Lenovo ThinkSystem ST45 V3 Server
Product Guide

The Lenovo ThinkSystem ST45 V3 single-socket tower server is a compact-sized and affordable 1S entry tower design optimized for SOHO (Small Office/Home Office), educational institutions and retail office. The server supports one AMD EPYC 4005 Series processor and up to 64 GB of TruDDR5 5600MHz memory.

Target workloads such as: File server, Mail server, Print server, FTP server, Business Application, Near-side Data Backup

The following figure shows the ThinkSystem ST45 V3.

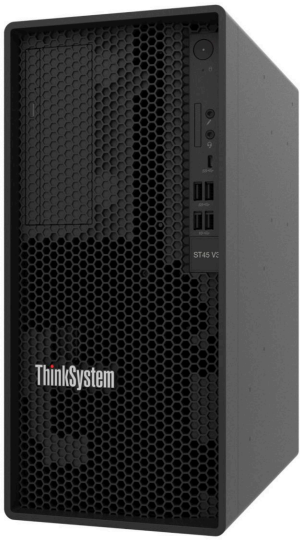

Figure 1. Lenovo ThinkSystem ST45 V3

360° View | Full 3D Tour

Did you know?

The ThinkSystem ST45 V3 offers enterprise-class reliability features such as error correcting code (ECC) memory, enterprise-class hard drives and network adapters at an affordable price. The server supports LXPM Lite for industry-standard setup tool. The ST45 V3 runs a wide range of server operating systems and is quiet enough and small enough to fit under or beside an office desk.

Key features

The ThinkSystem ST45 V3 server is an office-friendly tower server that has been optimized to provide enterprise-class features to small businesses, retail, educational institutions and branch offices.

Scalability and performance

The ST45 V3 offers numerous features to boost performance, improve scalability, and reduce costs:

- Improved single-socket processor performance:
  - AMD EPYC 4005 CPU
  - Up to 16 cores and core speeds up to 3.9 GHz
- Up to two 5600 MHz TruDDR5 UDIMMs provide speed and capacity of up to 64 GB.
- Two PCIe slots for I/O expansion, one PCIe x16 and one PCIe x1.
- Support for NVMe M.2 drive for OS boot operations.
- Support for three 3.5-inch non-hot-swap (NHS) drive bays and one 2.5-inch drive, or, support for two 3.5-inch non-hot-swap (NHS) drive bays, one 2.5-inch drive and one ODD drive. Providing flexible internal storage capacity.
- The use of SSDs instead of, or along with, traditional spinning drives (HDDs) can significantly improve I/O performance.

Availability and serviceability

The ST45 V3 provides many features to simplify serviceability and increase system uptime:

- EPYC 4005 RAS features include on-chip ECC/parity, on-package link CRC, PCIe LCRC, PCIe ECRC, and PCIe uncorrected error detection. Correction of single-bit memory errors and PCIe correctable errors support is limited to the hardware layer and offer no support for WHEA (Windows Hardware Error Architecture) or EDAC (Error Detection And Correction).
- Designed to run 24 hours a day, 7 days a week.
- The server supports UDIMM memory with ECC protection which provides error correction not available in PC-class "servers" that use parity memory. Avoiding system crashes (and data loss) due to soft memory errors means greater system uptime.
- Tool-less cover removal provides easy access to upgrades and serviceable parts, such as memory and adapter cards.
- A choice of affordable onboard AMD RAIDXpert2 software RAID or hardware RAID redundancy offers data protection and greater system uptime.
- The use of SSDs can provide better reliability than the use of traditional HDDs, for greater uptime.
- Power-on Self-Test (POST).
- The Lenovo XClarity Provisioning Manager Lite tool can be used to install an operating system on the server and perform system diagnostics.
- One-year or three-year customer-replaceable unit (CRU) and onsite limited warranty with next business day response. Optional service upgrades are available.

Manageability and security

Powerful systems management features simplify local management of the ST45 V3:

- An integrated industry-standard Unified Extensible Firmware Interface (UEFI) enables improved setup, configuration, and updates, and simplifies error handling.
- An integrated hardware Trusted Platform Module (TPM) supporting TPM 2.0 enables advanced cryptographic functionality, such as digital signatures and remote attestation.
- Administrator and power-on passwords help protect from unauthorized access to the server.
- A padlock loop at the rear to help secure unauthorized physical access to the server.
- A slot for a Kensington-style cable lock helps prevent theft.

Energy efficiency

The ST45 V3 offers the following energy saving features to save energy, reduce operational costs, increase energy availability, and contribute to a green environment:

- 80 PLUS Platinum-certified power supply (select models) enables greater energy savings while providing flexibility to meet your business needs.
- The ThinkSystem Capacity Planner tool provides information about the power consumption and electric current calculation for the different configurations of servers and other devices, which helps plan deployment of servers and devices in an efficient way.
- Energy star certification.

Performance benchmarks

At Lenovo, we know customers care most about how their workloads perform in real-world environments, which is why we carefully tune our server hardware, firmware, and drivers to help deliver strong benchmark results that reflect practical business needs. The goal is simple: to help customers run their critical applications more efficiently and achieve better outcomes.

The following table lists the current world record performance benchmarks that Lenovo performance engineers have achieved on the ST45 V3. This reinforces that the server is an excellent choice for a server to run wide range of application workloads.

The ST45 V3 has a total of 7 current performance benchmark world records.

Results referenced are current as of July 1, 2026.

Table 1. Current world record performance benchmark results for ST45 V3

Benchmark	Sub-benchmark	Benchmark metric	Current world records	Lenovo result	Link
SPEC CPU 2017	SPEC CPU 2017 Integer Speed	SPECspeed 2017_int_energy_base	2	Best 1P score and Best Overall score	SPEC CPU link
SPEC CPU 2017	SPEC CPU 2017 Integer Speed	SPECspeed 2017_int_energy_peak	2	Best 1P score and Best Overall score	SPEC CPU link
SPECpower 2008	SPECpower_ssj2008	overall ssj_ops/watt	2	Best 1P Tower & Best 1P Tower Windows scores	SPECpower link
SPECpower 2008	SPECpower_ssj2008	overall ssj_ops/watt	1	Best 1P Tower Linux score	SPECpower link

See the complete list of current world records in the Lenovo Press article Performance Benchmark World Record Summary for Lenovo ThinkSystem Servers.

The Lenovo Server Performance Team also publishes reports on key performance world records at the time the world record is announced. See all published Performance Benchmark Reports.

Comparing the ST45 V3 to ST50 V3

The ThinkSystem ST45 V3 comparison on the current generation ST50, as summarized in the following table.

- 2x UDIMM slots, up to 64 GB, 5600MHz with AMD EPYC 4005 processor
- TruDDR5 ECC memory

Table 2. Comparing the ST45 V3 to ST50 V3

Feature	ST45 V3	ST50 V3	Benefits
Form Factor	• 1-Socket (1S) Entry Tower • 17 liter chassis	• 1-Socket (1S) Entry Tower • 17 liter chassis	• Maintains small form factor
Processor	• Support single AMD EPYC 4005 CPU processor up to 16C / 65W • AMD PRO 665 chipset (PROM21)	• Support single Xeon E-2400 Series "Raptor Lake" processor up to 8C / 95W • Also supports Pentium processors (Alder Lake) • Intel C266 "Raptor Lake" Platform Controller Hub (PCH-S)	• Supports the latest generation AMD EPYC processors
Memory	• 2x UDIMM slots, up to 64GB, 5600MHz with AMD EPYC 4005 CPU processors • TruDDR5 ECC memory	• 4x UDIMM slots, up to 128GB, 4800MHz with Xeon E-2400 processors • 4x UDIMM slots, up to 128GB, 4800MHz with Pentium processor)	• Supports independent mode • Supports higher performance memory
Storage	• Up to 4 bays • Up to 3x 3.5” HDD or SSD; 1x2.5” SSD (optional) • 2x M.2 NVMe SSD (optional) • 1x slim SATA DVD-RW in dedicated bay (optional)	• Up to 4 bays • 3x 3.5” HDD or SSD, (1 standard, 2 optional); 1x2.5” SSD (optional) • 2x M.2 SATA SSD supporting RAID 0 and RAID 1 using VROC, installs in an adapter in a PCIe slot) • 1x slim SATA DVD-RW in dedicated bay (optional)	• Support for both HDDs for capacity and SSDs for performance • Optical drive support for ease of software installation • M.2 drive support to separate the OS from the applications and data
RAID	• Hardware RAID supports RAID levels 0, 1 and JBOD • AMD PRO 665 OB SW RAID support RAID levels 0, 1, 5 and JBOD) • RAID 5 only supports configurations with 3 drives	• Supports a SAS HBA or RAID adapter for hardware RAID functionality • 12Gb SAS/SATA/RAID support) • PCIe 4.0 and PCIe 5.0 adapters • Intel VROC 8.x SW RAID (no support for NVMe RAID	• RAID capability maximizes reliability and uptime
Cooling	• 2x system fans (Front drive bay and rear), 1x CPU fan	• 2x system fans (Front drive bay and rear), 1x CPU fan	• Ensures all components are sufficiently cooled
Networking	• 1x 1GbE Embedded (Realtek RTL8111FP)	• 2x 1GbE Onboard Ethernet ports (Broadcom BCM572) • Rear 1 port allows remote connectivity to the XCC2 management controller	• Easy built-in networking

Feature	ST45 V3	ST50 V3	Benefits
Management	• TPM embedded: TPM 2.0 • Lenovo XClarity Provisioning Manager Lite (USB based)	• XClarity Controller with upgrades • Full XClarity software suite including XClarity Administrator • Dedicated Ethernet port for remote management • Optional intrusion switch	• TPM 2.0 enables advanced cryptographic functionality, such as digital signatures and remote attestation • LXPM Lite provides easy system setup and firmware upgrades
PCIe Slots	• 2 PCIe slots (x16, x1)	• 3 PCIe slots (x4, x16, x4) • Includes a PCIe Gen5 x16 slot)	• Supports PCIe slot technology • Support for a high-performance PCIe x16 adapter
Front I/O	• Power button & LED • 1x Thermal Sensor Cable (Front Bezel in-side) • 1x USB 3.2 G1 (5 Gbps) Type C port • 4x USB 3.2 G1 (5 Gbps) ports • 1x Combo Audio Jack, 1x mic(Client window OS)	• One USB 3.2 G1 (5 Gb/s) port • One USB 2.0 port (also for XClarity Mobile connectivity for local systems management	• Expansive USB support • Thermal sensor ensures the server does not overheat if the ambient temperature rises
Rear I/O	• 4x USB 2.0 • 2x DP1.4 • 1x HDMI2.1 • 1x 1GbE LAN • 1x Audio line out	• 4x USB 3.2 G1 (5 Gb/s) ports • One VGA video • 1x RJ-45 systems management • 1x RJ-45 GbE network port • 1x serial port	• Expansive USB support • Integrated Gigabit networking
Power Supply	• 1x Fixed power supply • Choose from 300W Gold or 500W Platinum	• 1x Fixed power supply • Choose from 300W Gold or 500W Platinum	• Select the power supply that best suits the configuration to maximize efficiency

View in Augmented Reality

View the ST45 V3 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 following figure shows the front of the server.

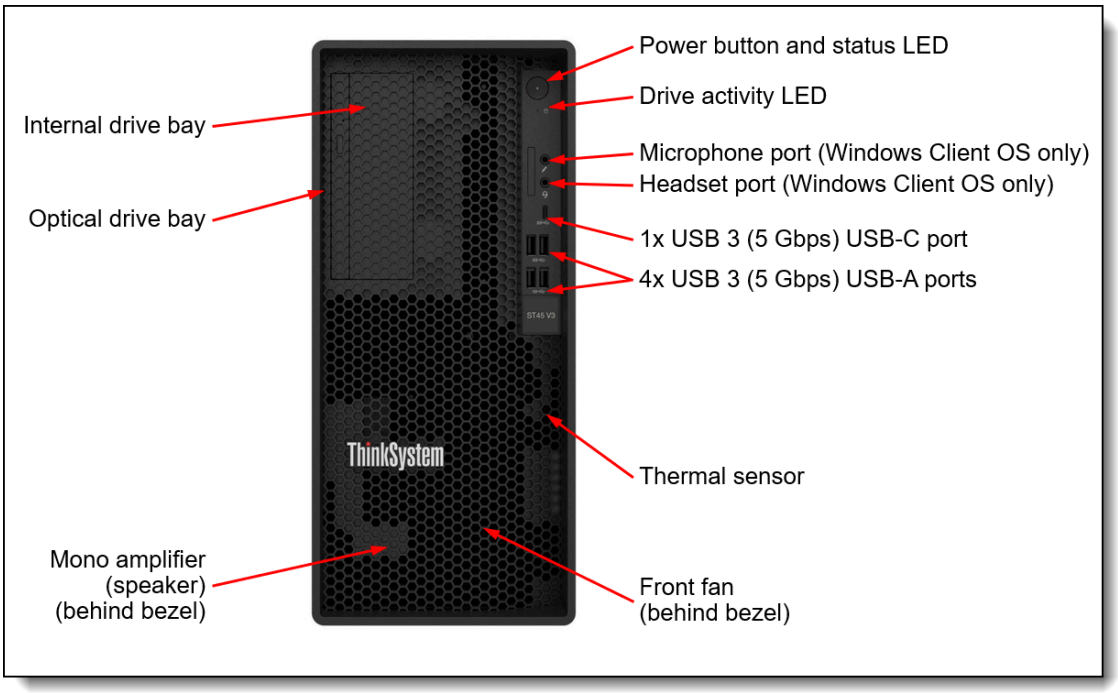

Figure 2. Front view of the ThinkSystem ST45 V3 server

The following figure shows the rear of the server.

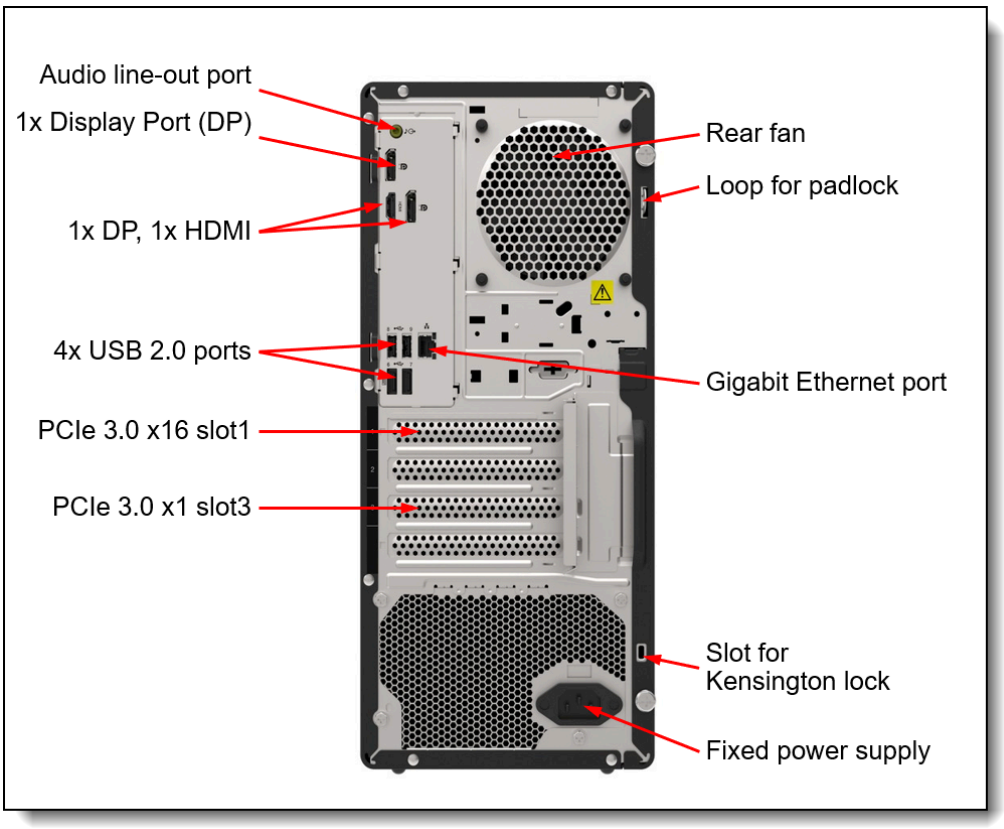

Figure 3. Rear view of the ThinkSystem ST45 V3 server

The following figure shows the locations of key components inside the server. The optical drive bay and drive bays 2 and 3 are removed to show the system board. To view the drive bays, see the Internal storage section.

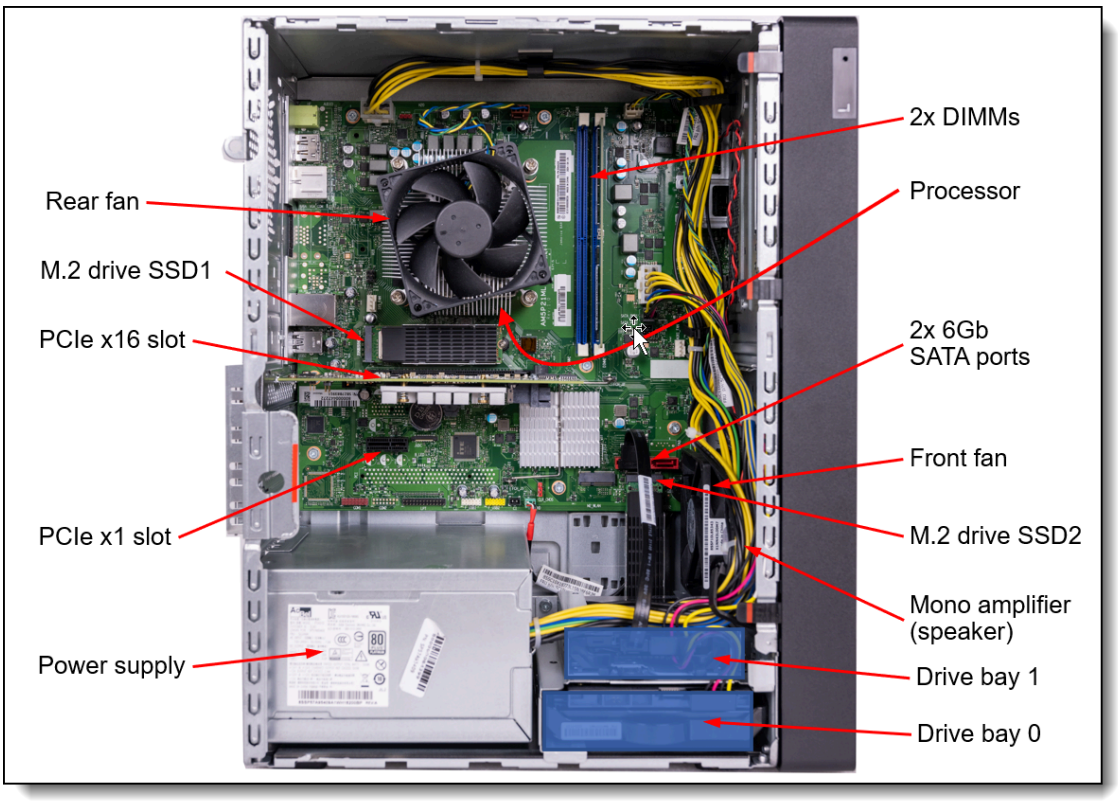

Figure 4. Internal view of the ThinkSystem ST45 V3 server

System architecture

The following figure shows the architectural block diagram of the ST45 V3, showing the major components and their connections.

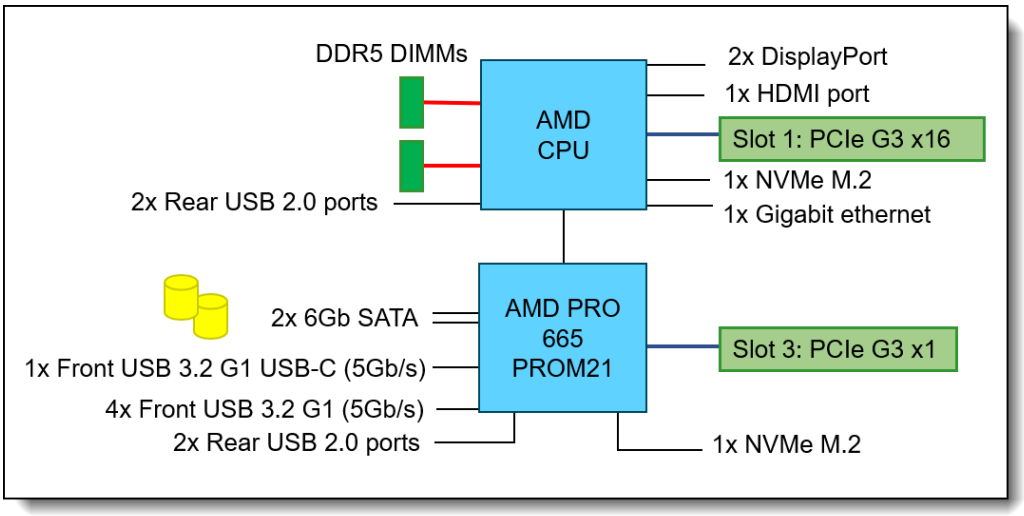

Figure 5. ST45 V3 system architectural block diagram

Standard specifications

The following table lists the standard specifications.

Table 3. Standard specifications

Components	Specification
Machine type	7DH4 - 1 year warranty 7DH5 - 3 year warranty
Form factor	Tower
Processor	One AMD processor. Choose from: • AMD EPYC 4005 CPU Support up to 65W with 16 cores, with core speeds up to 3.9 GHz
Chipset	AMD PRO 665 chipset (PROM21)
Memory	Two DIMM sockets supporting Lenovo TruDDR5 DIMMs at 5600 MHz. Support ECC UDIMMs.
Memory maximums	Up to 64 GB using 2x 32 GB UDIMMs.
Memory protection	Error-correcting code (ECC)
Disk drive bays	Up to 4x non-hot swap (NHS) drive bays: • 2 or 3x 3.5-inch NHS drive bays supporting HDDs or SSDs • 1x 2.5-inch NHS drive bay supporting an SSD The server can be configured with HDDs or SSDs. The server also supports 2x NVMe M.2 drive installed in a socket on the system board as a boot drive.

Maximum internal storage	• 3.5-inch drives:
	  ◦ 24TB using 3x 8TB 7.2K SATA 6Gb Non-Hot Swap 512e HDDs
	• 2.5-inch drives:
	  ◦ 3.84TB using 1x 3.84TB Read Intensive SATA 6Gb NHS SSDs
	HDDs and SSDs can be installed in the same server but are not supported in the same RAID volume

Storage controller	• AMD PRO 665 OB SW RAID • Optional hardware RAID
Optical drive	Optional slim DVD-RW drive in dedicated bay.
Network interfaces	One integrated Gigabit Ethernet 1000BASE-T port (RJ-45), Realtek RTL8111FP.
PCI Expansion slots	Two PCIe slots as follows: • Slot 1: PCIe 3.0 x16 full-height half-length (FHHL) (75W) • Slot 3: PCIe 3.0 x1 full-height half-length (FHHL) (25W)

Components	Specification

Ports	Front ports:
	• Five USB ports
	  ○ 1x USB 3 (5 Gb/s) with USB-C connector
	  ○ 4x USB 3 (5 Gb/s) with USB-A connector
	• Microphone port*
	• Headset port*
	Rear ports:
	• Four USB 2.0 ports
	• Two DisplayPort 1.4 video ports
	• One HDMI 2.1
	• One RJ-45 Gigabit Ethernet port
	• One audio line-out port*
	* Windows 11 only; some line noise is possible

Audio	Mono amplifier (speaker) mounted on the inside of the front bezel; Audio line-out port at the rear of the server; microphone and headset ports at the front of the server
Cooling	Two fixed system fans. One CPU heat sink fan. Supports ASHRAE A2 environments.
Power supply	Model dependent choices • One fixed 300W Gold power supply • One fixed 500W Platinum power supply: Energy Star and ErP Lot 9 compliant.
Hot-swap parts	None
Systems management	Power and drive activity LEDs. Supports Lenovo XClarity Provisioning Manager Lite (USB memory key-based) for system setup and firmware upgrades. No support for XClarity Controller (XCC).
Security features	Power-on password, administrator's password, Trusted Platform Module (TPM), supporting TPM 2.0. Padlock loop and Kensington cable slot for physical security.
Video	Two DisplayPort ports and native HDMI support resolution (4K) at a refresh rate of 60Hz.
Operating systems supported	Microsoft Windows Server, Red Hat Enterprise Linux, SUSE, Ubuntu, Windows 11 tested. See the Operating system support section for specifics.
Limited warranty	Three-year or one-year (model dependent) customer-replaceable unit and onsite limited warranty with 9x5 next business day (NBD).
Service and support	Optional service upgrades are available through Lenovo Services: 4-hour or 2-hour response time, 6-hour fix time, 1-year or 2-year warranty extension, software support for Lenovo hardware and some third-party applications.
Dimensions	Width: 170 mm (6.7 in.), height: 376 mm (14.8 in.), depth: 316 mm (12.4 in.). See Physical and electrical specifications for details.
Weight	Maximum: 8.56 kg (18.90 lb)

The server is shipped with the following items:

- Documentation flyer
- Power cord (model and region dependent)

Top Choice

Lenovo offers two “quick-ship” programs to make it easy for our customers to get quick delivery of our offerings:

- **Top Choice Express (TCE):** A Configure-to-Order (CTO) model that uses a "best of" subset of components. It allows for customization while maintaining significantly faster lead times than standard CTO.

  Top Choice Express (TCE) is the way to get custom configurations as quickly as possible. It allows DCSC configurator users to configure systems in **CTO Mode**, selecting the required hardware components while still benefiting from faster turnaround than traditional CTO. These configurations are built and fully integrated by Lenovo Manufacturing, with simple configuration steps, instant pricing, and quicker delivery.

  To see which components are TCE, check the TCE column in the various component tables in this product guide. Green cells mean that the component is enabled for ordering with Top Choice Express in all regions world-wide. Orange cells with the ℹ symbol mean that the component is enable for Top Choice Express in only some regions. Mouse over or tap on the cell to see which regions have it enabled for TCE.

  Note: Top Choice Express is for configure-to-order builds only, not for standalone option part numbers.

- **Top Choice Stock (TCS):** Pre-built, fixed-configuration units held in distribution. They are the "Ready-to-Ship" inventory options for customers who need a server quickly.

  Top Choice Stock (TCS) is used in **Preconfigured Mode**, starting from a standard pre-built configuration and adding option components as needed. Systems are assembled and fulfilled by Lenovo partners, enabling quick order processing and fast shipment through distribution. This path supports rapid delivery while maintaining flexibility through add-on options. For details of TCS models, see the Preconfigured Models section.

Note: Ship dates are estimates only; actual ship times may vary based on platform and component availability, order processing, logistics, and external factors beyond Lenovo’s control. Lenovo is not liable for delays.

Models

ThinkSystem ST45 V3 models can be configured by using the Lenovo Data Center Solution Configurator (DCSC).

Configure-to-order (CTO) models are used to create models with factory-integrated server customizations. For CTO models, two types of base CTO models are available for the ST45 V3 as listed in the columns in the following table:

- General purpose base CTO models are for general business (non-HPC) and is selectable by choosing **General Purpose** mode in DCSC.
- AI and HPC base models are intended for Artificial Intelligence (AI) and High Performance Computing (HPC) configurations and solutions are enabled using the **AI & HPC Hardware - ThinkSystem Hardware** mode in DCSC. These configurations, along with Lenovo EveryScale Solutions, can also be built using System x and Cluster Solutions Configurator (x-config). **Tip**: Some HPC and AI models are not listed in DCSC and can only be configured in x-config.

Preconfigured server models may also be available for the ST45 V3, however these are region-specific; that is, each region may define their own server models, and not all server models are available in every region.

The following table lists the base CTO models of the ThinkSystem ST45 V3 server.

Table 4. Base CTO models

Machine Type/Model General purpose	Machine Type/Model for AI and HPC	Description
7DH5CTO1WW	7DH5CTOLWW	ThinkSystem ST45 V3 – 3-year base warranty
7DH4CTO1WW	7DH4CTOLWW	ThinkSystem ST45 V3 – 1-year base warranty

The Lenovo ThinkSystem ST45 V3 single-socket tower server supports the following System Board or Mainboard for WW and PRC.

Table 5. System board

Part number	Feature code	Onboard SATA ports	Description	Top Choice Express
CTO only	C1GA	2 ports*	ST45 V3 Mainboard with dTPM(WW)	Not TCE
CTO only	CBMK	3 ports†	ST45 V3 MainBoard with dTPM(WW)(3-SATA)	TCE
CTO only	CBML	3 ports†	ST45 V3 MainBoard w/ fTPM(PRC)(3-SATA)	Not TCE

* Two drives configuration
† Three drives configuration

Preconfigured models

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

- Models for Asia Pacific region
- Models for Australia and New Zealand
- Models for Brazil
- Models for EMEA region
- Models for India region
- Models for Japan region
- Models for Latin American countries (except Brazil)
- Models for USA and Canada

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

LFO models: of ST45 V3 built using FC C1GA (ST45 V3 Mainboard with dTPM WW) which is the Motherboard with only two onboard SATA ports. This means any server model with this motherboard is limited to up to two internal hard drives, when using the onboard AMD PRO 665 AHCI mode.

LFO models: of ST45 V3 built using FC CBMK (ST45 V3 Mainboard with dTPM(WW) 3-SATA) which is the Motherboard with three onboard SATA ports. This means any server model with this motherboard is limited to up to three internal hard drives, when using the onboard AMD PRO 665 AHCI mode.

See the System board section for specifics.

Models for Asia Pacific region

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 6. Models for Asia Pacific markets

Model	Top Choice Stock	AMD processors†	OB SATA	Memory	Drive Contr	Drive bays	DVD	Cards	Power supply	Power cord	Video port
3-year warranty (machine type 7DH5)											
7DH5A02ESG	Y	4124P 4C/3.8G/65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" bay; 1x 2TB SATA HDD	No	Opt	300W	Yes	Yes
7DH5A02RAP	Y	4124P 4C/3.8G/65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" Open bay	No	Opt	300W	No	Yes
7DH5A03CAP	N	4124P 4C/3.8G/65W	3 ports	1x 16GB	OB SATA / AHCI	2x3.5" Open bay	No	Opt	300W	No	Yes
7DH5A03AAP	N	4344P 8C/3.8G/65W	3 ports	1x 16GB	OB SATA / AHCI	2x3.5" Open bay	No	Opt	300W	No	Yes
7DH5A03BAP	N	4464P 12C/3.7G/65W	3 ports	1x 16GB	OB SATA / AHCI	2x3.5" Open bay	No	Opt	300W	No	Yes

† Processor description: Processor model, number of cores, core frequency, thermal design power (TDP)

Models for Australia and New Zealand

AP models: Customers in Australia and New Zealand also have access to the Asia Pacific region models.

Table 7. Models for Australia and New Zealand

Model	Top Choice Stock	AMD processors†	OB SATA	Memory	Drive Contr	Drive bays	DVD	Cards	Power supply	Power cord	Video port
3-year warranty (machine type 7DH5)											
7DH5A02SAU	Y	4245P 6C/3.8G/65W	3 ports	1x16GB	OB SATA / AHCI	3x3.5" Open bays	Opt	Opt	300W	Yes	Std
7DH5A02VAU	Y	4345P 8C/3.9G/65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" Open bays	Opt	Opt	300W	Yes	Std
7DH5A02TAU	Y	4465P 12C/3.4G/65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" Open bays	Opt	Opt	300W	Yes	Std
7DH5A02UAU	Y	4545P 16C/3.0G/65W	3 ports	1x16GB	OB SATA / AHCI	3x3.5" Open bays	Opt	Opt	300W	Yes	Std

† Processor description: Processor model, number of cores, thermal design power (TDP), core frequency

Models for Brazil

Table 8. Models for Brazil

Model	Top Choice Stock	AMD processors†	OB SATA	Memory	Drive Contr	Drive bays	DVD	Cards	Power supply	Power cord	Video port
3-year warranty (machine type 7DH5)											
7DH5A03HBR	N	4124P 4C/3.8G/65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" bay; 2x 2TB SATA NHS HDD	Opt	Opt	300W	Yes	Yes
7DH5A03FBR	N	4124P 4C/3.8G/65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" bay; 1x 2TB SATA NHS HDD	Opt	Opt	300W	Yes	Yes
7DH5A014BR	N	4124P 4C/3.8G/65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" bay; 2x 2TB SATA HDD	Opt	Opt	300W	Yes	Yes
7DH5A013BR	N	4124P 4C/3.8G/65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" bay; 1x 2TB SATA HDD	Opt	Opt	300W	Yes	Yes
7DH5A010BR	N	4124P 4C/3.8G/65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" bay; 1x 1TB SATA HDD	Opt	Opt	300W	Yes	Yes
1-year warranty (machine type 7DH4)											
7DH4A00ABR	N	4124P 4C/3.8G/65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" bay; 1x 2TB SATA HDD	Opt	Opt	300W	Yes	Yes
7DH4A00MBR	N	4124P 4C/3.8G/65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" bay; 2x 1TB SATA HDD	Opt	Opt	300W	Yes	Yes
7DH4A007BR	N	4124P 4C/3.8G/65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" bay; 2x 1TB SATA HDD	Opt	Opt	300W	Yes	Yes

† Processor description: Processor model, number of cores, core frequency, thermal design power (TDP)

Models for EMEA region

Table 9. Models for EMEA region

Model	Top Choice Stock	AMD processors†	OB SATA	Memory	Drive Contr	Drive bays	MB	Cards	Power supply	Power cord	Video port
3-year warranty (machine type 7DH5)											
7DH5A02GEA	Y	4124P 4C/3.8G/65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" bay; 2x 960GB SATA NHS SSD	Opt	Opt	500W	Yes	Yes
7DH5A02JEA	Y	4344P 8C/3.8G/65W	3 ports	1x 32GB	OB SATA / AHCI	3x3.5" bay; 2x 960GB SATA NHS SSD	Opt	Opt	500W	Yes	Yes
7DH5A02HEA	Y	4344P 8C/3.8G/65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" bay; 2x 480GB SATA NHS SSD	Opt	Opt	500W	Yes	Yes
7DH5A03LEA	N	4344P 8C/3.8G/65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" bay; 2x 2TB 7.2K SATA NHS HDD	Opt	Opt	500W	Yes	Yes

† Processor description: Processor model, number of cores, core frequency, thermal design power (TDP)

Models for India

AP models: Customers in India also have access to the Asia Pacific region models.

Table 10. Models for India

Model	Top Choice Stock	AMD processors†	OB SATA	Memory	Drive Contr	Drive bays	DVD	Cards	Power supply	Power cord	Video port
3-year warranty (machine type 7DH5)											
7DH5A024SG	N	4124P 4C/3.8G/65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" / 1x 2TB HDD	Opt	Opt	300W	Yes	Std
7DH5A01ESG	N	4124P 4C/3.8G/65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" / 1x 2TB HDD	Opt	1x 4pt 1Gb	300W	Yes	Std
7DH5A01MSG	Y	4124P 4C/3.8G/65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" / 1x 2TB HDD	Opt	1x 4pt 1Gb	300W	Yes	Std
7DH5A021SG	N	4464P 12C/3.7G/65W	2 ports	1x 32GB	OB SATA / AHCI	2x3.5" Open bay	No	Opt	300W	Yes	Yes

† Processor description: Processor model, number of cores, thermal design power (TDP), core frequency

Models for Japan

AP models: Customers in Japan also have access to the Asia Pacific region models.

Table 11. Models for Japan

Model	Top Choice Stock	AMD processors†	OB SATA	Memory	Drive Contr	Drive bays	DVD	Cards	Power supply	Power cord	Video port
3-year warranty (machine type 7DH5)											
7DH5A036JP	N	4124P 4C 3.8GHz 65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" bay; 2x 480GB SATA NHS SSD	Yes	Opt	300W	Yes	Yes
7DH5A035JP	N	4124P 4C 3.8GHz 65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" bay; 2x 960GB SATA NHS SSD	Yes	Opt	300W	Yes	Yes
7DH5A037JP	N	4124P 4C 3.8GHz 65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" bay; 2x 2TB SATA NHS HDD	Yes	Opt	300W	Yes	Yes
7DH5A025JP	N	4124P 4C 3.8GHz 65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" Open bays	No	Opt	300W	Yes	Yes
7DH5A028JP	N	4464P 12C/3.7G/65W	2 ports	1x 32GB	OB SATA / AHCI	2x3.5" Open bays	No	Opt	300W	Yes	Yes

† Processor description: Processor model, number of cores, thermal design power (TDP), core frequency

Models for Latin American countries (except Brazil)

Table 12. Models with a 3-year warranty for Latin American countries (except Brazil)

Model	Top Choice Stock	AMD processors†	OB SATA	Memory	Drive Contr	Drive bays	DVD	Cards	Power supply	Power cord	Video port
3-year warranty (machine type 7DH5)											
7DH5A038LA	N	4124P 4C/3.8G/65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" bay; 1x 2TB SATA NHS HDD	Opt	Opt	300W	Yes	Yes
7DH5A00ZLA	N	4124P 4C/3.8G/65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" bay; 1x 1TB SATA HDD	Opt	Opt	300W	Yes	Yes
7DH5A015LA	N	4124P 4C/3.8G/65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" bay; 1x 1TB SATA HDD	Opt	Opt	500W	Yes	Yes
7DH5A016LA	N	4124P 4C/3.8G/65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" bay; 2x 1TB SATA HDD	Opt	1x 4pt 1Gb	300W	Yes	Yes
1-year warranty (machine type 7DH4)											
7DH4A00GLA	Y	4124P 4C/3.8G/65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" bay; 1x 2TB SATA HDD	Opt	Opt	300W	Yes	Yes
7DH4A00DLA	N	4124P 4C/3.8G/65W	3 ports	1x 16GB	OB SATA / AHCI	3x3.5" bay; 1x 2TB SATA HDD	Opt	Opt	300W	Yes	Yes
7DH4A00FLA	Y	4124P 4C/3.8G/65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" bay; 1x 2TB SATA HDD	Opt	Opt	300W	Yes	Yes
7DH4A00YLA	N	4124P 4C/3.8G/65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" bay; 1x 2TB SATA HDD	Opt	Opt	300W	Yes	Yes
7DH4A00ZLA	N	4124P 4C/3.8G/65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" bay; 1x 2TB SATA HDD	Opt	Opt	300W	Yes	Yes
7DH4A00WLA	N	4464P 12C/3.7G/65W	2 ports	1x 16GB	OB SATA / AHCI	2x3.5" bay; Open bays	Opt	Opt	300W	Yes	Yes

† Processor description: Processor model, number of cores, core frequency, thermal design power (TDP)

Models for USA and Canada

Table 13. Models for USA and Canada

Model	Top Choice Stock	AMD processors†	OB SATA	Memory	Drive Contr	Drive bays	DVD	Cards	Power supply	Power cord	Video port
3-year warranty (machine type 7DH5)											
7DH5A00DNA	N	4124P 4C/3.8G/65W	3 ports	1x 16GB	OB SATA / AHCI	3x 3.5" Openbays	Opt	Opt	300W	Yes	Yes
7DH5A01VNA	Y	4244P 6C 3.8GHz 65W	2 ports	1x 16GB	OB SATA / AHCI	2x 3.5" Openbays	Opt	Opt	300W	Yes	Yes
7DH5A01UNA	Y	4464P 12C 3.7GHz 65W	3 ports	1x 32GB	OB SATA / AHCI	3x 3.5" Openbays	Opt	Opt	300W	Yes	Yes

† Processor description: Processor model, number of cores, core frequency, thermal design power (TDP)

Processors

The ST45 V3 supports one AMD EPYC 4005 series processor, up to 16 cores and 65W TDP.

All supported processors have the following characteristics:

- Supports AMD PRO 665 chipset (PROM21)

- Support for ECC memory
    - Two DDR5 memory channels
- PCIe lanes

The following table lists the supported processors.

Table 14. Supported processors

Part number	Feature code	SKU	Description	Top Choice Express	Quantity supported
AMD EPYC 4004 Processors					
CTO only*	C4E0	4124P	ThinkSystem AMD EPYC 4124P 4C/3.8G/65W	TCE	1
CTO only*	C1GB	4244P	ThinkSystem AMD EPYC 4244P 6C/3.8G/65W	Not TCE	1
CTO only*	C1G0	4344P	ThinkSystem AMD EPYC 4344P 8C/3.8G/65W	TCE	1
CTO only*	C1G9	4464P	ThinkSystem AMD EPYC 4464P 12C/3.7G/65W	Not TCE	1
AMD EPYC 4005 Processors					
CTO only*	CBMQ	4245P	ThinkSystem AMD EPYC 4245P 6C/3.8G/65W	Not TCE	1
CTO only*	CBMP	4345P	ThinkSystem AMD EPYC 4345P 8C/3.9G/65W	Not TCE	1
CTO only*	CBMN	4465P	ThinkSystem AMD EPYC 4465P 12C/3.4G/65W	Not TCE	1
CTO only*	CBMM	4545P	ThinkSystem AMD EPYC 4545P 16C/3.0G/65W	TCE	1

* Only available in configure-to-order builds or in preconfigured models. Not available as option part numbers.

Table 15. Processor specifications

Feature code	AMD model	TDP	Cores/threads	Core speed	Max Boost Clock *	Cache	Max memory speed
AMD EPYC 4004 Processors							
C4E0	4124P	65W	4 / 8	3.8 GHz	Up to 5.1 GHz	16 MB	5200 MHz
C1GB	4244P	65W	6 / 12	3.8 GHz	Up to 5.1 GHz	32 MB	5200 MHz
C1G0	4344P	65W	8 / 16	3.8 GHz	Up to 5.3 GHz	32 MB	5200 MHz
C1G9	4464P	65W	12 / 24	3.7 GHz	Up to 5.4 GHz	64 MB	5200 MHz
AMD EPYC 4005 Processors							
CBMQ	4245P	65W	6 / 12	3.8 GHz	Up to 5.4 GHz	32 MB	5600 MHz
CBMP	4345P	65W	8 / 16	3.8 GHz	Up to 5.5 GHz	32 MB	5600 MHz
CBMN	4465P	65W	12 / 24	3.4 GHz	Up to 5.4 GHz	64 MB	5600 MHz
CBMM	4545P	65W	16 / 32	3.0 GHz	Up to 5.4 GHz	64 MB	5600 MHz

* Max boost for AMD EPYC processors is the maximum frequency achievable by any single core on the processor under normal operating conditions for server systems. See AMD specifications.

Memory options

The ST45 V3 supports Lenovo TruDDR5 memory. TruDDR5 memory uses the highest-quality components sourced from Tier 1 DRAM suppliers and only memory that meets strict requirements is selected. It is compatibility-tested and tuned to maximize performance and reliability.

TruDDR5 memory has a unique signature programmed into the DIMM, which enables ThinkSystem servers to verify whether the memory installed is qualified and supported. From a service and support standpoint, TruDDR5 memory automatically assumes the system's warranty, and service and support provided worldwide.

The processors have 2 memory channels and support 1 DIMM per channel. The ST45 V3 supports 1 or 2 DIMMs. Both DIMMs installed must be identical.

DIMMs installed in the ST45 V3 operate at a speed based on the processor installed.

The following table lists the memory options that are available for the ST45 V3 server.

Table 16. ST45 V3 server memory section

Part number	Feature code	Description	Top Choice Express	Maximum supported
4X77A93556	C1G7	ThinkSystem 16GB TruDDR5 5600MHz (1Rx8) ECC UDIMM-A	TCE	2
4X77A93557	C1G6	ThinkSystem 32GB TruDDR5 5600MHz (2Rx8) ECC UDIMM-A	TCE	2

The following rules apply when selecting the memory configuration:

- The server only supports UDIMMs
- Quantities of 1 or 2 DIMMs are supported
- Both DIMMs must be identical (same part number)
- When installing two DIMMs, install one in each memory channel
- Memory mirroring and memory rank sparing are not supported

Note: Currently 32G (C1G6) is supported under 4004 processors at 5200 MHz only.

Internal storage

The ST45 V3 supports two or three 3.5-inch drives non-hot-swap drives and one 2.5-inch. The system also supports an 9mm slim SATA optical disk drive.

Server comes standard with one empty cage drive for bay 0. All bays 0, 1, 2, 3 support optional drives.

Topics in this section:

- Drive bays
- M.2 drives
- Field upgrades
- Encryption Enablement

For information about the optical drive, see the Optical drives section.

Drive bays

The drive bays are as follows:

- Drive bay 0: 3.5-inch HDD or SSD, non-hot-swap (standard with the server)
- Drive bay 1: 2.5-inch SSD, non-hot-swap, optional
- Drive bay 2: 3.5-inch HDD or SSD, non-hot-swap, optional
- Drive bay 3: 3.5-inch HDD or SSD, non-hot-swap, optional

The supported internal drive bays are:

- Option 1: 2x 3.5” + 1x 2.5” + 1x ODD
- Option 2: 3x 3.5” + 1x 2.5” (no ODD)
- 2x NVMe M.2 support

The following image shows location for drive bays option 1 and option 2.

Note: Drive bays 0, 1, 2 and 3 are only accessible from the side of the server.

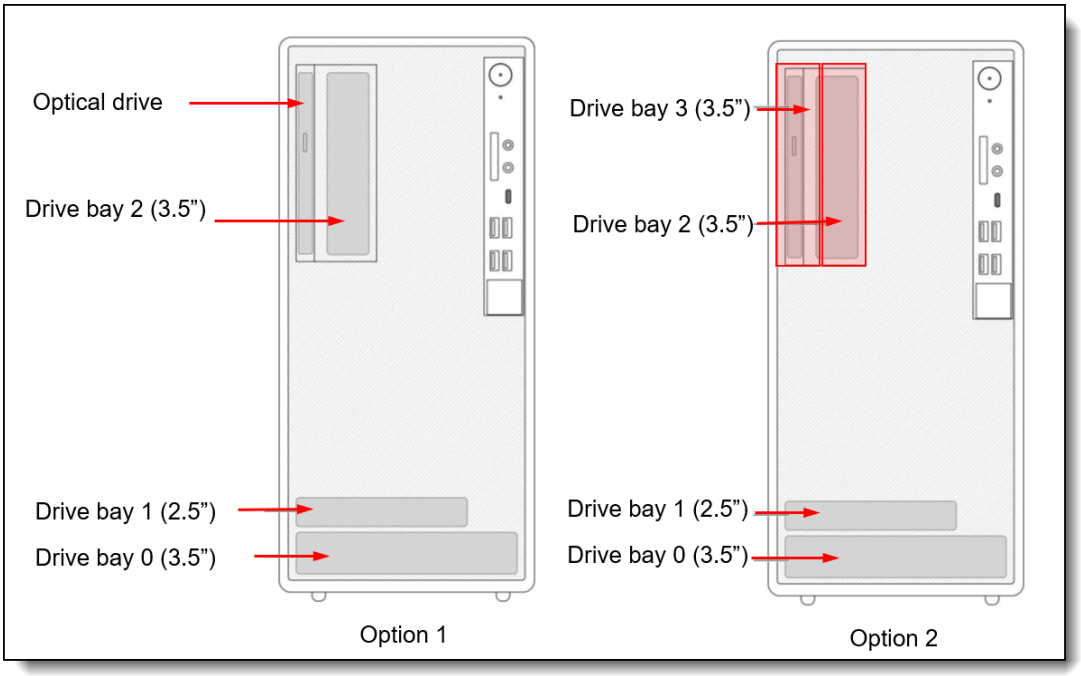

Figure 6. ST45 V3 drive bays (front view)

The following figure shows the internals of the server with the drive bays and optical drive installed.

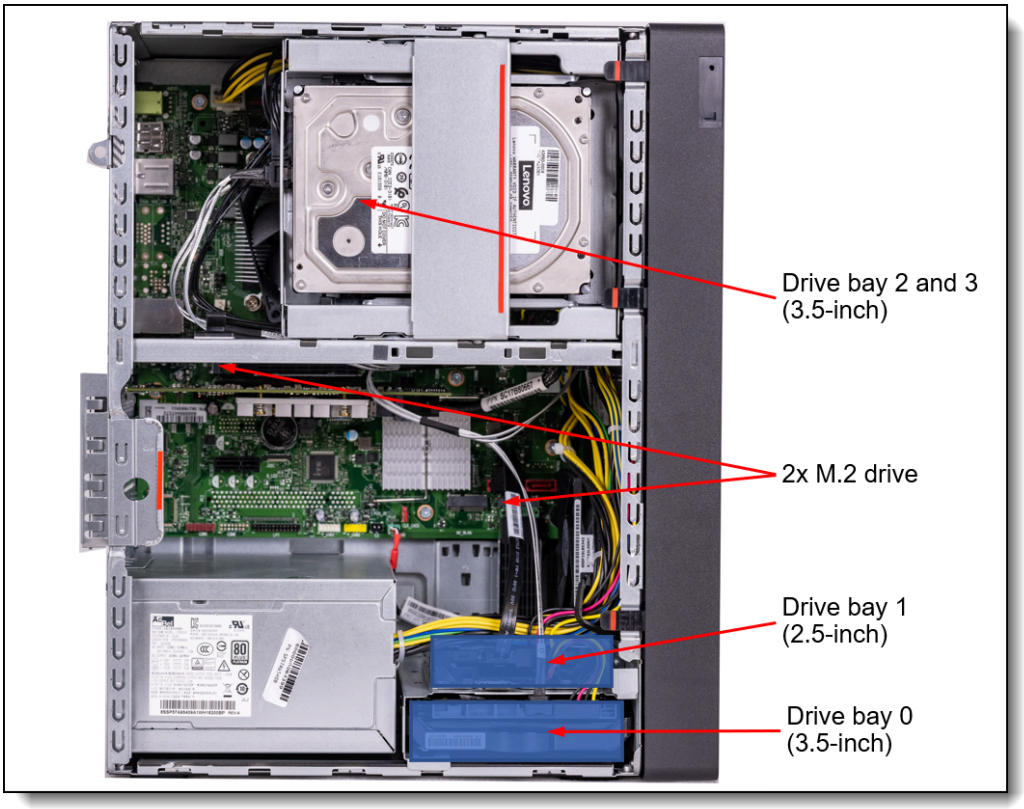

Figure 7. ST45 V3 drive bays (side view)

Drive bays 1, 2 and 3 are optional. For CTO orders, the following table lists the ordering information to configure these bays.

Use of Client HDDs and Bay 2: As described in the Special Notice for Client drives section, Client HDDs cannot be in the server along with other drive types. The impact of this rule is that in CTO orders, the 2.5-inch drive bay (Bay 2) is not selectable if you select any client HDDs.

Table 17. Drive bays

Part number	Feature code	Description	Top Choice Express
4XF7A78617*	BME0	ThinkSystem ST50/ST45 Series 2.5" HDD Cage Kit Bracket to mount a 2.5-inch drive to drive bay 1	TCE
4XF7A96626*	BME1	ThinkSystem ST50/ST45 Series 2nd 3.5 HDD Cage Kit	TCE
	BMEX	ThinkSystem ST50/ST45 Series Slim ODD Cage Kit	TCE
4XF7A96625*	C1G1	ThinkSystem ST45 V3 2nd 3.5" HDD Cage (HDD+HDD)**	TCE
	C1G2	ThinkSystem ST45 V3 3rd 3.5" HDD Cage (HDD+HDD)†	TCE

* See Field upgrades for additional details.
**Bracket to mount a 3.5-inch drive to drive bay 2 + ODD
†Bracket to mount a 3.5-inch drive to drive bay 2, bay 3

M.2 drives

The ST45 V3 supports two internal NVMe M.2 drives. See the Internal view of the server (link to Figure 4) for the location of the two M.2 drives, SSD1 and SSD2. Ordering information for the SSD2 bracket is listed in the following table.

Tip: Only M.2 2280 form factor drives are supported. Other M.2 form factors are not supported.

Table 18. Field upgrade options for M.2 drives

Part number	Feature code	Description	Top Choice Express
4XF7A79661	BMEK	ThinkSystem ST50/ST45 Series NVMe M.2 Bracket Kit	Not TCE
4XF7A96627	C1J7	ThinkSystem ST45 V3 M.2 Screw Kit	Not TCE

Configuration requirements:

- For the SSD1 the required screw is derived by the configurator DCSC
- For the SSD2 the required screw and bracket are derived by the configurator DCSC
- Bracket (BMEK) is needed for SSD2 only
- M.2 does not support software RAID

Supported M.2 drives are listed in the Internal drive options section.

Field upgrades

The ST45 V3 supports the following upgrades:

- Add drives to a zero drive (drive-less) server
- Add a RAID adapter to replace the onboard SATA drive controller
- Add drive bays
- Add an optical drive, as described in the Optical drives section

If you are planning to do a field upgrade of a server without drives to add drives that connect to the onboard SATA controller, you will need the power cables from the ThinkSystem ST50 V3/ST45 V3 Internal Drive Cable Kit,

4X97A93517, plus the SATA cables that are included in each drive option.

If you are planning to do a field upgrade to add a RAID adapter, you will need the cables from ThinkSystem ST50 V3/ST45 V3 Internal Drive Cable Kit, 4X97A93517, The MiniSAS data cable in the kit will replace the SATA data cables to all three drives. Use the power cables if you are upgrading from a server without any drives otherwise use the existing power cables already installed.

The following table lists the ordering information.

Table 19. Field upgrades

Part number	Description	Purpose
Drive bay field upgrades		
4XF7A78617	ThinkSystem ST50/ST45 Series 2.5 HDD Cage Kit, contains: • Cage to mount a 2.5-inch drive to drive bay 1 (SBB7A46043)	Add drive in bay 1
4XF7A96626	ThinkSystem ST45 V3 1x3.5 HDD+ODD Cage Kit, contains: • ThinkSystem ST50/ST45 Series 2nd 3.5 HDD Cage Kit (SBB7A46044 / BME1) • ThinkSystem ST50/ST45 Series Slim ODD Cage Kit (SBB7A50144 / BMEX)	Add drive in bay 2 Requires the rear system fan and the optical drive cage (with or without the optical drive installed).
4XF7A96625	ThinkSystem ST45 V3 2x 3.5 HDD Cage Kit, contains: • ThinkSystem ST45 V3 2nd 3.5" HDD Cage (HDD+HDD) (SBB7A88749 / C1G1) • ThinkSystem ST45 V3 3rd 3.5" HDD Cage (HDD+HDD) (SBB7A88134 / C1G2)	Add drive in bay 2 Add drive in bay 3
Cable kit for field upgrades		
4X97A93517	ThinkSystem ST50 V3/ST45 V3 Internal Drive Cable Kit	Cables used in above scenarios: • When adding drives to a server with drive bays (cages) but without any drives installed • When upgrading from onboard SATA to a RAID adapter

For more information about part numbers reference in Server Proven

Encryption Enablement

For CTO orders, the configurator allows you to specify that you want to create an "encryption-ready" server, and to ensure that only components that support encryption are selectable in the configurator. This is done in DCSC and x-config configurator tools by selecting the feature code listed in the following table.

Table 20. Encryption Enablement

Part number	Feature code	Description	Top Choice Express
CTO only	CES1*	Drive Encryption Enablement (not supported with vSAN)	TCE

* In DCSC, this feature is in **Storage > Internal Storage** under the heading "Encryption Enablement"

Tip: This feature will not be selectable until an SED-capable drive is selected.

By selecting this feature code, the following requirements will be enabled in the configurator:

- SED drives will be required
- XCC2 Platinum will be required

Configuration notes:

- Do not use this feature code for VMware vSAN or Nutanix servers, since these virtualization offerings do not support HW RAID adapter-based encryption
- Selecting this feature code does not enable encryption at the factory
- If you don't select this feature code, you will still be able to enable encryption in your server, however you will need to ensure that you have suitable storage controllers and drives installed in the server

Controllers for internal storage

The ST45 V3 supports AMD RAIDXpert2 software RAID, featuring the following.

- AMD PRO 665 OB SW RAID (RAID levels 0, 1, 5 and JBOD) (Window server, RHEL9.4, Ubuntu 24.04) (C1G3).
- RAID 1 + hot spare is supported in a three drives configuration.
- RAID 5 only supported in a three drives configuration.
- AMD PRO 665 AHCI mode(C1G4).

Alternatively, Hardware RAID support is available with the addition of a RAID adapter. Please refer to the following table.

Table 21. Adapters for internal storage

Part number	Feature code	Description	Top Choice Express	JBOD	Hardware RAID levels	Slots supported	Maximum supported
Adapters							
4Y37A93012	C0TU	ThinkSystem RAID 545-8i PCIe Gen4 12Gb Adapter	TCE	Y	0, 1	1	1

For a comparison of the functions of the supported storage adapters, see the ThinkSystem RAID Adapter Reference:
https://lenovopress.lenovo.com/lp1288-thinksystem-raid-adapter-and-hba-reference

Configuration notes:

- **DCSC configurator**: When adapter (545-8i PCIe Gen4) is selected, cable (4X97B11368 CCRP ThinkSystem ST45 V3 545-8i Cable Kit) is auto-derived.

For more information about the backplane kits and cable kits, see the Lenovo server options site:
https://serveroption.lenovo.com/cable_kit_options/

Internal drive options

The ST45 V3 supports optionally up to three 3.5-inch non-hot-swap drives and optionally one 2.5-inch non-hot-swap drive.

Each drive option part number includes:

- Tray to mount the drive in the server
- 185mm SATA signal cable to connect the drive (when installed in bay 1 or 2) to the onboard SATA controller on the system board.

For CTO orders, the necessary cables and trays will be derived by the configurator.

The following tables list the drive options for internal storage of the server.

Simple-swap drives:

- 2.5-inch simple-swap 6 Gb SATA SSDs
- 3.5-inch simple-swap 6 Gb SATA HDDs
- 3.5-inch simple-swap 6 Gb SATA SSDs

M.2 drives:

- M.2 PCIe 4.0 NVMe drives

M.2 drive support: The use of M.2 drives requires an additional adapter as described in the M.2 drives subsection.

SED support: The tables include a column to indicate which drives support SED encryption. The encryption functionality can be disabled if needed. Note: Not all SED-enabled drives have "SED" in the description.

Table 22. 2.5-inch simple-swap 6 Gb SATA SSDs

Part number	Feature code	Description	Top Choice Express	SED support	Max Qty
2.5-inch simple-swap SSDs - 6 Gb SATA - Read Intensive/Entry (<3 DWPD)					
4XB7B04138	C8DT	ThinkSystem ST50/ST45 Series 2.5" VA 480GB Read Intensive SATA 6Gb NHS SSD	TCE	No	1
4XB7B04139	C8DS	ThinkSystem ST50/ST45 Series 2.5" VA 960GB Read Intensive SATA 6Gb NHS SSD	TCE	No	1
4XB7B04140	C8DR	ThinkSystem ST50/ST45 Series 2.5" VA 1.92TB Read Intensive SATA 6Gb NHS SSD	TCE	No	1
4XB7B04141	C8DQ	ThinkSystem ST50/ST45 Series 2.5" VA 3.84TB Read Intensive SATA 6Gb NHS SSD	TCE	No	1

Table 23. 3.5-inch simple-swap 6 Gb SATA HDDs

Part number	Feature code	Description	Top Choice Express	SED support	Max Qty
3.5-inch simple-swap HDDs - 6 Gb NL SATA					
4XB7A77446	BMEC	ThinkSystem ST50/ST45 Series 3.5 2TB 7.2K SATA 6Gb Non-Hot Swap 512n HDD	TCE	No	3
4XB7A77447	BMEG	ThinkSystem ST50/ST45 Series 3.5 4TB 7.2K SATA 6Gb Non-Hot Swap 512n HDD	TCE	No	3
4XB7A77448	BMEF	ThinkSystem ST50/ST45 Series 3.5 6TB 7.2K SATA 6Gb Non-Hot Swap 512e HDD	Not TCE	No	3
4XB7A77449	BMEE	ThinkSystem ST50/ST45 Series 3.5 8TB 7.2K SATA 6Gb Non-Hot Swap 512e HDD	Not TCE	No	3
4XB7A77451	BMEH	ThinkSystem ST50/ST45 Series 3.5 2TB Client 7.2K SATA 6Gb Non-Hot Swap 512e HDD	Not TCE	No	3

Table 24. 3.5-inch simple-swap 6 Gb SATA SSDs

Part number	Feature code	Description	Top Choice Express	SED support	Max Qty
3.5-inch simple-swap SSDs - 6 Gb SATA - Read Intensive/Entry (<3 DWPD)					
4XB7B04142	C8DP	ThinkSystem ST50/ST45 Series 3.5" VA 480GB Read Intensive SATA 6Gb NHS SSD	TCE	No	3
4XB7B04143	C8DN	ThinkSystem ST50/ST45 Series 3.5" VA 960GB Read Intensive SATA 6Gb NHS SSD	TCE	No	3
4XB7B04144	C8DM	ThinkSystem ST50/ST45 Series 3.5" VA 1.92TB Read Intensive SATA 6Gb NHS SSD	TCE	No	3
4XB7B04145	C8DL	ThinkSystem ST50/ST45 Series 3.5" VA 3.84TB Read Intensive SATA 6Gb NHS SSD	TCE	No	3

Table 25. M.2 PCIe 4.0 NVMe drives

Part number	Feature code	Description	Top Choice Express	SED support	Max Qty
M.2 SSDs - PCIe 4.0 NVMe - Read Intensive/Entry (<3 DWPD)					
4XB7A83139	BS46	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	Not TCE	Support	2
4XB7A82674	BQUJ	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	Not TCE	Support	2

Special notice for Client drives

Some servers support both Client HDDs and Enterprise Class HDDs. Client HDDs are designed for 8x5 operating environment whereas Enterprise Class HDDs are designed for 24x7 operating environment. Selecting the correct drive class will enable the critical areas of quality, functionality, performance, and reliability to be optimized for the target implementation.

When using Client Hard Disk Drives, you agree to the following terms of service:

- Update the firmware once you receive the server according to the "Lenovo Client HDD Upgrade for Windows and Linux" document in the download page: https://datacentersupport.lenovo.com/products/servers/thinksystem/st50/7y48/downloads/driver-list/component?name=Storage
- The use of the Lenovo Online SAS/SATA Hard Disk Drive Update Program is not supported.
- Maximum of 2 Client HDDs per server is supported
- Mixing Client HDDs with other drives is not supported.
- Only supported connected to the server's onboard 6Gbps SATA controller. RAID adapters and HBAs are not supported.
- Operational availability: 8 hours/day, 5 days/week.
- Workload rate limit: < 55 TB/year*

Choosing the right drive type depends on the usage pattern. Improper use of Client HDDs (such as the workload rate exceeding 55 TB/year) will lead to significant risk and increase the drives failure rate.

* The specifications for the product assumes the I/O workload does not exceed the average annualized workload rate limit of 55 TB/year. Workloads exceeding the annualized rate may degrade and impact reliability as experienced by the particular application. The average annualized workload rate limit is in units of TB per calendar year.

Internal backup units

The ST45 V3 does not support any internal backup unit, such as a tape drive or RDX drive.

Optical drives

The ST45 V3 optionally supports an internal optical drive. CTO ordering information is listed in the following table.

Table 26. Internal optical drive

Feature code	Description	Top Choice Express
Optical drive		
BMEU	ThinkSystem ST50/ST45 Series 9mm-Slim SATA DVD-RW	TCE
CTO features		
BMEX	ThinkSystem ST50 V2/V3 Slim ODD Cage Kit - Bracket to mount the optical drive	TCE
BMEW	ThinkSystem ST50 V2/V3 Slim ODD Bezel Kit - Front bezel for the optical drive	Not TCE
BMEV	ThinkSystem ST50 V2/V3 W/O Slim ODD Bezel Kit - Front bezel when no optical drive is configured	Not TCE

To add the optical drive as a field upgrade, use the parts listed in the following table.

Table 27. Optical drive field upgrades

Part number	Description	Purpose
4XA7A77462	ThinkSystem ST50/ST45 Series 9mm-Slim SATA DVD-RW, contains: • Optical drive - ThinkSystem ST50 V2 9mm-Slim SATA DVD-RW (SBB7A45066) • 520mm SATA cable for optical drive (SBB7A46040) • Power cable for Drive bay 3 and optical drive (SBB7A46041) • Bezel for optical drive (SBB7A46134)	To add the optical drive, cables and front bezel. Requires the optical drive cage

The optical drive is based on the HLDS Model GUE1N Super Multi DVD Writer and supports the following formats:

- DVD-ROM, DVD-ROM DL, DVD-R, DVD-R DL, DVD-RW, DVD-RAM, DVD+R, DVD+R DL, DVD+RW
- CD-ROM, CD-ROM XA, CD-I, Video CD, CD-Audio, CD-Extra, CD-Text, CD-R, CD-RW

External optical drive

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

Table 28. External optical drive

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

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.

I/O expansion options

The ST45 V3 server has three PCIe 3.0 slots:

- Slot 1: PCIe 3.0 x16 (from CPU)(FHHL)(x16 slot, closed-ended) 75 W
- Slot 3: PCIe 3.0 x1 (from chipset PRO 665)(FHHL)(x1 slot, closed-ended) 25 W

The following figure shows the locations of the PCIe slots.

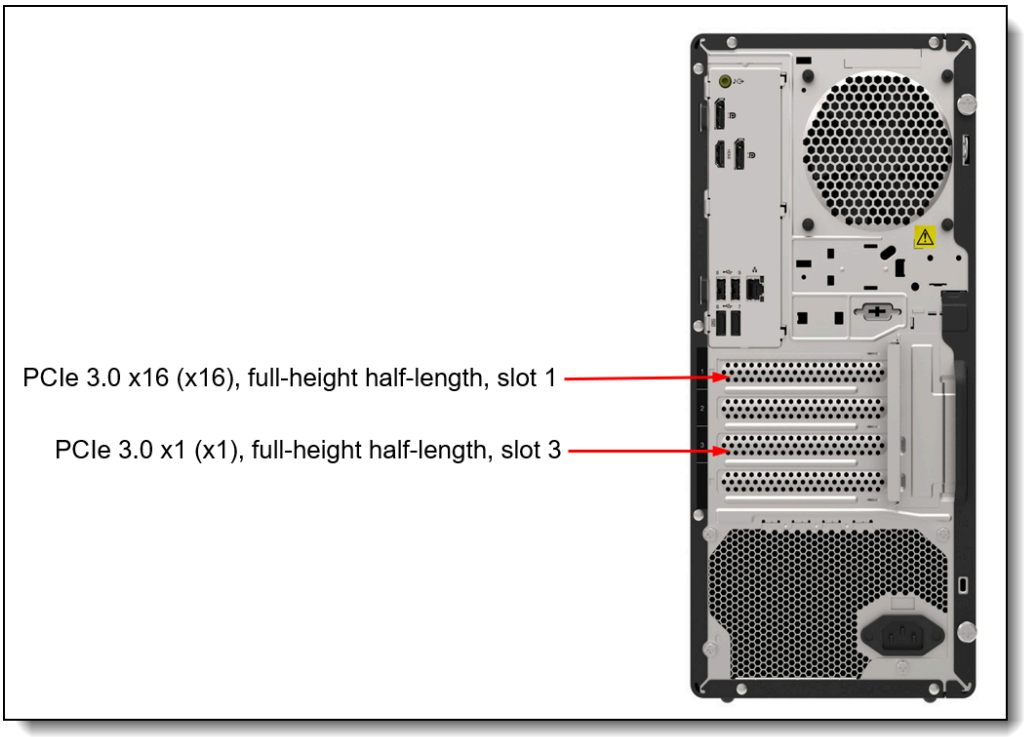

Figure 8. ThinkSystem ST45 V3 PCIe slots

Network adapters

The ST45 V3 server supports Realtek RTL8111FP onboard 1GbE ethernet, the RTL8111FP is compatible with the IEEE 802.3u specification for 10/100Mbps Ethernet and the IEEE 802.3ab specification for 1000Mbps Ethernet.

It also supports an auxiliary power auto-detect function, and will auto-configure related bits of the PCI power management registers in PCI configuration space.

The onboard NIC has the following features:

- Wake-On-LAN support
- Supports Magic Packet Wake-Up.
- Support Onboard IPV4 and IPV6 PXE boot (Preboot eXecution Environment).

Note: SR-IOV/Virtualization/iSCSI/RDMA features non-support (Controller Hardware) on ST45 V3.

The following table lists other supported network adapters. The maximum supported column indicates which slots each adapter is supported in. For slot locations see the I/O expansion options section.

Table 29. Network adapters

Part number	Feature code	Description	Top Choice Express	Slots supported	Maximum supported
Gigabit Ethernet					
7ZT7A00484	AUZV	ThinkSystem Broadcom 5719 1GbE RJ45 4-Port PCIe Ethernet Adapter	TCE	slot 1	1
10 Gb Ethernet					
7ZT7A00496	AUKP	ThinkSystem Broadcom 57416 10GBASE-T 2-Port PCIe Ethernet Adapter	TCE	slot 1	1

Configuration notes:

- For more information, including the transceivers and cables that each adapter supports, see the list of Lenovo Press Product Guides in the Ethernet adapters category: https://lenovopress.com/servers/options/ethernet

SAS adapters for external storage

The ST45 V3 currently does not support SAS adapters for external storage.

Fibre Channel host bus adapters

The ST45 V3 does not support Fibre Channel host bus adapters.

GPU adapters

The ST45 V3 server does not support graphics processing units (GPUs).

Cooling

The server supports the following fans:

- CPU heat sink fan
- Front side fan
- Rear side fan

The 4-wire fan connector fan has the following electrical input, monitoring and control connections:

- 12V DC Power
- DC Power Return
- Tachometer Output
- Pulse Width Modulation Control

See the Inside view in the Components and connectors section for locations.

Power supplies

The ST45 V3 server supports a single fixed (non-hot-swap) power supply. The power supply cannot be upgraded.

The server supports a single fixed power supply. The following table lists the supported power supplies.

Table 30. Power supplies

Part number	Feature code	Description	Top Choice Express	Maximum quantity	ErP Lot 9 compliant	110V AC	220V AC
Fixed power supplies							
CTO only	BMFL	ATX-300W Power Supply	TCE	1	No	Yes	Yes
CTO only	BMTC	ThinkSystem 500W Platinum ATX Power Supply	TCE	1	Yes	Yes	Yes

Power supply options do not include a line cord.

For server configurations, the inclusion of a power supply is model dependent. Configure-to-order models can be configured without a power cord if desired.

To ensures that the properly sized power supply is chosen for optimal performance, it is highly recommended to validate system configuration for specific power requirements by using the latest version of the Lenovo Capacity Planner:
https://datacentersupport.lenovo.com/us/en/products/solutions-and-software/software/lenovo-capacity-planner/solutions/ht504651

Power cords (C13 connectors)

Line cords and rack power cables with C13 connectors can be ordered as listed in the following table.

Table 31. Power cords

Market/region	Part number	Feature code	Description	Top Choice Express
Rack cables - C13 to C14				
Worldwide	00Y3043	A4VP	1.0m, 10A/100-250V, C13 to C14 Jumper Cord	TCE
Worldwide	4L67A08367	B0N5	1.0m, 13A/100-250V, C13 to C14 Jumper Cord	TCE
Worldwide	39Y7937	6201	1.5m, 10A/100-250V, C13 to C14 Jumper Cord	TCE
Worldwide	4L67A08368	B0N6	1.5m, 13A/100-250V, C13 to C14 Jumper Cord	TCE
Worldwide	4L67A08365	B0N4	2.0m, 10A/100-250V, C13 to C14 Jumper Cord	TCE
Worldwide	4L67A08369	6570	2.0m, 13A/100-250V, C13 to C14 Jumper Cord	TCE
Worldwide	4L67A08366	6311	2.8m, 10A/100-250V, C13 to C14 Jumper Cord	TCE
Worldwide	4L67A08370	6400	2.8m, 13A/100-250V, C13 to C14 Jumper Cord	TCE
Worldwide	39Y7932	6263	4.3m, 10A/100-250V, C13 to C14 Jumper Cord	TCE
Worldwide	4L67A08371	6583	4.3m, 13A/100-250V, C13 to C14 Rack Power Cable	TCE
Rack cables for India - C13 to C14				
India	4L67B10326	CC6R	2.0m, 10A/100-250V, C13 to C14 Jumper Cord (India)	Not TCE
India	4L67B10327	CC6S	2.8m, 10A/100-250V, C13 to C14 Jumper Cord (India)	TCE
India	4L67B10328	CC6T	4.3m, 10A/100-250V, C13 to C14 Jumper Cord (India)	Not TCE

Market/region	Part number	Feature code	Description	Top Choice Express
Rack cables - C13 to C20				
Worldwide	39Y7938	6204	2.8m, 10A/100-250V, C13 to IEC 320-C20 Rack Power Cable	TCE
Rack cables - C13 to C20 (Y-cable)				
Worldwide	47C2491	A3SW	1.2m, 16A/100-250V, 2 Short C13s to Short C20 Rack Power Cable	Not TCE
Worldwide	47C2492	A3SX	2.5m, 16A/100-250V, 2 Long C13s to Short C20 Rack Power Cable	Not TCE
Worldwide	47C2493	A3SY	2.8m, 16A/100-250V, 2 Short C13s to Long C20 Rack Power Cable	Not TCE
Worldwide	47C2494	A3SZ	4.1m, 16A/100-250V, 2 Long C13s to Long C20 Rack Power Cable	Not TCE
Line cords				
Argentina	39Y7930	6222	2.8m, 10A/250V, C13 to IRAM 2073 (Argentina) Line Cord	TCE
Argentina	81Y2384	6492	4.3m,10A/250V, C13/IRAM 2073 (Argentina) Line Cord	TCE
Australia/NZ	39Y7924	6211	Australia/NZ 10A line C13 to SAA-AS C112 (2.8M)	TCE
Australia/NZ	81Y2383	6574	4.3m,10A/250V, C13/AS/NZS 3112/2000 (Australia) Line Cord	TCE
Brazil	69Y1988	6532	2.8m, 10A/250V, C13 to NBR 14136 (Brazil) Line Cord	TCE
Brazil	81Y2387	6404	4.3m,10A/250V, C13/NBR 14136 (Brazil) Line Cord	TCE
China	39Y7928	6210	2.8m, 10A/220V, C13 to GB 2099.1 (China) Line Cord	Not TCE
China	81Y2378	6580	4.3m,10A/250V, C13/GB2099.1 (China) Line Cord	Not TCE
Europe	39Y7917	6212	European 10A line C13 to CEE 7/7 (2.8M)	TCE
Europe	81Y2376	6572	4.3m,10A/230V, C13 to CEE7-VII (Europe) Line Cord	Not TCE
India	39Y7927	6269	2.8m, 6A Line C13 to Fig 68 (India) Line Cord	TCE
India	81Y2386	6567	4.3m, 10A/250V, C13 to IS 6538 (India) Line Cord	TCE
Israel	39Y7920	6218	Israel 10A line C13 to SI 32 (2.8M)	TCE
Italy/Chile	39Y7921	6217	Italy 10A line C13 to CEE 7/7 (2.8M)	TCE
Italy/Chile	81Y2380	6493	4.3m,10A/250V, C13/CEI 23-16 (IT) Line cord	TCE
Japan	46M2593	A1RE	Japan 12A/125V C13 to JIS C-8303 2.8m line cord	TCE
Japan	39Y7926	6335	4.3m, 12A/100V, C13 to JIS C-8303 (Japan) Line Cord	TCE
South Africa	39Y7922	6214	South Africa 10A line C13 to SABS 164/1 (2.8M)	TCE
South Africa	81Y2379	6576	4.3m,10A/250V, C13/SANS 164-1 (South Africa) Line Cord	TCE
South Korea	39Y7925	6219	Korea 7A line C13 to KETI 15A/250V (2.8M)	TCE
South Korea	81Y2385	6494	4.3m, 12A/250V C13/KSC 8305 (Korea) Line Cord	TCE
Switzerland	39Y7919	6216	Switzerland 10A line C13 to SEV 1011 (2.8M)	TCE
Switzerland	81Y2390	6578	4.3m,10A/250V, C13/SEV 1011 (Switzerland)Line Cord	Not TCE
Taiwan	23R7158	6386	Line cord - 2.8m, 10A/125V, C13 to CNS 10917-3 (Taiwan)	TCE
Taiwan	81Y2375	6317	Taiwan 10A/250V C13/CNS 10917 2.8m line cord	TCE
Taiwan	81Y2374	6402	2.8m, 13A/125V, C13 to CNS 60799 (Taiwan) Line Cord	TCE
Taiwan	4L67A08363	AX8B	4.3m, 10A/125V, C13 to CNS 10917 (Taiwan) Line Cord	TCE
Taiwan	81Y2389	6531	4.3m, 10A/250V, C13/CNS 10917 (Taiwan) Line Cord	TCE
Taiwan	81Y2388	6530	Taiwan 13A/125V C13/CNS 10917 4.3m line cord	TCE
UK	39Y7923	6215	United Kingdom 10A line C13 to BS 1363 (2.8M)	TCE

Market/region	Part number	Feature code	Description	Top Choice Express
UK	81Y2377	6577	4.3m,10A/230V, C13 to BS 1363/A (UK) Line Cord	TCE
US/Canada	90Y3016	6313	2.8m, 10A/120V, C13 to NEMA 5-15P (US) Line Cord	TCE
US/Canada	46M2592	A1RF	10A/250V C13 to NEMA 6-15P 2.8m line cord	TCE
US/Canada	00WH545	6401	2.8m, 13A/120V, C13 to NEMA 5-15P (US) Line Cord	TCE
US/Canada	4L67A08359	6370	4.3M, 10A/125V, C13 to NEMA 5-15P (US) Line Cord	TCE
US/Canada	4L67A08361	6373	4.3m, 10A/250V, C13 to NEMA 6-15P (US) Line Cord	TCE
US/Canada	4L67A08360	AX8A	4.3m, 13A/125V, C13 to NEMA 5-15P (US) Line Cord	TCE

Systems management

ST45 V3 offers systems management using Lenovo XClarity Provisioning Manager Lite (LXPM Lite).

Note: The ST45 V3 server does not have an XClarity Controller (XCC) management processor

Lenovo XClarity Provisioning Manager Lite

Lenovo XClarity Provisioning Manager Lite (LXPM Lite) is a USB memory key-based application for system setup and firmware upgrades.

The software tool provides the following functions:

- Easy-to-use, language-selectable graphical interface
- Integrated help system
- Automatic hardware detection
- Ability to install an operating system and device drivers either in an unattended mode or manually
- Ability to clone the settings in one server to other similarly configured Lenovo servers
- Supports RAID setup
- Diagnostics for memory test, hard disk drive test, and RAID log collection.

The LXPM Lite user interface is shown in the following figure.

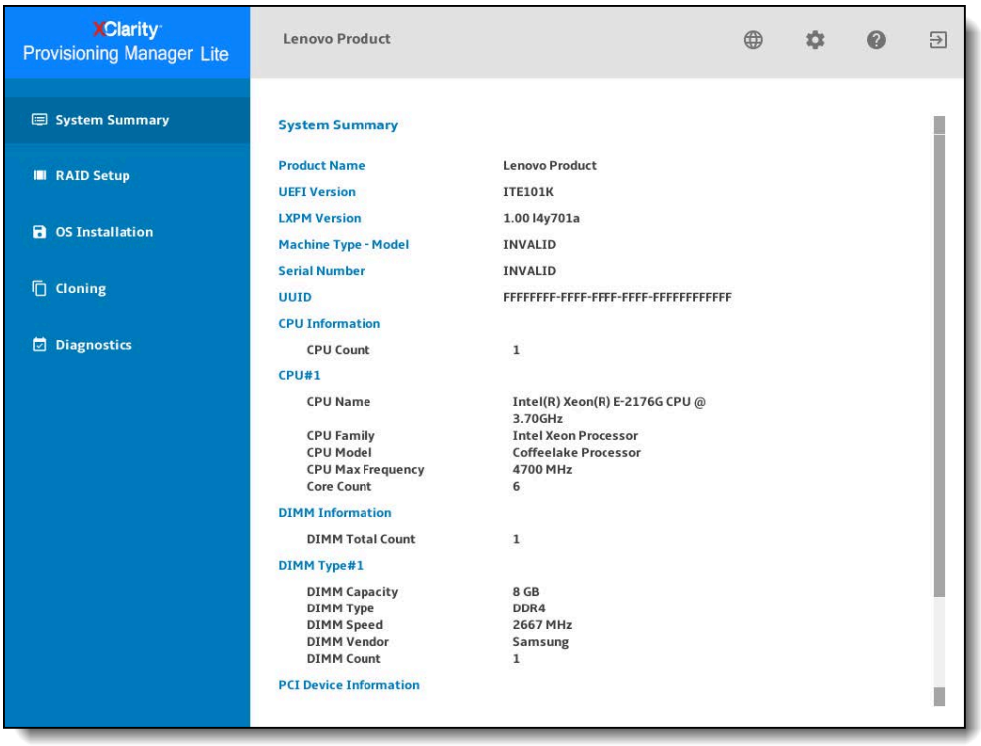

Figure 9. Lenovo XClarity Provisioning Manager Lite user interface

For more information about LXPM Lite, and to download the application, see the following support page: https://datacentersupport.lenovo.com/us/en/solutions/HT507133

Security

The ST45 V3 offers the following security features:

- Electronic security measures:
  - Administrator and power-on passwords
  - Trusted Platform Module (TPM) supporting TPM 2.0
- Mechanical security measures
  - Loop for a padlock to prevent the side panel from being opened
  - Slot at the rear of the server for a Kensington Cable Lock

The ST45 V3 is NIST 800-147 compliant

Security standards

The ST45 V3 supports the following security standards and capabilities:

- **Industry Standard Security Capabilities**
  - AMD CPU Enablement
    - AES-NI (Advanced Encryption Standard New Instructions)
    - GMET (Guest Mode Execute Trap)
    - Hardware-based side channel attack resilience enhancements
    - NX (No eXecute)
    - PSB (Platform Secure Boot)
    - Shadow Stack
    - SME (Secure Memory Encryption)
    - SVM (Secure Virtual Machine)
    - UMIP (User Mode Instruction Prevention)
  - Microsoft Windows Security Enablement
    - Credential Guard
    - Device Guard
    - Host Guardian Service
  - TPM 2.0 (Trusted Platform Module 2.0)
  - UEFI (Unified Extensible Firmware Interface) Forum Secure Boot
- **Platform Security**
  - Resilient firmware implementation, such as to detect and defeat unauthorized flash writes or SMM (System Management Mode) memory incursions
  - Host and management domain authorization, including integration with CyberArk for enterprise password management
  - Reduced “out of box” attack surface
- **Standards Compliance and/or Support**
  - NIST SP800-131A rev 2 “Transitioning the Use of Cryptographic Algorithms and Key Lengths”
  - NIST SP800-147B “BIOS Protection Guidelines for Servers”
  - NIST SP800-193 “Platform Firmware Resiliency Guidelines”
  - ISO/IEC 11889 “Trusted Platform Module Library”
  - Common Criteria TCG Protection Profile for “PC Client Specific TPM 2.0”
  - European Union Commission Regulation 2019/424 (“ErP Lot 9”) “Ecodesign Requirements for Servers and Data Storage Products” Secure Data Deletion
  - Optional FIPS 140-2 validated Self-Encrypting Disks (SEDs) with external KMIP-based key management
- **Product and Supply Chain Security**

- Suppliers validated through Lenovo's Trusted Supplier Program
- Developed in accordance with Lenovo's Secure Development Lifecycle (LSDL)
- Continuous firmware security validation through automated testing, including static code analysis, dynamic network and web vulnerability testing, software composition analysis, and subsystem-specific testing, such as UEFI security configuration validation
- Ongoing security reviews by US-based security experts, with attestation letters available from our third-party security partners
- Digitally signed firmware, stored and built on US-based infrastructure and signed on US-based Hardware Security Modules (HSMs)
- TAA (Trade Agreements Act) compliant manufacturing, by default in Mexico for North American markets with additional US and EU manufacturing options
- US 2019 NDAA (National Defense Authorization Act) Section 889 compliant

Keyboards and Mice

The following table lists the supported full-sized USB keyboards and mice available for Lenovo ThinkSystem servers.

The keyboards have the following features:

- Full-sized 104-key keyboard with 3 special Windows keys
- 3 LEDs for caps lock, scroll lock and num lock
- Wired USB connection with 1.8m cable
- Adjustable feet at the rear of the keyboard

Tip: For keyboards that fit in the rack-mounted console kit, see the KVM console options section, or the ThinkSystem 18.5-inch LCD Console product guide

Table 32. Lenovo Preferred Pro USB Full-sized keyboards - ThinkSystem

Part number	Feature code	Description	Top Choice Express
Mice			
7M57A04698	B0LN	ThinkSystem Optical Wheel Mouse - USB	TCE
Keyboards			
7ZB7A05521	AXTM	ThinkSystem Pref. Pro II USB Keyboard - Arabic	Not TCE
7ZB7A05520	AXTN	ThinkSystem Pref. Pro II USB Keyboard - Arabic/French	Not TCE
7ZB7A05519	AXTP	ThinkSystem Pref. Pro II USB Keyboard - Belgium/French	Not TCE
7ZB7A05518	AXTQ	ThinkSystem Pref. Pro II USB Keyboard - Belgium/UK	Not TCE
7ZB7A05517	AXTR	ThinkSystem Pref. Pro II USB Keyboard - Brazil/Portuguese	Not TCE
7ZB7A05515	AXTS	ThinkSystem Pref. Pro II USB Keyboard - Bulgarian	Not TCE
7ZB7A05511	AXTU	ThinkSystem Pref. Pro II USB Keyboard - Czech	Not TCE
7ZB7A05509	AXTV	ThinkSystem Pref. Pro II USB Keyboard - Danish	Not TCE
7ZB7A05508	AXTW	ThinkSystem Pref. Pro II USB Keyboard - Dutch	Not TCE
7ZB7A05506	AXTX	ThinkSystem Pref. Pro II USB Keyboard - French	TCE
7ZB7A05496	AXTZ	ThinkSystem Pref. Pro II USB Keyboard - French Canadian French	Not TCE
7ZB7A05504	AXTY	ThinkSystem Pref. Pro II USB Keyboard - French Canadian Multilingual	TCE
7ZB7A05495	AXU0	ThinkSystem Pref. Pro II USB Keyboard - German	Not TCE
7ZB7A05494	AXU1	ThinkSystem Pref. Pro II USB Keyboard - Greek	Not TCE
7ZB7A05493	AXU2	ThinkSystem Pref. Pro II USB Keyboard - Hebrew	Not TCE
7ZB7A05492	AXU3	ThinkSystem Pref. Pro II USB Keyboard - Hungarian	Not TCE
7ZB7A05491	AXU4	ThinkSystem Pref. Pro II USB Keyboard - Iceland	Not TCE
7ZB7A05490	AXU5	ThinkSystem Pref. Pro II USB Keyboard - Italy	Not TCE
7ZB7A05489	AXU6	ThinkSystem Pref. Pro II USB Keyboard -Japanese	TCE
7ZB7A05488	AXU7	ThinkSystem Pref. Pro II USB Keyboard - Korean	Not TCE
7ZB7A05487	AXU8	ThinkSystem Pref. Pro II USB Keyboard - LA Spanish	TCE
7ZB7A05486	AXU9	ThinkSystem Pref. Pro II USB Keyboard - Norwegian	Not TCE
7ZB7A05485	AXUA	ThinkSystem Pref. Pro II USB Keyboard - Polish	Not TCE
7ZB7A05484	AXUB	ThinkSystem Pref. Pro II USB Keyboard- Portugese	Not TCE
7ZB7A05483	AXUC	ThinkSystem Pref. Pro II USB Keyboard - Romanian	Not TCE
7ZB7A05482	AXUD	ThinkSystem Pref. Pro II USB Keyboard - Russian/Cy	Not TCE

Part number	Feature code	Description	Top Choice Express
7ZB7A05481	AXUE	ThinkSystem Pref. Pro II USB Keyboard - Serbian/Cyrilic	Not TCE
7ZB7A05480	AXUF	ThinkSystem Pref. Pro II USB Keyboard - Slovak	Not TCE
7ZB7A05471	AXUQ	ThinkSystem Pref. Pro II USB Keyboard - Slovenian	Not TCE
7ZB7A05479	AXUG	ThinkSystem Pref. Pro II USB Keyboard - Spanish	Not TCE
7ZB7A05478	AXUH	ThinkSystem Pref. Pro II USB Keyboard- Swedish/Finn	Not TCE
7ZB7A05477	AXUJ	ThinkSystem Pref. Pro II USB Keyboard - Swiss, F/G	Not TCE
7ZB7A05476	AXUK	ThinkSystem Pref. Pro II USB Keyboard - Thailand	TCE
7ZB7A05513	AXTT	ThinkSystem Pref. Pro II USB Keyboard - Trad Chinese/US	TCE
7ZB7A05474	AXUM	ThinkSystem Pref. Pro II USB Keyboard - Turkish 179	Not TCE
7ZB7A05475	AXUL	ThinkSystem Pref. Pro II USB Keyboard - Turkish 440	Not TCE
7ZB7A05473	AXUN	ThinkSystem Pref. Pro II USB Keyboard - UK English	TCE
7ZB7A05522	AXTL	ThinkSystem Pref. Pro II USB Keyboard - US English	TCE
7ZB7A05472	AXUP	ThinkSystem Pref. Pro II USB Keyboard - US Euro	Not TCE

Video port adapters

The ST45 V3 has two integrated DisplayPort video ports at the back of the server. To use these ports with VGA or HDMI cables, use the dongle adapters listed in the following table.

Tip: Some models include a dongle kit. See the Models section for specifics.

Table 33. Video port dongles

Part number	Feature code	Description	Top Choice Express	Maximum supported
4X97A12099	B365	ThinkSystem DP to VGA Dongle Kit	TCE	2
4X97A12100	B366	ThinkSystem DP to HDMI Dongle Kit	Not TCE	2
4X97A99808	C4TP	ThinkSystem DP to HDMI Dongle Kit v2	Not TCE	2

Maximum display resolutions are as follows:

- Native DisplayPort: 3840 x 2160 pixels (4K) at a refresh rate of 60Hz
- With the DP to VGA Dongle Kit: 1920 x 1200 pixels at 60 Hz
- With the DP to HDMI Dongle Kit: 1920 x 1200 pixels at 60 Hz

Configuration requirements:

- Only one type of dongle can be used at a time. The use of one of each is not supported.

Rack installation

The ST45 V3 can be installed in the rack with the Rack Mount Kit, which converts the server to a rack-mountable server.

Note: The server is a 4U rack mount server, however the rack mount kit adds 1U to the vertical space occupied by the server. The total rack space occupied is 5U.

Part number information is listed in the following table. The kit can only be ordered as an option part number, not in a CTO order.

Table 34. Rack installation options

Part number	Description
4XF7A78620	ThinkSystem ST45/ST50/ST250 Series Rack Mount Kit

The rack mount kit includes the following items:

- 1U tray to hold the server horizontally
- Left and right slide rails
- Cable management arm
- Brackets and other hardware
- Installation instructions

The following table summarizes the rail kit features and specifications.

Table 35. Rail kit features and specifications summary

Feature	ThinkSystem ST45/ST50/ST250 Series Rack Mount Kit
Option part number	4XF7A78620
Rail type	Full-out slide rail (ball bearing)
Toolless installation	Yes
CMA support	Included
Supported rack type	Four-post IBM and Lenovo standard rack, complying with the IEC standard
In-rack server maintenance	No
1U PDU support	Yes
0U PDU support	Limited support**
Supported mounting holes	Square or round
Thickness of mounting flanges	2.0 to 3.3 mm (0.08 to 0.13 inches)
Supported distance between front and rear mounting flanges‡	665 to 900 mm (26.2 to 35.4 inches)
Rail length†	792 mm (31.2 inches)

** If you want to install the rails and a 0U PDU into the same rack, the rack must meet the height and depth requirements as described in ThinkSystem Rail Support Matrix.
‡ For best performance, it is recommended that you install the rails to the racks with a 719-mm distance (28.3-inch, Lenovo rack default distance) between the front and rear mounting flanges.
† Measured when mounted on the rack, from the front surface of the front mounting flange to the rear most point of the rail. Rail is in closed position.

Operating system support

The ST45 V3 with AMD EPYC 4004 series processor supports the following operating systems:

- Microsoft Windows Server 2022
- Microsoft Windows Server 2025
- Red Hat Enterprise Linux 9.4
- Red Hat Enterprise Linux 9.5
- Red Hat Enterprise Linux 9.6
- Red Hat Enterprise Linux 9.7
- Red Hat Enterprise Linux 9.8
- Red Hat Enterprise Linux 10.0
- Red Hat Enterprise Linux 10.1
- Red Hat Enterprise Linux 10.2
- SUSE Linux Enterprise Server 15 SP6
- SUSE Linux Enterprise Server 15 SP7
- SUSE Linux Enterprise Server 16
- Ubuntu 24.04 LTS 64-bit

The ST45 V3 with AMD EPYC 4005 series processor supports the following operating systems:

- Microsoft Windows Server 2022
- Microsoft Windows Server 2025
- Red Hat Enterprise Linux 9.4
- Red Hat Enterprise Linux 9.6
- Red Hat Enterprise Linux 9.7
- Red Hat Enterprise Linux 9.8
- Red Hat Enterprise Linux 10.0
- Red Hat Enterprise Linux 10.1
- Red Hat Enterprise Linux 10.2
- SUSE Linux Enterprise Server 15 SP7
- SUSE Linux Enterprise Server 16
- Ubuntu 24.04 LTS 64-bit

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.com/osig

Additional requirements

Additional requirements for operating systems:

- The ST45 V3 supports UEFI BIOS boot mode only; Legacy boot mode isn't supported.
- The ST45 V3 does not support ACPI S3 (Sleep) or ACPI S4 (Hibernate) modes when running Windows 10 or Windows 11.
- The onboard SATA ports of the server can be used with virtualization hypervisors, including Linux KVM, Xen, and Microsoft Hyper-V Server, however support is limited to AHCI (non-RAID) mode.
- The DisplayPort video ports require the following:
    - Linux: kernel/boot parameter "nomodeset" is added

Physical and electrical specifications

The ST45 V3 has the following overall physical dimensions, including tower feet, excluding components that extend outside the standard chassis, such as power supply handles:

- Width: 170 mm (6.7 inches)
- Height: 376 mm (14.8 inches) (Without Stand - 370 mm)
- Depth: 315 mm (12.4 inches)

The following table lists the detailed dimensions. See the figure below for the definition of each dimension.

Table 36. Detailed dimensions

Dimension	Description
170 mm	X_a = Width, using widest features (not including feet)
132 mm	X_b = Width, with chassis feet extended
376 mm	Y_a = Height, from bottom of feet to top of chassis body
370 mm	Y_b = Height, from bottom of chassis body to top of chassis body
299 mm	Z_a = Depth, from front door to most rearward I/O port surface
316 mm	Z_b = Depth, from front door to deepest feature of the chassis body feature
316 mm	Z_c = Depth, from front door to deepest feature such as power supply handle
37 mm	Z_e = Depth, front door to front plate of chassis body

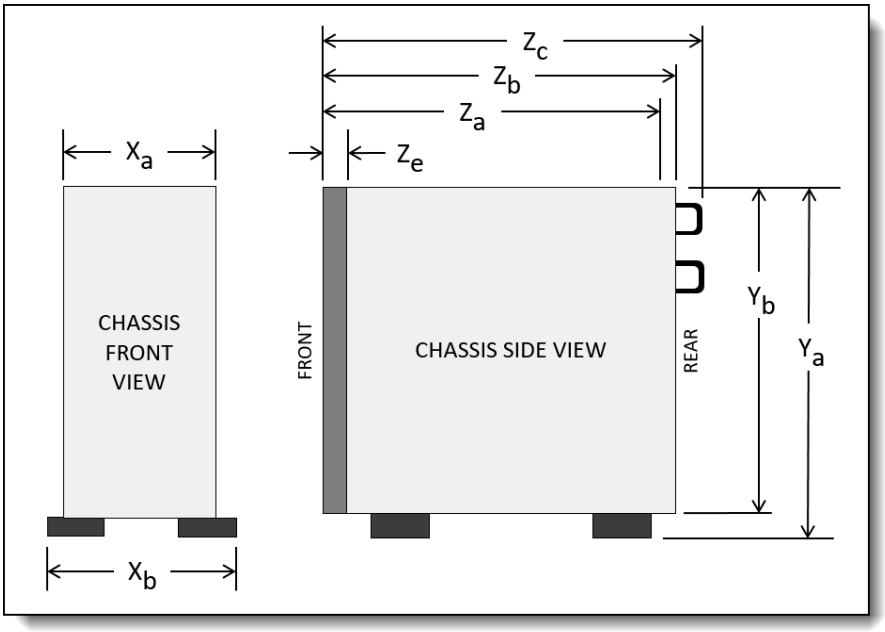

Figure 10. Server dimension

The shipping (cardboard packaging) dimensions of the ST45 V3 are as follows:

- Width: 280 mm (11.0 inches)
- Height: 540 mm (21.3 inches)
- Depth: 420 mm (16.5 inches)

The server has the following weight:

- Maximum: 8.56 kg (18.87 lb)

Electrical requirements are as follows:

- Fixed ATX 300-watt Single-Output Gold
  - Input power 115 Vac or 230 Vac
- Fixed ATX 500-watt Multi-Output Platinum
  - Input power 115 Vac or 230 Vac

Operating environment

The ST45 V3 server complies with ASHRAE Class A2 specifications.

Temperature and humidity

The server is supported in the following environment:

- Air temperature:
  - Operating:
    - ASHRAE 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).
  - Server off: 5°C to 45°C (41°F to 113°F)
  - Shipment/storage: -20°C to 60°C (-4°F to 140°F)
- Maximum altitude: 3,050 m (10,000 ft), derated 1°C per 300 m above 950 m
- Relative Humidity (non-condensing):
  - Operating
    - ASHRAE Class A2: 8% to 80%; maximum dew point: 21°C (70°F)
  - Shipment/storage: 8% to 90%

Acoustic noise emissions

The server has the following acoustic noise emissions declaration:

- Sound power level (L_{WAd}):
  - Idling: Typical: 3.5 Bel, Maximum: 5.0 Bel
  - Operating: Typical: 5.4 Bel, Maximum: 5.4 Bel
- Sound pressure level (L_{pAm}):
  - Idling: Typical: 25 dBA, Maximum: 37 dBA
  - Operating: Typical: 40 dBA, Maximum: 40 dBA

Note:

- These sound levels were measured in controlled acoustical environments according to procedures specified by ISO 7779 and are reported in accordance with ISO 9296.
- The declared acoustic sound levels are based on the following configurations, which may change depending on configuration/conditions:
  - Typical: 1x 80W CPU, 4x 32GB DIMM, 2x HDD or SSD, 1x 960G M.2, RAID 5350-8i, 1x 300W PSU
  - Maximum: 1x 95W CPU, 4x 32GB DIMM, 2x HDD or SSD, 1x 960G M.2, 1x T1000GPU, 1x 500W PSU

Heat output

The server generates the following heat:

- Heat/thermal output:
  - Minimum configuration: 443 BTU/hr, 130 W
  - Maximum configuration: 754 BTU/hr, 221 W

Shock and vibration

The server has the following vibration and shock limits:

- Vibration:
  - Operating: 0.21 G rms at 5 Hz to 500 Hz for 15 minutes across 3 axes
  - Non-operating: 1.04 G rms at 2 Hz to 200 Hz for 15 minutes across 6 surfaces
- Shock:
  - Operating: 15 G for 3 milliseconds in each direction (positive and negative X, Y, and Z axes)
  - Non-operating:
    - 4 kg - 11 kg: 50 G for 167 in./sec velocity change across 6 surfaces

Particulate contamination

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 damage the system that might cause the system to malfunction or stop working altogether.

The following specifications indicate the limits of particulates that the system can tolerate:

- Reactive gases:
  - The copper reactivity level shall be less than 200 Angstroms per month (Å/month)
  - The silver reactivity level shall be less than 200 Å/month
- Airborne particulates:
  - The room air should be continuously filtered with MERV 8 filters.
  - Air entering a data center should be filtered with MERV 11 or preferably MERV 13 filters.
  - The deliquescent relative humidity of the particulate contamination should be more than 60% RH
  - Environment must be free of zinc whiskers

For additional information, see the Specifications section of the documentation for the server, available from the Lenovo Documents site, https://pubs.lenovo.com/

Warranty upgrades and post-warranty support

The ST45 V3 has a 1-year or 3-year warranty, based on the machine type of the system:

- 7DH4 - 1 year warranty
- 7DH5 - 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.

* Some service levels may not be available in all markets. Contact your sales representative for more information.

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://lenovolocator.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 Support Plus (PSP) for Servers 24x7 4-Hour Response**

  Helping customers reduce unplanned downtime by moving from reactive support to proactive and preventative care

- **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 ST45 V3 conforms to the following standards:

- ANSI/UL 62368-1
- IEC 62368-1 (CB Certificate and CB Test Report)
- CSA C22.2 No. 62368-1
- Argentina IEC 60950-1
- Mexico NOM-019
- India BIS 13252 (Part 1)
- Germany GS
- TUV-GS (EN62368-1, and EK1-ITB2000)
- Brazil INMETRO
- Ukraine UkrCEPRO
- Morocco CMIM Certification (CM)
- Russia, Belorussia and Kazakhstan, TP EAC 037/2016 (for RoHS)
- Russia, Belorussia and Kazakhstan, EAC: TP TC 004/2011 (for Safety); TP TC 020/2011 (for EMC)
- CE, UKCA Mark (EN55032 Class A, EN62368-1, EN55024, EN55035, EN61000-3-2, EN61000-3-3, (EU) 2019/424, and EN IEC 63000 (RoHS))
- FCC - Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003, issue 7, Class A
- CISPR 32, Class A, CISPR 35
- Korea KN32, Class A, KN35
- Japan VCCI, Class A
- Taiwan BSMI CNS15936, Class A; CNS15598-1; Section 5 of CNS15663
- Australia/New Zealand AS/NZS CISPR 32, Class A; AS/NZS 62368.1
- UL Green Guard, UL2819
- Energy Star 4.0
- EPEAT (NSF/ ANSI 426) Bronze
- Japanese Energy-Saving Act
- EU2019/424 Energy Related Product (ErP Lot9)
- China CCC certificate, GB17625.1; GB4943.1; GB/T9254
- China CECP certificate, CQC3135
- China CELP certificate, HJ 2507-2011

External backup units

The following table lists the external RDX backup options available.

Table 37. External RDX dock and cartridges

Part number	Feature code	Description

For more information, see the Lenovo RDX USB 3.0 Disk Backup Solution product guide:
https://lenovopress.com/tips0894-rdx-usb-30

Uninterruptible power supply units

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

Table 38. Uninterruptible power supply units

Part number	Description
Tower UPS units - 100-125VAC	
7DD6A002WW	T1.5kVA Tower UPS-G2 (100-125VAC)
Tower UPS units - 200-240VAC	
7DD6A003WW	T1.5kVA Tower UPS-G2 (200-240VAC)
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)

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 39. 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	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
0U Switched and Monitored PDUs															
4PU7B08148	CD15	0U 3 C13 and 18 C19 Monitored 48A 3 Phase WYE PDU	N	N	N	N	N	N	N	N	N	N	N	Y	N
4PU7B08149	CD16	0U 3 C13 and 18 C19 Monitored 63A 3 Phase WYE PDU	N	N	N	Y	N	N	Y	N	N	N	N	N	N
4PU7A93181	C0QN	0U 21 C13/C15 and 21 C13/C15/C19 Switched and Monitored 60A 3 Phase Delta PDU	N	Y	N	N	N	N	N	Y	N	Y	N	Y	N
4PU7A93178	C0QK	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A93180	C0QM	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	Y	Y	Y	Y
4PU7A93179	C0QL	0U 16 C13/C15 and 16 C13/C15/C19 Switched and Monitored 30A 1 Phase PDU	N	Y	N	N	N	N	N	Y	N	Y	Y	Y	N
1U Basic PDUs															
4PU7B12339	CE6L	1U Basic 16A 1 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
1U Switched and Monitored PDUs															
4PU7A90809	C0DE	1U 18 C19/C13 Switched and monitored 48A 3P WYE PDU V2 CE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
4PU7A90810	C0DD	1U 18 C19/C13 Switched and monitored 80A 3P Delta PDU V2	N	N	N	N	N	N	N	Y	N	Y	Y	Y	N
4PU7A90811	C0DC	1U 12 C19/C13 Switched and monitored 32A 3P WYE PDU V2	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	Y	N	Y	Y	Y	N
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

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 40. 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 42. KVM switches and options

Part number	Description
KVM Console switches	
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

Lenovo Financial Services

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

- **Flexible**

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

- **100% Solution Financing**

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

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

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

- **24/7 Asset management**

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

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

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

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

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: Intel Xeon 6 & Ethernet NIC update**
   2026-07-14 | 60 minutes | Employees and Partners

   In this 60 minute replay, Madhu Bramharouthu and Raj Pathak from Intel presented the latest information on Xeon 6 processors and Intel Ethernet adapters.

   Published: 2026-07-14
   Length: 60 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: JUL1026

2. **Lenovo Data Center Technical Certification Exam Study Guide**
   2026-07-13 | 10 minutes | Employees and Partners

   This guide includes information to help candidates prepare and register for the Data Center Technical practice and certification exams.

   Published: 2026-07-13
   Length: 10 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: LENU-322C-SG

3. **Lenovo Data Center Sales Certification Exam Study Guide**
   2026-07-13 | 10 minutes | Employees and Partners

   This guide includes information to help candidates prepare and register for the Data Center Sales practice and certification exams.

   Published: 2026-07-13
   Length: 10 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: LENU-122C-SG

4. **Partner Technical Webinar - TCE, DCSC, Enterprise Solutions, & LBPe ISG Financing**
   2026-06-09 | 60 minutes | Employees and Partners

   In this 60-minute replay, we received updates from George Scarbrough on TCE, Amit Chandok on the DCSC, Tracie Heath Garcia on LBPe ISG Financing, and Alejandro Perez Quintero on Enterprise IT Solutions.

   Published: 2026-06-09
   Length: 60 minutes

   > **Start the training:**
   > Employee link: Grow@Lenovo
   > Partner link: Lenovo 360 Learning Center

   Course code: JUN0526
5. **Identifying Opportunities for Lenovo Solutions at the Edge**
   2026-05-27 | 25 minutes | Employees and Partners

   Sellers should walk away with the ability to identify an opportunity for Lenovo solutions at the Edge.
   Objectives:
   - Present an overview of Lenovo solution offerings for Edge computing
   - Articulate how a Lenovo solution at the Edge can help your customer
   - Access Lenovo seller resources for selling Edge solutions

   Published: 2026-05-27
   Length: 25 minutes

   > **Start the training:**
   > Employee link: Grow@Lenovo
   > Partner link: Lenovo 360 Learning Center

   Course code: DTEF102r2
6. **Partner Technical Webinar - mAInstream Volume Enterprise AI**
   2026-05-11 | 45 minutes | Employees and Partners

   In this 45 minute replay, Alex “Doc” Docherty, Lenovo AI Technology for NA Channel, discussed Mainstream and volume Servers for enterprise AI solutions. He talked about the need, the supply and some new programs for the channel.

   Published: 2026-05-11
   Length: 45 minutes

   > **Start the training:**
   > Employee link: Grow@Lenovo
   > Partner link: Lenovo 360 Learning Center

   Course code: MAY0826

7. **Partner Technical Webinar - AI Servers**
   2026-04-20 | 30 minutes | Employees and Partners

   In this 30 minute replay, Mark Bica, Lenovo NA ISG Server Product Manager, presented the Lenovo AI Servers. Mark also gave an update on M.2 changes the latest with TCE (Top Choice Express).

   Published: 2026-04-20
   Length: 30 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: APR1726

8. **Partner Technical Webinar - Server Review Racks, Towers & Edge**
   2026-03-16 | 60 minutes | Employees and Partners

   In this 60-minute replay, the Channel Solution Architect team provides an overview of the Lenovo ISG server portfolio. Eugene Grandberry, Ian Sloan, and Chris Laffey cover Towers, Racks, Edge, and TCE.

   Published: 2026-03-16
   Length: 60 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: MAR1326

9. **ISG Smarter Tools, Faster Deals and Better Outcomes**
   2026-02-27 | 40 minutes | Employees and Partners

   In this 40-minute video, we review several tools and programs from Lenovo ISG to help our Partners' Data Center selling efforts: Smarter Tools / Faster Deals / Better Outcomes. We cover Top Choice Express, our premier program for supply optimized solutions. We next demonstrated DCSC, the Data Center Solution Configurator, Compete Tool for comparisons with our competition, and XClarity One, the next evolution of our XClarity Systems Management tool.

   Tags: DataCenter Products

   Published: 2026-02-27
   Length: 40 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: FEB2426

10. **ThinkSystem Rackmount and Tower Servers powered by AMD**
    2026-02-23 | 25 minutes | Employees and Partners

    This course presents the key products and features of the ThinkSystem Rackmount and Tower server family powered by AMD processors. It describes customer benefits and will help you recognize when a specific product should be selected.

    By the end of this course, you should be able to:
    - Identify products and features within the family
    - Describe customer benefits offered by this family
    - Recognize when a specific product should be selected

    Last updated: 2/24/2026

    Tags: Server, ThinkSystem

    Published: 2026-02-23
    Length: 25 minutes

    Start the training:
    Employee link: Grow@Lenovo
    Partner link: Lenovo 360 Learning Center

    Course code: SXXW1216r11
11. **OneIQ Overview and Demo**
    2026-02-10 | 35 minutes | Employees and Partners

    In this 35-minute video, Peter Grant, Head of Customer Experience for OneIQ, presents and overview and demo of OneIQ for Lenovo Partners.

    Tags: Sales Tools

    Published: 2026-02-10
    Length: 35 minutes

    Start the training:
    Employee link: Grow@Lenovo
    Partner link: Lenovo 360 Learning Center

    Course code: ONEIQ101

12. **Family Portfolio: ThinkSystem Rack and Tower Servers Powered by Intel**
    2026-02-04 | 25 minutes | Employees and Partners

    This course is designed to give Lenovo sales and partner representatives a foundation of the ThinkSystem Intel Rackmount and Tower server family.
    After completing this course, you will be able to:
    - Identify products within this ThinkSystem server family
    - Describe features of this family
    - Recognize when a specific product should be selected

    Tags: Server, ThinkSystem

    Published: 2026-02-04
    Length: 25 minutes

    Start the training:
    Employee link: Grow@Lenovo
    Partner link: Lenovo 360 Learning Center

    Course code: SXXW1204r15

13. **ThinkSystem Rack & Tower Server Primer - Module 2**
    2025-12-17 | 45 minutes | Employees Only

    This course builds on the foundational concepts from the prework modules, helping Client Managers deepen their understanding of ThinkSystem Rack and Tower Servers and apply that knowledge to confidently initiate value-driven customer conversations. Please Note: The videos in this course are taken from the Module 2 live session led by Tikiri Wandregala.

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

    - Demonstrate the ability to initiate a data center discussion with a customer.
    - Analyze and evaluate potential data center opportunities.
    - Apply criteria to effectively qualify an opportunity.
    - Locate and differentiate key resources and contacts.

    Tags: DataCenter Products, ThinkSystem

    Published: 2025-12-17
    Length: 45 minutes

    Start the training:
    Employee link: Grow@Lenovo

    Course code: DSRTB101

14. **Partner Technical Webinar - Mainstream CPUs**
    2025-09-29 | 40 minutes | Employees and Partners

    In this 40-minute replay, Brad Violand, Lenovo ISG Category team, reviewed the strategy to optimize the CPU portfolio and ensuing changes to DCSC planned for October 1, 2025.

    Tags: Server

    Published: 2025-09-29
    Length: 40 minutes

    Start the training:
    Employee link: Grow@Lenovo
    Partner link: Lenovo 360 Learning Center

    Course code: SEP2625
15. **Partner Technical Webinar - ISG Portfolio - Wayne's World**
    2025-09-25 | 60 minutes | Employees and Partners

    In this 60-minute replay, Wayne Pecht, Lenovo Channel SA, shared his extensive experience and unique approach to the ISG Portfolio "Wayne's World for Lenovo ISG"!

    Tags: Channel, Technical Sales

    Published: 2025-09-25
    Length: 60 minutes

    Start the training:
    Employee link: Grow@Lenovo
    Partner link: Lenovo 360 Learning Center

    Course code: SEP1925
16. **Think AI Weekly: ISG & SSG Better Together: Uniting AI Solutions & Services for Smarter Outcomes**
    2025-08-01 | 55 minutes | Employees Only

    View this session to hear from our speakers Allen Holmes, AI Technologist, ISG and Balaji Subramaniam, AI Regional Leader-Americas, SSG.

    Topics include:

    • An overview of ISG & SSG AI CoE Offerings with Customer Case Studies
    • The Enterprise AI Deal Engagement Flow with ISG and SSG
    • How sellers can leverage this partnership to differentiate with Enterprise clients.
    • NEW COURSE: From Inception to Execution: Evolution of an AI Deal

    Tags: Artificial Intelligence (AI), Sales, Services, Technology Solutions, TruScale Infrastructure as a Service

    Published: 2025-08-01
    Length: 55 minutes

    Start the training:
    Employee link: Grow@Lenovo

    Course code: DTAIW145

17. **VTT-HPC: Explaining HPC Benchmarking: Processes, Standards and Best Practices**
2025-07-30 | 87 minutes | Employees Only

Please join us as Eric Michel, HPC & AI Performance Team Coordinator and Kevin Dean, Sr Manager, HPC Performance, Projection & Operations speak with us about HPC Benchmarking.

Topics will include:

• Why sellers need to request benchmarks
• How to request benchmarks
• How the team performs a benchmark
• The performance database
• Demonstration of the tool

Tags: Advanced Data Center, High Performance Computing (HPC), Technical Sales

Published: 2025-07-30
Length: 87 minutes

Start the training:
Employee link: Grow@Lenovo

Course code: DVHPC224

18. **Family Portfolio: Server Component Options**
2025-07-21 | 20 minutes | Employees and Partners

This course covers opportunities that are available to upsell server components. By upselling the correct components, you can increase the size and revenue of the original sale.
After completing this course, you should be able to:
• Identify the opportunities for an upsell
• Recognize when specific products should be discussed
• Emphasize how a product benefits the customer
• Identify keywords that indicate upsell opportunities

Tags: Server, Storage

Published: 2025-07-21
Length: 20 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: SXXW1109r2

19. **ThinkSystem Rack and Tower Introduction for ISO Client Managers**
    2025-06-16 | 20 minutes | Employees Only

    In this course, you will learn about Lenovo's Data Center Portfolio, its ThinkSystem Family and the key features of the Rack and Tower servers. It will equip you with foundational knowledge which you can then expand upon by participating in the facilitated session of the curriculum.

    Tags: Server, ThinkSystem

    Published: 2025-06-16
    Length: 20 minutes

    Start the training:
    Employee link: Grow@Lenovo

    Course code: DSRTO101r2_JP

20. **Lenovo Data Center Product Portfolio**
    2025-06-11 | 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.

    Course objectives:
    1.Identify product types within each data center family
    2.Describe the features of the product family or category
    3.Recognize when a specific product should be selected

    Tags: Advanced DataCenter, DataCenter Products, Server, ThinkAgile, ThinkEdge, ThinkSystem

    Published: 2025-06-11
    Length: 20 minutes

    Start the training:
    Employee link: Grow@Lenovo
    Partner link: Lenovo 360 Learning Center

    Course code: SXXW1110r8

21. **VTT HPC: AI and the Impact on the Environment**
2025-06-11 | 58 minutes | Employees Only

Please join us as Matthew Ziegler, Director of Lenovo Neptune and Sustainability speaks with us about AI and the Impact on the Environment.

Topics will include:

- Why is ESG essential for your customer?
- How to find and read an eco declaration
- What is a product carbon footprint?
- Demo of the Lenovo Capacity Planner

Tags: Advanced DataCenter, Artificial Intelligence (AI), Environmental Social Governance (ESG), High-Performance Computing (HPC), Server

Published: 2025-06-11
Length: 58 minutes

Start the training:
Employee link: Grow@Lenovo

Course code: DVHPC223

22. **Family Portfolio: Storage Controller Options**
2025-03-03 | 25 minutes | Employees and Partners

This course covers the storage controller options available for use in Lenovo servers. The classes of storage controller are discussed, along with a discussion of where they are used, and which to choose.

After completing this course, you will be able to:
• Describe the classes of storage controllers
• Discuss where each controller class is used
• Describe the available options in each controller class

Tags: Sales, Storage

Published: 2025-03-03
Length: 25 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: SXXW1111r2

23. **ThinkSystem Rack and Tower Introduction for ISO Client Managers**
2024-12-10 | 20 minutes | Employees Only

In this course, you will learn about Lenovo's Data Center Portfolio, its ThinkSystem Family and the key features of the Rack and Tower servers. It will equip you with foundational knowledge which you can then expand upon by participating in the facilitated session of the curriculum.

Course Objectives:
• By the end of this course, you should be able to:
• Identify Lenovo's main data center brands.
• Describe the key components of the ThinkSystem Family servers.
• Differentiate between the Rack and Tower servers of the ThinkSystem Family.
• Understand the value Rack and Tower servers can provide to customers.

Tags: Server, ThinkSystem

Published: 2024-12-10
Length: 20 minutes

Start the training:
Employee link: Grow@Lenovo

Course code: DSRTO101r2

24. **Q3 Solutions Launch AMD Powered ST45 V3 Quick Hit**
2024-11-25 | 3 minutes | Employees and Partners

The Lenovo ThinkSystem ST45 V3, the first Lenovo tower server with an AMD processor, is a compact-sized and affordable single-socket entry tower design optimized for SOHO (Small Office/Home Office), educational institutions, and retail offices. Target roles include file server, mail server, print server, FTP server, business application server and near-side data backup server.

Tags: Data Management, Server, ThinkSystem

Published: 2024-11-25
Length: 3 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: SXXW1216r10a

25. **SAP Webinar for Lenovo Sellers: Lenovo Portfolio Update for SAP Landscapes**
2024-06-04 | 60 minutes | Employees Only

Join Mark Kelly, Advisory IT Architect with the Lenovo Global SAP Center of Competence as he discusses:
•Challenges in the SAP environment
•Lenovo On-premise Solutions for SAP
•Lenovo support resources for SAP solutions

Tags: SAP, ThinkAgile, ThinkEdge, ThinkSystem

Published: 2024-06-04
Length: 60 minutes

Start the training:
Employee link: Grow@Lenovo

Course code: DSAPF101

Related publications and links

For more information, see these resources:

- ThinkSystem ST45 V3 product page
  https://www.lenovo.com/us/en/p/servers-storage/servers/towers/lenovo-thinksystem-st45-v3/len21ts0040
- ThinkSystem ST45 V3 interactive 3D tour
  https://lenovopress.lenovo.com/lp2102
- ThinkSystem ST45 V3 drivers and support
  https://datacentersupport.lenovo.com/us/en/products/servers/thinksystem/st45v3/7dh5/downloads/driver-list/
- ST45 V3 hardware repair & replacement videos:
  https://www.youtube.com/playlist?list=PLYV5R7hVcs-DKUk29sK29E8nXRlYLZY19
- ThinkSystem ST45 V3 product publications:
  https://pubs.lenovo.com/st45-v3/pdf_files
  - Tower-to-Rack Conversion Kit Installation Instructions
  - Setup Guide
    - System Configuration Guide
    - Hardware Maintenance Guide
- ServerProven hardware compatibility:
  http://www.lenovo.com/us/en/serverproven

Related product families

Product families related to this document are the following:

- 1-Socket Tower Servers
- ThinkSystem ST45 V3 Server

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