation, ISVs, and Market trends - EMEA, LA & NA, Oct. 2023**

2023-10-11 | 60 minutes | Employees Only

Join Per Ljungstrom and Anthony Sayers as they discuss the difference between Industrial Internet of things (IoT) and Operational Technology (OT). They look at how both are relevant to combining edge servers with hybrid cloud architecture. Topics include:

- Integration of ISV Concepts
- Edge serving clusters and megaclusters
- Container designs for SE10, SE30 & SE50

Published: 2023-10-11

Length: 60 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Course code: DVEDG205

22. **Intro to Edge: 3Ws of Edge Computing for Lenovo Sellers**

2023-09-14 | 13 minutes | Employees and Partners

This course provides fundamental concepts and a learning foundation for those who are new to the data center and to computing at the Edge. It defines where is the Edge, identifies what are the business drivers for edge computing, and discusses why is edge computing important to Lenovo. September 2023

Published: 2023-09-14

Length: 13 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DTEF100

23. **Lenovo Solutions for the Edge - Who Are the Customers?**

2023-09-14 | 25 minutes | Employees and Partners

This course is focused on enabling sellers to identify opportunities for Lenovo Edge and Edge AI Solutions. Topics include a general overview of the Lenovo Edge portfolio and recognizing how edge computing can benefit customers.

Course Objectives:

- Identify Lenovo Edge Opportunities
- Recognize how an Edge solution would benefit your customer
- Provide a general overview of Lenovo solutions at the Edge
- Identify key points for your customer Edge conversation

Published: 2023-09-14

Length: 25 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DTEF102

24. **Family Portfolio: Edge**

2023-09-12 | 15 minutes | Employees and Partners

This course introduces edge environments, and the roles played by Lenovo edge servers and edge clients in those environments. It looks briefly at use cases for these edge devices. When you have completed this course, you should be able to list the edge solutions in the Lenovo portfolio, describe the features of each solution, and determine which solution is best suited to a specific environment.

Published: 2023-09-12

Length: 15 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: SXXW2513r2

25. **VTT: VMware Edge Compute Stack, August 2023**

2023-08-17 | 60 minutes | Employees Only

Edge Compute drives business transformation in sectors like retail, manufacturing & utilities. It intersects with IoT sensors, robotics & AI, and supports use cases requiring computing closer to operations. Implementing Edge Compute at scale requires a platform supporting verticalized applications, manageability, reliability & security. Join Josh David from VMware and Alejandro Perez from Lenovo as they discuss how the VMware Edge Stack enables real-time intelligence & immersive experiences at the Edge.

Published: 2023-08-17

Length: 60 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Course code: DVEDG203

26. **Partner Technical Webinar - ThinkEdge SE350 V2 & SE360 V2 Update**

2023-07-13 | 60 minutes | Employees and Partners

July 7, 2023 – in this 60-minute replay, Benoit Robert, Director - Edge Server Product Management, reviewed the ThinkEdge portfolio specifically the SE350v2 and SE360v2. Benoit discussed the key differences between the 2 edge servers with a focus on form factors and use cases.

Published: 2023-07-13

Length: 60 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: 070723

27. **FY24Q1 AI Launch**

2023-06-14 | 15 minutes | Employees and Partners

This course covers the exciting announcements that Lenovo is making about its commitment to AI. Not only has Lenovo pledged to invest \$1B in AI over the next three years, and committed \$100M to bolster the Lenovo AI Innovators Program, but there are also some exciting product announcements.

Once you complete this course, you should be able to define intelligence and artificial intelligence, describe a digital twin, and discuss the three key points of the Lenovo AI launch: investment in AI, a new AI-capable data center server, and new AI-capable edge servers.

Published: 2023-06-14

Length: 15 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: SXXW2516

28. **Lenovo XClarity Management Hub for Edge Server Devices**

2023-06-08 | 50 minutes | Employees and Partners

This course offers a comprehensive overview and demonstration of the enhanced capability to manage ThinkEdge Server Devices through Lenovo XClarity Management Hub in Lenovo XClarity Orchestrator (LXCO).

Published: 2023-06-08

Length: 50 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DXCO201

29. **Lenovo XClarity Management Hub for Edge Client Devices**

2023-06-08 | 50 minutes | Employees and Partners

This course offers a comprehensive overview and demonstration of the enhanced capability to manage ThinkEdge Client Devices through Lenovo XClarity Management Hub in Lenovo XClarity Orchestrator (LXCO).

Published: 2023-06-08

Length: 50 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DXCO202

30. **Family Portfolio: Intel Edge Servers**

2023-06-07 | 15 minutes | Employees and Partners

This course introduces two new Lenovo ThinkEdge servers: the ThinkEdge SE350 V2 and ThinkEdge SE360 V2.

After completing this course, you will be able to list the Intel edge servers in the Lenovo portfolio, describe the features of each server and determine which server is best suited to a specific environment.

Published: 2023-06-07

Length: 15 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: SXXW2510r2

31. **Lenovo FY24Q2 AI Announcement QH**
2023-06-07 | 3 minutes | Employees and Partners

This Quick Hit covers the exciting announcements Lenovo is making about its commitment to AI. Lenovo has pledged to invest \$1B in AI over the next three years, and has committed \$100M to bolster the Lenovo AI Innovators Program to develop AI-Ready solutions faster. Two new servers are being added to the already impressive Lenovo Edge portfolio – the ThinkEdge SE350 V2 and ThinkEdge SE360 V2. These servers offer a wide operating temperature range and the ruggedness to handle shock, vibration, and airborne contaminants. The SE360 V2 supports GPUs, making it ideal for AI at the edge. Both servers support the new time-sensitive networking protocol, TSN, to ensure that response times are low and deterministic.

Note: This course is presented as audio only. There are no slides or video.

Published: 2023-06-07

Length: 3 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: SXXW2516a

Related publications and links

For more information, see these resources:

- ThinkSystem SE360 V2 drivers and support
<https://datacentersupport.lenovo.com/us/en/>
- Lenovo ThinkSystem SE360 V2 product page:
<https://www.lenovo.com/us/en/p/servers-storage/servers/edge/Lenovo-ThinkEdge-SE360-V2/LEN21TS0019>
- Interactive 3D Tour of the ThinkEdge SE360 V2:
<https://lenovopress.lenovo.com/lp1752>
- ServerProven hardware compatibility:
<https://serverproven.lenovo.com/>
- Lenovo Server Options:
<https://serveroption.lenovo.com/>

Related product families

Product families related to this document are the following:

- [Edge Computing and Internet of Things \(IoT\)](#)
- [Edge Servers](#)
- [ThinkEdge SE360 V2 Server](#)

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This document, LP1677, was created or updated on November 18, 2024.

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