

ThinkSystem SE350 and ThinkSystem SE350 Enclosures Maintenance Manual

Lenovo logo with the trademark symbol, ThinkServer logo with the registered trademark symbol Think artworkLenovo logo with the trademark symbol

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Lenovo
ThinkSystem SE350 and ThinkSystem SE350 Enclosures Maintenance Manual

Note

Before using this information and the product it supports, be sure to read and understand the safety information and the safety instructions, which are available at:

http://thinksystem.lenovofiles.com/help/topic/safety_documentation/pdf_files.html

In addition, be sure that you are familiar with the terms and conditions of the Lenovo warranty for your server, which can be found at:

<http://datacentersupport.lenovo.com/warrantylookup>

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Safety

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الأمنية

Antes de instalar este producto, leia as Informações de Segurança.

□□□□□□□□□□□□□ Safety Information □□□□□□□

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας (safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

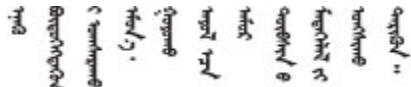
A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報を読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.



Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este producto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по технике безопасности.

Pred inštaláciou tohto zariadenia si pečítaje Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto, lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

ସନ୍ତାନୁଷ୍ଠାନ ପରିବହଣ କାର୍ଯ୍ୟକ୍ଷେତ୍ର ପରିବହଣ କାର୍ଯ୍ୟକ୍ଷେତ୍ର
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Bu ürünü kurmadan önce güvenlik bilgilerini okuyun.

هەزكۈر مەھسۇلاتنى ئورنىشىتىن يۈرۈن بىخەتلەلىك ئەجۇھە لېرىنى ئوقۇپ چىقىلە.

Youq mwngz yungh canjbinj neix gaxgonq, itdingh aeu doeg aen canjbinj soengq cungj vahgangi ancien siusik.

Safety inspection checklist

Use the information in this section to identify potentially unsafe conditions with your server. As each machine was designed and built, required safety items were installed to protect users and service technicians from injury.

Note

The product is not suitable for use at visual display workplaces according to §2 of the Workplace Regulations.

Important

Electrical grounding of the server is required for operator safety and correct system function. Proper grounding of the electrical outlet can be verified by a certified electrician.

S041



CAUTION

- This equipment must be installed or serviced by trained personnel, as defined by the NEC, IEC 62368-1 and IEC 60950-1, the standard for Safety of Electronic Equipment within the Field of Audio/Video, Information Technology and Communication Technology.
 - Access to the equipment is by the use of a tool, lock and key, or other means of security, and is controlled by the authority responsible for the location.



Make sure all power cords are disconnected from the system when reading the following step in this manual: *Turn off the server. Disconnect the power cords and all external cables.*

Use the following checklist to verify that there are no potentially unsafe conditions:

1. Make sure that the power is off and the power cord is disconnected.
 2. Check the power cord.

- Make sure that the third-wire ground connector is in good condition. Use a meter to measure third-wire ground continuity for 0.1 ohm or less between the external ground pin and the frame ground.
- Make sure that the power cord is the correct type.

To view the power cords that are available for the server:

- a. Go to:

<http://dcsc.lenovo.com/#/>

- b. In the Customize a Model pane:

- i. Click **Select Options/Parts for a Model**.

- ii. Enter the machine type and model for your server.

- c. Click the Power tab to see all line cords.

- Make sure that the insulation is not frayed or worn.

3. Check for any obvious non-Lenovo alterations. Use good judgment as to the safety of any non-Lenovo alterations.

4. Check inside the server for any obvious unsafe conditions, such as metal filings, contamination, water or other liquid, or signs of fire or smoke damage.

5. Check for worn, frayed, or pinched cables.

6. Make sure that the power-supply cover fasteners (screws or rivets) have not been removed or tampered with.

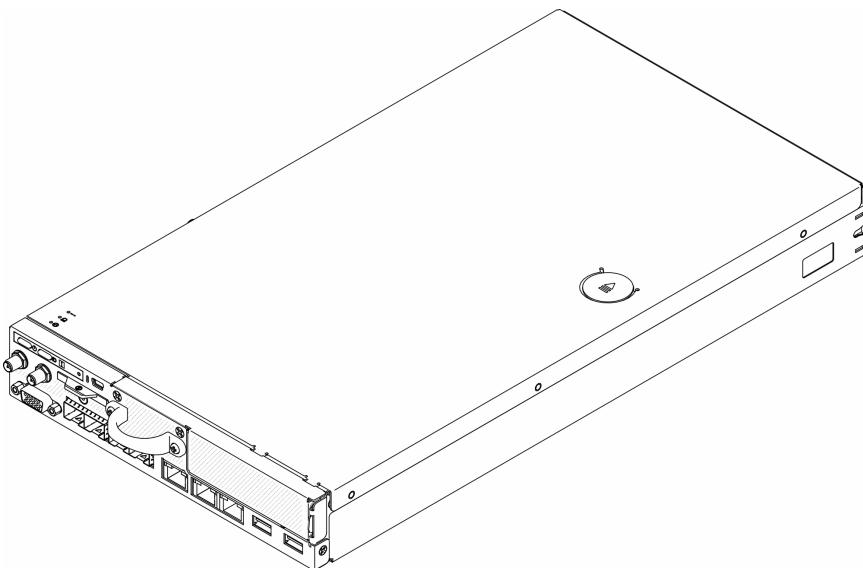
1 Introduction

Topics Covered in this Chapter

- ♦ Specifications
- ♦ Firmware updates
- ♦ Tech Tips
- ♦ Security advisories
- ♦ Power on the server
- ♦ Power off the server

The ThinkSystem SE350 server is a new edge server offering. It is specifically designed to meet the needs at IoT and edge locations. The ThinkSystem SE350 is a compact sized edge solution with a focus on smart connectivity, business security and manageability for the harsh environment. Built for long life and dependable performance to support your demanding IoT workloads at the Edge. Compact it is designed for the non-datacenter environment, ideal for remote locations such as retail, manufacturing and factory locations.

Figure 1.1. ThinkSystem SE350



The server comes with a limited warranty. For details about the warranty, see:
<https://support.lenovo.com/us/en/solutions/ht503310>

For details about your specific warranty, see:
<http://datacentersupport.lenovo.com/warrantylookup>

1.1 Specifications

The following information is a summary of the features and specifications of the server. Depending on the model, some features might not be available, or some specifications might not apply.

Table 1.1. Server Specifications

Specification	Description
Size	<p>Node</p> <ul style="list-style-type: none"> • Height: 43.2 mm (1.7 inches) • Width: 209 mm (8.2 inches) • Depth: 376.1 mm (14.8 inches) <p>E1 Enclosure (1U 2-node):</p> <ul style="list-style-type: none"> • Height: 43 mm (1.69 inches) • Width: 439.2 mm (17.29 inches, from EIA bracket to EIA bracket) • Depth: 773.12 mm (30.44 inches) • Weight: 10 kg (with 1 node and 2 power adapters), 15 kg (with 4 power adapters) <p>E2 Enclosure (2U 2-node):</p> <ul style="list-style-type: none"> • Height: 86.9 mm (3.42 inches) • Width: 439.2 mm (17.29 inches, from EIA bracket to EIA bracket) • Depth: 476.12 mm (18.74 inches) • Weight: 10 kg (with 1 node and 2 power adapters), 15 kg (with 4 power adapters)
Weight	<p>Node</p> <ul style="list-style-type: none"> • Maximum: 3.6 kg (7.9 lbs)
Processor (depending on the model)	<p>One Intel® Xeon® processor D-2100 product family</p> <p>Note</p> <ol style="list-style-type: none"> 1. Use the Setup utility to determine the type and speed of the processors in the node. 2. For a list of supported processors, see https://static.lenovo.com/us/en/serverproven/index.shtml.

Specification	Description
Memory	<ul style="list-style-type: none">• Slots: 4 DIMM slots• Minimum: 8 GB (1 x 8GB RDIMM)• Maximum: 256 GB (4 x 64GB LRDIMM)• Type:<ul style="list-style-type: none">– PC4-21300 (single-rank, dual-rank), 2666 MT/s, error correcting code (ECC), double-data-rate 4 (DDR4) registered DIMM (RDIMM)– PC4-21300 (quad-rank), 2666 MT/s, error correcting code (ECC), double-data-rate 4 (DDR4) load reduced DIMM (LRDIMM) <p>Note</p> <p>For a list of supported processors, see https://static.lenovo.com/us/en/serverproven/index.shtml.</p>

Specification	Description
M.2 drive	<p>M.2 boot adapter</p> <ul style="list-style-type: none"> • Supports up to two identical M.2 SATA drives • Supports three different physical sizes of M.2 drives: <ul style="list-style-type: none"> – 42 mm (2242) – 60 mm (2260) – 80 mm (2280) <p>M.2 data adapter</p> <ul style="list-style-type: none"> • PCIe and M.2 riser assembly: <ul style="list-style-type: none"> – Supports up to four M.2 SATA/NVMe drives • M.2 riser assembly <ul style="list-style-type: none"> – Supports up to eight M.2 NVMe drives – Supports up to four NVMe and four SATA drives • Supports four different physical sizes of M.2 drives: <ul style="list-style-type: none"> – 42 mm (2242) – 60 mm (2260) – 80 mm (2280) – 110 mm (22110) <p>Note</p> <ul style="list-style-type: none"> • M.2 drives installed on boot adapter and on data adapter are not swappable. • M.2 connector type: socket 3 (M key) • Mixing SATA drives and NVMe drives in the same M.2 SATA/NVMe 4-bay data adapter is not supported.
PCIe riser assembly	<p>PCIe and M.2 riser assembly:</p> <ul style="list-style-type: none"> • Slot 6: PCI Express 3.0 x16, (supports <75W, low profile, half-height, half-length PCIe adapter)

Specification	Description
WLAN	<ul style="list-style-type: none"> • WLAN: IEEE 802.11 a/b/g/n/ac • MIMO: 2x2 MIMO • Interfaces: WLAN: PCIe x1 • Antenna configuration: 2xIPEX (MHF4) connector • Form factor: M.2 2230 • Maximum number of concurrent user connection (AP mode): eight • Security: <ul style="list-style-type: none"> – AP mode supports WPA2 Personal – Station mode supports both WPA2 Enterprise and Personal • Working Band: <ul style="list-style-type: none"> – AP Mode: 2.4GHz – Station Mode: 2.4GHz/5GHz <p>Note</p> <ul style="list-style-type: none"> • WLAN performance may vary depending on your configuration and environment. • Wireless signal quality may be affected when installed in a rack or cabinet.
LTE	<ul style="list-style-type: none"> • 3GPP Release 11 • Category: Cat9 • Region: Global • Operating mode: FDD/TDD • Data transmission: up to 450Mbps DL/50Mbps UL • Function interface: USB 3.0 • Antenna configuration: 2xIPEX (MHF4) connector • Form factor: M.2 3042 <p>Note</p> <ul style="list-style-type: none"> • LTE performance may vary depending on your configuration and environment. • Wireless signal quality may be affected when installed in a rack or cabinet.

Specification	Description
Integrated functions	<ul style="list-style-type: none"> • Lenovo XClarity Controller, which provides service processor control and monitoring functions, video controller, and remote keyboard, video, mouse, and remote drive capabilities. • Front operator panel • LOM module connector (front of server): <ul style="list-style-type: none"> – 10G SFP⁺ LOM Package <ul style="list-style-type: none"> ◆ Two USB 3.1 Gen 1 connectors ◆ Two 1Gb Ethernet connectors ◆ Two Lenovo XClarity Controller network connectors ◆ Two 10Gb SFP⁺ connectors ◆ One VGA connector – Wireless enabled LOM Package <ul style="list-style-type: none"> ◆ Two USB 3.1 Gen 1 connectors ◆ Two 1Gb Ethernet connectors ◆ One Lenovo XClarity Controller network connector ◆ Two 1Gb SFP connectors ◆ Two 10Gb SFP⁺ connectors ◆ One VGA connector – 10G BASE-T LOM Package <ul style="list-style-type: none"> ◆ Two Lenovo XClarity Controller network connector ◆ Two 10Gb BASE-T RJ45 connectors ◆ Two 1Gb Ethernet connectors ◆ Two USB 3.1 Gen 1 connectors ◆ One VGA connector • Rear I/O connectors (rear of server): <ul style="list-style-type: none"> – Two WLAN Antenna connectors – One RS-232 port (RJ-45) – Two LTE Antenna connectors – Two USB 2.0 connectors – Two types of power distribution module: <ul style="list-style-type: none"> ◆ 12V power distribution module (PDM) with two power connectors ◆ -48V power distribution module (PDM) with one power connector

Specification	Description
RAID controllers	<p>Software RAID: A software RAID controller is integrated on the system board. The software RAID controller supports RAID levels 0, 1, 5, and 10.</p> <p>Note</p> <ul style="list-style-type: none"> • Software RAID: standard Intel SATA software RAID, RSTe <p>Hardware RAID: An M.2 hardware RAID module is needed for hardware RAID storage.</p> <ul style="list-style-type: none"> • Supports RAID levels 0 and 1
Video controller (integrated into Lenovo XClarity Controller)	<p>Matrox G200</p> <ul style="list-style-type: none"> • ASPEED • SVGA compatible video controller • Avocent Digital Video Compression • 16 MB of video memory (not expandable) <p>Note</p> <p>Maximum video resolution is 1920 x 1200 at 60 Hz.</p>
Fans	Three 40 mm system fans

Specification	Description
Power adapters	<p>External power adapters:</p> <p>Sine-wave input (50–60 Hz) required</p> <ul style="list-style-type: none"> • 240W external power adapter <p>100-127 V ac / 200-240 V ac, 3.2/1.6 A</p> <p>Note</p> <ul style="list-style-type: none"> • Power adapters is supported only by 12V PDM • It is best practice to use two identical power adapters in all configuration • When GPU is installed, system must be installed with two power adapters <p>EU ErP (EcoDesign) Directive (2009/125/EC) Implementing Measure (COMMISSION REGULATION (EU) 2019/1782 of 1 October 2019) requires manufacturers to provide the energy efficiency and rating information. Lenovo products are designed to work with a range of compatible chargers and different chargers may be shipped in box or purchased subsequently. A list of suitable chargers can be found on the EU Declaration of Conformity (DoC) accessible here (https://www.lenovo.com/us/en/compliance/eu-doc). In order to access the applicable energy efficiency information for your charger, please access the following web page, search for your product using the full model number and select the applicable user guide or power supply data sheet. https://support.lenovo.com/</p>

Specification	Description
Acoustical noise emissions (base configuration)	<ul style="list-style-type: none"> • Operation: <ul style="list-style-type: none"> – Minimum: 5.3 bels – Typical: 5.4 bels – Maximum: 5.7 bels • Idle <ul style="list-style-type: none"> – Minimum: 4.9 bels – Typical: 5.0 bels – Maximum: 5.4 bels <p>Note</p> <ol style="list-style-type: none"> 1. These sound power levels are measured in controlled acoustical environments according to procedures specified by ISO 7779 and are reported in accordance with ISO 9296. 2. The declared acoustic noise levels are based on specified configurations, which may change slightly depending on configurations/conditions. 3. The options supported in this server vary in function, power consumption, and required cooling. Any increase in cooling required by these options will increase the fan speed and generated sound level. The actual sound pressure levels measured in your installation depend upon a variety of factors, including: the number of racks in the installation; the size, materials, and configuration of the room; the noise levels of other equipment; the room ambient temperature and barometric pressure; and the location of employees in relation to the equipment.
Heat output	<p>Approximate heat output:</p> <ul style="list-style-type: none"> • Minimum configuration: 287.46 BTU per hour (84.25 watts) • Maximum configuration : 783.02 BTU per hour (229.49 watts)

Specification	Description
Electrical input	<p>Power distribution module: 12V PDM</p> <ul style="list-style-type: none"> • Supports 12.2V/20A per power adapter • Each node supports up to two power adapters <p>Power distribution module: -48V PDM</p> <ul style="list-style-type: none"> • -48V - -60V DC / 8.4 A max direct -48V input <p>Note</p> <ul style="list-style-type: none"> • Power redundancy is in dual power mode when system power consumption is under 210W. • System operates in capping/throttling mode when power resource is insufficient. • Install two power adapters when system power consumption is higher than 210W.
Cautions and regulatory compliance statements for NEBS	<p>Follow NEBS GR-1089-CORE cautions, regulatory compliance statements, and requirements.</p> <ul style="list-style-type: none"> • Supports Common Bonding Network (CBN) installation. • System can be installed in network telecommunication facilities where the National Electric Code applies. • It is required to turn ON UEFI “Power Restore Policy” when set the test condition in “MIN OPERATING VOLTAGE ” • The 1Gb Ethernet and SFP+ cables evaluated by NEBS measurement are required shielded. • The typical system boot up time under NEBS section 4 evaluation is 4 minutes and 55 seconds. • WARNING: The intra-building port(s) (1Gb Ethernet and SFP+ ports) of the equipment or subassembly is suitable for connection to intra-building or unexposed wiring or cabling only. The intra-building port(s) of the equipment or subassembly MUST NOT be metallically connected to interfaces that connect to the OSP or its wiring for more than 6 meters (approximately 20 feet). These interfaces are designed for use as intra-building interfaces only (Type 2 port as described in GR-1089) and require isolation from the exposed OSP cabling. The addition of Primary Protectors is not sufficient protection in order to connect these interfaces metallically to an OSP wiring system.

