ThinkEdge SE100 Enclosure User Guide

Machine Type: 7DGV

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:
https://pubs.lenovo.com/safety_documentation/

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

First Edition (May 2025)

Contents

Safety

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الآمنية

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

在安装本产品之前，请仔细阅读 Safety Information （安全信息）。

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.

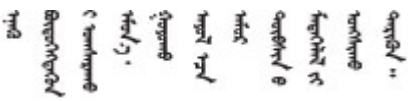
A termék telepítése előtt olvassa el a Biztonsági előírásokat!

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

製品の設置の前に、安全情報をお読みください。

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 produto, 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.

ཐོན་རྫས་འདི་བདེ་སྒྲིག་མ་བྱས་གོང་། ་སྔར་གྱི་ཡིད་གཟབ་
བྱ་འདུ་ཞིན་ཡོད་པའི་འོད་སྣེར་བལྟ་དགོས།

Bu ürünü kurmadan önce güvenlik bilgilerini okuyun.

مەزكۇر مەھسۇلاتنى ئورنىتىشتىن بۇرۇن بىخەتەرلىك ئۇچۇرلىرىنى ئوقۇپ چىقىڭ.

Youq mwngz yungh canjbinj neix gaxgonq, itdingh aeu doeg aen
canjbinj soengq cungj vahgangj 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.

CAUTION:
This equipment must be installed or serviced by trained personnel, as defined by the NEC, IEC 62368-1 & IEC 60950-1, the standard for Safety of Electronic Equipment within the Field of Audio/Video, Information Technology and Communication Technology. Lenovo assumes you are qualified in the servicing of equipment and trained in recognizing hazards energy levels in products. 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.

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.
- Do not remove the black coating on the surface of the server. The black coating on the surface is insulating for electro-static discharge protection

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. Click **Preconfigured Model** or **Configure to order**.

c. Enter the machine type and model for your server to display the configurator page.

d. Click **Power → Power Cables** 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.

Chapter 1. Introduction

The ThinkEdge SE100 1U2N and 1U3N Enclosure (Type 7DGV) are designed to mount the ThinkEdge SE100 in a rack. The 1U2N enclosure can contain up to two ThinkEdge SE100 nodes with PCIe expansion kit while 1U3N can contain up to three ThinkEdge SE100 nodes

Figure 1. ThinkEdge SE100 1U2N Enclosure

Figure 2. ThinkEdge SE100 1U3N Enclosure

Features

Performance, ease of use, reliability, and expansion capabilities were key considerations in the design of your server. These design features make it possible for you to customize the system hardware to meet your needs today and provide flexible expansion capabilities for the future.

Your server implements the following features and technologies:

- **Integrated network support**

  The server comes with integrated 2-port Gigabit Ethernet controller with RJ-45 connectors, which supports connection to a 1000 Mbps network.

- **Mobile access to Lenovo Service Information website**

  The server provides a QR code on the system service label, which is on the cover of the server, that you can scan using a QR code reader and scanner with a mobile device to get quick access to the Lenovo Service Information website. The Lenovo Service Information website provides additional information for parts installation, replacement videos, and error codes for server support.

- **Active Energy Manager**

  Lenovo XClarity Energy Manager is a power and temperature management solution for data centers. You can monitor and manage the power consumption and temperature of Converged, NeXtScale, System x, and ThinkServer, ThinkSystem and ThinkEdge servers, and improve energy efficiency using Lenovo XClarity Energy Manager.

- **Redundant cooling**

  The redundant cooling by the fans in the server enables continued operation if one of the fans fails.

- **Optional power capabilities**

The server supports up to two 300 watt power adapters.

- **Lenovo XClarity Controllers System Lockdown Mode**

  System lockdown will be enforced under specific circumstances to protect the server from information breach, particularly when the server detects physical movements of the node or enclosure covers. See "System Lockdown Mode" on page 84 for details.

Tech Tips

Lenovo continually updates the support website with the latest tips and techniques that you can use to solve issues that your server might encounter. These Tech Tips (also called retain tips or service bulletins) provide procedures to work around issues or solve problems related to the operation of your server.

To find the Tech Tips available for your server:

1. Go to http://datacentersupport.lenovo.com and navigate to the support page for your server.
2. Click on **How To's** from the navigation pane.
3. Click **Article Type → Solution** from the drop-down menu.

   Follow the on-screen instructions to choose the category for the problem that you are having.

Security advisories

Lenovo is committed to developing products and services that adhere to the highest security standards in order to protect our customers and their data. When potential vulnerabilities are reported, it is the responsibility of the Lenovo Product Security Incident Response Team (PSIRT) to investigate and provide information to our customers so they may put mitigation plans in place as we work toward providing solutions.

The list of current advisories is available at the following site:

https://datacentersupport.lenovo.com/product_security/home

Specifications

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.

Refer to the below table for specifications categories and the content of each category.

Specification category	Technical specifications	Mechanical specifications	Environmental specifications
Content	• System fan • Electrical input • Minimal configuration for debugging • Operating systems	• Dimension • Weight	• Acoustical noise emissions • Ambient temperature management • Environmental

Technical specifications

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

System fan
Supported fans vary by configuration. • **1U2N Enclosure (Two fans per node):** Four 40mm x 40mm x 28mm non hot-swap fans • **1U3N Enclosure (Two fans per node):** Six 40mm x 40mm x 28mm non hot-swap fans **Note:** Proceed to the "System fan numbering" on page 17 section to identify each fan number.

Electrical input

Following is the list of supported power supply types with 1+1 redundancy:

- Up to two 300W (230V/115V) external power adapters

  Notes: When one or two 300W external power adapters are installed, keep ambient temperature lower than 35°C, and the following configuration is required:

  - Mounting option: Rack mount for 1U2N and 1U3N enclosure
  - Rack mount fan shroud with the following configuration not supported:
    - Desktop mount fan module
    - Desktop mount fan shroud

  Important: Power adapters and redundant power adapters in the enclosure must be with the same power rating, wattage or level.

  As required by COMMISSION REGULATION (EU) 2019/424 of 1 March 2020 laying down ecodesign requirements for servers and data storage products (ErP lot 9).

ThinkEdge 300W 230V/115V External Power Supply

Information published	Value and precision	Unit
Manufacturer's name	Lenovo	-
Model identifier	Adapter	-
Input voltage	100-240	V
Input AC frequency	50-60	Hz
Output voltage	28.0	V
Output current	• 3 ports: 3.57 • 2 ports: 5.0	A
Output power	• 3 ports: 300.0 • 2 ports: 280.0	W
Average active efficiency	• FSP: – 3 ports: 90.0 / 91.0 – 2 ports: 88.5 / 89.5 • Delta: – 3 ports: 91.5 / 90.7 – 2 ports: 91.8 / 91.1	%

ThinkEdge 300W 230V/115V External Power Supply		
Efficiency at low load (10 %)	• FSP: – 3 ports: 78.0 / 80.0 – 2 ports: 77.0 / 79.0 • Delta: – 3 ports: 78.9 / 78.3 – 2 ports: 80.9 / 81.6	%
No-load power consumption	• FSP: 0.20 / 0.28 • Delta: 0.25 / 0.16	W

Minimal configuration for debugging

- One SE100 node with the following components installed:
  - One DRAM memory module in DIMM slot 1
  - One 2280 SATA/NVMe M.2 drive in slot 1
- One 300W power supply
- Two system fans

Operating systems

- List of supported operating systems can be found in the ***https://pubs.lenovo.com/se100/***

Complete list of available operating systems: https://lenovopress.lenovo.com/osig.

Mechanical specifications

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

Dimension

- Height: 43 mm (1.69 inches)
- Width: 434.4 mm (17.10 inches)
  - From EIA bracket to EIA bracket: 481.74 mm (18.97 inches)
- Depth: 734.3 mm (28.9 inches)

Weight

1U2N enclosure

- Maximum (with two nodes, two expansion kits and two power adapters installed): 13.9 kg (30.6 lbs)

1U3N enclosure

- Maximum (with three nodes and two power adapters installed): 15 kg (33 lbs)

Environmental specifications

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

Acoustical noise emissions

The server has the following acoustic noise emissions declaration:

- Sound power level (L_{WAd})
  - Idling:
    - 1U3N: 5.6 Bel
    - 1U2N: 4.5 Bel
  - Operating profile 1:
    - 1U3N: 5.6 Bel
    - 1U2N: 5.6 Bel
  - Operating profile 2:
    - 1U3N: 6.3 Bel
    - 1U2N: 6.3 Bel
- Sound pressure level (L_{pAm}):
  - Idling:
    - 1U3N: 39.7 dBA
    - 1U2N: 28.4 dBA
  - Operating profile 1:
    - 1U3N: 39.8 dBA
    - 1U2N: 39.4 dBA
  - Operating profile 2:
    - 1U3N: 46.1 dBA
    - 1U2N: 46.6 dBA

Notes:

- These sound levels were measured in controlled acoustical environments according to procedures specified by ISO7779 and are reported in accordance with ISO 9296. Operating profile 1 is represented by 50% CPU TDP. Operating profile 2 is represented by 100% CPU TDP or 70%/30% storage write/read or 100% GPU. Testing was conducted at 23°C ± 2°C to align with ISO7779.
- The declared acoustic sound levels are based on the specified configurations, which may change depending on configuration/conditions.
  - 1U3N configuration (3 nodes installed in enclosure with same configuration as following) :
    - Intel Ultra7 processors, 2x 32GB DDR5 CSODIMMs, 1x 480GB NVMe M.2 boot drive, 2X 1.92TB NVMe M.2 storage drive.
  - 1U2N configuration (1 node installed in enclosure with configuration as following) :
    - Intel Ultra7 processors, 2x 32GB DDR5 CSODIMMs, 1x 480GB NVMe M.2 boot drives, 1x 960GB NVMe storage M.2 drives, 1x Nvida RTX2000E ada GPU.
- Government regulations (such as those prescribed by OSHA or European Community Directives) may govern noise level exposure in the workplace and may apply to you and your server installation. The actual sound pressure levels in your installation depend upon a variety of factors, including the number of racks in the installation; the size, materials, and configuration of the room; the noise levels from other equipment; the room ambient temperature, and employee's location in relation to the equipment. Further, compliance with such government regulations depends on a variety of additional factors, including the duration of employees' exposure and whether employees wear hearing protection. Lenovo recommends that you consult with qualified experts in this field to determine whether you are in compliance with the applicable regulations.

Ambient temperature management

ThinkEdge SE100 1U2N and 1U3N Enclosure (Type 7DGV) supports most of the configurations operating at temperature of 35°C or lower. Adjust ambient temperature when specific components are installed:

- The following components can operate at temperature of 35°C or lower and require proper ambient temperature and redundant cooling by the fans to prevent performance degradation:
  - When one of the following components is installed, keep ambient temperature lower than 30°C for proper operation. When the ambient temperature is over 30°C, performance degradation might occur.
    - NVMe M.2 boot drives
- The following components can operate at temperature of 35°C or lower and require proper system cooling with N+1 fan redundancy.
  - GPU adapter

Environment

ThinkEdge SE100 1U2N and 1U3N Enclosure complies with ASHRAE Class A2 specifications. System performance may be impacted when operating temperature is outside AHSARE A2 specification or fan failed condition. ThinkEdge SE100 1U2N and 1U3N Enclosure are supported in the following environment:

- Air temperature:
  - Operating
    - ASHARE Class A2: 10°C to 35°C (50°F to 95°F); the maximum ambient temperature decreases by 1°C for every 300 m (984 ft) increase in altitude above 900 m (2,953 ft).
  - Server off: 5°C to 35°C (41°F to 95°F)
- Maximum altitude: 3,050 m (10,000 ft)
- Relative Humidity (non-condensing):
  - Operating: Operating: 8% to 90%, maximum dew point: 24°C (75.2°F)
  - Shipment/storage: 8% to 90%, maximum dew point: 27°C (80.6°F)
  - Non-operating (unpacked) storage can pass the following condition: 5% to 95% at 38.7°C (101.7°F) maximum dry-bulb temperature for 48 hrs.
- Particulate contamination

  Attention: Airborne particulates and reactive gases acting alone or in combination with other environmental factors such as humidity or temperature might pose a risk to the server. For information about the limits for particulates and gases, see “Particulate contamination” on page 7.

Shock and vibration specifications

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

Table 1. Shock and vibration specifications

	Shock (when the server is in operation)	**Shock** (when the server is not in operation, such as in shipping)	**Vibration** (when the server is in operation)	**Vibration** (when the server is not in operation, such as in shipping)
ThinkEdge SE100 1U2N and 1U3N Enclosure	Half-sine wave, 15G 3ms	Trapezoidal wave, 50G 167 inch/sec	5-500 Hz, 0.21 Grms, 15mins	2-200 Hz, 1.04 Grms, 15 mins

Particulate contamination

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

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

Table 2. Limits for particulates and gases

Contaminant	Limits
Reactive gases	Severity level G1 as per ANSI/ISA 71.04-1985[1]: • The copper reactivity level shall be less than 200 Angstroms per month (Å/month ≈ 0.0035 µg/cm^2-hour weight gain).[2] • The silver reactivity level shall be less than 200 Angstroms per month (Å/month ≈ 0.0035 µg/cm^2-hour weight gain).[3] • The reactive monitoring of gaseous corrosivity must be conducted approximately 5 cm (2 in.) in front of the rack on the air inlet side at one-quarter and three-quarter frame height off the floor or where the air velocity is much higher.
Airborne particulates	Data centers must meet the cleanliness level of ISO 14644-1 class 8. For data centers without airside economizer, the ISO 14644-1 class 8 cleanliness might be met by choosing one of the following filtration methods: • The room air might be continuously filtered with MERV 8 filters. • Air entering a data center might be filtered with MERV 11 or preferably MERV 13 filters. For data centers with airside economizers, the choice of filters to achieve ISO class 8 cleanliness depends on the specific conditions present at that data center. • The deliquescent relative humidity of the particulate contamination should be more than 60% RH.[4] • Data centers must be free of zinc whiskers.[5]

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

[2] The derivation of the equivalence between the rate of copper corrosion growth in the thickness of the corrosion product in Å/month and the rate of weight gain assumes that Cu_2S and Cu_2O grow in equal proportions.

[3] The derivation of the equivalence between the rate of silver corrosion growth in the thickness of the corrosion product in Å/month and the rate of weight gain assumes that Ag_2S is the only corrosion product.

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

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

Management options

The XClarity portfolio and other system management options described in this section are available to help you manage the servers more conveniently and efficiently.

Overview

Options	Description
Lenovo XClarity Controller	Baseboard management controller (BMC) Consolidates the service processor functionality, Super I/O, video controller, and remote presence capabilities into a single chip on the server system board (system board assembly). **Interface** • CLI application • Web GUI interface • Mobile application • Redfish API **Usage and downloads** https://pubs.lenovo.com/lxcc-overview/
Lenovo XCC Logger Utility	Application that reports the XCC events to local OS system log. **Interface** • CLI application **Usage and downloads** • https://pubs.lenovo.com/lxcc-logger-linux/ • https://pubs.lenovo.com/lxcc-logger-windows/
Lenovo XClarity Administrator	Centralized interface for multi-server management. **Interface** • Web GUI interface • Mobile application • REST API **Usage and downloads** https://pubs.lenovo.com/lxca/
Lenovo XClarity Essentials toolset	Portable and light toolset for server configuration, data collection, and firmware updates. Suitable both for single-server or multi-server management contexts. **Important:** To read and configure UEFI and BMC settings, use the latest versions of OneCLI 5.x, BoMC 14.x, and UpdateXpress 5.x. **Interface** • **OneCLI**: CLI application • **Bootable Media Creator**: CLI application, GUI application • **UpdateXpress**: GUI application **Usage and downloads** https://pubs.lenovo.com/lxce-overview/

Options	Description
Lenovo XClarity Provisioning Manager	UEFI-based embedded GUI tool on a single server that can simplify management tasks. **Interface** • Web interface (BMC remote access) • GUI application **Usage and downloads** https://pubs.lenovo.com/lxpm-overview/ **Important:** Lenovo XClarity Provisioning Manager (LXPM) supported version varies by product. All versions of Lenovo XClarity Provisioning Manager are referred to as Lenovo XClarity Provisioning Manager and LXPM in this document, unless specified otherwise. To see the LXPM version supported by your server, go to https://pubs.lenovo.com/lxpm-overview/.
Lenovo XClarity Integrator	Series of applications that integrate the management and monitoring functionalities of the Lenovo physical servers with the software used in a certain deployment infrastructure, such as VMware vCenter, Microsoft Admin Center, or Microsoft System Center while delivering additional workload resiliency. **Interface** • GUI application **Usage and downloads** https://pubs.lenovo.com/lxci-overview/
Lenovo XClarity Energy Manager	Application that can manage and monitor server power and temperature. **Interface** • Web GUI Interface **Usage and downloads** https://datacentersupport.lenovo.com/solutions/lnvo-lxem
Lenovo Capacity Planner	Application that supports power consumption planning for a server or rack. **Interface** • Web GUI Interface **Usage and downloads** https://datacentersupport.lenovo.com/solutions/lnvo-lcp

Functions

Options		Functions							
		Multi-system mgmt	**OS deploy-ment**	**System configu-ration**	**Firm-ware up-dates[1]**	**Event-s/alert moni-toring**	**Inven-tory/ logs**	**Pow-er mgmt**	**Power planning**
Lenovo XClarity Controller				√	√[2]	√	√[4]		
Lenovo XCC Logger Utility						√			
Lenovo XClarity Administrator		√	√	√	√[2]	√	√[4]		
Lenovo XClarity Essen-tials toolset	OneCLI	√		√	√[2]	√	√		
	Bootable Media Creator			√	√[2]		√[4]		
	UpdateXpress			√	√[2]				
Lenovo XClarity Provisioning Manager			√	√	√[3]		√[5]		
Lenovo XClarity Integrator		√		√	√	√	√	√[6]	
Lenovo XClarity Energy Manager		√				√		√	
Lenovo Capacity Planner									√[7]

Notes:

1. Most options can be updated through the Lenovo tools. Some options, such as GPU firmware or Omni-Path firmware require the use of supplier tools.
2. The server UEFI settings for option ROM must be set to **Auto** or **UEFI** to update firmware using Lenovo XClarity Administrator, Lenovo XClarity Essentials, or Lenovo XClarity Controller.
3. Firmware updates are limited to Lenovo XClarity Provisioning Manager, Lenovo XClarity Controller, and UEFI updates only. Firmware updates for optional devices, such as adapters, are not supported.
4. The server UEFI settings for option ROM must be set to **Auto** or **UEFI** for detailed adapter card information, such as model name and firmware levels, to be displayed in Lenovo XClarity Administrator, Lenovo XClarity Controller, or Lenovo XClarity Essentials.
5. Limited inventory.
6. Power management function is supported only by Lenovo XClarity Integrator for VMware vCenter.
7. It is highly recommended that you check the power summary data for your server using Lenovo Capacity Planner before purchasing any new parts.

Chapter 2. Enclosure components

This section contains information about each of the components associated with the enclosure.

Enclosure front view

This section contains information about the controls, LEDs, and connectors on the front of the enclosure.

Notes:

- The 1U2N enclosure can contain up to two ThinkEdge SE100 nodes with PCIe expansion kit while 1U3N can contain up to three ThinkEdge SE100 nodes, as show in the illustration below.
- The node bay numbers are indicated on the side of the enclosure.
- For more information and the connecting rules about the connectors on the server, see ***https://pubs.lenovo.com/se100/server_components***.
- Depending on the model, your server might look slightly different from the illustration.

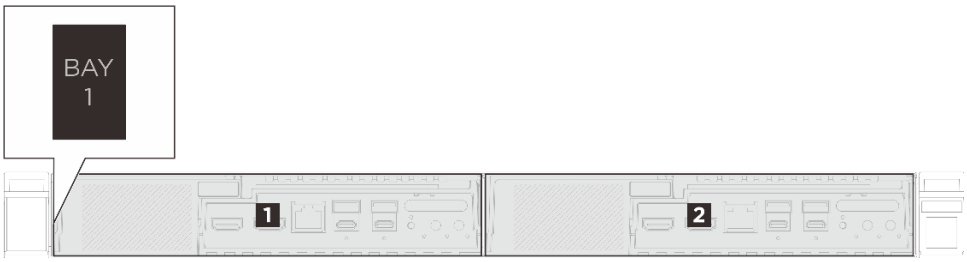


Figure 3. 1U2N enclosure front view

Table 3. 1U2N enclosure bay numbering

1 Bay 1	2 Bay 2

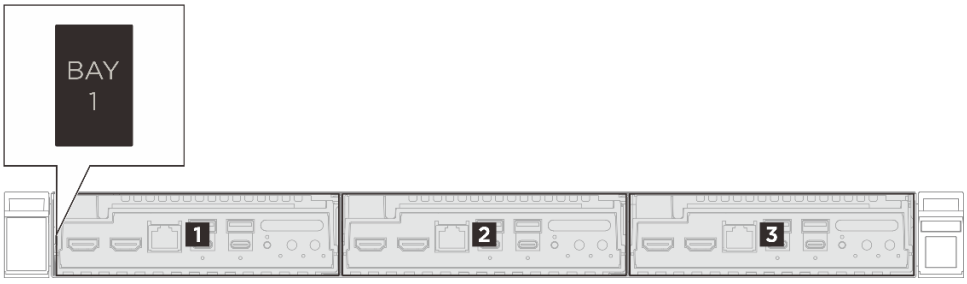


Figure 4. 1U3N enclosure front view

Table 4. 1U3N enclosure bay numbering

1 Bay 1	2 Bay 2
3 Bay 3	

Enclosure top view

The illustrations in this section provide information about the top view of the enclosure.

- “ThinkEdge SE100 1U3N Enclosure top view” on page 14
- “ThinkEdge SE100 1U2N Enclosure top view” on page 15

ThinkEdge SE100 1U3N Enclosure top view

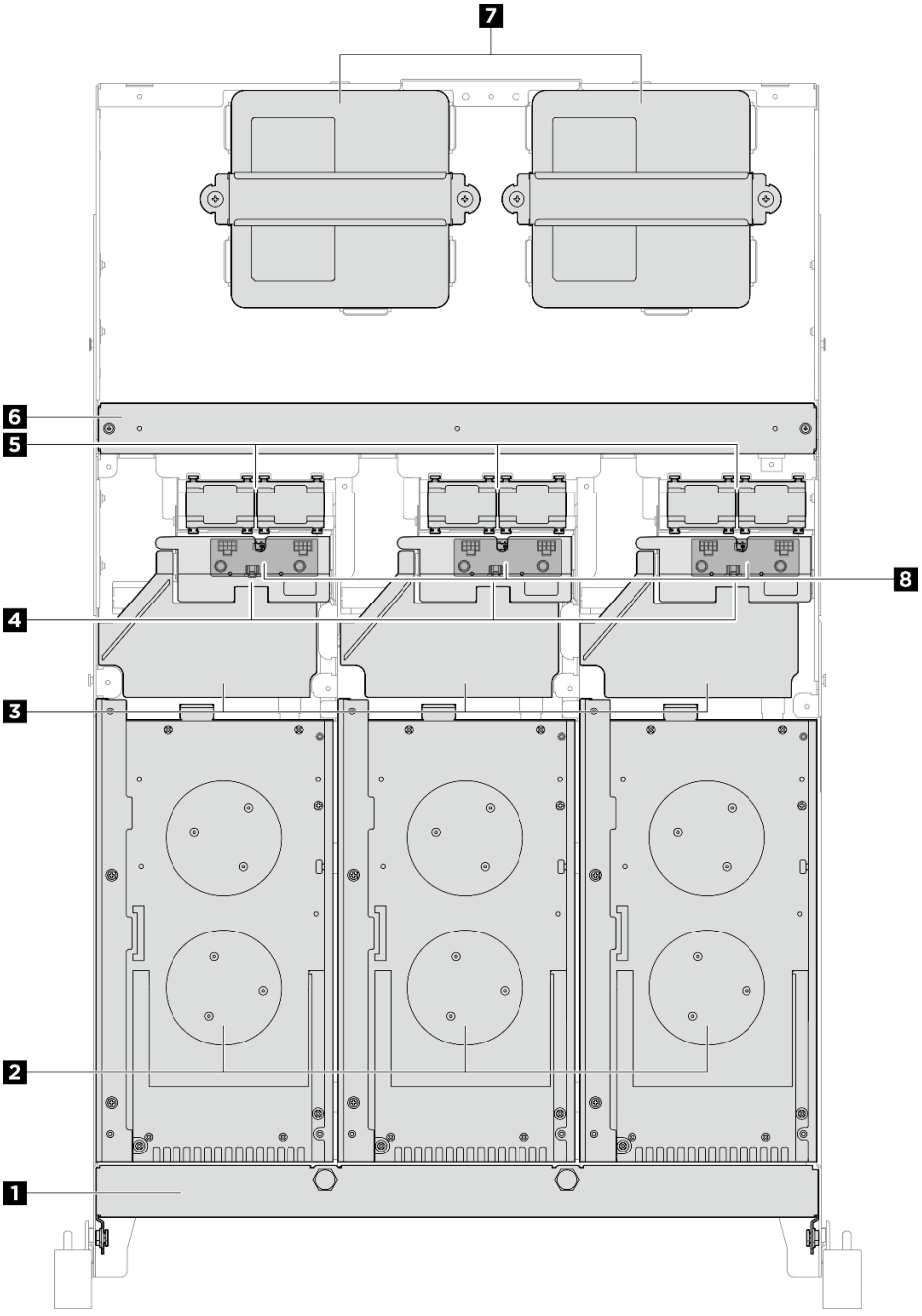


Figure 5. ThinkEdge SE100 1U3N Enclosure top view

Table 5. Components on the 1U3N Enclosure top view

1 Shipping bracket	2 Node
3 Air baffle	4 Safety cover
5 Fan module	6 Crossbar
7 300W power adapter	8 Fan control board

ThinkEdge SE100 1U2N Enclosure top view

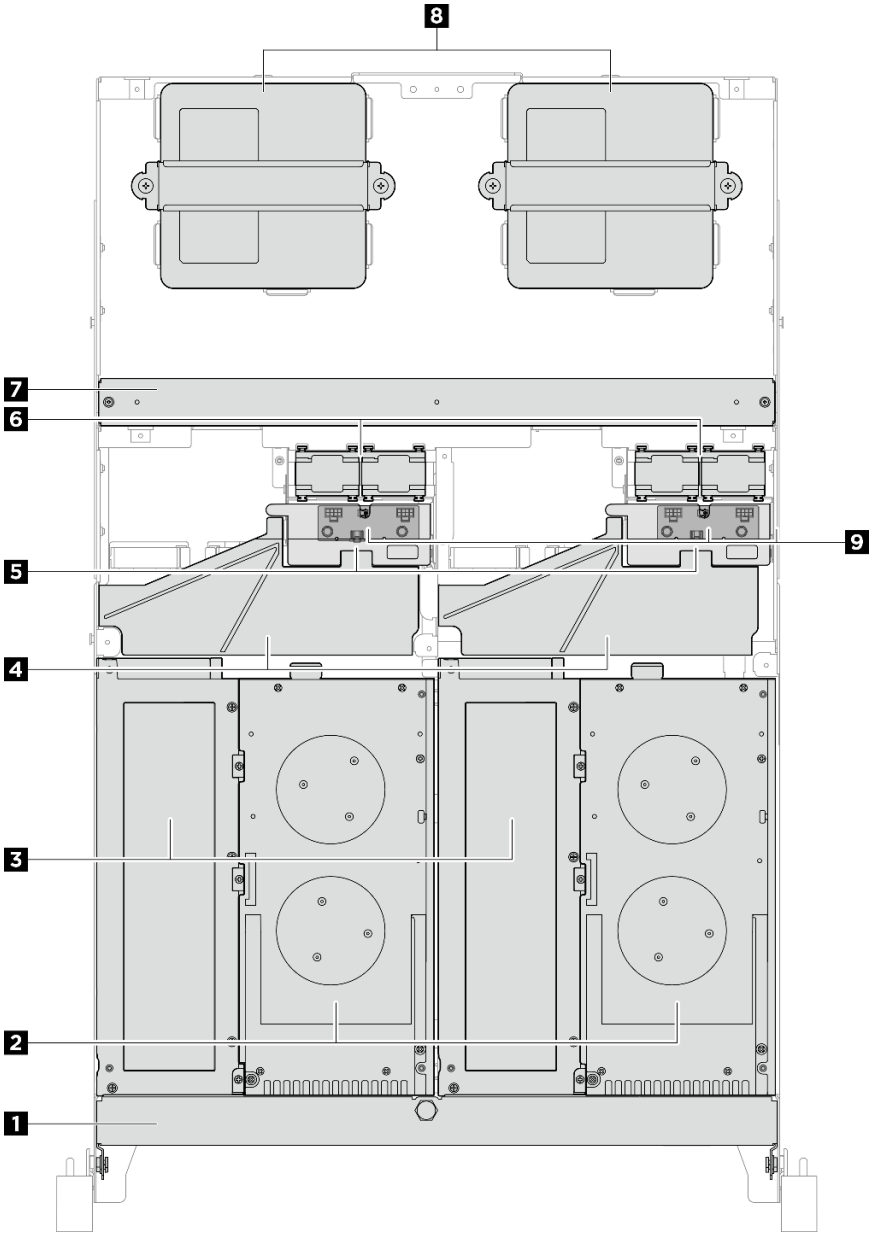


Figure 6. ThinkEdge SE100 1U2N Enclosure top view

Table 6. Components on the 1U2N Enclosure top view

1 Shipping bracket	2 Node
3 Expansion kit	4 Air baffle
5 Safety cover	6 Fan module
7 Crossbar	8 300W power adapter
9 Fan control board	

Node I/O connector fillers

Install the I/O fillers to the front and rear side of the node when the connectors are not used. The connectors could be dust–covered without proper protection of the fillers.

Note: Depending on the model, your server might look slightly different from the illustration.

Node I/O fillers

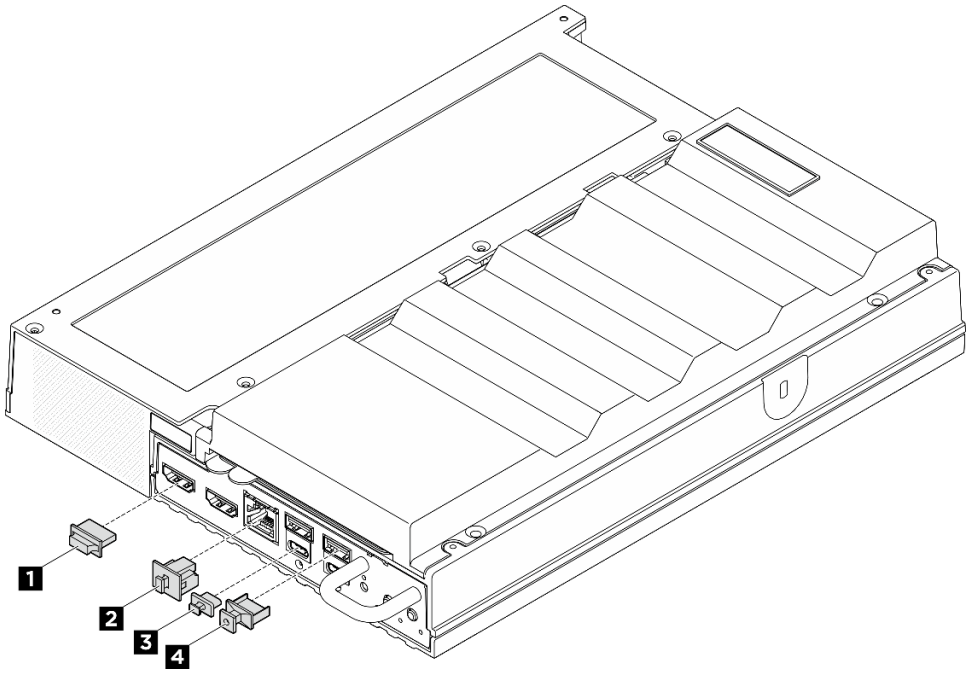


Figure 7. Front I/O fillers

1 HDMI connector filler (x2)	2 RJ-45 filler (x1)
3 USB Type-C filler (x2)	4 USB Type-A filler (x2)

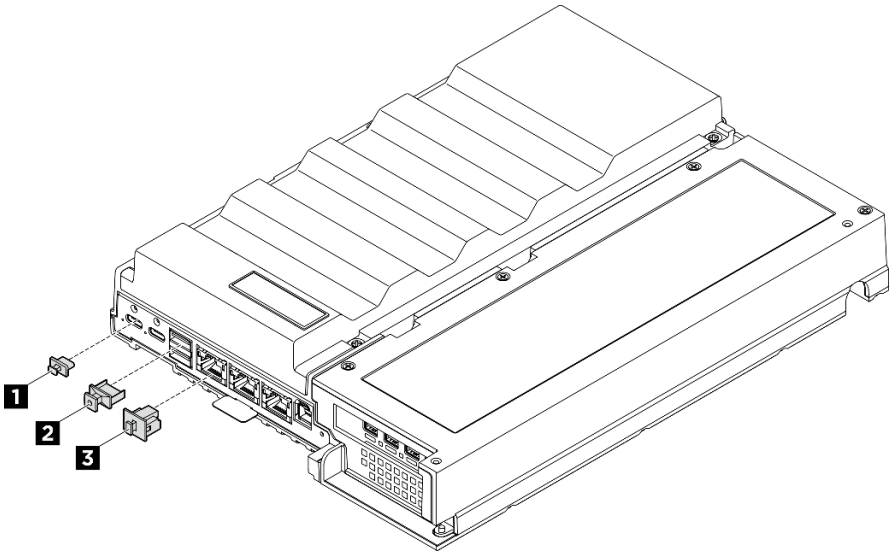


Figure 8. Rear I/O fillers

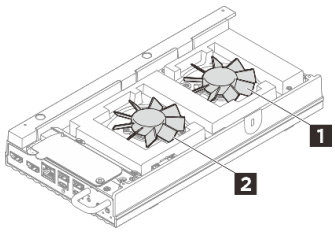
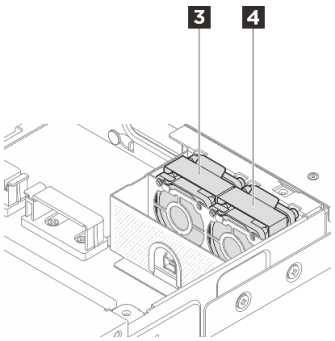
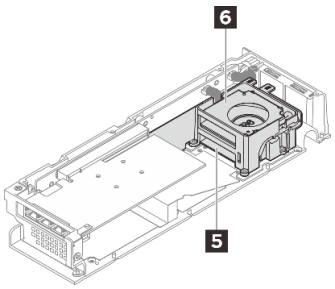
1 USB Type-C filler (x2)	2 USB Type-A filler (x2)
3 RJ-45 filler (x3)	

System fan numbering

This section contains system fan numbering information of SE100. Understanding the system fan numbering helps you correctly install and configure fans in the system.

Fan support matrix

Table 7. Fan support matrix

Location						
Numbering	1 Fan 1	2 Fan 2	3 Fan 3	4 Fan 4	5 Fan 5	6 Fan 6
Node	√	√				
Node with Ethernet adapter expansion kit	√	√			√	√
1U2N enclosure			√	√	√	√
1U3N enclosure			√	√		

Note: Before installing the node to the enclosure, to avoid the node interfering with the enclosure, make sure to remove the fan 1 & 2 from the node.

- 1 2 **Node fan module:** Two 6513 non-hot swap fans for each node.
- 5 6 **Expansion kit fan module:** Ethernet adapter expansion kit supports two 5010 blower fans.
- 3 4 **Enclosure fan module:**
  - 1U2N enclosure supports up to four 4028 non-hot swap fans, two for each node
  - 1U3N enclosure supports up to six 4028 non-hot swap fans, three for each node

System LEDs

See the following section for information on available system LEDs.

For more information, refer to “Troubleshooting by system LEDs” on page 93.

Chapter 3. Parts list

Identify each of the components that is available for your server with the parts list.

For more information about ordering parts:

1. Go to **http://datacentersupport.lenovo.com** and navigate to the support page for your server.
2. Click **Parts**.
3. Enter the serial number to view a listing of parts for your server.

It is highly recommended that you check the power summary data for your server using Lenovo Capacity Planner before purchasing any new parts.

Note: Depending on the model, your server might look slightly different from the illustration.

The parts listed in the following table are identified as one of the following:

- **T1:** Tier 1 customer replaceable unit (CRU). Replacement of Tier 1 CRUs is your responsibility. If Lenovo installs a Tier 1 CRU at your request with no service agreement, you will be charged for the installation.
- **T2:** Tier 2 customer replaceable unit (CRU). You may install a Tier 2 CRU yourself or request Lenovo to install it, at no additional charge, under the type of warranty service that is designated for your server.
- **F:** Field replaceable unit (FRU). FRUs must be installed only by trained service technicians.
- **C:** Consumable and Structural parts. Purchase and replacement of consumable and structural parts (components, such as a filler or bezel) is your responsibility. If Lenovo acquires or installs a structural component at your request, you will be charged for the service.

1U2N Enclosure components

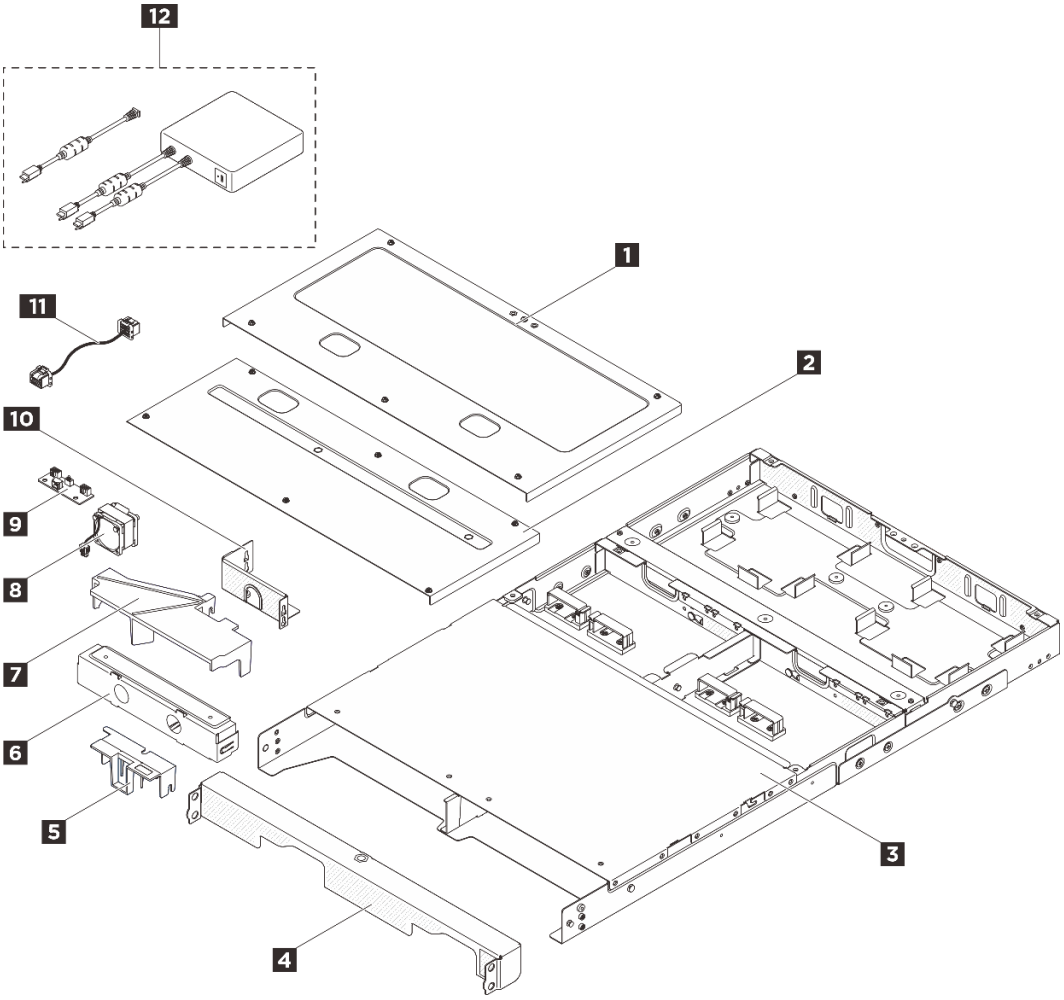


Figure 9. 1U2N Enclosure components

Table 8. 1U2N Enclosure parts list

Index	Description	Type
For more information about ordering parts: 1. Go to **http://datacentersupport.lenovo.com** and navigate to the support page for your server. 2. Click **Parts**. 3. Enter the serial number to view a listing of parts for your server.		
1	1U2N rear top cover	T1
2	1U2N middle top cover	T1
3	1U2N enclosure	F
4	1U2N shipping bracket	T1
5	Safety cover	T1
6	1U2N node filler	C
7	1U2N air baffle	T1

Table 8. 1U2N Enclosure parts list (continued)

Index	Description	Type
8	Fan module	T2
9	Fan control board	F
10	Fan control board cage	T1
11	Fan control board cable	T1
12	ThinkEdge 300W 230V/115V external power adapter kits [1]	T1

Note: [1] The additional power adapter cable comes with ThinkEdge 300W 230V/115V external power adapter kits is for the power adapter in 1U3N enclosure. For more information, see Install a power adapter (Rack mount).

1U3N Enclosure components

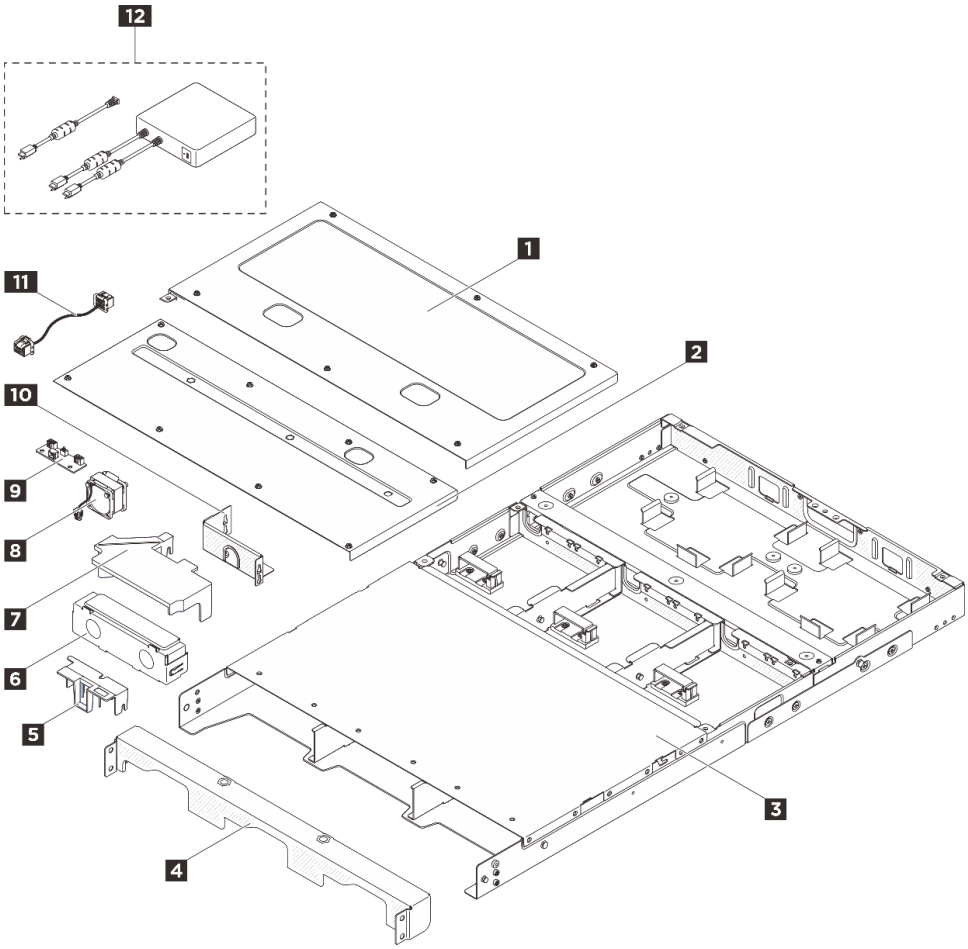


Figure 10. 1U3N Enclosure components

Table 9. 1U3N Enclosure parts list

Index	Description	Type
For more information about ordering parts: 1. Go to **http://datacentersupport.lenovo.com** and navigate to the support page for your server. 2. Click **Parts**. 3. Enter the serial number to view a listing of parts for your server.		
1	1U3N rear top cover	T1
2	1U3N middle top cover	T1
3	1U3N enclosure	F
4	1U3N shipping bracket	T1
5	Safety cover	T1
6	1U3N node filler	C
7	1U3N air baffle	T1
8	Fan module	T2
9	Fan control board	F
10	Fan control board cage	T1
11	Fan control board cable	T1
12	ThinkEdge 300W 230V/115V external power adapter kits	T1

Power cords

Several power cords are available, depending on the country and region where the server is installed.

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

1. Go to:

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

2. Click **Preconfigured Model** or **Configure to order**.
3. Enter the machine type and model for your server to display the configurator page.
4. Click **Power → Power Cables** to see all line cords.

Notes:

- For your safety, a power cord with a grounded attachment plug is provided to use with this product. To avoid electrical shock, always use the power cord and plug with a properly grounded outlet.
- Power cords for this product that are used in the United States and Canada are listed by Underwriter's Laboratories (UL) and certified by the Canadian Standards Association (CSA).
- For units intended to be operated at 115 volts: Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a parallel blade, grounding-type attachment plug rated 15 amperes, 125 volts.
- For units intended to be operated at 230 volts (U.S. use): Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a tandem blade, grounding-type attachment plug rated 15 amperes, 250 volts.

- For units intended to be operated at 230 volts (outside the U.S.): Use a cord set with a grounding-type attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.
- Power cords for a specific country or region are usually available only in that country or region.

Chapter 4. Unboxing and setup

Information in this section assists you on unboxing and setting up the server. When unboxing the server, check if the items in the package are correct, and learn where to find information of server serial number and Lenovo XClarity Controller access. Make sure to follow the instructions in “Server setup checklist” on page 27 when setting up the server.

Server package contents

When you receive your server, verify that the shipment contains everything that you expected to receive.

The server package includes the following items:

- Node
- Enclosure
- Rail installation kit*. Installation guide is provided in the package.
- Cable management arm*. Installation guide is provided in the package.
- Material box, including items such as power cords*, accessory kit, and printed documents.

Notes:

- Some of the items listed are available on select models only.
- Items marked with asterisk(*) are optional.

If any item is missing or damaged, contact your place of purchase. Ensure that you retain your proof of purchase and packing material. They might be required to receive warranty service.

Identify the server and access the Lenovo XClarity Controller

This section contains instruction on how to identify your server and where to find the Lenovo XClarity Controller access information.

Note: Depending on the model, your server might look slightly different from the illustration.

Identifying your server

When you contact Lenovo for help, the machine type, model, and serial number information help support technicians to identify your server and provide faster service.

The illustration below shows the location of the ID label which contains the model number, machine type, and serial number of the server. You can also add other system information labels to the front of the server in the customer label spaces.

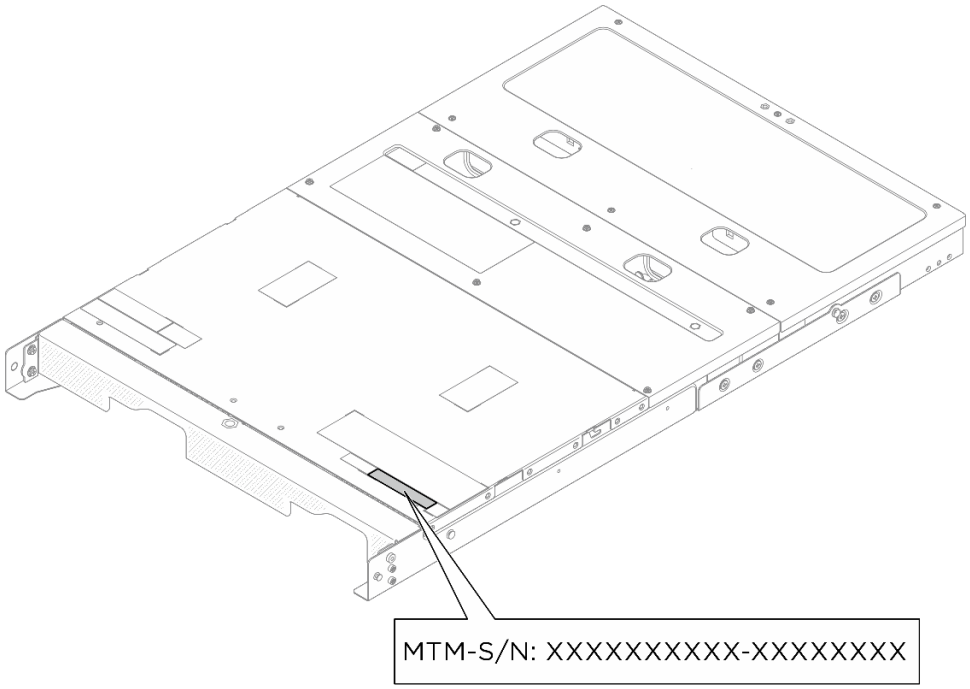


Figure 11. Enclosure location of the ID label

Service information QR code

In addition, depending on the configuration, a quick response (QR) code that provides mobile access to service information might be located on different places as shown in the illustration below:

- Node in rack mount mode: On the inside surface of the rack mount fan shroud
- 1U2N / 1U3N enclosure: On the surface of the enclosure middle top cover

You can scan the QR code with a mobile device using a QR code reader application and get quick access to the Service Information web page. The Service Information web page provides additional information for parts installation and replacement videos, and error codes for solution support.

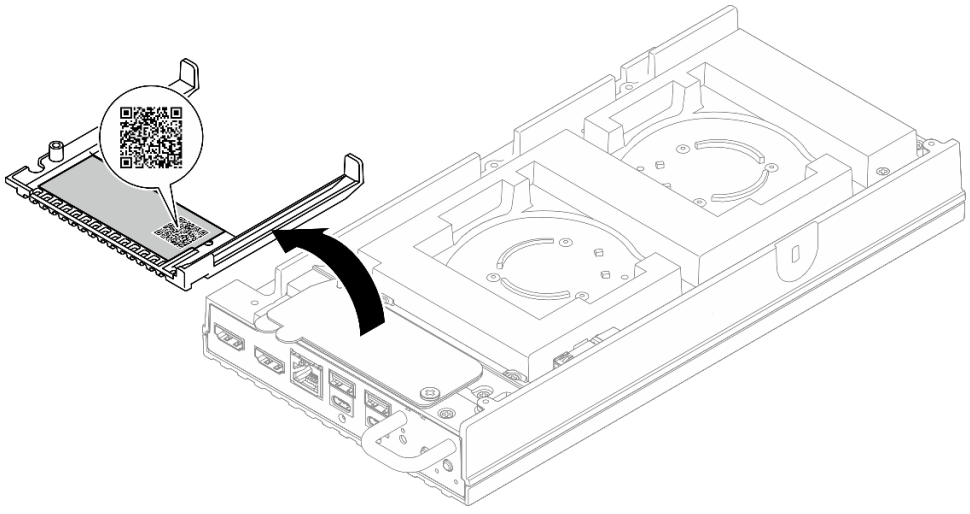


Figure 12. Service information QR code on the rack mount fan shroud

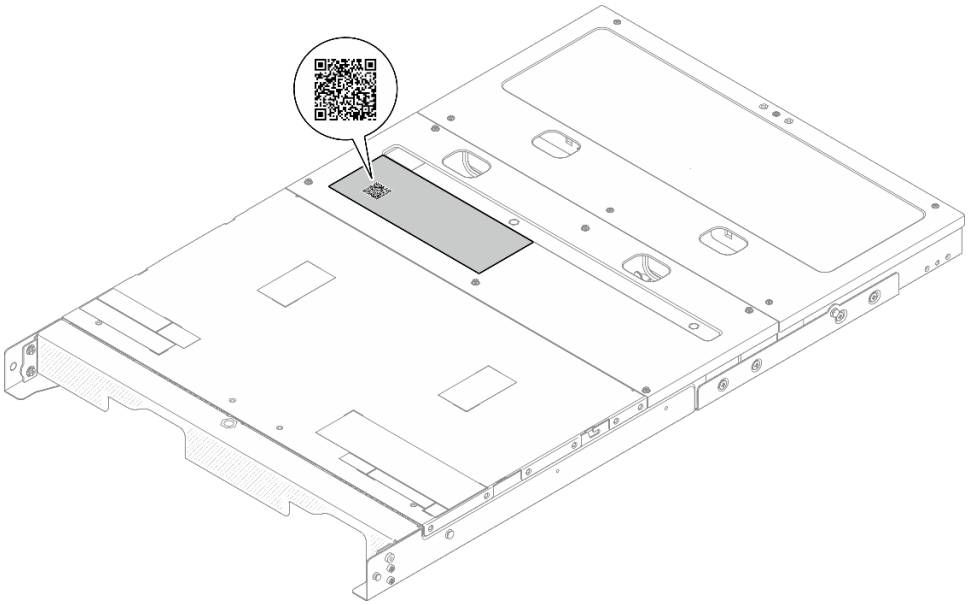


Figure 13. Service information QR code on the enclosure

Server setup checklist

Use the server setup checklist to ensure that you have performed all tasks that are required to set up your server.

The server setup procedure varies depending on the configuration of the server when it was delivered. In some cases, the server is fully configured and you just need to connect the server to the network and an AC power source, and then you can power on the server. In other cases, the server needs to have hardware options installed, requires hardware and firmware configuration, and requires an operating system to be installed.

The following steps describe the general procedure for setting up a server.

Setup the server hardware

Complete the following procedures to setup the server hardware.

1. Unpack the server package. See “Server package contents” on page 25.
2. Install any required hardware or server options. See the related topics in Chapter 5 “Enclosure hardware replacement procedures” on page 31.
3. If necessary, install the rail and CMA to a standard rack cabinet. Follow the instruction in *Rail Installation Guide* and *CMA Installation Guide* that comes with the rail installation kit.
4. If necessary, install the server into a standard rack cabinet. See “Install a node to the rack” on page 40.
5. Connect all external cables to the server. See Chapter 2 “Enclosure components” on page 13 for connectors locations.

   Typically, you will need to connect the following cables:

   - Connect server to the power source
   - Connect server to the data network
   - Connect the server to the storage device
   - Connect the server to the management network

6. Install the I/O fillers when the connectors are not used. The connectors could be damaged without proper protection of the fillers. The I/O fillers are in the material box. See “Node I/O connector fillers” on page 16 to distinguish the I/O fillers.
7. If the security LED of the server is blinking, the server is in System Lockdown Mode. Activate or unlock the system for operation. See “Activate or unlock the system” on page 82.
8. Power on the server.

   Power button location and power LED are specified in “Troubleshooting by system LEDs” on page 93.

   - The node power button LED states are as followed:

     Table 10. Power button and power status LED (green)

Status	Color	Description
Off	None	No power supply is properly installed, or the LED itself has failed.
Flashing rapidly (four times per second)	Green	The server is turned off and is not ready to be turned on. The power button is disabled. This will last approximately 5 to 10 seconds.
Flashing slowly (once per second)	Green	The server is turned off and is ready to be turned on. You can press the power button to turn on the server.
Lit	Green	The server is turned on.

   The server can be turned on (power LED on) in any of the following ways:

   - You can press the power button.
   - The server can restart automatically after a power interruption.
   - The server can respond to remote power-on requests sent to the Lenovo XClarity Controller.

   Note: You can access the management processor interface to configure the system without powering on the server. Whenever the server is connected to power, the management processor interface is available. For details about accessing the management server processor, see “Opening and Using the XClarity Controller Web Interface” section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/.
9. Validate the server. Make sure that the power LED, Ethernet connector LED, and network LED are lit with green light, which means the server hardware was set up successfully.

   See “Troubleshooting by system LEDs” on page 93 for more information on the LED indications.

Configure the system

Complete the following procedures to configure the system. For detailed instructions, refer to Chapter 6 “System configuration” on page 77.

1. Set the network connection for the Lenovo XClarity Controller to the management network.
2. Update the firmware for the server, if necessary.
3. Configure the firmware for the server.
4. Install the operating system.
5. Back up the server configuration.
6. Install the applications and programs for which the server is intended to be used.

7. Configure ThinkEdge security features. See “Activate/unlock the system and configure ThinkEdge security features” on page 81.

Chapter 5. Enclosure hardware replacement procedures

This section provides installation and removal procedures for all serviceable system components. Each component replacement procedure references any tasks that need to be performed to gain access to the component being replaced.

Installation Guidelines

Before installing components in your server, read the installation guidelines.

Before installing optional devices, read the following notices carefully:

Attention: Prevent exposure to static electricity, which might lead to system halt and loss of data, by keeping static-sensitive components in their static-protective packages until installation, and handling these devices with an electrostatic-discharge wrist strap or other grounding system.

- Read the safety information and guidelines to ensure your safety at work:
  - A complete list of safety information for all products is available at:

    https://pubs.lenovo.com/safety_documentation/
  - The following guidelines are available as well: “Working inside the server with the power on” on page 34 and “Handling static-sensitive devices” on page 34.
- Make sure the components you are installing are supported by your server.
  - For a list of supported optional components for the server, see https://serverproven.lenovo.com.
  - For the option package contents, see https://serveroption.lenovo.com/.
- For more information about ordering parts:
  1. Go to **http://datacentersupport.lenovo.com** and navigate to the support page for your server.
  2. Click **Parts**.
  3. Enter the serial number to view a listing of parts for your server.
- When you install a new server, download and apply the latest firmware. This will help ensure that any known issues are addressed, and that your server is ready to work with optimal performance. Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinkedge/se100/7dgv/downloads/driver-list/ to download firmware updates for your server.

  Important: Some cluster solutions require specific code levels or coordinated code updates. If the component is part of a cluster solution, verify the latest Best Recipe code level menu for cluster supported firmware and driver before you update the code.
- If you replace a part, such as an adapter, that contains firmware, you might also need to update the firmware for that part.
- It is good practice to make sure that the server is working correctly before you install an optional component.
- Keep the working area clean, and place removed components on a flat and smooth surface that does not shake or tilt.
- Do not attempt to lift an object that might be too heavy for you. If you have to lift a heavy object, read the following precautions carefully:
  - Make sure that you can stand steadily without slipping.
  - Distribute the weight of the object equally between your feet.

  - Use a slow lifting force. Never move suddenly or twist when you lift a heavy object.
  - To avoid straining the muscles in your back, lift by standing or by pushing up with your leg muscles.
- Back up all important data before you make changes related to the disk drives.
- Have a small flat-blade screwdriver, a small Phillips screwdriver, and a T8 torx screwdriver available.
- To view the error LEDs on the system board (system board assembly) and internal components, leave the power on.
- You do not have to turn off the server to remove or install hot-swap power supplies, hot swap fans, or hot-plug USB devices. However, you must turn off the server before you perform any steps that involve removing or installing adapter cables, and you must disconnect the power source from the server before you perform any steps that involve removing or installing a riser card.
- When replacing power supply units or fans, make sure to refer to redundancy rules for these components.
- Blue on a component indicates touch points, where you can grip to remove a component from or install it in the server, open or close a latch, and so on.
- Except PSU, orange on a component or an orange label on or near a component indicates that the component can be hot-swapped if the server and operating system support hot-swap capability, which means that you can remove or install the component while the server is still running. (Orange can also indicate touch points on hot-swap components.) See the instructions for removing or installing a specific hot-swap component for any additional procedures that you might have to perform before you remove or install the component.
- The red strip on the drives, adjacent to the release latch, indicates that the drive can be hot-swapped if the server and operating system support hot-swap capability. This means that you can remove or install the drive while the server is still running.

  Note: See the system specific instructions for removing or installing a hot-swap drive for any additional procedures that you might need to perform before you remove or install the drive.
- After finishing working on the server, make sure you reinstall all safety shields, guards, labels, and ground wires.

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.

CAUTION:
This equipment must be installed or serviced by trained personnel, as defined by the NEC, IEC 62368-1 & IEC 60950-1, the standard for Safety of Electronic Equipment within the Field of Audio/Video, Information Technology and Communication Technology. Lenovo assumes you are qualified in the servicing of equipment and trained in recognizing hazards energy levels in products. 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.

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.
- Do not remove the black coating on the surface of the server. The black coating on the surface is insulating for electro-static discharge protection

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. Click **Preconfigured Model** or **Configure to order**.

     c. Enter the machine type and model for your server to display the configurator page.

     d. Click **Power → Power Cables** 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.

System reliability guidelines

Review the system reliability guidelines to ensure proper system cooling and reliability.

Make sure the following requirements are met:

- When the server comes with redundant power, a power supply must be installed in each power-supply bay.
- Adequate space around the server must be spared to allow server cooling system to work properly. Leave approximately 50 mm (2.0 in.) of open space around the front and rear of the server. Do not place any object in front of the fans.
- For proper cooling and airflow, refit the server cover before you turn the power on. Do not operate the server for more than 30 minutes with the server cover removed, for it might damage server components.
- Cabling instructions that come with optional components must be followed.
- A failed fan must be replaced within 48 hours after malfunction.
- A removed hot-swap fan must be replaced within 30 seconds after removal.
- A removed hot-swap drive must be replaced within two minutes after removal.
- A removed hot-swap power supply must be replaced within two minutes after removal.
- Every air baffle and thermal pads that comes with the server must be installed when the server starts (some servers might come with more than one air baffle). Operating the server with a missing air baffle and thermal pads might damage the processor.
- Processor must contain with heat sink.

Working inside the server with the power on

You might need to keep the power on with the server cover removed to look at system information on the display panel or to replace hot-swap components. Review these guidelines before doing so.

Attention: The server might stop and data loss might occur when internal server components are exposed to static electricity. To avoid this potential problem, always use an electrostatic-discharge wrist strap or other grounding systems when working inside the server with the power on.

- Avoid loose-fitting clothing, particularly around your forearms. Button or roll up long sleeves before working inside the server.
- Prevent your necktie, scarf, badge rope, or hair from dangling into the server.
- Remove jewelry, such as bracelets, necklaces, rings, cuff links, and wrist watches.
- Remove items from your shirt pocket, such as pens and pencils, in case they fall into the server as you lean over it.
- Avoid dropping any metallic objects, such as paper clips, hairpins, and screws, into the server.

Handling static-sensitive devices

Review these guidelines before you handle static-sensitive devices to reduce the possibility of damage from electrostatic discharge.

Attention: Prevent exposure to static electricity, which might lead to system halt and loss of data, by keeping static-sensitive components in their static-protective packages until installation, and handling these devices with an electrostatic-discharge wrist strap or other grounding system.

- Limit your movement to prevent building up static electricity around you.
- Take additional care when handling devices during cold weather, for heating would reduce indoor humidity and increase static electricity.
- Always use an electrostatic-discharge wrist strap or other grounding system, particularly when working inside the server with the power on.
- While the device is still in its static-protective package, touch it to an unpainted metal surface on the outside of the server for at least two seconds. This drains static electricity from the package and from your body.
- Remove the device from the package and install it directly into the server without putting it down. If it is necessary to put the device down, put it back into the static-protective package. Never place the device on the server or on any metal surface.
- When handling a device, carefully hold it by the edges or the frame.
- Do not touch solder joints, pins, or exposed circuitry.
- Keep the device from others' reach to prevent possible damages.

Power on and power off the server

Follow the instructions in this section to power on and power off the server.

Power on the server

After the server performs a short self-test (power status LED flashes quickly) when connected to input power, it enters a standby state (power status LED flashes once per second).

Power button location and power LED are specified in "Troubleshooting by system LEDs" on page 93.

- The node power button LED states are as followed:

Table 11. Power button and power status LED (green)

Status	Color	Description
Off	None	No power supply is properly installed, or the LED itself has failed.
Flashing rapidly (four times per second)	Green	The server is turned off and is not ready to be turned on. The power button is disabled. This will last approximately 5 to 10 seconds.
Flashing slowly (once per second)	Green	The server is turned off and is ready to be turned on. You can press the power button to turn on the server.
Lit	Green	The server is turned on.

The server can be turned on (power LED on) in any of the following ways:

- You can press the power button.
- The server can restart automatically after a power interruption.
- The server can respond to remote power-on requests sent to the Lenovo XClarity Controller.

For information about powering off the server, see "Power off the server" on page 35.

Power off the server

The server remains in a standby state when it is connected to a power source, allowing the Lenovo XClarity Controller to respond to remote power-on requests. To remove all power from the server (power status LED off), you must disconnect all power cables.

Power button location and power LED are specified in "Troubleshooting by system LEDs" on page 93.

- The node power button LED states are as followed:

Table 12. Power button and power status LED (green)

Status	Color	Description
Off	None	No power supply is properly installed, or the LED itself has failed.
Flashing rapidly (four times per second)	Green	The server is turned off and is not ready to be turned on. The power button is disabled. This will last approximately 5 to 10 seconds.
Flashing slowly (once per second)	Green	The server is turned off and is ready to be turned on. You can press the power button to turn on the server.
Lit	Green	The server is turned on.

To place the server in a standby state (power status LED flashes once per second):

Note: The Lenovo XClarity Controller can place the server in a standby state as an automatic response to a critical system failure.

- Start an orderly shutdown using the operating system (if supported by your operating system).
- Press the power button to start an orderly shutdown (if supported by your operating system).

- Press and hold the power button for more than 4 seconds to force a shutdown.

When in a standby state, the server can respond to remote power-on requests sent to the Lenovo XClarity Controller. For information about powering on the server, see “Power on the server” on page 34.

Configuration guide

Follow instructions in this section to remove and install supporting mounting configurations.

Important: The mounting options of SE100 support different system configuration. For proper operation, see the following table for the supported configurations:

- **Rack mount**: Up to three nodes can be installed to an 1U3N enclosure, up to two nodes with PCIe expansion kit can be installed to an 1U2N enclosure, and the enclosure can be installed to the rack. See “Rack mount configuration” on page 36.

Table 13. Supported configurations of SE100 mounting options

	Rack mount with 1U2N enclosure	Rack mount with 1U3N enclosure
• Expansion kit	√	
Electrical input		
• 300W external power adapter**	√	√
System fan* **		
• Node fan module		
• Ethernet adapter blower fan	√	
• Enclosure fan module	√	√

**When one or two 300W external power adapter are installed, keep ambient temperature lower than 35°C.

***Depending on the configuration, the server supports different kinds of system fan. Refer to “System fan numbering” on page 17 for more information.

Rack mount configuration

Follow instructions in this section to remove and install the rack mount configuration.

Remove a node from the rack

Follow instructions in this section to remove a node from the rack.

About this task

R006

CAUTION:

Do not place any object on top of a rack-mounted device unless that rack-mounted device is intended for use as a shelf.

Attention:

- Read “Installation Guidelines” on page 31 and “Safety inspection checklist” on page 32 to ensure that you work safely.
- Power off the server and peripheral devices and disconnect the power cords and all external cables. See “Power off the server” on page 35.

Note: Depending on the model, your server might look slightly different from the illustration.

Remove the shipping bracket

Procedure

Step 1. Loosen the four captive screws on both sides of the shipping bracket.

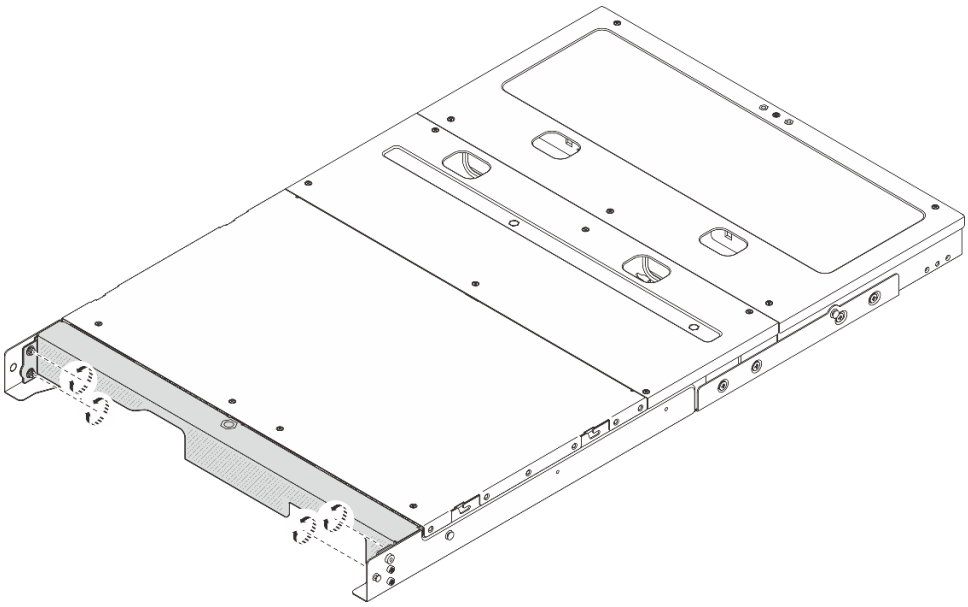


Figure 14. Loosening the screws

Step 2. Pull the shipping bracket to remove it from the enclosure.

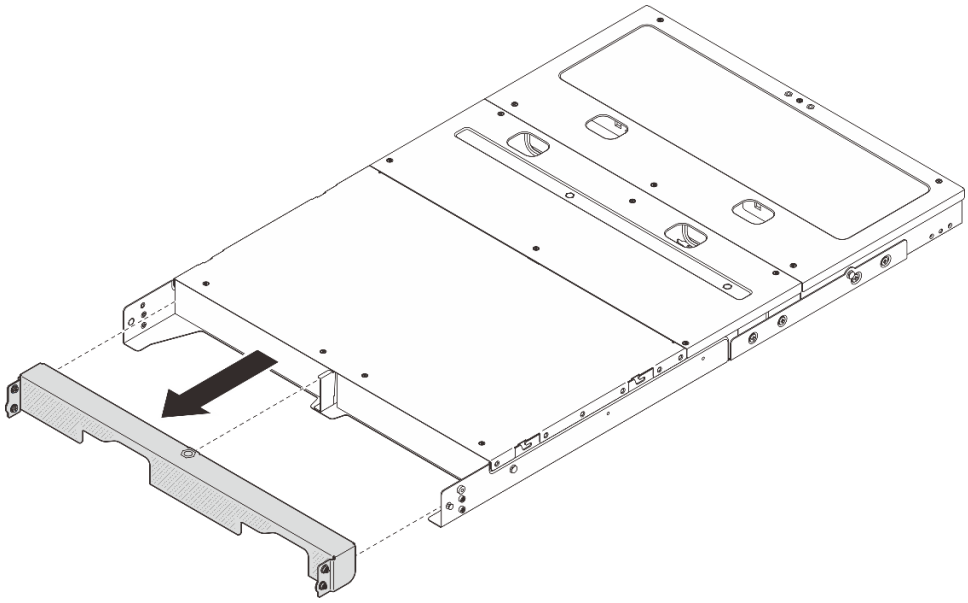


Figure 15. Removing the shipping bracket

Remove the node from the enclosure

Procedure

Step 1. Make preparation for this task.

a. Remove the middle top cover. See ***https://pubs.lenovo.com/se100-enclosure/remove_encl_middle_cover***.

b. Remove the air baffle. See ***https://pubs.lenovo.com/se100-enclosure/remove_air_baffle_encl***.

c. Disconnect all the cables from the node. To remove the power adapter cable, proceed to the step 3 in "Remove a power adapter (Rack mount)" on page 67 section.

Step 2. The fan control board connector on the rear of the node is attached with protective dust cap, make sure to put it back on after the cable is disconnected.

Step 3. Press the release button on the rear of the node to disengage the node from the enclosure, and pull the node out of the enclosure at the same time.

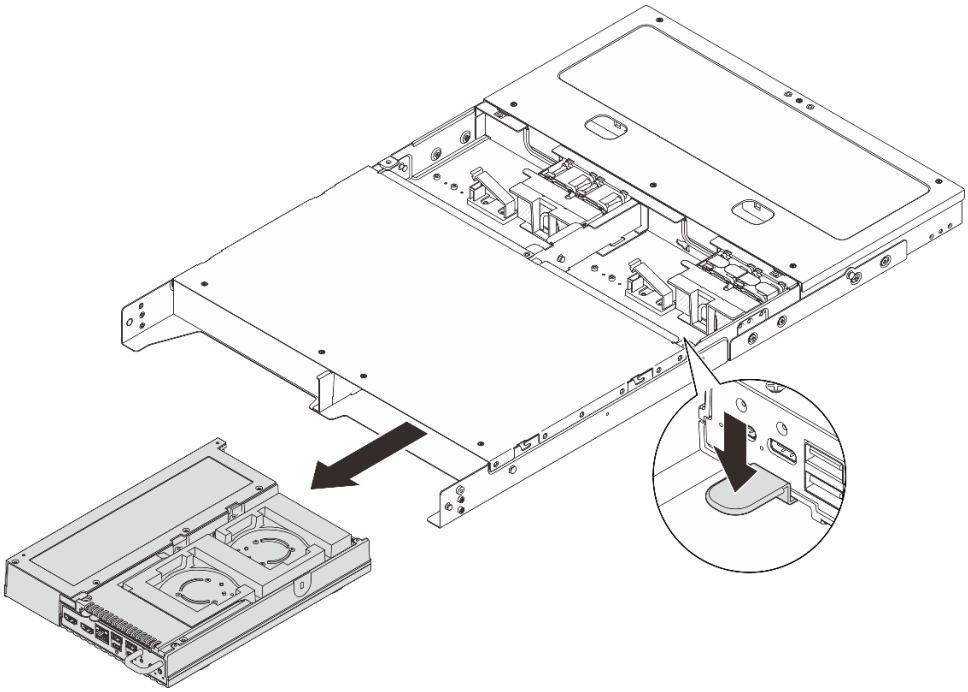


Figure 16. Removing the node

Note: A node bay should be installed with a node or a node filler. To install a node filler, insert the filler into the node bay; then, secure the filler with two screws.

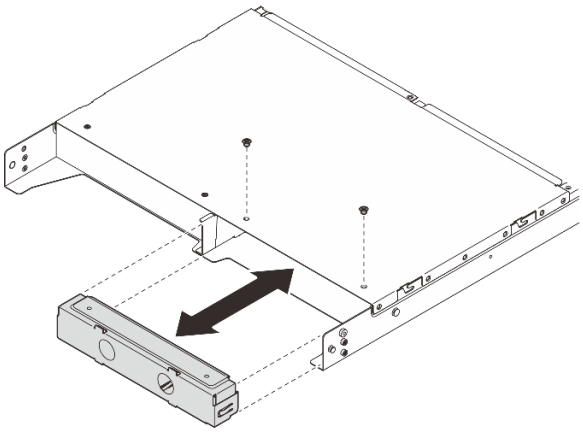


Figure 17. Installing the node filler

Step 4. (Optional) If the node is not to be reinstalled to the enclosure, do the following:

1. Change the machine type for proper operation. See “Change the machine type for operating in an enclosure (trained technician only)” in *User Guide* or *System Configuration Guide*.
2. Remove a rack mount fan shroud. See “Remove a fan shroud (Rack mount)” on page 63.
3. Install the fan modules to the node. See ***https://pubs.lenovo.com/se100/install_fan***.
4. Install a desktop mount fan shroud. See ***https://pubs.lenovo.com/se100/install_fan_shroud***.

- Change the machine type for proper operation. See “Change the machine type for operating in an enclosure (trained technician only)” in *User Guide* or *System Configuration Guide*.

- Proceed to the following replacement sections for proper cooling and airflow.
  - Remove a rack mount fan shroud. See “Remove a fan shroud (Rack mount)” on page 63.
  - Install the fan modules to the node. See ***https://pubs.lenovo.com/se100/install_fan***.
  - Install a desktop mount fan shroud. See ***https://pubs.lenovo.com/se100/install_fan_shroud***.

Remove the enclosure from the rack

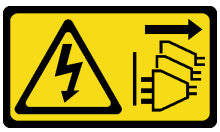
To remove the node from a rack, follow the instructions that are provided in the Rail Installation Kit for the rails on which the server will be installed. See ThinkSystem Toolless Stab-in Slide Rail Kit V3 with 1U CMA.

Install a node to the rack

Follow instructions in this section to install a node to the rack.

About this task

S002



CAUTION:
The power-control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

R006

CAUTION:
Do not place any object on top of a rack-mounted device unless that rack-mounted device is intended for use as a shelf.

Attention:

- Read “Installation Guidelines” on page 31 and “Safety inspection checklist” on page 32 to ensure that you work safely.
- Power off the server and peripheral devices and disconnect the power cords and all external cables. See “Power off the server” on page 35.

Note: To install a node to an enclosure which is already on the rack, start from “Install the node to the enclosure” on page 43.

Install the enclosure to the rack

Procedure

Step 1. Remove the inner rails from the intermediate rails.

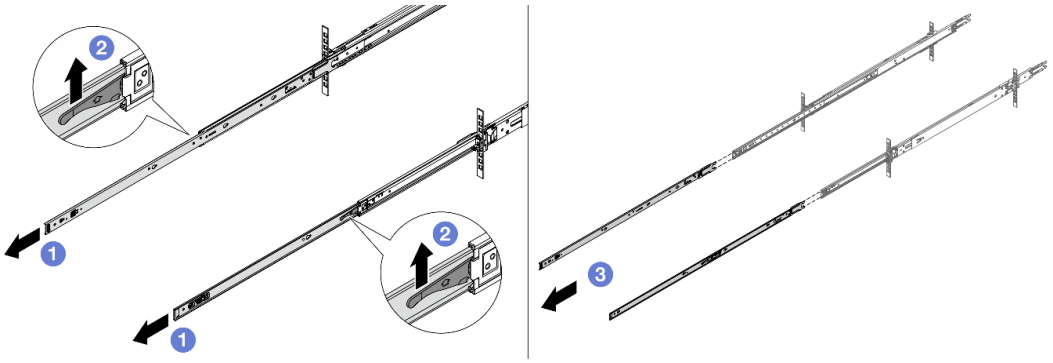


Figure 18. Removing the inner rails

a. 1 Extend the inner rails.
b. 2 Push up the latches to disengage inner rails from the intermediate ones.
c. 3 Remove the inner rails.

Step 2. Align the slots on the inner rail with the corresponding T-pins on the side of the enclosure; then, slide the inner rail forwards until the T-pins lock into place.

Notes:

1. Make sure that the stamp “Front” always face toward the front when assembling the inner rails to the enclosure.
2. “L” and “R” stamps indicate the left and right sides of the rails.

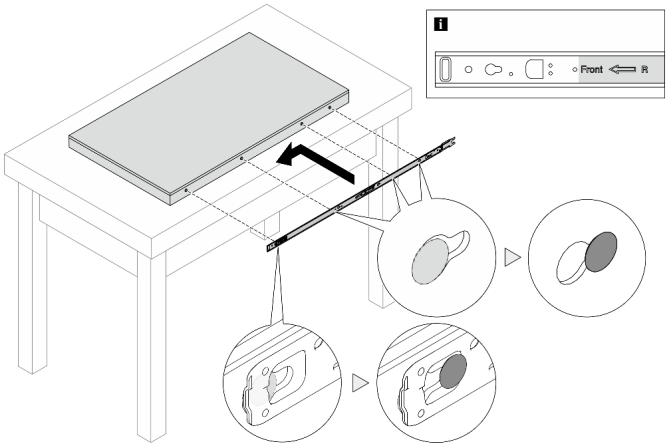


Figure 19. Installing an inner rail to the server

Step 3. Repeat the previous step to the other rail.

Step 4. Carefully lift up the enclosure with three people.

CAUTION:
Make sure three people are lifting the enclosure by holding the lift points.

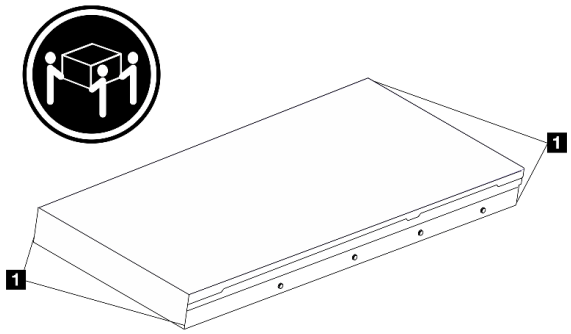


Figure 20. Lifting up the server

Step 5. Install the enclosure to the rack. Align both rear ends of the inner rails with the openings in the intermediate rails, and make sure that the two pairs of rails mate correctly.

Note: Before installing the inner rails to the intermediate ones, make sure that the ball retainers on both sides reach the outmost position. If the retainers are not in good position, slide them to the front until they stop.

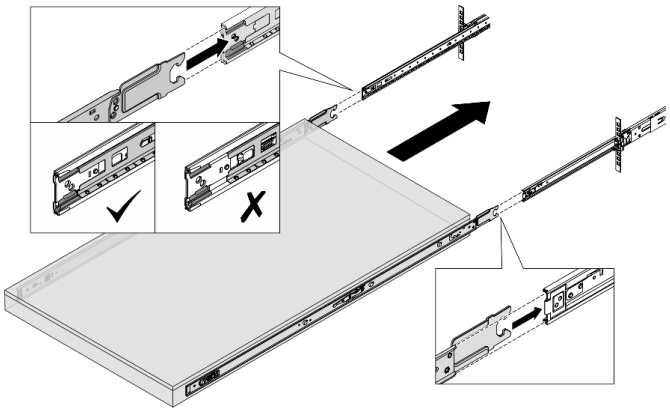


Figure 21. Installing the server

Step 6. Lift the lock latches to proceed to slide the enclosure in.

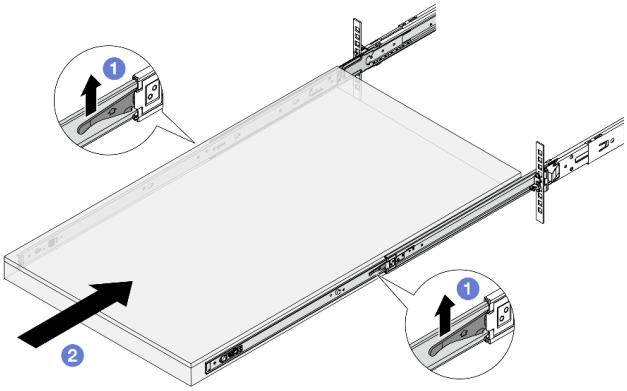


Figure 22. Locking latches

a. (1) Lift the lock latches on both sides.

b. (2) Push the server all the way into the rack until both latches lock into position with a click.

Step 7. Secure the enclosure to the rack.

a. Secure the enclosure to the front of the rack. Fasten the two screws located on the rack latches.

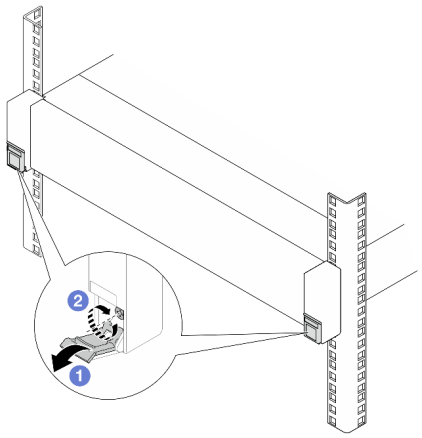


Figure 23. Securing the enclosure to the front of the rack

(1) Flip down the covers on the rack latches.

(2) Tighten the screws to secure the enclosure.

b. (Optional) If the rack is shipped with enclosures or placed in a vibration-prone area, install one M6 screw to each of the rails to secure the enclosure to the rear of the rack.

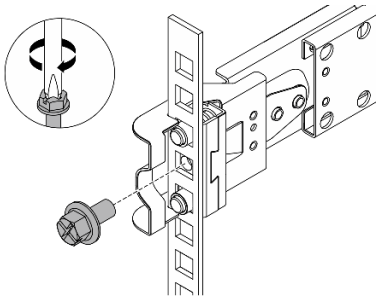


Figure 24. Securing the enclosure to the rear of the rack

Install the node to the enclosure

Procedure

Step 1. Make preparation for this task.

a. Make sure the power adapters are properly installed in the enclosure. To install the power adapters, see Install a power adapter (Rack mount).

b. If the node was not installed in enclosure previously, before installing the node to the enclosure, complete the following steps:

1. Remove the desktop mount fan shroud from the node. See ***https://pubs.lenovo.com/se100/remove_fan_shroud***.
2. Remove the fan modules from the node. See ***https://pubs.lenovo.com/se100/remove_fan***. Otherwise, it might be interfered with the top of the enclosure.

3. Install the rack mount fan shroud to the node. See “Install a fan shroud (Rack mount)” on page 65.
4. Change the machine type for proper operation. See ***https://pubs.lenovo.com/se100/change_vpd_for_enclosure***.

Step 2. If a node filler is installed in the node bay, remove it first.

a. Loosen the two screws that secure the node filler.

b. Remove the node filler from the node bay. Keep the node filler in a safe place for future use.

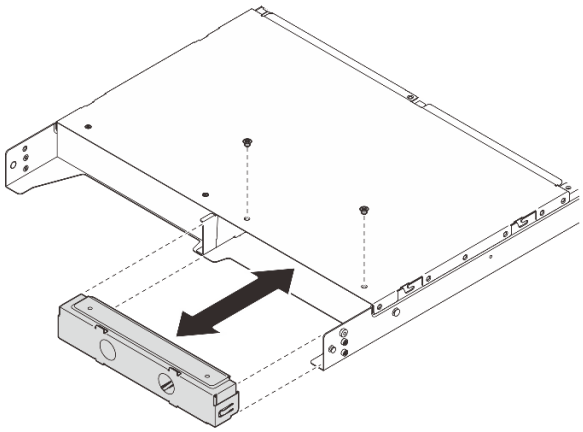


Figure 25. Removing the node filler

Step 3. Slide the node into the node bay until it clicks into place.

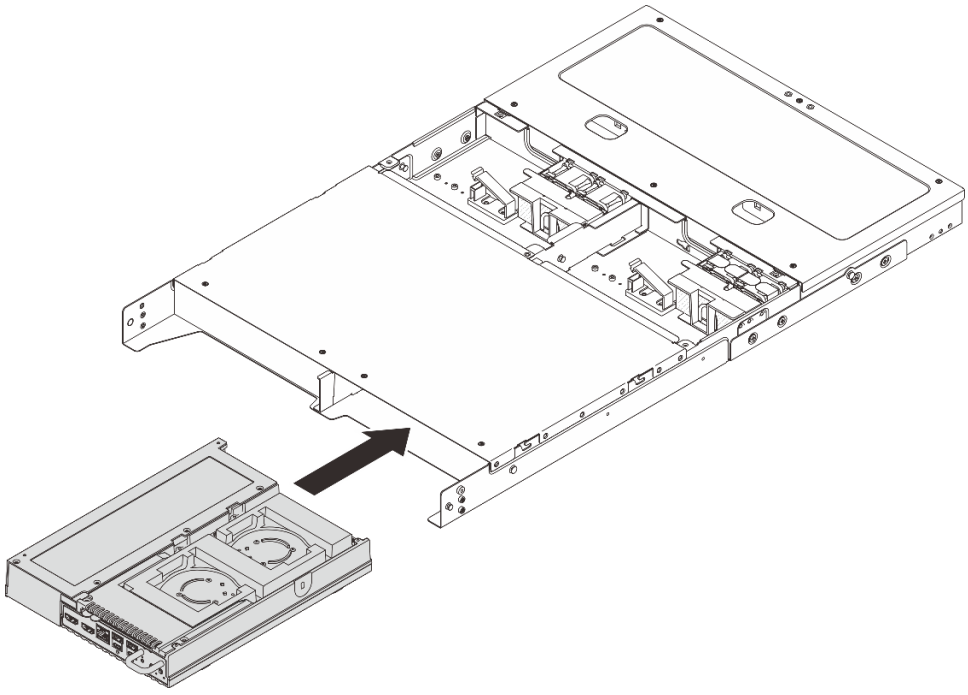


Figure 26. Installing the node

Step 4. (Optional) If the enclosure is with only one node installed, install a node filler into the vacant node bay.

a. Insert the node filler into the node bay.

b. Secure the node filler with two screws.

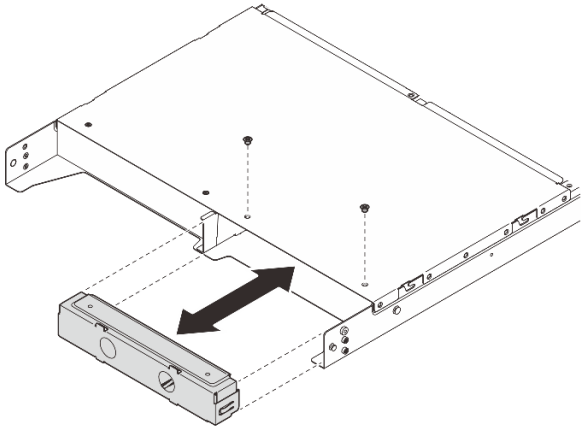


Figure 27. Installing the node filler

Step 5. Connect all the cables to the node. To connect the power cable from power adapter, complete the following steps:

a. ❶ Align the screw holes and install the power cable to the node.

b. ❷ Tighten the screw and make sure the power cable is securely locked.

Note: To connect the power adapter to the node, 1U2N enclosure needs 2 USB-C output power cables for one power adapter, and 1U3N enclosure needs 3 USB-C output power cables for one power adapter. Plug in the additional power cable to the power adapter installed in an 1U3N enclosure. For more details about cable routing, see ***https://pubs.lenovo.com/se100-enclosure/se100_enclosure_internal_cable_routing_guide.pdf***.

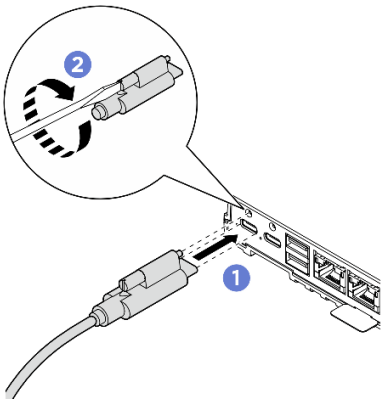


Figure 28. Installing the power cable

After you finish

1. Install the air baffle. See Install the air baffle.
2. Install the middle top cover. See Install the middle top cover.
3. If applicable, install the crossbar to the enclosure.
   a. ❶ Align the crossbar with the screw holes on the enclosure; then lower the crossbar onto the enclosure. Make sure all the cables are routed properly under the crossbar.

b. ❷ Tighten the two captive screws to secure the crossbar.

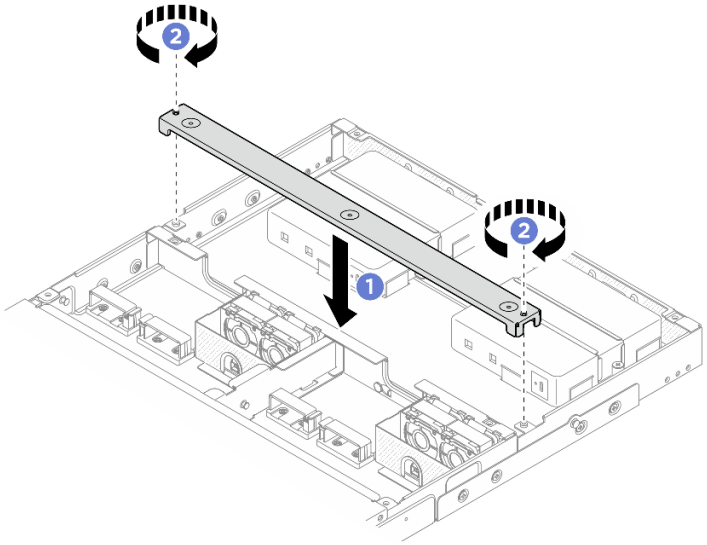


Figure 29. Installing the crossbar

4. If applicable, install the rear top cover. See Install the rear top cover..
5. Complete the parts replacement. See “Complete the parts replacement” on page 75.

Install the shipping bracket to the enclosure

Attention: When the shipping bracket is installed, the connectors on the front of the server are not accessible. Make sure to complete the following procedure before installing the shipping bracket:

1. Connect all necessary external cables to the node.
2. Power on the server and any peripheral devices. See “Power on the server” on page 34.

Procedure

Step 1. Press the captive screws on the side of the shipping bracket as illustrated; then, push the shipping bracket toward the enclosure until it is firmly seated.

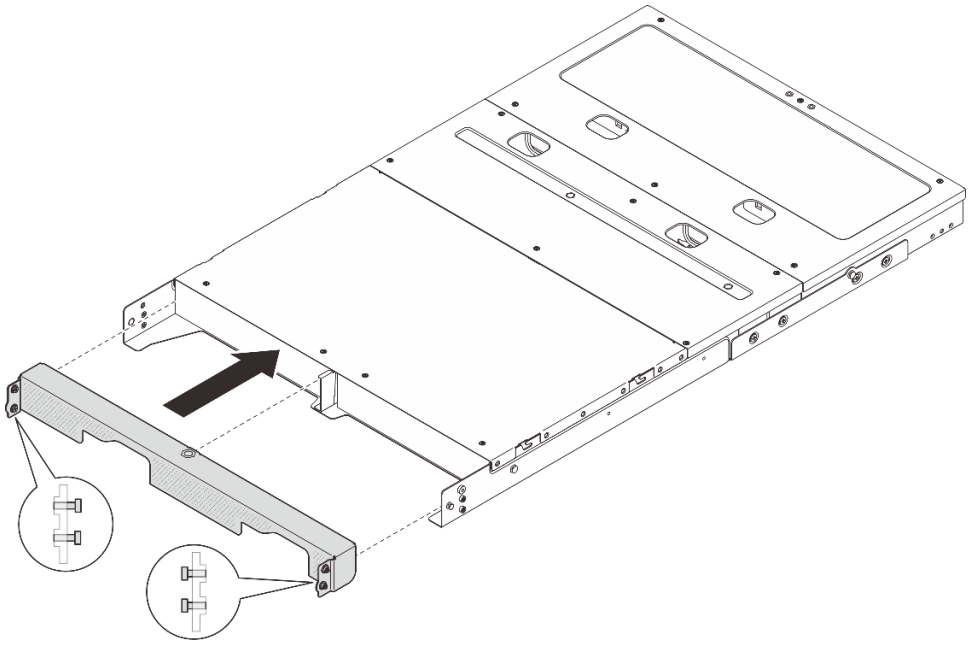


Figure 30. Installing the shipping bracket

Step 2. Secure the four captive screws on both sides of the shipping bracket.

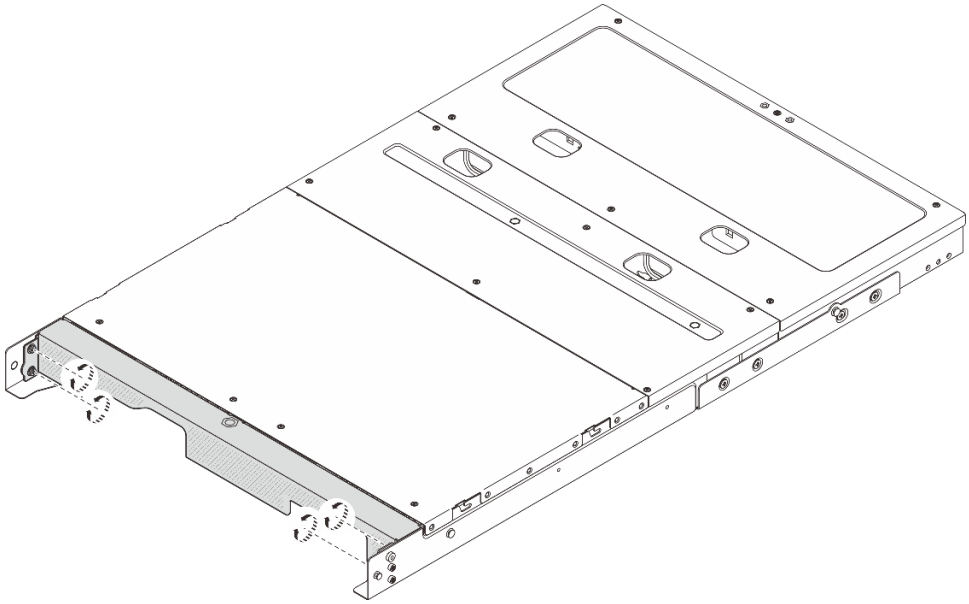


Figure 31. Fastening the screws

Replace components in the enclosure

Follow instructions in this section to remove and install the enclosure components.

Air baffle replacement

Follow instructions in this section to remove and install the air baffle.

Remove the air baffle

Follow instructions in this section to remove the air baffle.

About this task

Attention:

- Read “Installation Guidelines” on page 31 and “Safety inspection checklist” on page 32 to ensure that you work safely.
- Power off the server and peripheral devices and disconnect the power cords and all external cables. See “Power off the server” on page 35.
- If the server is installed in a rack, slide the server out on its rack slide rails to gain access to the top cover, or remove the server from the rack. See “Remove a node from the rack” on page 36.

Procedure

Step 1. Make preparation for this task.

a. Remove the middle top cover. See “Remove the middle top cover” on page 53.

Step 2. Grasp the air baffle with the blue touch points and carefully lift it out of the enclosure.

Attention: For proper cooling and airflow, reinstall the air baffle before turning on the server. Operating the server with the air baffle removed might damage server components.

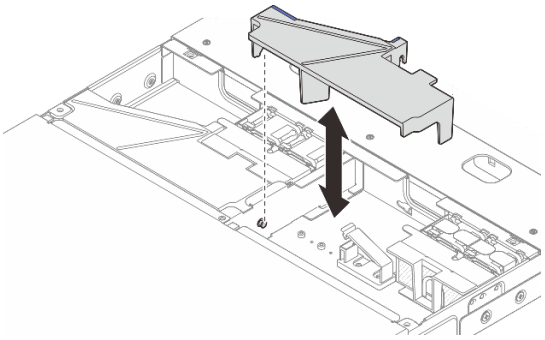


Figure 32. Removing the air baffle for 1U2N enclosure

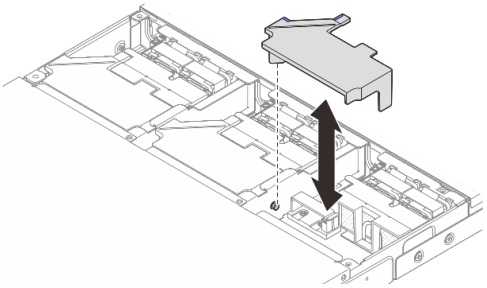


Figure 33. Removing the air baffle for 1U3N enclosure

After you finish

- Install a replacement unit. See “Install the air baffle” on page 49.
- If you are instructed to return the component or optional device, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Install the air baffle

Follow instructions in this section to install the air baffle.

About this task

Attention:

- Read “Installation Guidelines” on page 31 and “Safety inspection checklist” on page 32 to ensure that you work safely.
- Power off the server and peripheral devices and disconnect the power cords and all external cables. See “Power off the server” on page 35.

Attention: For proper cooling and airflow, reinstall the air baffle before turning on the server. Operating the server with the air baffle removed might damage server components.

Procedure

Step 1. Align the air baffle with guide pins on the enclosure; then, lower the air baffle down until it is firmly seated.

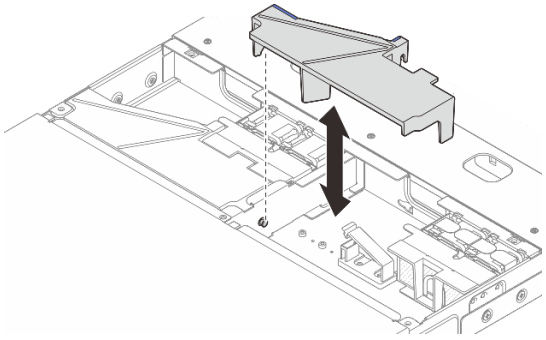


Figure 34. Installing the air baffle for 1U2N enclosure

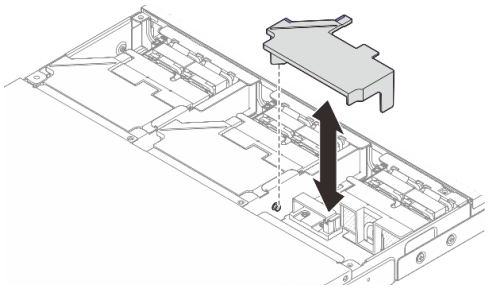


Figure 35. Installing the air baffle for 1U2N enclosure

After you finish

1. Install the middle top cover. See “Install the middle top cover” on page 55.
2. Complete the parts replacement. See “Complete the parts replacement” on page 75.

Enclosure fan module replacement

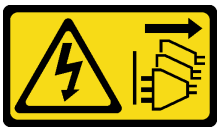
Follow instructions in this section to remove and install the fan module.

Remove an enclosure fan module

Follow instructions in this section to remove a fan module.

About this task

S002



CAUTION:
The power-control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

Attention:

- Read “Installation Guidelines” on page 31 and “Safety inspection checklist” on page 32 to ensure that you work safely.
- Power off the server and peripheral devices and disconnect the power cords and all external cables. See “Power off the server” on page 35.
- If the server is installed in a rack, slide the server out on its rack slide rails to gain access to the top cover, or remove the server from the rack. See “Remove a node from the rack” on page 36.

Procedure

Step 1. Make preparation for this task.

a. Remove the middle top cover. See “Remove the middle top cover” on page 53.

b. Remove the air baffle. See “Remove the air baffle” on page 48.

c. Disconnect the fan control board power cable from the node. See “Rear I/O connectors” in *ThinkEdge SE100 Enclosure Internal Cable Routing Guide* to locate the connectors.

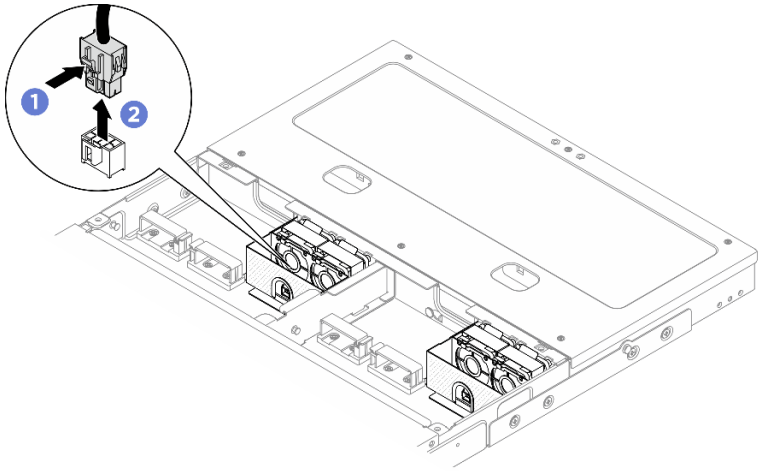
d. Remove the safety cover. See “Remove the safety cover” on page 73.

Step 2. Remove the fan module.

a. ❶ Press and hold the fan cable latch.

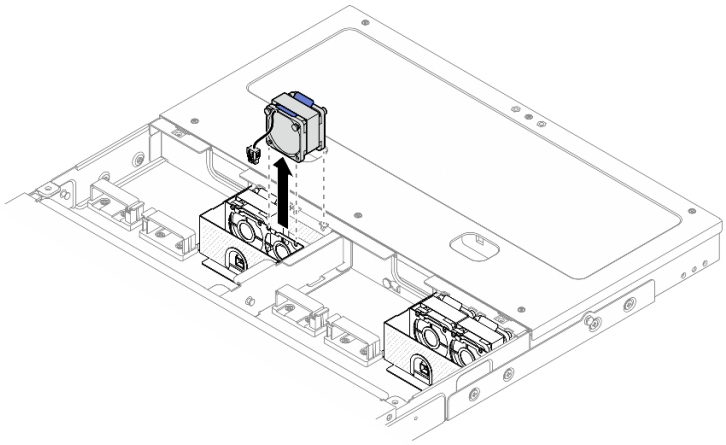
b. ❷ Disconnect the fan cable from the fan control board.

Figure 36. Removing the fan module



Step 3. Hold the both sides of the blue mylar on top of the fan module; then, pull the fan module out of the fan cage.

Figure 37. Removing the fan module



After you finish

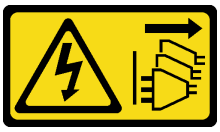
- Install a replacement unit. See "Install an enclosure fan module" on page 51.
- If you are instructed to return the component or optional device, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Install an enclosure fan module

Follow instructions in this section to install a fan module.

About this task

S002



CAUTION:
The power-control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

Attention:

- Read “Installation Guidelines” on page 31 and “Safety inspection checklist” on page 32 to ensure that you work safely.
- Power off the server and peripheral devices and disconnect the power cords and all external cables. See “Power off the server” on page 35.
- Touch the static-protective package that contains the component to any unpainted metal surface on the server; then, remove it from the package and place it on a static-protective surface.

Procedure

Step 1. Locate the fan slot in the enclosure to install the fan module. See “System fan numbering” on page 17 for more details.

Step 2. Align the fan module with the fan slot; then, lower the fan module into the fan slot.

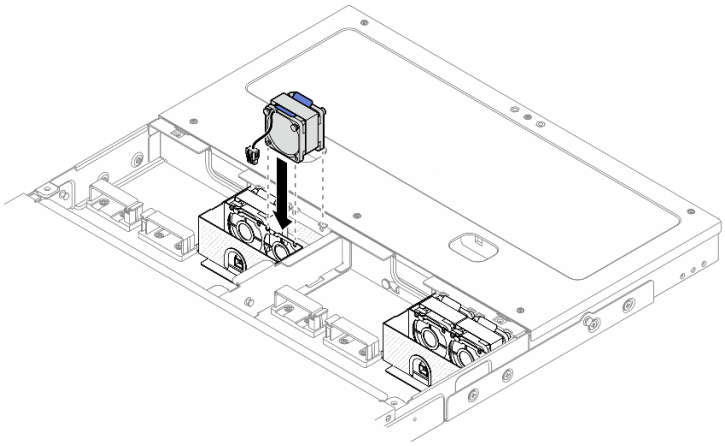


Figure 38. Installing the fan module

Step 3. Connect the fan power cable to the fan control board. See ***https://pubs.lenovo.com/se100-enclosure/se100_enclosure_internal_cable_routing_guide.pdf*** to locate the connectors.

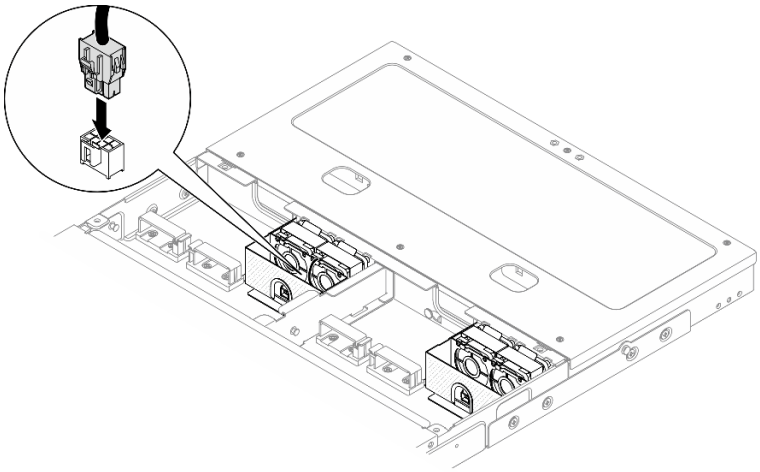


Figure 39. Connecting the fan power cable

After you finish

1. Install the safety cover. See “Install the safety cover” on page 74.
2. Reconnect the fan control board power cable to the node. See ***https://pubs.lenovo.com/se100-enclosure/se100_enclosure_internal_cable_routing_guide.pdf***.
3. Install the air baffle. See “Install the air baffle” on page 49.
4. Install the middle top cover. See “Install the middle top cover” on page 55.
5. Complete the parts replacement. See “Complete the parts replacement” on page 75.

Enclosure top cover replacement

Follow instructions in this section to remove and install the top cover.

Remove the middle top cover

Follow instructions in this section to remove the middle top cover.

S014

CAUTION:
Hazardous voltage, current, and energy levels might be present. Only a qualified service technician is authorized to remove the covers where the label is attached.

S033

CAUTION:

Hazardous energy present. Voltages with hazardous energy might cause heating when shorted with metal, which might result in spattered metal, burns, or both.

About this task

Attention:

- Read “Installation Guidelines” on page 31 and “Safety inspection checklist” on page 32 to ensure that you work safely.
- Power off the server and peripheral devices and disconnect the power cords and all external cables. See “Power off the server” on page 35.
- If the server is installed in a rack, slide the server out on its rack slide rails to gain access to the top cover, or remove the server from the rack. See “Remove a node from the rack” on page 36.
- For proper cooling and air flow, install the top cover before you power on the server. Operating the server with the top cover removed might damage server components.

Procedure

Step 1. Remove the middle top cover.

Remove the middle top cover of 1U2N enclosure

a. ❶ Loosen the six captive screws on the middle top cover.

b. ❷ Lift up the middle top cover from the enclosure, and place it on a flat clean surface.

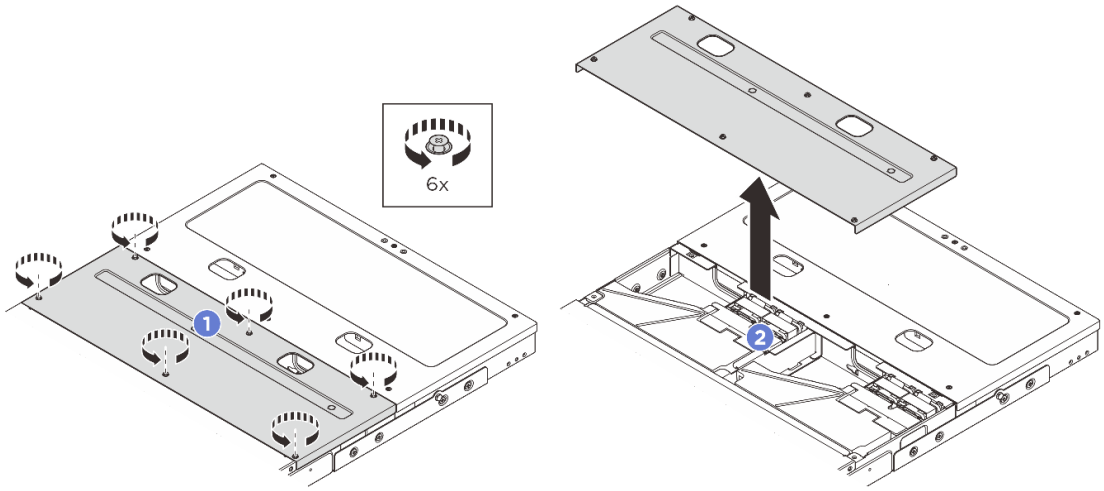


Figure 40. Removing the middle top cover of 1U2N enclosure

Remove the middle top cover of 1U3N enclosure

a. ❶ Loosen the eight captive screws on the middle top cover.

b. ❷ Lift up the middle top cover from the enclosure, and place it on a flat clean surface.

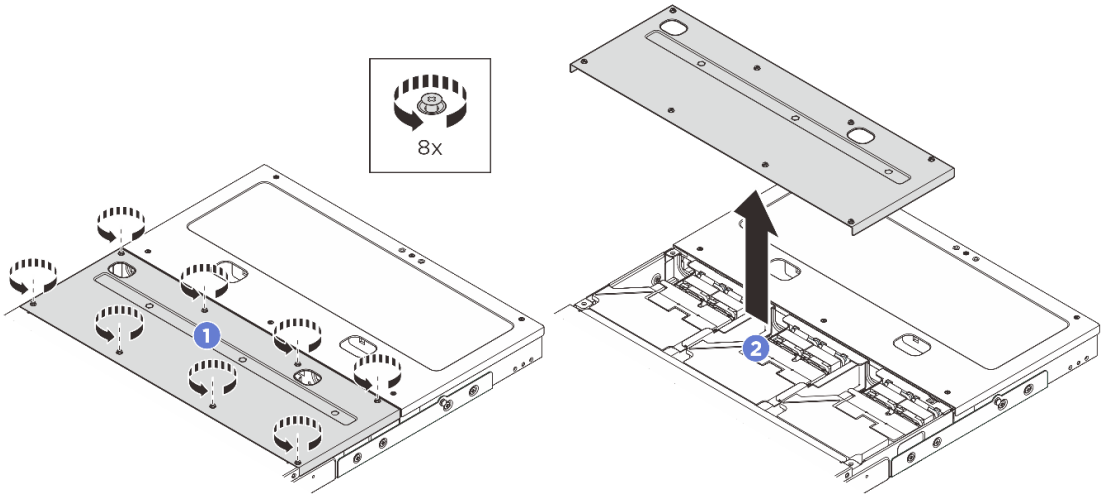


Figure 41. Removing the middle top cover of 1U3N enclosure

After you finish

1. Install a replacement unit. See "Install the middle top cover" on page 55.
2. If you are instructed to return the component or optional device, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Install the middle top cover

Follow instructions in this section to install the middle top cover.

About this task

Attention:

- Read "Installation Guidelines" on page 31 and "Safety inspection checklist" on page 32 to ensure that you work safely.
- Ensure that all components have been reassembled correctly and that no tools or loose screws are left inside your server.
- Make sure that all internal cables are correctly routed. See ***https://pubs.lenovo.com/se100-enclosure/se100_enclosure_internal_cable_routing_guide.pdf***.

Procedure

Step 1. Install the middle top cover.

Install the middle top cover of 1U2N enclosure

a. (1) Place the middle top cover on the top of the enclosure with both sides aligned.

b. (2) Tighten the six captive screws to secure the middle top cover.

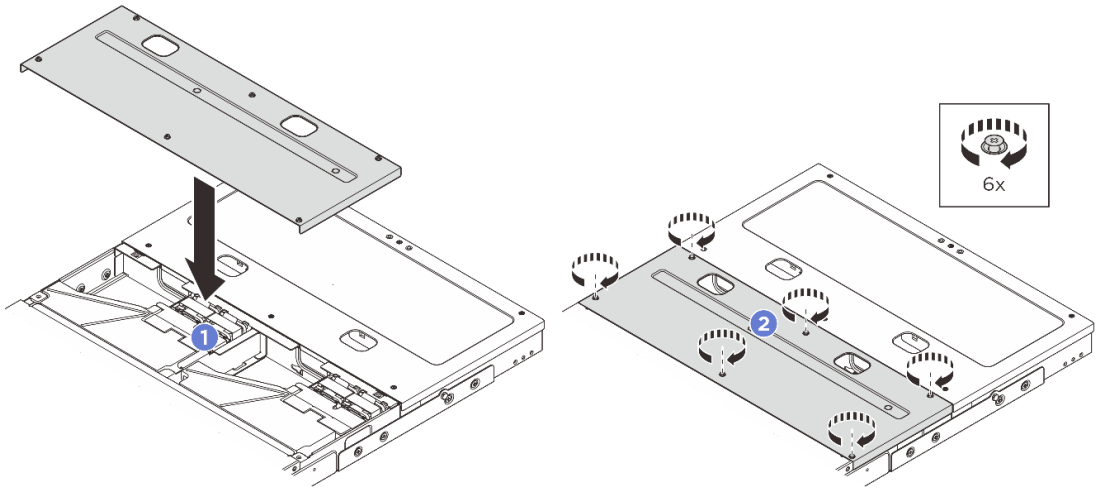


Figure 42. Installing the middle top cover of 1U2N enclosure

Install the middle top cover of 1U3N enclosure

a. ❶ Place the middle top cover on the top of the enclosure with both sides aligned.

b. ❷ Tighten the eight captive screws to secure the middle top cover.

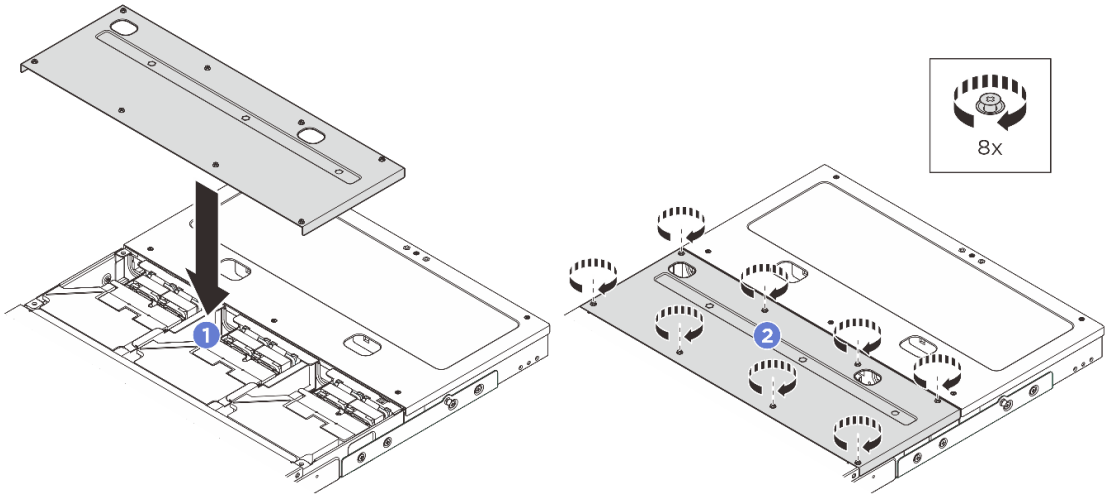


Figure 43. Installing the middle top cover of 1U3N enclosure

After you finish

1. Complete the parts replacement. See “Complete the parts replacement” on page 75.
2. Install the enclosure to the rack. See “Install a node to the rack” on page 40.

Remove the rear top cover

Follow instructions in this section to remove the rear top cover.

S014

CAUTION:
Hazardous voltage, current, and energy levels might be present. Only a qualified service technician is authorized to remove the covers where the label is attached.

S033

CAUTION:
Hazardous energy present. Voltages with hazardous energy might cause heating when shorted with metal, which might result in spattered metal, burns, or both.

About this task

Attention:

- Read “Installation Guidelines” on page 31 and “Safety inspection checklist” on page 32 to ensure that you work safely.
- Power off the server and peripheral devices and disconnect the power cords and all external cables. See “Power off the server” on page 35.
- If the server is installed in a rack, slide the server out on its rack slide rails to gain access to the top cover, or remove the server from the rack. See “Remove a node from the rack” on page 36.
- For proper cooling and air flow, install the top cover before you power on the server. Operating the server with the top cover removed might damage server components.

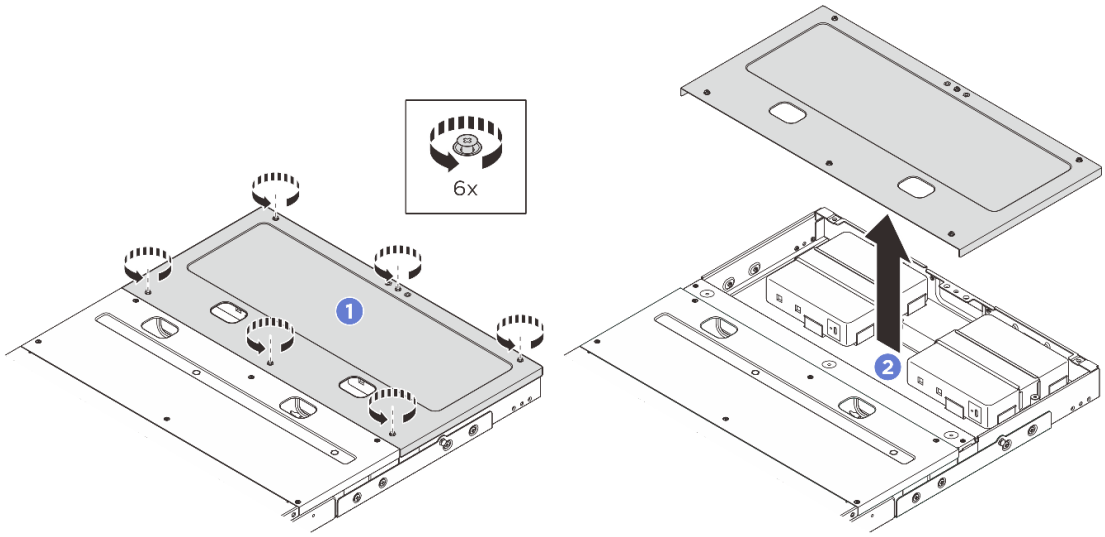
Note: Depending on the model, your server might look slightly different from the illustration.

Procedure

Step 1. Remove the rear top cover.

a. ❶ Loosen the six captive screws on the rear top cover.

b. ❷ Lift up the rear top cover from the enclosure, and place it on a flat clean surface.



After you finish

1. Install a replacement unit. See “Install the rear top cover” on page 58.
2. If you are instructed to return the component or optional device, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Install the rear top cover

Follow instructions in this section to install the rear top cover.

About this task

Attention:

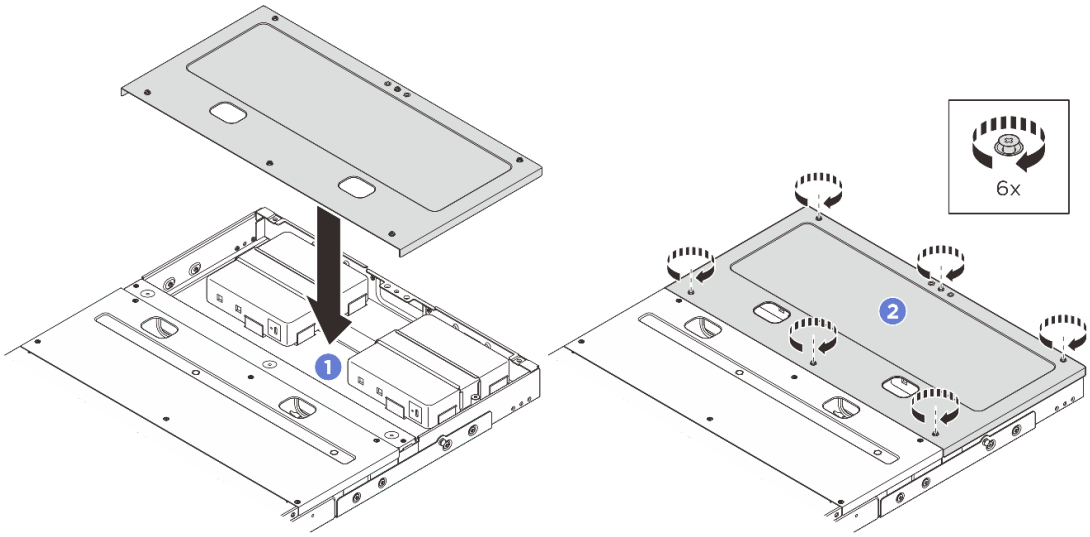
- Read “Installation Guidelines” on page 31 and “Safety inspection checklist” on page 32 to ensure that you work safely.
- Ensure that all components have been reassembled correctly and that no tools or loose screws are left inside your server.
- Make sure that all internal cables are correctly routed. See ***https://pubs.lenovo.com/se100-enclosure/se100_enclosure_internal_cable_routing_guide.pdf***.

Procedure

Step 1. Install the rear top cover.

a. (1) Place the rear top cover on the top of the enclosure with both sides aligned.

b. (2) Tighten the six captive screws to secure the rear top cover.



After you finish

1. Complete the parts replacement. See “Complete the parts replacement” on page 75.
2. Install the enclosure to the rack. See “Install a node to the rack” on page 40.

Fan control board module replacement (trained technician only)

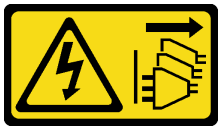
Follow instructions in this section to remove and install the fan control board module.

Remove a fan control board module

Follow instructions in this section to remove a fan control board module.

About this task

S002



CAUTION:
The power-control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

Attention:

- Read “Installation Guidelines” on page 31 and “Safety inspection checklist” on page 32 to ensure that you work safely.
- Power off the server and peripheral devices and disconnect the power cords and all external cables. See “Power off the server” on page 35.
- If the server is installed in a rack, slide the server out on its rack slide rails to gain access to the top cover, or remove the server from the rack. See “Remove a node from the rack” on page 36.

Procedure

Step 1. Make preparation for this task.

a. Remove the middle top cover. See “Remove the middle top cover” on page 53.

b. Remove the air baffle. See “Remove the air baffle” on page 48.

c. Disconnect the fan control board power cable from the node. See “Rear I/O connectors” in *ThinkEdge SE100 Enclosure Internal Cable Routing Guide* to locate the connectors.

d. Remove the safety cover. See “Remove the safety cover” on page 73.

e. Disconnect all the cables from the fan control board.

Step 2. Remove the fan control board module.

a. ❶ Loosen the thumbscrew that secures the fan control board module with the screwdriver.

b. ❷ Slide the fan control board module until the guide pins on the enclosure are seated on the large opening of the key holes; then, lift the fan control board module to remove it.

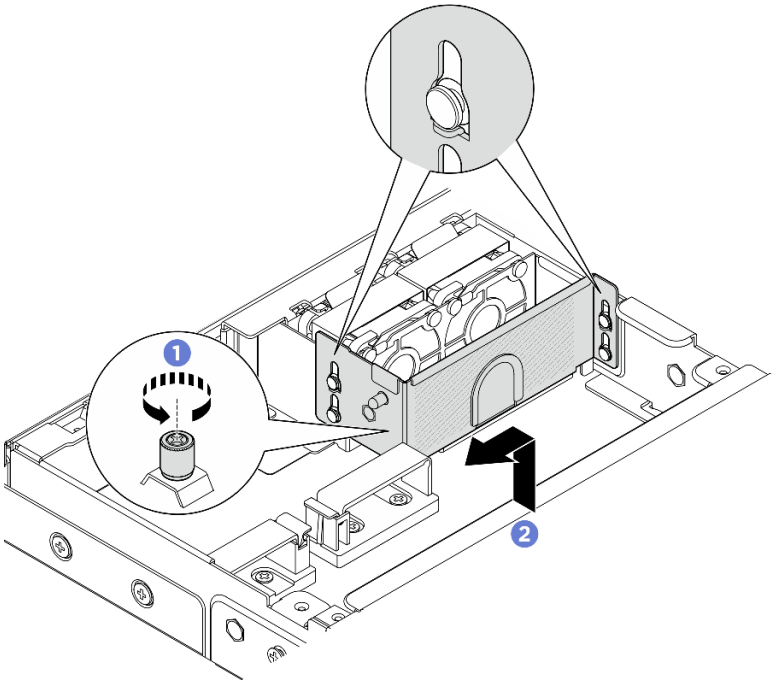


Figure 44. Removing the fan control board module

Step 3. Remove the two screws that secure the fan control board to the fan control board cage; then lift the fan control board out of the cage.

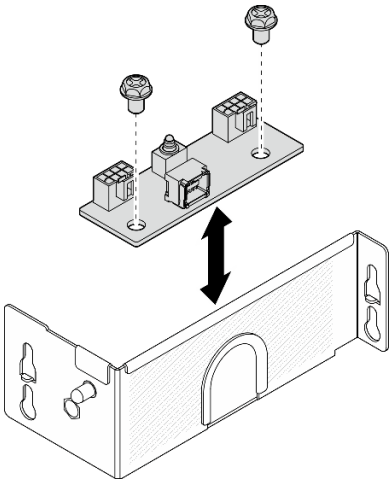


Figure 45. Disassembling the fan control board

After you finish

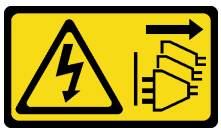
- Install a replacement unit. See "Install a fan control board module" on page 61.
- If you are instructed to return the component or optional device, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Install a fan control board module

Follow instructions in this section to install a fan control board module.

About this task

S002



CAUTION:
The power-control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

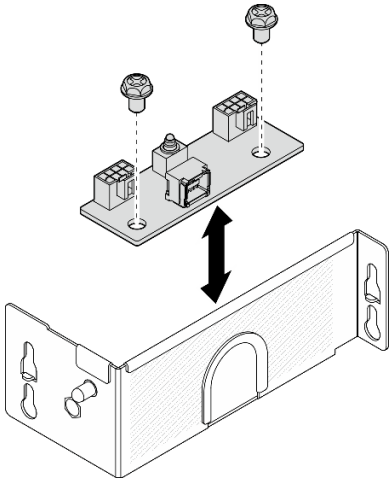
Attention:

- Read "Installation Guidelines" on page 31 and "Safety inspection checklist" on page 32 to ensure that you work safely.
- Power off the server and peripheral devices and disconnect the power cords and all external cables. See "Power off the server" on page 35.
- Touch the static-protective package that contains the component to any unpainted metal surface on the server; then, remove it from the package and place it on a static-protective surface.

Procedure

Step 1. Align the two screw slots on the fan control board with the fan control board cage; then tighten the two screws to secure the fan control board.

Figure 46. Assembling the fan control board

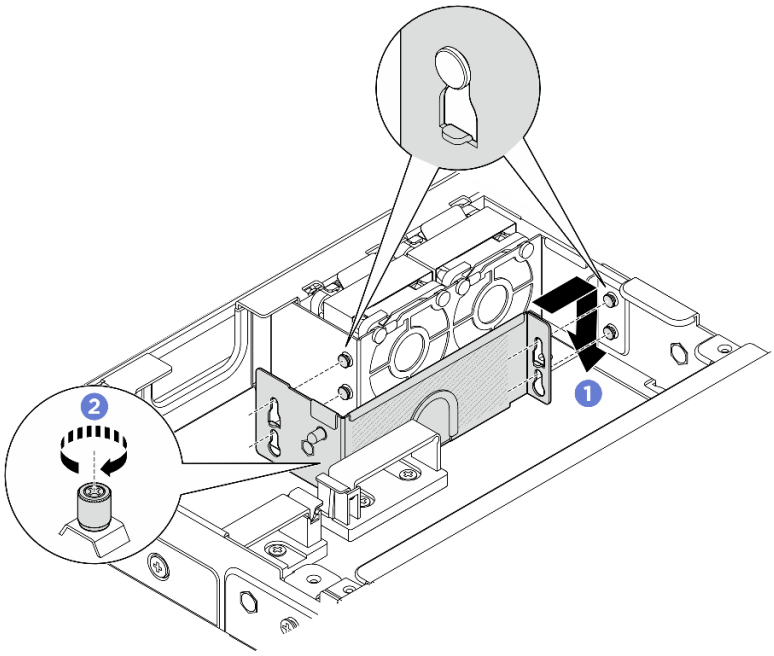


Step 2. Install the fan control board module.

a. ❶ Align the fan control board module with the guide pins on the enclosure; then, lower down and slide the fan control board module until the guide pins are seated in the small opening of the keyholes.

b. ❷ Tighten the thumbscrew with the screwdriver to secure the fan control board.

Figure 47. Installing the fan control board module



After you finish

1. Reconnect all the cables to the fan control board. See “Fan control board (FCB) connectors” in *ThinkEdge SE100 Enclosure Internal Cable Routing Guide* to locate the connectors.
2. Install the safety cover. See “Install the safety cover” on page 74.

3. Reconnect the fan control board power cable to the node. See ***https://pubs.lenovo.com/se100-enclosure/se100_enclosure_internal_cable_routing_guide.pdf***.
4. Install the air baffle. See "Install the air baffle" on page 49.
5. Install the middle top cover. See "Install the middle top cover" on page 55.
6. Complete the parts replacement. See "Complete the parts replacement" on page 75.

Fan shroud replacement (Rack mount)

Follow instructions in this section to remove and install a fan shroud.

Remove a fan shroud (Rack mount)

Follow instructions in this section to remove a fan shroud.

About this task

S002

CAUTION:
The power-control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

S017

CAUTION:
Hazardous moving fan blades nearby. Keep fingers and other body parts away.

S033

CAUTION:
Hazardous energy present. Voltages with hazardous energy might cause heating when shorted with metal, which might result in spattered metal, burns, or both.

Attention:

- Read "Installation Guidelines" on page 31 and "Safety inspection checklist" on page 32 to ensure that you work safely.
- Power off the server and peripheral devices and disconnect the power cords and all external cables. See "Power off the server" on page 35.

- If the node is installed in an enclosure or mounted, remove the node from the enclosure or mount. See "Configuration guide" on page 36.

Procedure

Step 1. Let the top side of the node facing up.

Step 2. Remove the fan shroud.

a. Remove the two screws that secure the fan shroud to the node.

b. Lift up the fan shroud from the node, and place it on a flat clean surface.

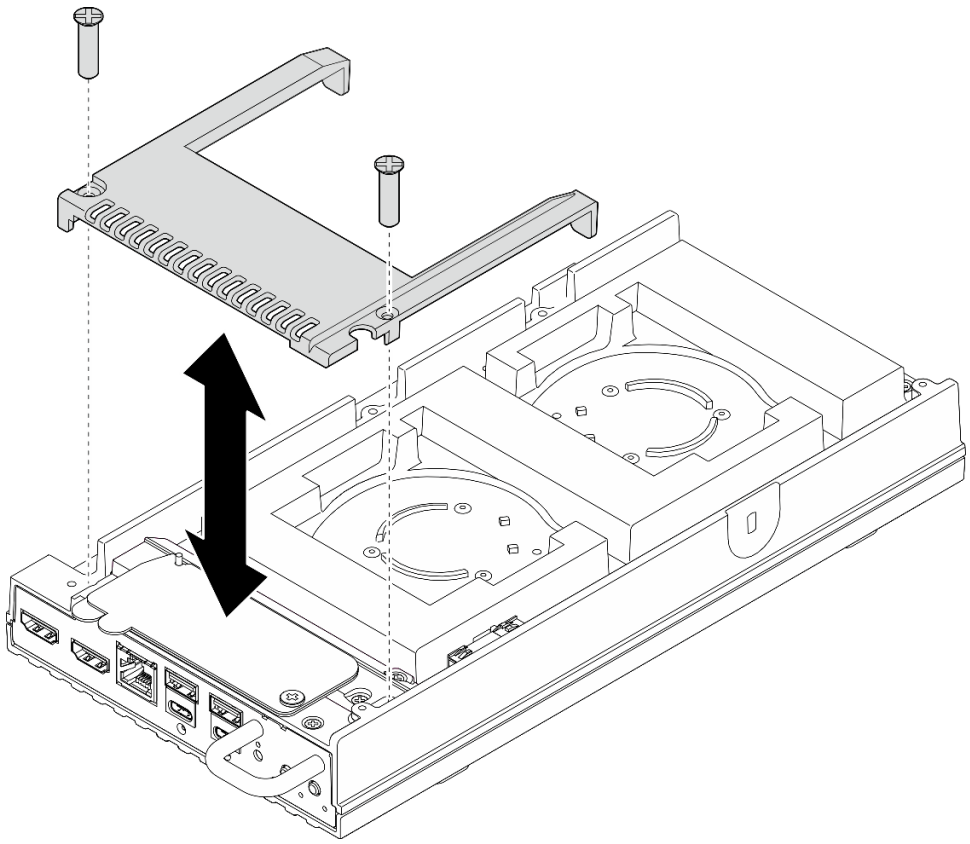


Figure 48. Removing the fan shroud

After you finish

1. Install a replacement unit or proceed to the steps below if the node is not to be installed to the enclosure.
   - Install a replacement unit. See "Install a fan shroud (Rack mount)" on page 65.
   - If the server is not to be installed in a enclosure, complete the following steps:
     a. Remove the fan bridge cable dust filler from the fan bridge cable.

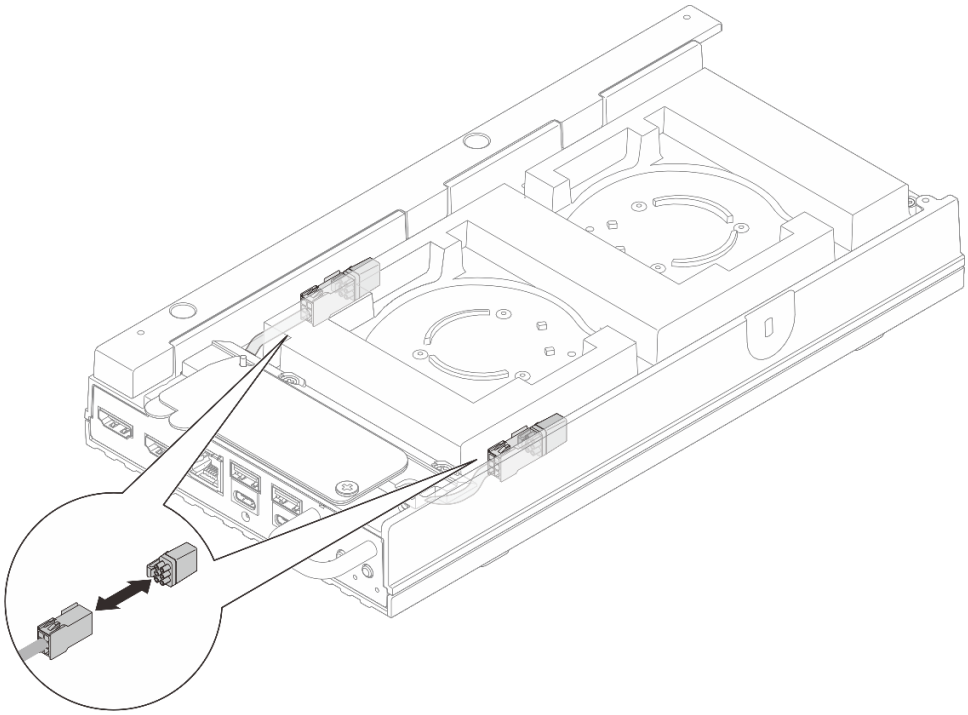


Figure 49. Removing the fan bridge cable dust filler

b. Install the fan module. See “Install a fan module” in ***https://pubs.lenovo.com/se100/***.

c. Install the desktop mount fan shroud. See “Install a desktop mount fan shroud” in ***https://pubs.lenovo.com/se100/***.

2. If you are instructed to return the component or optional device, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Install a fan shroud (Rack mount)

Follow instructions in this section to install a fan shroud.

About this task

S002

CAUTION:
The power-control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

S017

CAUTION:
Hazardous moving fan blades nearby. Keep fingers and other body parts away.

Procedure

Step 1. Make preparation for this task.

a. If there is a desktop mount fan shroud installed, removed it. See “Remove a desktop mount fan shroud” in ***https://pubs.lenovo.com/se100/***

b. Remove the node fan module. See “Remove a fan module in ***https://pubs.lenovo.com/se100/***.

Step 2. Install the fan bridge cable dust filler to the fan bridge cable.

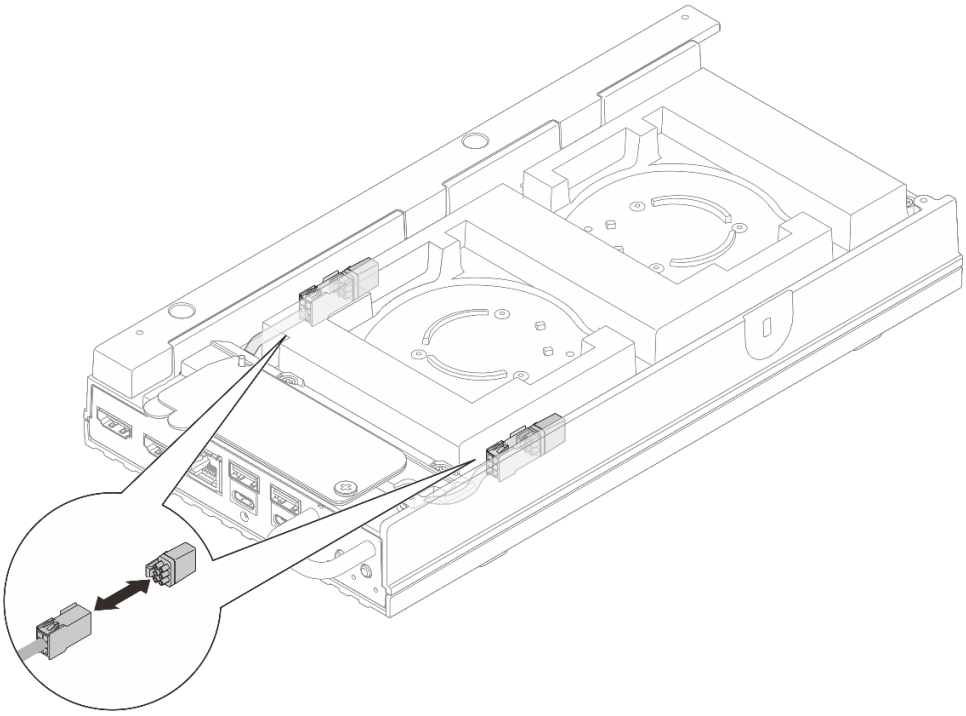


Figure 50. Installing a fan bridge cable dust filler

Step 3. Install the fan shroud.

a. Align the fan shroud with the screw holes on the server; then place the fan shroud on the server.

b. Tighten the two screws on the fan shroud to secure the fan shroud to the server.

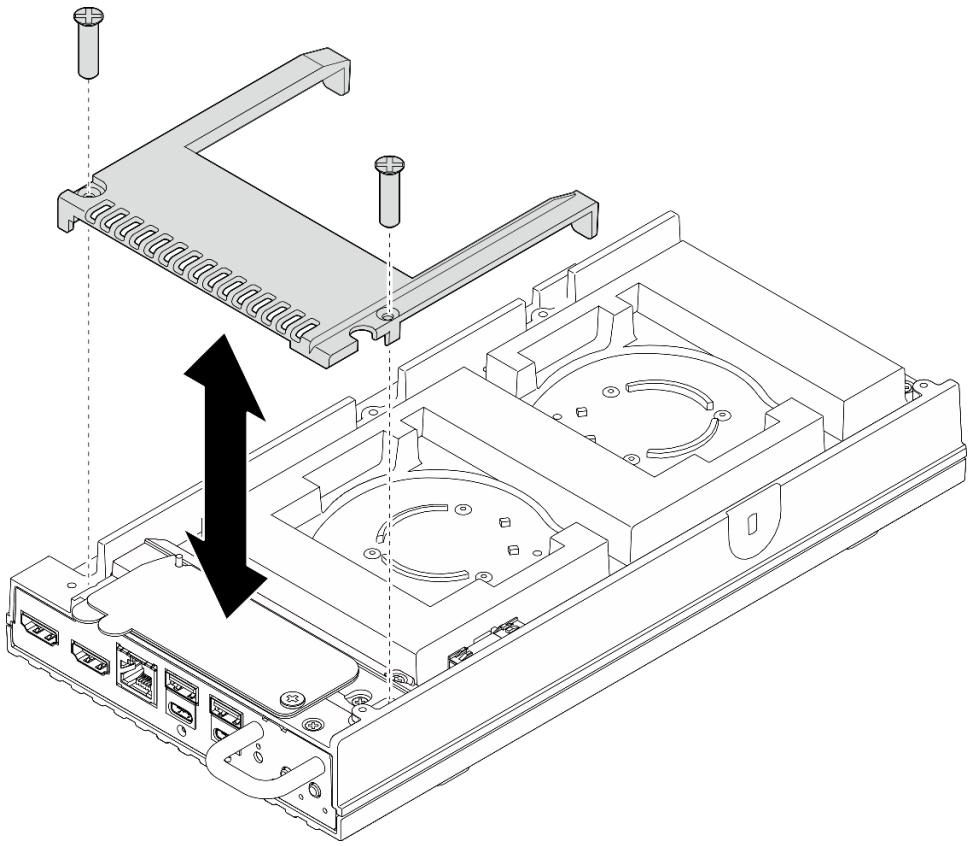


Figure 51. Installing a fan shroud

After you finish

- Proceed to "Install a node to the rack" on page 40.
- Complete the parts replacement. See "Complete the parts replacement" on page 75.

Enclosure Power adapter replacement

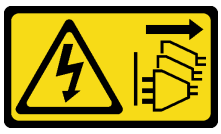
Follow instructions in this section to remove and install the enclosure power adapters.

Remove a power adapter (Rack mount)

Follow instructions in this section to remove power adapters from the enclosure.

About this task

S002



CAUTION:
The power-control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

Attention:

- Read “Installation Guidelines” on page 31 and “Safety inspection checklist” on page 32 to ensure that you work safely.
- Power off the server and peripheral devices and disconnect the power cords and all external cables. See “Power off the server” on page 35.
- If the server is installed in a rack, slide the server out on its rack slide rails to gain access to the top cover, or remove the server from the rack. See “Remove a node from the rack” on page 36.

Procedure

Step 1. Make preparation for this task.

a. Remove the middle top cover. See “Remove the middle top cover” on page 53.

b. Remove the rear top cover. See “Remove the rear top cover” on page 56.

c. Remove the air baffle. See “Remove the air baffle” on page 48.

Step 2. Remove the crossbar.

a. ❶ Loosen the two captive screws that secure the crossbar.

b. ❷ Hold the crossbar and remove it from the enclosure.

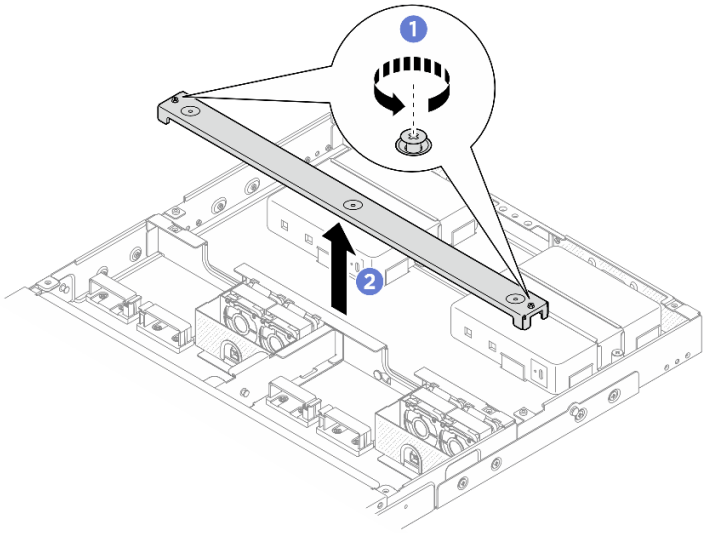


Figure 52. Removing the crossbar

Step 3. Remove the power cable.

a. ❶ Use a flat-blade screwdriver to loosen the screw that lock the power cable.

b. ❷ Disengage the power cable from the node.

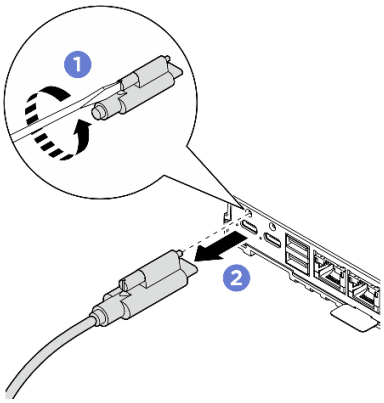


Figure 53. Removing the power cable

Step 4. Remove the power adapter.

a. ❶ Loosen the two captive screws on the both sides of the power adapter bracket with a screw driver.

b. ❷ Lift the power adapter bracket out of the enclosure.

c. ❸ Carefully lift the power adapter and remove it from the enclosure.

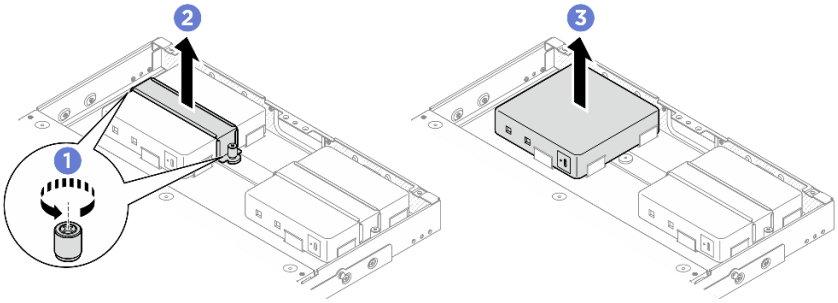


Figure 54. Removing the power adapter

After you finish

- Install a replacement unit. See "Install a power adapter (Rack mount)" on page 69.
- If you are instructed to return the component or optional device, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Install a power adapter (Rack mount)

Follow instructions in this section to install power adapter(s) to the enclosure.

About this task

S002

CAUTION:

The power-control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

Attention:

- Read "Installation Guidelines" on page 31 and "Safety inspection checklist" on page 32 to ensure that you work safely.
- Power off the server and peripheral devices and disconnect the power cords and all external cables. See "Power off the server" on page 35.
- Touch the static-protective package that contains the component to any unpainted metal surface on the server; then, remove it from the package and place it on a static-protective surface.

CAUTION:
Power adapters to the node must be of the same brand, power rating, wattage or efficiency level.

Notes:

- Depending on the model, the enclosure might look slightly different from the illustrations in this section.
- ThinkEdge SE100 1U2N and 1U3N Enclosure only support 300W power adapters.

As required by COMMISSION REGULATION (EU) 2019/424 of 1 March 2020 laying down ecodesign requirements for servers and data storage products (ErP lot 9).

ThinkEdge 300W 230V/115V External Power Supply		
Information published	**Value and precision**	**Unit**
Manufacturer's name	Lenovo	-
Model identifier	Adapter	-
Input voltage	100-240	V
Input AC frequency	50-60	Hz
Output voltage	28.0	V
Output current	• 3 ports: 3.57 • 2 ports: 5.0	A
Output power	• 3 ports: 300.0 • 2 ports: 280.0	W
Average active efficiency	• FSP: – 3 ports: 90.0 / 91.0 – 2 ports: 88.5 / 89.5 • Delta: – 3 ports: 91.5 / 90.7 – 2 ports: 91.8 / 91.1	%

ThinkEdge 300W 230V/115V External Power Supply		
Efficiency at low load (10 %)	• FSP: – 3 ports: 78.0 / 80.0 – 2 ports: 77.0 / 79.0 • Delta: – 3 ports: 78.9 / 78.3 – 2 ports: 80.9 / 81.6	%
No-load power consumption	• FSP: 0.20 / 0.28 • Delta: 0.25 / 0.16	W

Procedure

Step 1. Make preparation for this task.

a. Remove the middle top cover. See “Remove the middle top cover” on page 53.

b. Remove the rear top cover. See “Remove the rear top cover” on page 56.

c. Remove the air baffle. See “Remove the air baffle” on page 48.

d. Remove the crossbar.

1. ❶ Loosen the two captive screws that secure the crossbar.
2. ❷ Hold the crossbar and remove it from the enclosure.

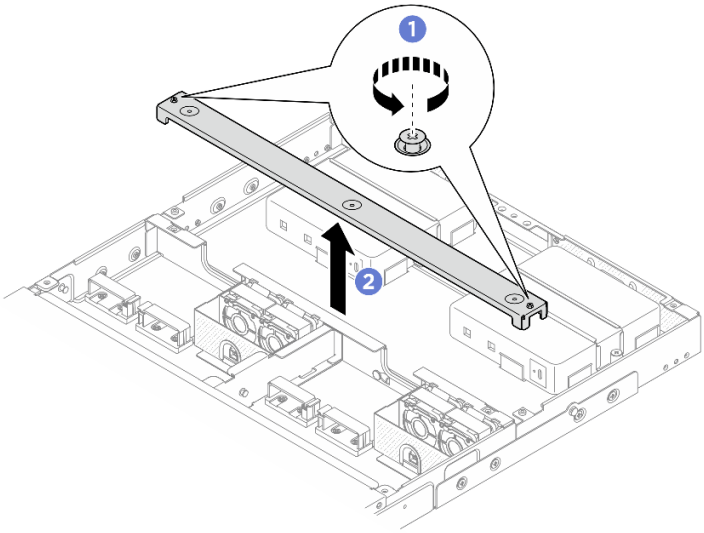


Figure 55. Removing the crossbar

Step 2. Install the power adapter.

a. ❶ Install the power adapter into the enclosure.

b. ❷ Lower the power adapter bracket onto the top of the power adapter.

c. ❸ Tighten the two captive screws on both sides of the power adapter bracket to secure the power adapter.

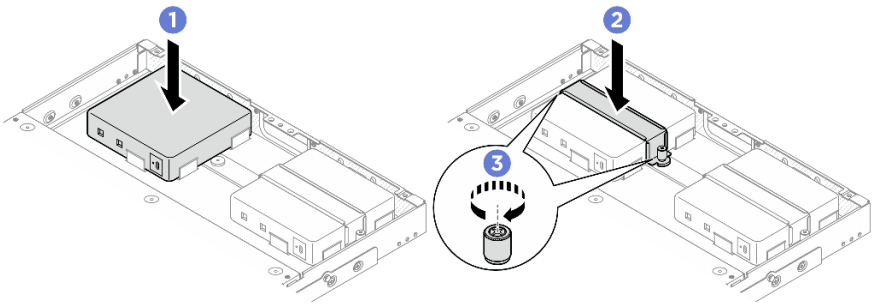


Figure 56. Installing the power adapter

Step 3. Connect the power cable to the node.

a. ❶ Align the screw holes and install the power cable to the node.

b. ❷ Tighten the screw and make sure the power cable is securely locked.

Note: To connect the power adapter to the node, 1U2N enclosure needs 2 USB-C output power cables for one power adapter, and 1U3N enclosure needs 3 USB-C output power cables for one power adapter. Plug in the additional power cable to the power adapter installed in an 1U3N enclosure. For more details about cable routing, see ***https://pubs.lenovo.com/se100-enclosure/se100_enclosure_internal_cable_routing_guide.pdf***.

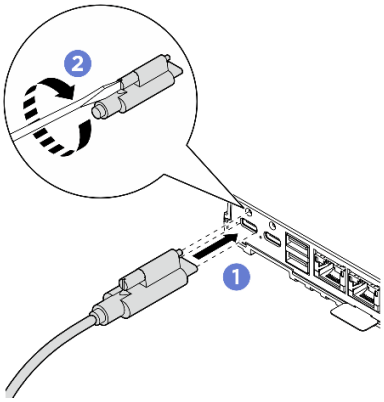


Figure 57. Installing the power cable

Step 4. Install the crossbar.

a. ❶ Align the crossbar with the screw holes on the enclosure; then lower the crossbar onto the enclosure. Make sure all the cables are routed properly under the crossbar.

b. ❷ Tighten the two captive screws to secure the crossbar.

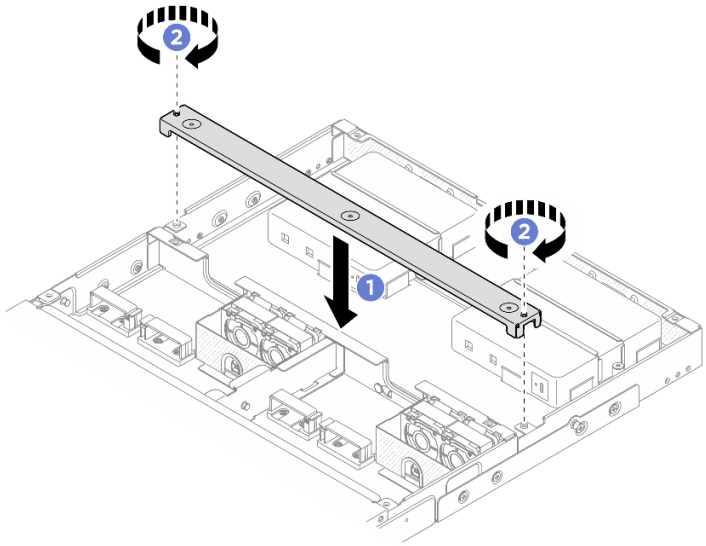


Figure 58. Installing the crossbar

After you finish

1. Install the air baffle. See “Install the air baffle” on page 49.
2. Install the rear top cover. See “Install the rear top cover” on page 58.
3. Install the middle top cover. See “Install the middle top cover” on page 55.
4. Reinstall the enclosure to the rack. See “Rack mount configuration” on page 36.
5. Complete the parts replacement. See “Complete the parts replacement” on page 75.

Safety cover replacement

Follow instructions in this section to remove and install the safety cover.

Remove the safety cover

Follow instructions in this section to remove the safety cover.

About this task

Attention:

- Read “Installation Guidelines” on page 31 and “Safety inspection checklist” on page 32 to ensure that you work safely.
- Power off the server and peripheral devices and disconnect the power cords and all external cables. See “Power off the server” on page 35.
- If the server is installed in a rack, slide the server out on its rack slide rails to gain access to the top cover, or remove the server from the rack. See “Remove a node from the rack” on page 36.

Procedure

Step 1. Make preparation for this task.

a. Remove the middle top cover. See “Remove the middle top cover” on page 53.

b. Remove the air baffle. See “Remove the air baffle” on page 48.

c. Disconnect the fan control board power cable from the node. See “Rear I/O connectors” in *ThinkEdge SE100 Enclosure Internal Cable Routing Guide* to locate the connectors.

Step 2. The fan control board connector on the rear of the node is attached with protective dust cap, make sure to put it back on after the cable is disconnected.

Step 3. Remove the safety cover.

a. ❶ Hold the blue touch points on the safety cover; then, lift the safety cover to disengage it with the fan control board cage.

b. ❷ Slide the safety cover through the fan control board power cable to remove it.

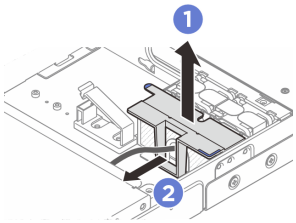


Figure 59. Removing the safety cover

After you finish

- Install the safety cover. See "Install the safety cover" on page 74.
- If you are instructed to return the component or optional device, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Install the safety cover

Follow instructions in this section to install the processor air baffle.

About this task

Attention:

- Read "Installation Guidelines" on page 31 and "Safety inspection checklist" on page 32 to ensure that you work safely.
- Power off the server and peripheral devices and disconnect the power cords and all external cables. See "Power off the server" on page 35.

Procedure

Step 1. Install the safety cover.

a. ❶ Slide the safety cover through the fan control board power cable.

b. ❷ Align the safety cover with the fan control board cage, then insert the safety cover to the fan control board power cage until it clicks into position.

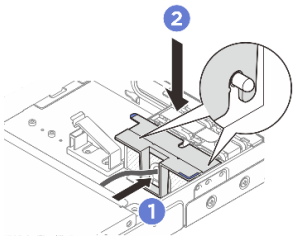


Figure 60. Installing the safety cover

Step 2. The fan control board connector on the rear of the node is attached with protective dust cap, make sure to remove it first before connecting the cable to the connector.

After you finish

- Reconnect the fan control board power cable to the node. See ***https://pubs.lenovo.com/se100-enclosure/se100_enclosure_internal_cable_routing_guide.pdf***.
- Install the air baffle. See "Install the air baffle" on page 49.
- Install the middle top cover. See "Install the middle top cover" on page 55.
- Complete the parts replacement. See "Complete the parts replacement" on page 75.

Complete the parts replacement

Go through the checklist to complete parts replacement

To complete the parts replacement, do the following:

1. Ensure that all components have been reassembled correctly and that no tools or loose screws are left inside your server.
2. Properly route and secure the cables in the server. Refer to the cable connecting and routing information for each component.
3. Reinstall the air baffles. See "Install the air baffle" on page 49.

   Attention: For proper cooling and airflow, reinstall the air baffle before turning on the server. Operating the server with the air baffle removed might damage server components.
4. Reinstall the middle top cover. See "Install the middle top cover" on page 55.
5. Reinstall the rear top cover. See "Install the rear top cover" on page 58.
6. If the sever was installed in a rack, reinstall the server into the rack. See "Install a node to the rack" on page 40.
7. Reconnect the power cords and any cables that you removed.
8. Install the I/O fillers to the front and rear side of the node when the connectors are not used. The connectors could be dust–covered without proper protection of the fillers. See "Node I/O connector fillers" on page 16.
9. If the security LED of the server is blinking, the server is in System Lockdown Mode. Activate or unlock the system for operation. See "Activate or unlock the system" on page 82.
10. Power on the server and any peripheral devices. See "Power on the server" on page 34.
11. Update the server configuration.
    - Download and install the latest device drivers: http://datacentersupport.lenovo.com.
    - Update the system firmware. See "Update the firmware" on page 77.
    - Update the UEFI configuration. See https://pubs.lenovo.com/uefi-overview/.

Chapter 6. System configuration

Complete these procedures to configure your system.

Set the network connection for the Lenovo XClarity Controller

Before you can access the Lenovo XClarity Controller over your network, you need to specify how Lenovo XClarity Controller will connect to the network. Depending on how the network connection is implemented, you might need to specify a static IP address as well.

The following methods are available to set the network connection for the Lenovo XClarity Controller if you are not using DHCP:

- If a monitor is attached to the server, you can use Lenovo XClarity Provisioning Manager to set the network connection.

  Complete the following steps to connect the Lenovo XClarity Controller to the network using the Lenovo XClarity Provisioning Manager.

  1. Start the server.
  2. Press the key specified in the on-screen instructions to display the Lenovo XClarity Provisioning Manager interface. (For more information, see the “Startup” section in the LXPM documentation compatible with your server at https://pubs.lenovo.com/lxpm-overview/.)
  3. Go to **LXPM → UEFI Setup → BMC Settings** to specify how the Lenovo XClarity Controller will connect to the network.
     - If you choose a static IP connection, make sure that you specify an IPv4 or IPv6 address that is available on the network.
     - If you choose a DHCP connection, make sure that the MAC address for the server has been configured in the DHCP server.
  4. Click **OK** to apply the setting and wait for two to three minutes.
  5. Use an IPv4 or IPv6 address to connect Lenovo XClarity Controller.

     Important: The Lenovo XClarity Controller is set initially with a user name of USERID and password of PASSW0RD (with a zero, not the letter O). This default user setting has Supervisor access. It is required to change this user name and password during your initial configuration for enhanced security.

Update the firmware

Several options are available to update the firmware for the server.

You can use the tools listed here to update the most current firmware for your server and the devices that are installed in the server.

- Best practices related to updating firmware is available at the following site:
  - https://lenovopress.lenovo.com/lp0656-lenovo-thinksystem-firmware-and-driver-update-best-practices
- The latest firmware can be found at the following site:
  - https://datacentersupport.lenovo.com/tw/en/products/servers/thinkedge/se100/7dgv/downloads/driver-list/
- You can subscribe to product notification to stay up to date on firmware updates:

– https://datacentersupport.lenovo.com/solutions/ht509500

Update Bundles (Service Packs)

Lenovo typically releases firmware in bundles called Update Bundles (Service Packs). To ensure that all of the firmware updates are compatible, you should update all firmware at the same time. If you are updating firmware for both the Lenovo XClarity Controller and UEFI, update the firmware for Lenovo XClarity Controller first.

Update method terminology

- **In-band update**. The installation or update is performed using a tool or application within an operating system that is executing on the server's core CPU.
- **Out-of-band update**. The installation or update is performed by the Lenovo XClarity Controller collecting the update and then directing the update to the target subsystem or device. Out-of-band updates have no dependency on an operating system executing on the core CPU. However, most out-of-band operations do require the server to be in the S0 (Working) power state.
- **On-Target update.** The installation or update is initiated from an installed operating system executing on the target server itself.
- **Off-Target update.** The installation or update is initiated from a computing device interacting directly with the server's Lenovo XClarity Controller.
- **Update Bundles (Service Packs)**. Update Bundles (Service Packs) are bundled updates designed and tested to provide the interdependent level of functionality, performance, and compatibility. Update Bundles (Service Packs) are server machine-type specific and are built (with firmware and device driver updates) to support specific Microsoft Windows, Red Hat Enterprise Linux (RHEL) and Canonical Ubuntu operating system distributions. Machine-type-specific firmware-only Update Bundles (Service Packs) are also available.

Firmware updating tools

See the following table to determine the best Lenovo tool to use for installing and setting up the firmware:

Tool	Update Methods Supported	Core System Firmware Updates	I/O Devices Firmware Updates	Drive Firmware Updates	Graphical user interface	Command line interface	Supports Update Bundles (Service Packs)
Lenovo XClarity Provisioning Manager (LXPM)	In-band[2] On-Target	√			√		
Lenovo XClarity Controller (XCC)	In-band[4] Out-of-band Off-Target	√	Selected I/O devices	√[3]	√		√
Lenovo XClarity Essentials OneCLI (OneCLI)	In-band Out-of-band On-Target Off-Target	√	All I/O devices	√[3]		√	√

Tool	Update Methods Supported	Core System Firmware Updates	I/O Devices Firmware Updates	Drive Firmware Updates	Graphical user interface	Command line interface	Supports Update Bundles (Service Packs)
Lenovo XClarity Essentials UpdateXpress (LXCE)	In-band Out-of-band On-Target Off-Target	√	All I/O devices		√		√
Lenovo XClarity Essentials Bootable Media Creator (BoMC)	In-band Out-of-band Off-Target	√	All I/O devices		√ (BoMC application)	√ (BoMC application)	√
Lenovo XClarity Administrator (LXCA)	In-band[1] Out-of-band[2] Off-Target	√	All I/O devices		√		√
Lenovo XClarity Integrator (LXCI) for VMware vCenter	Out-of-band Off-Target	√	Selected I/O devices		√		
Lenovo XClarity Integrator (LXCI) for Microsoft Windows Admin Center	In-band Out-of-band On-Target Off-Target	√	All I/O devices		√		√
Lenovo XClarity Integrator (LXCI) for Microsoft System Center Configuration Manager	In-band On-Target	√	All I/O devices		√		√

Notes:

1. For I/O firmware updates.
2. For BMC and UEFI firmware updates.
3. Drive firmware update is only supported by the tools and methods below:
   - XCC Bare Metal Update (BMU): In-band, and requires system reboot.
   - Lenovo XClarity Essentials OneCLI:
     - For drives supported by ThinkSystem V2 and V3 products (legacy drives): In-band, and does not require system reboot.
     - For drives supported only by ThinkSystem V3 products (new drives): Staging to XCC and complete the update with XCC BMU (In-band, and requires system reboot.).
4. Bare Metal Update (BMU) only.

- **Lenovo XClarity Provisioning Manager**

  From Lenovo XClarity Provisioning Manager, you can update the Lenovo XClarity Controller firmware, the UEFI firmware, and the Lenovo XClarity Provisioning Manager software.

  Note: By default, the Lenovo XClarity Provisioning Manager Graphical User Interface is displayed when you start the server and press the key specified in the on-screen instructions. If you have changed that default to be the text-based system setup, you can bring up the Graphical User Interface from the text-based system setup interface.

  For additional information about using Lenovo XClarity Provisioning Manager to update firmware, see:

  "Firmware Update" section in the LXPM documentation compatible with your server at https://pubs.lenovo.com/lxpm-overview/

- **Lenovo XClarity Controller**

  If you need to install a specific update, you can use the Lenovo XClarity Controller interface for a specific server.

  Notes:

  – To perform an in-band update through Windows or Linux, the operating system driver must be installed and the Ethernet-over-USB (sometimes called LAN over USB) interface must be enabled.

    For additional information about configuring Ethernet over USB, see:

    "Configuring Ethernet over USB" section in the XCC documentation version compatible with your server at https://pubs.lenovo.com/lxcc-overview/

  – If you update firmware through the Lenovo XClarity Controller, make sure that you have downloaded and installed the latest device drivers for the operating system that is running on the server.

  For additional information about using Lenovo XClarity Controller to update firmware, see:

  "Updating Server Firmware" section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/

- **Lenovo XClarity Essentials OneCLI**

  Lenovo XClarity Essentials OneCLI is a collection of command line applications that can be used to manage Lenovo servers. Its update application can be used to update firmware and device drivers for your servers. The update can be performed within the host operating system of the server (in-band) or remotely through the BMC of the server (out-of-band).

  For additional information about using Lenovo XClarity Essentials OneCLI to update firmware, see:

  https://pubs.lenovo.com/lxce-onecli/onecli_c_update

- **Lenovo XClarity Essentials UpdateXpress**

  Lenovo XClarity Essentials UpdateXpress provides most of OneCLI update functions through a graphical user interface (GUI). It can be used to acquire and deploy Update Bundles (Service Packs) update packages and individual updates. Update Bundles (Service Packs) contain firmware and device driver updates for Microsoft Windows and for Linux.

  You can obtain Lenovo XClarity Essentials UpdateXpress from the following location:

  https://datacentersupport.lenovo.com/solutions/lnvo-xpress

- **Lenovo XClarity Essentials Bootable Media Creator**

  You can use Lenovo XClarity Essentials Bootable Media Creator to create bootable media that is suitable for firmware updates, VPD updates, inventory and FFDC collection, advanced system configuration, FoD Keys management, secure erase, RAID configuration, and diagnostics on supported servers.

You can obtain Lenovo XClarity Essentials BoMC from the following location:

https://datacentersupport.lenovo.com/solutions/lnvo-bomc

- **Lenovo XClarity Administrator**

  If you are managing multiple servers using the Lenovo XClarity Administrator, you can update firmware for all managed servers through that interface. Firmware management is simplified by assigning firmware-compliance policies to managed endpoints. When you create and assign a compliance policy to managed endpoints, Lenovo XClarity Administrator monitors changes to the inventory for those endpoints and flags any endpoints that are out of compliance.

  For additional information about using Lenovo XClarity Administrator to update firmware, see:

  https://pubs.lenovo.com/lxca/update_fw

- **Lenovo XClarity Integrator offerings**

  Lenovo XClarity Integrator offerings can integrate management features of Lenovo XClarity Administrator and your server with software used in a certain deployment infrastructure, such as VMware vCenter, Microsoft Admin Center, or Microsoft System Center.

  For additional information about using Lenovo XClarity Integrator to update firmware, see:

  https://pubs.lenovo.com/lxci-overview/

Activate/unlock the system and configure ThinkEdge security features

ThinkEdge SE100 supports ThinkEdge unique security features. With the security features enabled, the system will enter System Lockdown Mode when tamper events occur, and encrypted data can not be accessed before the system is activated or unlocked. The status of ThinkEdge unique security features can be changed in Lenovo XClarity Controller.

Important: If Lenovo XClarity Controller web interface of the server is different from the information in this section, update the firmware for the server.

Setup the security features

Complete the following steps to setup the security features:

1. If the security LED of the server is blinking, the server is in System Lockdown Mode. Activate or unlock the system for operation. See “Activate or unlock the system” on page 82.
2. Maintain backup of SED AK. See “Manage the Self Encryption Drive Authentication Key (SED AK) ” on page 84.
3. Configure the security features in Lenovo XClarity Controller. See “System Lockdown Mode” on page 84 to change the status of security features.

Note: The following sections contain the procedure of configuring ThinkEdge security features in Lenovo XClarity Controller web interface. For more information, see ***https://lenovopress.lenovo.com/lp1725-thinkedge-security***.

Customer's responsibility:

- Keep the Secure Activation Code (provided in flyer).
- To use ThinkShield Edge Mobile Management App, prepare proper USB cable for mobile phone if necessary.
- Maintain backup of SED AK. See “Manage the Self Encryption Drive Authentication Key (SED AK) ” on page 84.
  - Set and remember the password of SED AK backup file to restore SED AK in the future.

- Engage IT department so they can help to claim or activate device when required.
- Confirm if the SE100 system is claimed by your organization. If not, work with IT department to claim the device.
- Confirm the wireless (network) connectivity is working. Service technician cannot help examine the network connection of the device.
- Move SE100 system to a safe working place for service.
- Place SE100 system back to the working place after service.

Activate or unlock the system

Being shipped or encountering tamper events, the server would be in System Lockdown Mode for security. Before operation, the server needs to be activated or unlocked to be able to boot up and go fully functional. Complete the steps in this topic to activate or unlock the system.

If the security LED of the server is blinking, the server is in System Lockdown Mode. Activate or unlock the system for operation. See “Activate or unlock the system” on page 82. See ***https://pubs.lenovo.com/se100/server_front_leds*** to locate the security LED.

System Lockdown Mode Control

To distinguish whether the system needs to be activated or unlocked, see **System Lockdown Mode Control** status on the home page of Lenovo XClarity Controller web interface. System Lockdown Mode Control status would be one of the following:

- **ThinkShield Portal:** The system can be activated through ThinkShield Key Vault Portal. See “Activate the system” on page 82 to activate the system.
- **XClarity Controller:** The system can be unlocked through Lenovo XClarity Controller. See “Unlock the system” on page 84 to unlock the system.

Important:

- When System Lockdown Mode Control status is XClarity Controller, if XClarity Controller is reset to defaults, the default credentials can be used to login to XClarity Controller and unlock the system. It is important to use security controls such as an UEFI PAP to prevent unauthorized users from executing an XClarity Controller reset to defaults. For the highest level of security, it is recommended to set System Lockdown Mode Control to ThinkShield Portal.
- Once the System Lockdown Mode Control status is changed to ThinkShield Portal, it cannot be changed back to XClarity Controller.
- To set System Lockdown Mode Control to ThinkShield Portal, use Lenovo XClarity Essentials UpdateXpress. See “Upgrading lockdown control mode” section in https://pubs.lenovo.com/lxce-ux/ for the details.

Activate the system

Complete the following steps to activate the system through ThinkShield Key Vault Portal.

Have a Lenovo ID with proper permission

Before activating a system for the first time, make sure to have a Lenovo ID with proper permission to log in to the ThinkShield Key Vault Portal web interface or ThinkShield mobile app.

Note: The role of Lenovo ID should be **Organization Admin**, **Maintenance User** or **Edge User** to activate the system.

- For Lenovo ID setup, see https://passport.lenovo.com.
- To log in to the Lenovo ThinkShield Key Vault Portal, see https://portal.thinkshield.lenovo.com.

Activation methods

There are different methods to activate the system through ThinkShield Key Vault Portal. Depending on the environment of the server, decide the most suitable way to activate the system.

- **Mobile App activation**

  Attention: To activate the system through Mobile App activation method, the system does not support power redundancy mode since the connector is shared with the second power adapter connection.

  For Mobile App activation method, you will need an Android or iOS based smart phone with cellular data connection. Follow the following procedure to complete Mobile App activation:

  Connection with the USB cable that came with the smart phone

  1. Connect the power cable to your ThinkEdge SE100.
  2. Download the ThinkShield Edge Mobile Management App from Google Play Store or Apple App Store to your Android or iOS based smart phone (search term: “ThinkShield Edge”).
  3. Log-in to the ThinkShield Edge Mobile Management App using your Organization registered ID.
  4. When App instructs to do so, connect USB cable with USB mobile phone charging cable to the ThinkEdge SE100.

     Note: When the smart phone prompts for the USB connection purpose, choose data transfer.
  5. Follow the “Activate Device” on-screen instructions to complete secure activation of the system.
  6. When activated successfully, ThinkShield Edge Mobile Management App will provide “Device Activated” screen. will provide “Device Activated” screen.

     Note: For the detailed steps, see *ThinkShield Edge Mobile Management Application User Guide* in ***https://lenovopress.lenovo.com/lp1725-thinkedge-security***.

- **Portal automatic activation**

  Note: To activate the system through ThinkShield Key Vault Portal web interface for the first time, the system should be claimed by your organization. **Machine Type**, **Serial Number**, and **Activation Code** are required to claim a device. For more information of claiming the device, see ***https://lenovopress.lenovo.com/lp1725-thinkedge-security***.

  1. Connect the power cable to your ThinkEdge SE100.
  2. Connect the XClarity Controller Management Ethernet port to a network that has access to the internet.

     Note: Outbound TCP port 443 (HTTPS) must be open for activation to occur.
  3. Log in to the ThinkShield Key Vault Portal with your Organization registered ID.
  4. If the server is not claimed by your organization, claim the server. Add the device by clicking the **Claim device** button in **Device Manager**. Enter machine type, serial number, and secure activation code in the corresponding fields.
  5. From the **Device Manager**, select the server you plan to activate and click **activate**. The status of the server will change to Ready.
  6. Server will be activated within 15 minutes and power on automatically. After successful activation, the status of the server will change to Active on the ThinkShield Key Vault Portal.

  Notes:

  – If the server activation is not initiated within 2 hours after the power cable plug in, perform a disconnect then re-connect of the power cable to your ThinkEdge SE100.

– For the detailed steps, see *ThinkShield Key Vault Portal Web Application User Guide* in ***https://lenovopress.lenovo.com/lp1725-thinkedge-security***.

Unlock the system

Important:

- When System Lockdown Mode Control status is XClarity Controller, if XClarity Controller is reset to defaults, the default credentials can be used to login to XClarity Controller and unlock the system. It is important to use security controls such as an UEFI PAP to prevent unauthorized users from executing an XClarity Controller reset to defaults. For the highest level of security, it is recommended to set System Lockdown Mode Control to ThinkShield Portal. See "System Lockdown Mode Control" on page 82 for the details.

Complete the following steps to unlock the system in Lenovo XClarity Controller web interface

Notes: To unlock the system, the role of XCC user should be one of the following:

- Administrator
- Administrator+

1. Log in to Lenovo XClarity Controller web interface, and go to **BMC Configuration → Security → System Lockdown Mode**.
2. Press **Active** button, and then press **Apply** button. When the status of System Lockdown Mode switches to Inactive, the system is unlocked.

System Lockdown Mode

See this topic to learn about System Lockdown Mode and related features in Lenovo XClarity Controller.

When System Lockdown Mode is active, the system can not be booted up, and the access to SED AK is not allowed.

Log in to Lenovo XClarity Controller web interface, and go to **BMC Configuration → Security → System Lockdown Mode** to configure the security features.

Note: When the **System Lockdown Mode Control** status on the home page of Lenovo XClarity Controller web interface is XClarity Controller, the status of System Lockdown Mode can be changed in XCC. See "Unlock the system" on page 84 for more information.

Chassis Intrusion Detection

When Chassis Intrusion Detection is **Enabled**, the system detects physical movements of the node covers. If one of the node covers is opened unexpectedly, the system enters System Lockdown Mode automatically.

Manage the Self Encryption Drive Authentication Key (SED AK)

For ThinkEdge SE100 with SED installed, the SED AK can be managed in Lenovo XClarity Controller. After setting up the server or making changes to the configuration, backing up the SED AK is a must operation to prevent data loss in the hardware failure case.

SED Authentication Key (AK) Manager

Log in to Lenovo XClarity Controller web interface, and go to **BMC Configuration → Security → SED Authentication Key (AK) Manager** to manage the SED AK.

Notes: The operation of SED AK Manager is not allowed in the following conditions:

- System Lockdown Mode is in **Active** state. SED AK is locked until the system is activated or unlocked. See "Activate or unlock the system" on page 82 to activate or unlock the system.
- Current user does not have the authority to manage SED AK.
  - To generate, backup, and recover the SED AK with passphrase or backup file, the role of XCC user should be **Administrator**.
  - To recover the SED AK from automatic backup, the role of XCC user should be **Administrator+**.

SED encryption

The status of SED encryption can be changed from Disabled to Enabled. Complete the following process to enable SED encryption.

1. Press **Enabled** button.
2. Select the SED AK generation method:
   - **Generate key using Passphrase:** Set the password and re-enter it for the confirmation.
   - **Generate key randomly:** A Random SED AK will be generated.
3. Press **Apply** button.

Attention:

- Once SED encryptoin is Enabled, it cannot be changed back to Disabled.
- When SED encryption is enabled, rebooting the system is required after installing a drive; without rebooting, the drive will not be recognized by the host OS.
- When SED encryption is enabled, if emergency XCC password reset is performed, the SED AK stored in the server will be cleared as the default action. Data stored on the SED will no longer be accessible unless the SED AK is restored. Backing up the SED AK is strongly advised to reduce the risk of data loss. See "Emergency XCC Password Reset" on page 86.

Change the SED AK

- **Generate key using Passphrase:** Set the password and re-enter it for the confirmation. Click **Re-generate** to get the new SED AK.
- **Generate key randomly:** Click **Re-generate** to get a Random SED AK.

Backup the SED AK

Set the password and re-enter it for the confirmation. Click **Start Backup** to backup the SED AK; then, download the SED AK file and store it safely for future use.

Note: If you use the backup SED AK file to restore a configuration, the system will ask for the password that you set here.

Recover the SED AK

- **Recover SED AK using Passphrase:** Use the password that was set in **Generate key using Passphrase** to recover the SED AK.
- **Recover SED AK from Backup file:** Upload the backup file generated in **Backup the SED AK** mode and enter the corresponding backup file password to recover the SED AK.
- **Recover SED AK from Automatic backup:** After system board replacement, use automatic backup to recover the SED AK for the installed SED.

  Note: To recover the SED AK from automatic backup, the role of XCC user should be **Administrator+**.

Emergency XCC Password Reset

When emergency XCC password reset is performed, the SED AK stored in the server will be cleared at default for security. Check the emergency XCC password reset settings to enhance data security and prevent data loss.

Log in to Lenovo XClarity Controller web interface, and go to **BMC Configuration → Security → Emergency XCC Password Reset** to see the settings.

Emergency XCC password reset

If both XCC and UEFI password are lost, emergency XCC password reset feature allows the user to regain the access by resetting XCC password. Emergency XCC password reset feature does not include the normal XCC password reset methods, which can be performed with authorized access to tools like XCC, UEFI, BoMC, OneCLI, etc. See the following information to learn the capability of emergency XCC password reset feature.

For ThinkEdge SE100, emergency XCC password reset can be performed with ThinkShield Edge Mobile Management App.

When the server's System Lockdown Control status is ThinkShield Portal, users with proper permission can perform emergency XCC password reset through mobile app.

See "Activate or unlock the system" on page 82 for the details of System Lockdown Mode and mobile app settings.

For *ThinkShield Edge Mobile Management Application User Guide*, see ***https://lenovopress.lenovo.com/lp1725-thinkedge-security***.

Clear SED AK as part of Emergency XCC Password Reset

When SED encryption is enabled, if emergency XCC password reset is performed, the SED AK stored in the server will be cleared as the default action. Data stored on the SED will no longer be accessible unless the SED AK is restored. Backing up the SED AK is strongly advised to reduce the risk of data loss. See "Manage the Self Encryption Drive Authentication Key (SED AK) " on page 84 for more information.

The clearing SED AK action can be changed in XCC.

- Clear SED AK as part of Emergency XCC Password Reset
  - The default status is **Enabled**. Press the button to change the status to **Disabled**.

Important: When the server's System Lockdown Mode status is XClarity Controller and Clear SED AK is disabled, the data in SED might be accessed by login with default credentials after password reset. To prevent security risk, it is recommended to keep Clear SED AK as **Enabled**.

Note: If users reset XCC password not by emergency XCC password reset but by tools like XCC, UEFI, BoMC, OneCLI, etc., the SED AK stored in the server will not be cleared.

Configure the firmware

Several options are available to install and set up the firmware for the server.

Note: UEFI **Legacy Mode** is not supported by ThinkSystem V4 products.

- **Lenovo XClarity Provisioning Manager (LXPM)**

  From Lenovo XClarity Provisioning Manager, you can configure the UEFI settings for your server.

Notes: The Lenovo XClarity Provisioning Manager provides a Graphical User Interface to configure a server. The text-based interface to system configuration (the Setup Utility) is also available. From Lenovo XClarity Provisioning Manager, you can choose to restart the server and access the text-based interface. In addition, you can choose to make the text-based interface the default interface that is displayed when you start LXPM. To do this, go to **Lenovo XClarity Provisioning Manager → UEFI Setup → System Settings → <F1>Start Control → Text Setup**. To start the server with Graphic User Interface, select **Auto** or **Tool Suite**.

See the following documentations for more information:

- Search for the LXPM documentation version compatible with your server at https://pubs.lenovo.com/lxpm-overview/
- *UEFI User Guide* at https://pubs.lenovo.com/uefi-overview/

- **Lenovo XClarity Essentials OneCLI**

  You can use the config application and commands to view the current system configuration settings and make changes to Lenovo XClarity Controller and UEFI. The saved configuration information can be used to replicate or restore other systems.

  For information about configuring the server using Lenovo XClarity Essentials OneCLI, see:

  https://pubs.lenovo.com/lxce-onecli/onecli_c_settings_info_commands

- **Lenovo XClarity Administrator**

  You can quickly provision and pre-provision all of your servers using a consistent configuration. Configuration settings (such as local storage, I/O adapters, boot settings, firmware, ports, and Lenovo XClarity Controller and UEFI settings) are saved as a server pattern that can be applied to one or more managed servers. When the server patterns are updated, the changes are automatically deployed to the applied servers.

  Specific details about configuring the server using Lenovo XClarity Administrator are available at:

  https://pubs.lenovo.com/lxca/server_configuring

- **Lenovo XClarity Controller**

  You can configure the management processor for the server through the Lenovo XClarity Controller Web interface, the command-line interface, or Redfish API.

  For information about configuring the server using Lenovo XClarity Controller, see:

  "Configuring the Server" section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/

Memory module configuration

Memory performance depends on several variables, such as memory mode, memory speed, memory ranks, memory population and processor.

Information about optimizing memory performance and configuring memory is available at the Lenovo Press website:

https://lenovopress.lenovo.com/servers/options/memory

In addition, you can take advantage of a memory configurator, which is available at the following site:

https://dcsc.lenovo.com/#/memory_configuration

Deploy the operating system

Several options are available to deploy an operating system on the server.

Available operating systems

- List of supported operating systems can be found in the ***https://pubs.lenovo.com/se100/***

Complete list of available operating systems: https://lenovopress.lenovo.com/osig.

Tool-based deployment

- **Multi-server**

  Available tools:

  – Lenovo XClarity Administrator

    https://pubs.lenovo.com/lxca/compute_node_image_deployment

  – Lenovo XClarity Essentials OneCLI

    https://pubs.lenovo.com/lxce-onecli/onecli_r_uxspi_proxy_tool

- **Single-server**

  Available tools:

  – Lenovo XClarity Provisioning Manager

    “OS Installation” section in the LXPM documentation compatible with your server at https://pubs.lenovo.com/lxpm-overview/

  – Lenovo XClarity Essentials OneCLI

    https://pubs.lenovo.com/lxce-onecli/onecli_r_uxspi_proxy_tool

Manual deployment

If you cannot access the above tools, follow the instructions below, download the corresponding *OS Installation Guide*, and deploy the operating system manually by referring to the guide.

1. Go to https://datacentersupport.lenovo.com/solutions/server-os.
2. Select an operating system from the navigation pane and click **Resources**.
3. Locate the “OS Install Guides” area and click the installation instructions. Then, follow the instructions to complete the operation system deployment task.

Back up the server configuration

After setting up the server or making changes to the configuration, it is a good practice to make a complete backup of the server configuration.

Make sure that you create backups for the following server components:

- **Management processor**

  You can back up the management processor configuration through the Lenovo XClarity Controller interface. For details about backing up the management processor configuration, see:

  “Backing up the BMC configuration” section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/.

Alternatively, you can use the `save` command from Lenovo XClarity Essentials OneCLI to create a backup of all configuration settings. For more information about the `save` command, see:

https://pubs.lenovo.com/lxce-onecli/onecli_r_save_command

- **Operating system**

  Use your backup methods to back up the operating system and user data for the server.

Chapter 7. Problem determination

Use the information in this section to isolate and resolve issues that you might encounter while using your server.

Lenovo servers can be configured to automatically notify Lenovo Support if certain events are generated. You can configure automatic notification, also known as Call Home, from management applications, such as the Lenovo XClarity Administrator. If you configure automatic problem notification, Lenovo Support is automatically alerted whenever a server encounters a potentially significant event.

To isolate a problem, you should typically begin with the event log of the application that is managing the server:

- If you are managing the server from the Lenovo XClarity Administrator, begin with the Lenovo XClarity Administrator event log.
- If you are using some other management application, begin with the Lenovo XClarity Controller event log.

Web resources

- **Tech tips**

  Lenovo continually updates the support website with the latest tips and techniques that you can use to solve issues that your server might encounter. These Tech Tips (also called retain tips or service bulletins) provide procedures to work around issues or solve problems related to the operation of your server.

  To find the Tech Tips available for your server:

  1. Go to http://datacentersupport.lenovo.com and navigate to the support page for your server.
  2. Click on **How To's** from the navigation pane.
  3. Click **Article Type → Solution** from the drop-down menu.

     Follow the on-screen instructions to choose the category for the problem that you are having.

- **Lenovo Data Center Forum**
  - Check https://forums.lenovo.com/t5/Datacenter-Systems/ct-p/sv_eg to see if someone else has encountered a similar problem.

Event logs

An *alert* is a message or other indication that signals an event or an impending event. Alerts are generated by the Lenovo XClarity Controller or by UEFI in the servers. These alerts are stored in the Lenovo XClarity Controller Event Log. If the server is managed by the Chassis Management Module 2 or by the Lenovo XClarity Administrator, alerts are automatically forwarded to those management applications.

Note: For a listing of events, including user actions that might need to be performed to recover from an event, see the *Messages and Codes Reference*, which is available at https://pubs.lenovo.com/se100-enclosure/pdf_files.

Lenovo XClarity Administrator event log

If you are using Lenovo XClarity Administrator to manage server, network, and storage hardware, you can view the events from all managed devices through the XClarity Administrator.

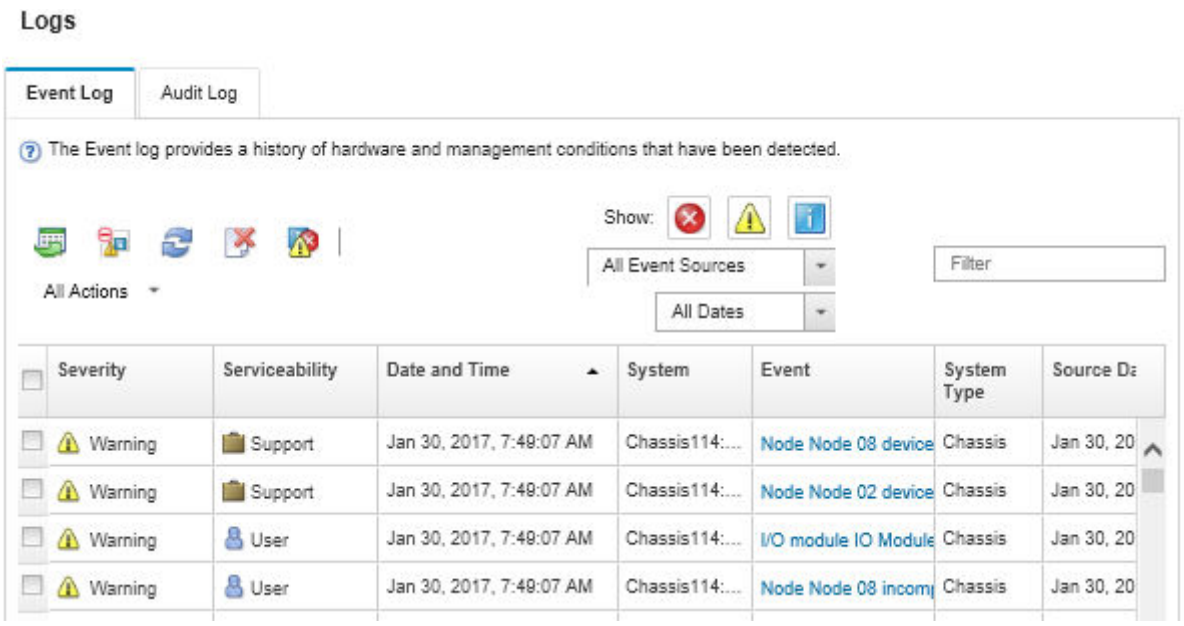


Figure 61. Lenovo XClarity Administrator event log

For more information about working with events from XClarity Administrator, see:

https://pubs.lenovo.com/lxca/events_vieweventlog

Lenovo XClarity Controller event log

The Lenovo XClarity Controller monitors the physical state of the server and its components using sensors that measure internal physical variables such as temperature, power-supply voltages, fan speeds, and component status. The Lenovo XClarity Controller provides various interfaces to systems management software and to system administrators and users to enable remote management and control of a server.

The Lenovo XClarity Controller monitors all components of the server and posts events in the Lenovo XClarity Controller event log.

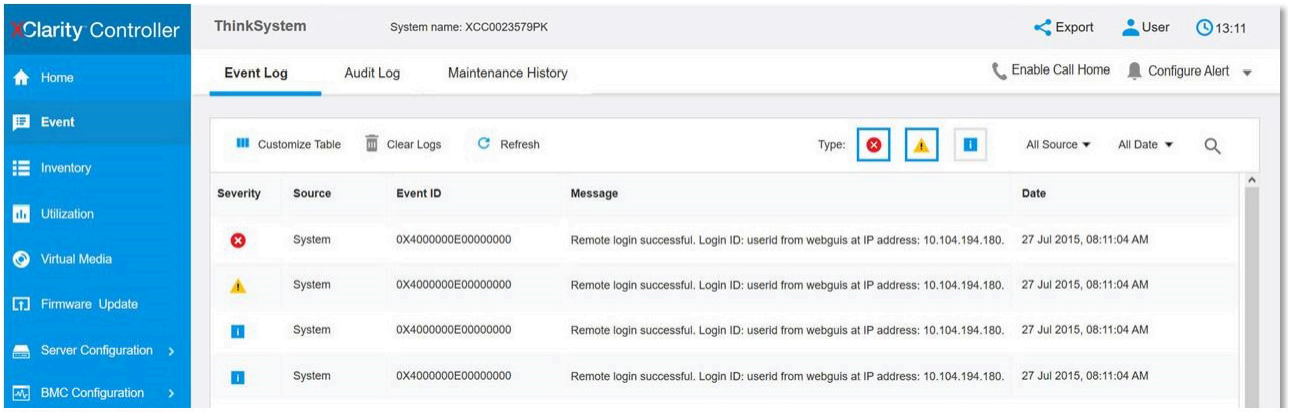


Figure 62. Lenovo XClarity Controller event log

For more information about accessing the Lenovo XClarity Controller event log, see:

“Viewing Event Logs” section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/

Troubleshooting by system LEDs

The system LEDs are located on the front and rear side of the SE100 node, see the following section for information on available system LEDs.

Front LEDs

The following illustration shows LEDs on the front of the solution. By viewing the status of LEDs, you can often identify the source of the error.

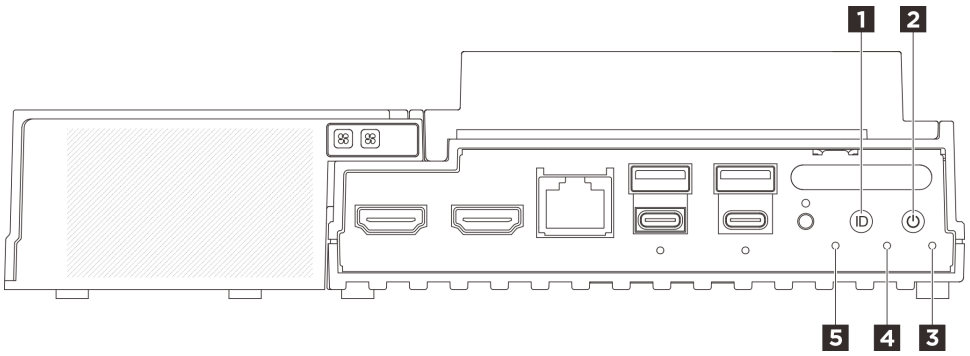


Figure 63. Front LEDs

Table 14. Front LEDs

1 UID button with LED (blue)	2 Power button with power status LED (green)
3 Security LED (green)	4 System Error LED (yellow)
5 UART status LED (white)	

1 UID button with LED (blue)

Use this UID button and the blue UID LED to visually locate the server.

Each time you press the UID button, the state of both the UID LEDs changes. The LEDs can be changed to on, blinking, or off. Press the UID button down and hold for five seconds, you can reset BMC.

You can also use BMC or a remote management program to change the state of the UID LEDs to assist in visually locating the server among other servers.

2 Power button with power status LED (green)

You can press the power button to power on the server when you finish setting up the server. You also can hold the power button for several seconds to power off the server if you cannot shut down the server from the operating system. The states of the power LED are as follows:

Status	Color	Description
Off	None	No power supply is properly installed, or the LED itself has failed.
Flashing rapidly (four times per second)	Green	The server is turned off and is not ready to be turned on. The power button is disabled. This will last approximately 5 to 10 seconds.

Status	Color	Description
Flashing slowly (once per second)	Green	The server is turned off and is ready to be turned on. You can press the power button to turn on the server.
Lit	Green	The server is turned on.

3 Security LED (green)

The states of Security LED are as following:

Solid on: The server is operating with security feature enabled (SED enabled or intrusion enabled).

Blinking: The server is in System Lockdown Mode. Activate or unlock the system for operation. See "Activate or unlock the system" on page 82.

Off: System is activated but no security feature is enabled on the server.

4 System Error LED (yellow)

The system error LED helps you to determine if there are any system errors.

Status	Color	Description	Action
On	Yellow	An error has been detected on the server. Causes might include one or more of the following errors: • The temperature of the server reached the non-critical temperature threshold. • The voltage of the server reached the non-critical voltage threshold. • A fan has been detected to be running at low speed. • The power supply has a critical error.	Check the Event log to determine the exact cause of the error.
Off	None	The server is off or the server is on and is working correctly.	None.

5 UART status LED (white)

Status	Color	Description
On	White	UART output with XCC log.
Off (Default)	None	UART output with CPU log.

Rear LEDs

The following illustration shows LEDs on the rear of the server. By viewing the status of LEDs, you can often identify the source of the error.

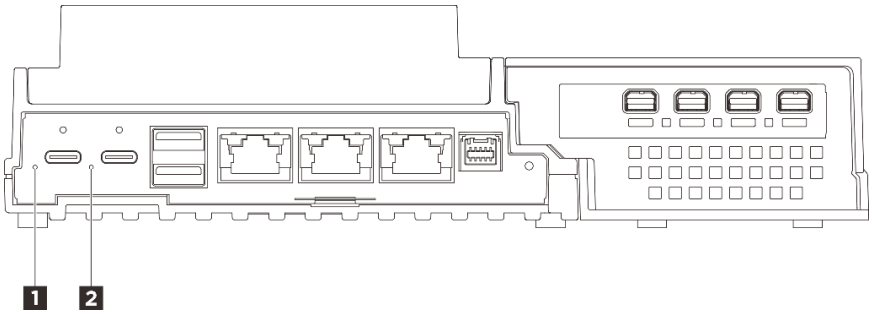


Figure 64. Rear LEDs

Table 15. Rear LEDs

1 Power input LED 1 (green yellow)	2 Power input LED 2 (green yellow)

1 2 Power input LED (green/yellow)

LED	Status	Description
Power input LED	On (green)	The server is connected to the power adapter and working normally.
	On (yellow)	The server is connected to the power adapter but can not be powered on since the power capability is unable to support the system requirement.
	Off	The power adapter is disconnected or a power problem occurs.

Fan control board LEDs

The following illustrations show the light-emitting diodes (LEDs) on the fan control board.

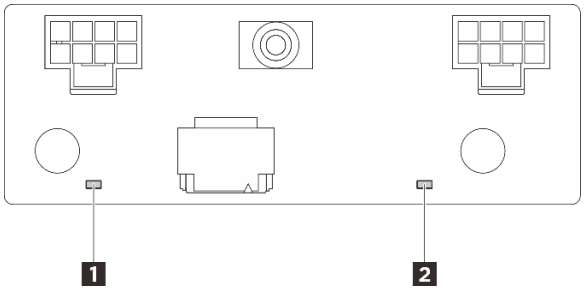


Figure 65. Fan control board LEDs

Table 16. Fan control board LEDs description and actions

LED	Description and actions
1 Fan 3 error LED 2 Fan 4 error LED	**LED on:** an error has occurred to the fan the LED represents.

Ethernet adapter expansion kit LEDs

The following table describes the problems that are indicated by fan error LEDs.

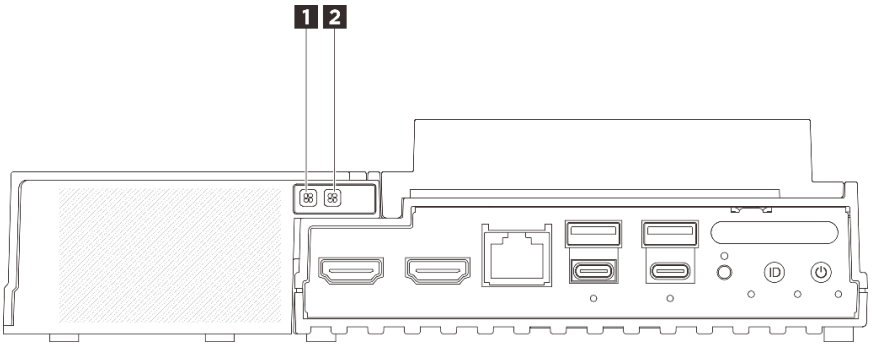


Figure 66. Ethernet adapter expansion kit LEDs

Table 17. Ethernet adapter expansion kit LEDs

1 Fan 5 error LED	2 Fan 6 error LED

1 2 Fan error LEDs

When a fan error LED on the expansion kit with Ethernet adapter is lit, it indicates that the corresponding system fan is operating slowly or has failed.

Status	Color	Description	Action
On	Amber	The system fan of Ethernet adapter has failed.	If the fan error LED is on, do the following: 1. Replace the failed fan with a new one and check if the new fan can work normally. See ***https://pubs.lenovo.com/se100/replace_nic_fan***. 2. If the new fan still can not work normally, replace the PCIe riser card with the new one. See ***https://pubs.lenovo.com/se100/replace_pcie_riser_card***
Off	None	The system fan of Ethernet adapter is working normally.	

XCC system management port (10/100/1000 Mbps RJ-45) and LAN port LEDs

This topic provides information on LEDs of XCC system management port (10/100/1000 Mbps RJ-45) and LAN ports.

The following table describes the problems that are indicated by LEDs on XCC system management port (10/100/1000 Mbps RJ-45).

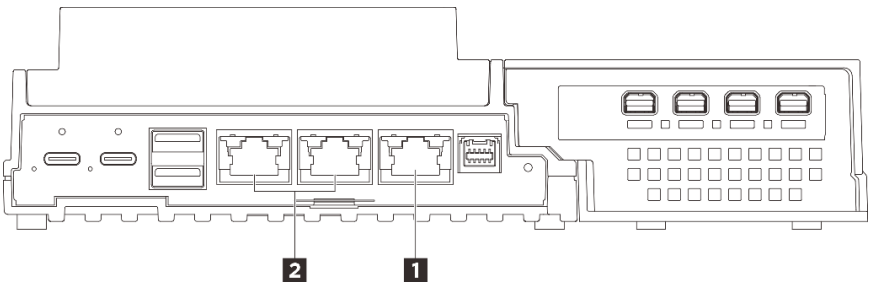


Figure 67. XCC system management port (10/100/1000 Mbps RJ-45) LEDs and LAN port LEDs

1 “XCC system management port (10/100/1000 Mbps RJ-45)” on page 97	2 “1GbE RJ-45 LAN port link and activity LEDs” on page 97 (LAN 1 to 2)

1 XCC system management port (10/100/1000 Mbps RJ-45) LED

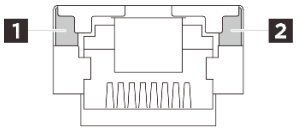


Figure 68. XCC system management port (10/100/1000 Mbps RJ-45) LED

LED	Description
1 Network link LED (green)	• **Off:** The network link is disconnected. • **On:** The network is connected.
2 Network activity LED (green)	**Blinking:** The network is connected and active.

2 1GbE RJ-45 LAN port link and activity LEDs

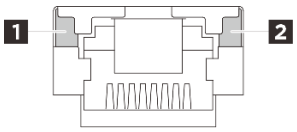


Figure 69. 1GbE RJ-45 LAN port link and activity LEDs

LED	Description
1 Network link LED (green)	• **Off:** The network link is disconnected. • **On:** The network link is connected with LAN speed of 10/100/1000 Mbps.
2 Network activity LED (green)	**Blinking:** The network is connected and active.

General problem determination procedures

Use the information in this section to resolve problems if the event log does not contain specific errors or the server is inoperative.

If you are not sure about the cause of a problem and the power supplies are working correctly, complete the following steps to attempt to resolve the problem:

1. Power off the server.
2. Make sure that the server is cabled correctly.
3. Remove or disconnect the following devices if applicable, one at a time, until you find the failure. Power on and configure the server each time you remove or disconnect a device.
   - Any external devices.
   - Surge-suppressor device (on the server).
   - Printer, mouse, and non-Lenovo devices.
   - Each adapter.
   - Hard disk drives.

- Memory modules until you reach the minimal configuration for debugging that is supported for the server.

  To determine the minimal configuration for your server, see “Minimal configuration for debugging” in “Technical specifications” on page 2.

4. Power on the server.

If the problem appears to be a networking problem and the server passes all system tests, suspect a network cabling problem that is external to the server.

Resolving suspected power problems

Power problems can be difficult to solve. For example, a short circuit can exist anywhere on any of the power distribution buses. Usually, a short circuit will cause the power subsystem to shut down because of an overcurrent condition.

Complete the following steps to diagnose and resolve a suspected power problem.

Step 1. Check the event log and resolve any errors related to the power.

Note: Start with the event log of the application that is managing the server. For more information about event logs, see “Event logs” on page 91.

Step 2. Check for short circuits, for example, if a loose screw is causing a short circuit on a circuit board.

Step 3. Remove the adapters and disconnect the cables and power cords to all internal and external devices until the server is at the minimal configuration for debugging that is required for the server to start. To determine the minimal configuration for your server, see “Minimal configuration for debugging” in “Technical specifications” on page 2.

Step 4. Reconnect all AC power cords and turn on the server. If the server starts successfully, reseat the adapters and devices one at a time until the problem is isolated.

If the server does not start from the minimal configuration, replace the components in the minimal configuration one at a time until the problem is isolated.

Resolving suspected Ethernet controller problems

The method that you use to test the Ethernet controller depends on which operating system you are using. See the operating-system documentation for information about Ethernet controllers, and see the Ethernet controller device-driver readme file.

Complete the following steps to attempt to resolve suspected problems with the Ethernet controller.

Step 1. Make sure that the correct device drivers, which come with the server are installed and that they are at the latest level.

Step 2. Make sure that the Ethernet cable is installed correctly.

- The cable must be securely attached at all connections. If the cable is attached but the problem remains, try a different cable.
- Make sure that the cable rating is applicable for the network speed selected. For example, an SFP+ cable is only suitable for 10G operation. An SFP25 cable is needed for 25G operation. Likewise for Base-T operation, a CAT5 cable is required for 1G Base-T operation while a CAT6 cable is required for 10G Base-T operation.

Step 3. Set both the adapter port and the switch port to auto-negotiation. If auto-negotiation is not supported on one of the ports, try configuring both ports manually to match each other.

Step 4. Check the Ethernet controller LEDs on the adapter and server. These LEDs indicate whether there is a problem with the connector, cable, or hub.

Although some adapters may vary, when installed vertically the adapter link LED is typically on the left of the port and the activity LED is typically on the right.

The server front panel LED is described in "System LEDs" on page 18.

- The Ethernet link status LED is lit when the Ethernet controller receives a link indication from the switch. If the LED is off, there might be a defective connector or cable or a problem with the switch.
- The Ethernet transmit/receive activity LED is lit when the Ethernet controller sends or receives data over the Ethernet network. If the Ethernet transmit/receive activity is off, make sure that the hub and network are operating and that the correct device drivers are installed.

Step 5. Check the Network activity LED on the server. The Network activity LED is lit when data is active on the Ethernet network. If the Network activity LED is off, make sure that the hub and network are operating and that the correct device drivers are installed.

Network activity LED location is specified in "Troubleshooting by system LEDs" on page 93.

Step 6. Check for operating-system-specific causes of the problem, and also make sure that the operating system drivers are installed correctly.

Step 7. Make sure that the device drivers on the client and server are using the same protocol.

If the Ethernet controller still cannot connect to the network but the hardware appears to be working, the network administrator must investigate other possible causes of the error.

Troubleshooting by symptom

Use this information to find solutions to problems that have identifiable symptoms.

To use the symptom-based troubleshooting information in this section, complete the following steps:

1. Check the event log of the application that is managing the server and follow the suggested actions to resolve any event codes.
   - If you are managing the server from the Lenovo XClarity Administrator, begin with the Lenovo XClarity Administrator event log.
   - If you are using some other management application, begin with the Lenovo XClarity Controller event log.

   For more information about event logs (see "Event logs" on page 91).
2. Review this section to find the symptoms that you are experiencing and follow the suggested actions to resolve the issue.
3. If the problem persists, contact support (see "Contacting Support" on page 115).

Intermittent problems

Use this information to solve intermittent problems.

Intermittent external device problems

Complete the following steps until the problem is solved.

1. Update the UEFI and XCC firmware to the latest versions.

2. Make sure that the correct device drivers are installed. See the manufacturer's website for documentation.
3. For a USB device:
   a. Make sure that the device is configured correctly.

      Restart the server and press the key according to the on-screen instructions to display the LXPM system setup interface. (For more information, see the “Startup” section in the LXPM documentation compatible with your server at https://pubs.lenovo.com/lxpm-overview/.) Then, click **System Settings → Devices and I/O Ports → USB Configuration**.
   b. Connect the device to another port. If using a USB hub, remove the hub and connect the device directly to the server. Make sure that the device is configured correctly for the port.

Intermittent KVM problems

Complete the following steps until the problem is solved.

Video problems:

1. Make sure that all cables and the console breakout cable are properly connected and secure.
2. Make sure that the monitor is working properly by testing it on another server.
3. Test the console breakout cable on a working server to ensure that it is operating properly. Replace the console breakout cable if it is defective.

Keyboard problems:

Make sure that all cables and the console breakout cable are properly connected and secure.

Mouse problems:

Make sure that all cables and the console breakout cable are properly connected and secure.

Intermittent unexpected reboots

Note: Some uncorrectable errors require that the server reboot so that it can disable a device, such as a memory DIMM or a processor to allow the machine to boot up properly.

1. If the reset occurs during POST and the POST watchdog timer is enabled, make sure that sufficient time is allowed in the watchdog timeout value (POST Watchdog Timer).

   To check the POST watchdog time, restart the server and press the key according to the on-screen instructions to display the LXPM system setup interface. (For more information, see the “Startup” section in the LXPM documentation compatible with your server at https://pubs.lenovo.com/lxpm-overview/.) Then, click **System Settings → Recovery and RAS → System Recovery → POST Watchdog Timer**.
2. If the reset occurs after the operating system starts, do one of the followings:
   - Enter the operating system when the system operates normally and set up operating system kernel dump process (Windows and Linux base operating systems will be using different method). Enter the UEFI setup menus and disable the feature, or disable it with the following OneCli command.
     `OneCli.exe config set SystemRecovery.RebootSystemOnNMI Disable --bmc XCC_USER:XCC_PASSWORD@XCC_IPAddress`
   - Disable any automatic server restart (ASR) utilities, such as the Automatic Server Restart IPMI Application for Windows, or any ASR devices that are installed.
3. See the management controller event log to check for an event code that indicates a reboot. See “Event logs” on page 91 for information about viewing the event log. If you are using Linux base operating system, then capture all logs back to Lenovo support for further investigation.

Keyboard, mouse, KVM switch or USB-device problems

Use this information to solve problems related to a keyboard, mouse, KVM switch or USB-device problems.

All or some keys on the keyboard do not work

1. Make sure that:
   - The keyboard cable is securely connected.
   - The server and the monitor are turned on.
2. If you are using a USB keyboard, run the Setup utility and enable keyboardless operation.
3. If you are using a USB keyboard and it is connected to a USB hub, disconnect the keyboard from the hub and connect it directly to the server.
4. Replace the keyboard.

Mouse does not work

1. Make sure that:
   - The mouse cable is securely connected to the server.
   - The mouse device drivers are installed correctly.
   - The server and the monitor are turned on.
   - The mouse option is enabled in the Setup utility.
2. If you are using a USB mouse and it is connected to a USB hub, disconnect the mouse from the hub and connect it directly to the server.
3. Replace the mouse.

Mouse cursor is duplicated on external monitor

This problem may be caused by accessing the system through the remote console functionality of XCC when a monitor is connected to USB port 4 (with display support) or HDMI connector. Complete the following steps until the problem is solved.

1. Change the display setting:
   a. Right-click on the desktop and choose **Display Setting**.
   b. Change the display setting from “Extend these displays” to “Duplicate these displays”.

      Note: Depending on the Operating System, it might show “Mirror display” in the display setting.

KVM switch problems

1. Make sure that the KVM switch is supported by your server.
2. Make sure that the KVM switch is powered on correctly.
3. If the keyboard, mouse or monitor can be operated normally with direct connection to the server, then replace the KVM switch.

USB-device does not work

1. Make sure that:

- The correct USB device driver is installed.
- The operating system supports USB devices.

2. Make sure that the USB configuration options are set correctly in system setup.

   Restart the server and press the key according to the on-screen instructions to display the LXPM system setup interface. (For more information, see the “Startup” section in the LXPM documentation compatible with your server at https://pubs.lenovo.com/lxpm-overview/.) Then, click **System Settings → Devices and I/O Ports → USB Configuration**.

3. If you are using a USB hub, disconnect the USB device from the hub and connect it directly to the server.

Monitor and video problems

Use this information to solve problems related to a monitor or video.

Incorrect characters are displayed

Complete the following steps:

1. Verify that the language and locality settings are correct for the keyboard and operating system.
2. If the wrong language is displayed, update the server firmware to the latest level. See “Update the firmware” on page 77.

Blank screen issue or screen flickering

1. If the server is attached to a KVM switch, bypass the KVM switch to eliminate it as a possible cause of the problem: connect the monitor cable directly to the correct connector on the rear of the server.
2. The management controller remote presence function is disabled if you install an optional video adapter. To use the management controller remote presence function, remove the optional video adapter.
3. If the server is installed with the graphical adapters while turning on the server, the Lenovo logo is displayed on the screen after approximately 3 minutes. This is normal operation while the system loads.
4. If the USB port 4 (with display support) on the front of the server is connected to a gaming monitor with Adaptive Sync support, perform one of the following steps listed below until the problem is solved. If you can not solve the problem after performing all steps, contact the monitor manufacturer for support.
   a. Change the display refresh rate on the monitor. For example, the refresh rate of Window O/S is set as 60 Hz by default, proceed to the following steps to change the refresh rate higher or lower:
      1) Right-click on the desktop and choose **Display Setting**.
      2) Click on **Related settings → Advanced display → Choose a refresh rate**.
   b. Disable the Adaptive Sync feature.
5. If the system is installed with the operating system Ubuntu 24.04.2, to configure the system in multi-monitor environment, check if the following steps is followed until the problem is solved:
   a. The display ports on the server can be separated into two types of groups. To avoid causing any problem to the display function of the connector, it is only allowed to connect the monitors to the connectors in either group A or group B. See “Server components” in ***https://pubs.lenovo.com/se100/*** to locate the connectors.

Group A	Group B
USB port 4 (with display support)	USB port 3 (with display support)
HDMI 2.0 connectors	XCC system management port (10/100/1000 Mbps RJ-45) • Do not support accessing the remote console functionality only. Before accessing the remote console functionality, connecting the monitors to this port and the connectors in group A at the same time, the display function can still work normally.

b. Make sure the display mode is set as “Mirror Display”.

6. Make sure that:
   - The server is turned on and there is power supplied to the server.
   - The monitor cables are connected correctly.
   - The monitor is turned on and the brightness and contrast controls are adjusted correctly.
7. Make sure that the correct server is controlling the monitor, if applicable.
8. Make sure that the video output is not affected by corrupted server firmware; See “Update the firmware” on page 77.
9. If the problem remains, contact Lenovo Support.

Screen goes blank when you start some application programs

1. Make sure that:
   - The application program is not setting a display mode that is higher than the capability of the monitor.
   - You installed the necessary device drivers for the application.

The monitor has screen jitter, or the screen image is wavy, unreadable, rolling, or distorted

1. If the monitor self-tests show that the monitor is working correctly, consider the location of the monitor. Magnetic fields around other devices (such as transformers, appliances, fluorescents, and other monitors) can cause screen jitter or wavy, unreadable, rolling, or distorted screen images. If this happens, turn off the monitor.

   Attention: Moving a color monitor while it is turned on might cause screen discoloration.

   Move the device and the monitor at least 305 mm (12 in.) apart, and turn on the monitor.

   Notes:

   a. To prevent diskette drive read/write errors, make sure that the distance between the monitor and any external diskette drive is at least 76 mm (3 in.).

   b. Non-Lenovo monitor cables might cause unpredictable problems.
2. Reseat the monitor cable.
3. Replace the components listed in step 2 one at a time, in the order shown, restarting the server each time:
   a. Monitor cable
   b. Video adapter (if one is installed)
   c. Monitor
   d. (Trained technician only) System board (system board assembly)

The wrong characters appear on the screen

Complete the following steps until the problem is solved:

1. Verify that the language and locality settings are correct for the keyboard and operating system.
2. If the wrong language is displayed, update the server firmware to the latest level. See “Update the firmware” on page 77.

Network problems

Use this information to resolve issues related to networking.

Cannot wake server using Wake on LAN

Complete the following steps until the problem is resolved:

1. If you are using the dual-port network adapter and the server is connected to the network using Ethernet 5 connector, check the system-error log or IMM2 system event log (see “Event logs” on page 91), make sure:
   a. Fan 3 is running in standby mode, if Emulex dual port 10GBase-T embedded adapter is installed.
   b. The room temperature is not too high (see “Specifications” on page 2).
   c. The air vents are not blocked.
   d. The air baffle is installed securely.
2. Reseat the dual-port network adapter.
3. Turn off the server and disconnect it from the power source; then, wait 10 seconds before restarting the server.
4. If the problem still remains, replace the dual-port network adapter.

Could not log in using LDAP account with SSL enabled

Complete the following steps until the problem is resolved:

1. Make sure that the license key is valid.
2. Generate a new license key and log in again.

Observable problems

Use this information to solve observable problems.

The server immediately displays the POST Event Viewer when it is turned on

Complete the following steps until the problem is solved.

1. Correct any errors that are indicated by the system LEDs and diagnostics display.

2. (Trained technician only) Replace the system board; then, restart the server.

Server is unresponsive (POST is complete and operating system is running)

Complete the following steps until the problem is solved.

- If you are in the same location as the compute node, complete the following steps:
  1. If you are using a KVM connection, make sure that the connection is operating correctly. Otherwise, make sure that the keyboard and mouse are operating correctly.
  2. If possible, log in to the compute node and verify that all applications are running (no applications are hung).
  3. Restart the compute node.
  4. If the problem remains, make sure that any new software has been installed and configured correctly.
  5. Contact your place of purchase of the software or your software provider.
- If you are accessing the compute node from a remote location, complete the following steps:
  1. Make sure that all applications are running (no applications are hung).
  2. Attempt to log out of the system and log back in.
  3. Validate the network access by pinging or running a trace route to the compute node from a command line.
     a. If you are unable to get a response during a ping test, attempt to ping another compute node in the enclosure to determine whether it is a connection problem or compute node problem.
     b. Run a trace route to determine where the connection breaks down. Attempt to resolve a connection issue with either the VPN or the point at which the connection breaks down.
  4. Restart the compute node remotely through the management interface.
  5. If the problem remains, verify that any new software has been installed and configured correctly.
  6. Contact your place of purchase of the software or your software provider.

Server is unresponsive (POST failed and cannot start System Setup)

Configuration changes, such as added devices or adapter firmware updates, and firmware or application code problems can cause the server to fail POST (the power-on self-test).

If this occurs, the server responds in either of the following ways:

- The server restarts automatically and attempts POST again.
- The server hangs, and you must manually restart the server for the server to attempt POST again.

After a specified number of consecutive attempts (automatic or manual), the server reverts to the default UEFI configuration and starts System Setup so that you can make the necessary corrections to the configuration and restart the server. If the server is unable to successfully complete POST with the default configuration, there might be a problem with the system board (system board assembly).

You can specify the number of consecutive restart attempts in System Setup. Restart the server and press the key according to the on-screen instructions to display the LXPM system setup interface. (For more information, see the “Startup” section in the LXPM documentation compatible with your server at https://pubs.lenovo.com/lxpm-overview/.) Then, click **System Settings → Recovery and RAS → POST Attempts → POST Attempts Limit**. Available options are 3, 6, 9, and disable.

Voltage planar fault is displayed in the event log

Complete the following steps until the problem is solved.

1. Revert the system to the minimum configuration. See “Specifications” on page 2 for the minimally required number of processors and DIMMs.
2. Restart the system.
   - If the system restarts, add each of the removed items one at a time and restart the system each time until the error occurs. Replace the item for which the error occurs.
   - If the system does not restart, suspect the system board (system board assembly).

Unusual smell

Complete the following steps until the problem is solved.

1. An unusual smell might be coming from newly installed equipment.
2. If the problem remains, contact Lenovo Support.

Server seems to be running hot

Complete the following steps until the problem is solved.

Multiple compute nodes or chassis:

1. Make sure that the room temperature is within the specified range (see “Specifications” on page 2).
2. Make sure that the fans are installed correctly.
3. Update the UEFI and XCC to the latest versions.
4. Make sure that the fillers and thermal pads for processor, memory modules and M.2 drives in the server are installed correctly (see Chapter 5 “Enclosure hardware replacement procedures” on page 31 for detailed installation procedures).
5. Use the IPMI command to ramp up the fan speed to the full fan speed to see whether the issue can be resolved.

   Note: The IPMI raw command should only be used by trained technician and each system has its own specific IPMI raw command.
6. Check the management processor event log for rising temperature events. If there are no events, the compute node is running within normal operating temperatures. Note that you can expect some variation in temperature.

Cracked parts or cracked chassis

Contact Lenovo Support.

Optional-device problems

Use this information to solve problems related to optional devices.

External USB device is not recognized

Complete the following steps until the problem is resolved:

1. Update the UEFI firmware to the latest version.

2. Make sure that the proper drivers are installed on the compute node. See the product documentation for the USB device for information about device drivers.
3. Use the Setup utility to make sure that the device is configured correctly.
4. If the USB device is plugged into a hub or the console breakout cable, unplug the device and plug it directly into the USB port on the front of the compute node.

PCIe adapter is not recognized or is not functioning

Complete the following steps until the problem is resolved:

1. Update the UEFI firmware to the latest version.
2. Check the event log and resolve any issues related to the device.
3. Validate that the device is supported for the server (see https://serverproven.lenovo.com). Make sure that the firmware level on the device is at the latest supported level and update the firmware if applicable.
4. Make sure that the adapter is installed in a correct slot.
5. Make sure that the proper device drivers are installed for the device.
6. Check http://datacentersupport.lenovo.com for any tech tips (also known as retain tips or service bulletins) that might be related to the adapter.
7. Ensure any adapter external connections are correct and that the connectors are not physically damaged.
8. Make sure that the PCIe adapter is installed with the supported operating system.

Insufficient PCIe resources are detected.

If you see an error message stating “Insufficient PCI Resources Detected,” complete the following steps until the problem is resolved:

1. Press Enter to access System Setup Utility.
2. Select **System Settings → Devices and I/O Ports → MM Config Base**; then, modify the setting to increase the device resources. For example, modify 3 GB to 2 GB or modify 2 GB to 1 GB.
3. Save the settings and restart the system.
4. If the error recurs with the highest device resource setting (1GB), shutdown the system and remove some PCIe devices; then, power on the system.
5. If the reboot failed, repeat step 1 to step 4.
6. If the error recurs, press Enter to access System Setup Utility.
7. Select **System Settings → Devices and I/O Ports → PCI 64–Bit Resource Allocation**, then; modify the setting from **Auto** to **Enable**.
8. DC cycle the system and ensure the system is enter UEFI boot menu or the operating system; then, capture the FFDC log.
9. Contact Lenovo technical support.

A Lenovo optional device that was just installed does not work.

1. Make sure that:
   - The device is supported for the server (see https://serverproven.lenovo.com).
   - You followed the installation instructions that came with the device and the device is installed correctly.
   - You have not loosened any other installed devices or cables.
   - You updated the configuration information in system setup. When you start a server and press the key according to the on-screen instructions to display the Setup Utility. (For more information, see the “Startup” section in the LXPM documentation compatible with your server at https://pubs.lenovo.com/

lxpm-overview/.) Whenever memory or any other device is changed, you must update the configuration.

2. Reseat the device that you have just installed.
3. Replace the device that you have just installed.
4. Reseat the cable connection and check there is no physical damage to the cable.
5. If there is any cable damage, then replace the cable.

A Lenovo optional device that worked previously does not work now

1. Make sure that all of the cable connections for the device are secure.
2. If the device comes with test instructions, use those instructions to test the device.
3. Reseat the cable connection and check if any physical parts have been damaged.
4. Replace the cable.
5. Reseat the failing device.
6. Replace the failing device.

Performance problems

Use this information to solve performance problems.

- "Network performance" on page 108
- "Operating system performance" on page 108

Network performance

Complete the following steps until the problem is solved:

1. Isolate which network is operating slowly (such as storage, data, and management). You might find it helpful to use ping tools or operating-system tools such as task manager or resource manager.
2. Check for traffic congestion on the network.
3. Update the NIC device driver and firmware, or the storage device controller device driver.
4. Use the traffic-diagnostic tools that are provided by the IO-module manufacturer.

Operating system performance

Complete the following steps until the problem is solved:

1. If you have recently made changes to the compute node (for example updated device drivers or installed software applications) remove the changes.
2. Check for any networking issues.
3. Check the operating system logs for performance related errors.
4. Check for events related to high temperatures and power issues as the compute node might be throttled to help with cooling. If it is throttled, reduce the workload on the compute node to help improve performance.
5. Check for events related to disabled DIMMs. If you do not have enough memory for the application workload, your operating system will have poor performance.
6. Ensure that the workload is not too high for the configuration.

Power on and power off problems

Use this information to resolve issues when powering on or powering off the server.

The power button does not work (server does not start)

Note: The power button will not function until approximately 1 to 3 minutes after the server has been connected to ac power to allow time for BMC to initialize.

Complete the following steps until the problem is resolved:

1. Make sure that the power button on the server is working correctly:
   a. Disconnect the server power cords.
   b. Reconnect the server power cords.
   c. Reseat the rear I/O power cable, and then repeat steps 1a and 2b.
      - If the problem remains, replace the system board.
2. Make sure that:
   - The power cords are correctly connected to the server and to a working electrical outlet.
   - The LEDs on the power supply do not indicate a problem.
   - The Power button LED is lit on and is flashing slowly.
   - The push force is enough and with button force response.
3. If the power button LED is not lit on or is not flashing correctly, reseat all the power supplies and make sure AC LED on PSU rear side are lit on.
4. If you have just installed an optional device, remove it, and restart the server.
5. If the issue is still observed or without power button LED lit on, implement the minimum configuration to check whether any specific components lock the power permission. Replace the each power supply and check the power button function after installing the each one.
6. If everything is still done and the issue cannot be resolved, collect the failure information with system logs captured to Lenovo support.

Server does not power on

Complete the following steps until the problem is resolved:

1. Check the event log for any events related to the server not powering on.
2. Check for any LEDs that are flashing amber.
3. Check the power LED on the system board (system board assembly).
4. Check if the power status LEDs at the rear of the server are lit on.
5. AC cycle the system.
6. Remove the CMOS battery for at least ten seconds, then, reinstall the CMOS battery.
7. Try to power on the system by IPMI command through XCC or by the power button.
8. Implement the minimum configuration (see “Technical specifications” on page 2).
9. Reseat all power adapters and make sure if the power status LEDs at the rear of the server are lit on.
10. Replace the each power adapter and check the power button function after installing the each one.
11. If the issue cannot be resolved by above actions, call service to review the issue symptom and see whether the system board (system board assembly) replacement is necessary.

Power problems

Use this information to resolve issues related to power.

Power input LED is on and event log "Power supply has lost input" is displayed

To resolve the problem, ensure that:

1. The power supply is properly connected to a power cord.
2. Make sure that the power supply AC source is stable within the supported range.
3. Swap the power supply to see if the issue follows the power supply, if it follows the power supply, then replace the failing one.
4. Review the event log and see how the problem it is to follow the event log actions to resolved the problems.

Serial-device problems

Use this information to solve problems with serial ports or devices.

- "Number of displayed serial ports is less than the number of installed serial ports" on page 110
- "Serial device does not work" on page 110

Number of displayed serial ports is less than the number of installed serial ports

Complete the following steps until the problem is solved.

1. Make sure that:
   - Each port is assigned a unique address in the Setup utility and none of the serial ports is disabled.
   - The serial-port adapter (if one is present) is seated correctly.
2. Reseat the serial port adapter.
3. Replace the serial port adapter.

Serial device does not work

1. Make sure that:
   - The device is compatible with the server.
   - The serial port is enabled and is assigned a unique address.
   - The device is connected to the correct connector (see "Server components" in ***https://pubs.lenovo.com/se100/***).
2. To enable the serial port module on Linux or Microsoft Windows, do one of the followings according to the installed operating system:

   Note: If the Serial over LAN (SOL) or Emergency Management Services (EMS) feature is enabled, the serial port will be hidden on Linux and Microsoft Windows. Therefore, it is required to disable SOL and EMS to use the serial port on operating systems for serial devices.

   - For Linux:

     Open the ipmitool and enter the following command to disable the Serial over LAN (SOL) feature:

     ```
     -I lanplus -H IP -U USERID -P PASSWORD sol deactivate
     ```

   - For Microsoft Windows:
     a. Open the ipmitool and enter the following command to disable the SOL feature:

        ```
        -I lanplus -H IP -U USERID -P PASSWORD sol deactivate
        ```

     b. Open Windows PowerShell and enter the following command to disable the Emergency Management Services (EMS) feature:

        ```
        Bcdedit /ems off
        ```

c. Restart the server to ensure that the EMS setting takes effect.

3. Reseat the following components:
   a. Failing serial device.
   b. Serial cable.
4. Replace the following components:
   a. Failing serial device.
   b. Serial cable.
5. (Trained technician only) Replace the system board (system board assembly).

Software problems

Use this information to solve software problems.

1. To determine whether the problem is caused by the software, make sure that:
   - The server has the minimum memory that is needed to use the software. For memory requirements, see the information that comes with the software.

     Note: If you have just installed an adapter or memory, the server might have a memory-address conflict.
   - The software is designed to operate on the server.
   - Other software works on the server.
   - The software works on another server.
2. If you receive any error messages while you use the software, see the information that comes with the software for a description of the messages and suggested solutions to the problem.
3. Contact your place of purchase of the software.

Appendix A. Getting help and technical assistance

If you need help, service, or technical assistance or just want more information about Lenovo products, you will find a wide variety of sources available from Lenovo to assist you.

On the World Wide Web, up-to-date information about Lenovo systems, optional devices, services, and support are available at:

http://datacentersupport.lenovo.com

Note: IBM is Lenovo's preferred service provider for ThinkSystem.

Before you call

Before you call, there are several steps that you can take to try and solve the problem yourself. If you decide that you do need to call for assistance, gather the information that will be needed by the service technician to more quickly resolve your problem.

Attempt to resolve the problem yourself

You can solve many problems without outside assistance by following the troubleshooting procedures that Lenovo provides in the online help or in the Lenovo product documentation. The online help also describes the diagnostic tests that you can perform. The documentation for most systems, operating systems, and programs contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

You can find the product documentation for your ThinkSystem products at the following location:

https://pubs.lenovo.com/

You can take these steps to try to solve the problem yourself:

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system and any optional devices are turned on.
- Check for updated software, firmware, and operating-system device drivers for your Lenovo product. (See the following links) The Lenovo Warranty terms and conditions state that you, the owner of the Lenovo product, are responsible for maintaining and updating all software and firmware for the product (unless it is covered by an additional maintenance contract). Your service technician will request that you upgrade your software and firmware if the problem has a documented solution within a software upgrade.
  - Drivers and software downloads
    - https://datacentersupport.lenovo.com/tw/en/products/servers/thinkedge/se100/7dgv/downloads/driver-list/
  - Operating system support center
    - https://datacentersupport.lenovo.com/solutions/server-os
  - Operating system installing instructions
    - https://pubs.lenovo.com/thinkedge#os-installation
- If you have installed new hardware or software in your environment, check https://serverproven.lenovo.com to make sure that the hardware and software are supported by your product.
- Refer to Chapter 7 “Problem determination” on page 91 for instructions on isolating and solving issues.

- Go to http://datacentersupport.lenovo.com and check for information to help you solve the problem.

  To find the Tech Tips available for your server:

  1. Go to http://datacentersupport.lenovo.com and navigate to the support page for your server.
  2. Click on **How To's** from the navigation pane.
  3. Click **Article Type → Solution** from the drop-down menu.

     Follow the on-screen instructions to choose the category for the problem that you are having.
- Check Lenovo Data Center Forum at https://forums.lenovo.com/t5/Datacenter-Systems/ct-p/sv_eg to see if someone else has encountered a similar problem.

Gathering information needed to call Support

If you require warranty service for your Lenovo product, the service technicians will be able to assist you more efficiently if you prepare the appropriate information before you call. You can also go to http://datacentersupport.lenovo.com/warrantylookup for more information about your product warranty.

Gather the following information to provide to the service technician. This data will help the service technician quickly provide a solution to your problem and ensure that you receive the level of service for which you might have contracted.

- Hardware and Software Maintenance agreement contract numbers, if applicable
- Machine type number (Lenovo 4-digit machine identifier). Machine type number can be found on the ID label, see "Identify the server and access the Lenovo XClarity Controller" on page 25.
- Model number
- Serial number
- Current system UEFI and firmware levels
- Other pertinent information such as error messages and logs

As an alternative to calling Lenovo Support, you can go to https://support.lenovo.com/servicerequest to submit an Electronic Service Request. Submitting an Electronic Service Request will start the process of determining a solution to your problem by making the pertinent information available to the service technicians. The Lenovo service technicians can start working on your solution as soon as you have completed and submitted an Electronic Service Request.

Collecting service data

To clearly identify the root cause of a server issue or at the request of Lenovo Support, you might need collect service data that can be used for further analysis. Service data includes information such as event logs and hardware inventory.

Service data can be collected through the following tools:

- **Lenovo XClarity Provisioning Manager**

  Use the Collect Service Data function of Lenovo XClarity Provisioning Manager to collect system service data. You can collect existing system log data or run a new diagnostic to collect new data.
- **Lenovo XClarity Controller**

  You can use the Lenovo XClarity Controller web interface or the CLI to collect service data for the server. The file can be saved and sent to Lenovo Support.

  – For more information about using the web interface to collect service data, see the "Backing up the BMC configuration" section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/.

  - For more information about using the CLI to collect service data, see the “XCC `servicelog` command” section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/.

- **Lenovo XClarity Administrator**

  Lenovo XClarity Administrator can be set up to collect and send diagnostic files automatically to Lenovo Support when certain serviceable events occur in Lenovo XClarity Administrator and the managed endpoints. You can choose to send diagnostic files to Lenovo Support using Call Home or to another service provider using SFTP. You can also manually collect diagnostic files, open a problem record, and send diagnostic files to the Lenovo Support.

  You can find more information about setting up automatic problem notification within the Lenovo XClarity Administrator at https://pubs.lenovo.com/lxca/admin_setupcallhome.

- **Lenovo XClarity Essentials OneCLI**

  Lenovo XClarity Essentials OneCLI has inventory application to collect service data. It can run both in-band and out-of-band. When running in-band within the host operating system on the server, OneCLI can collect information about the operating system, such as the operating system event log, in addition to the hardware service data.

  To obtain service data, you can run the `getinfor` command. For more information about running the `getinfor`, see https://pubs.lenovo.com/lxce-onecli/onecli_r_getinfor_command.

Contacting Support

You can contact Support to obtain help for your issue.

You can receive hardware service through a Lenovo Authorized Service Provider. To locate a service provider authorized by Lenovo to provide warranty service, go to https://datacentersupport.lenovo.com/serviceprovider and use filter searching for different countries. For Lenovo support telephone numbers, see https://datacentersupport.lenovo.com/supportphonelist for your region support details.

Appendix B. Documents and supports

This section provides handy documents, driver and firmware downloads, and support resources.

Documents download

This section provides introduction and download link for handy documents.

Documents

Download the following product documentations at:

https://pubs.lenovo.com/se100-enclosure/pdf_files

- ***Rail Installation Guides***
  - ***ThinkSystem Toolless Stab-in Slide Rail Kit V3 with 1U CMA***
  - ***Cable Management Arm Installation Guide***
- ***Activation Guide***
  - Activation process and activation code
- ***ThinkEdge SE100 Enclosure User Guide***
  - Complete overview, system configuration, hardware components replacing, and troubleshooting.

    Selected chapters from *User Guide*:
    - ***ThinkEdge SE100 Enclosure System Configuration Guide*** **:** Server overview, components identification, system LEDs and diagnostics display, product unboxing, setting up and configuring the server.
    - ***ThinkEdge SE100 Enclosure Hardware Maintenance Guide*** **:** Installing hardware components, cable routing, and troubleshooting.
- ***ThinkEdge SE100 Enclosure Cable Routing Guide***
  - Cable routing information.
- ***ThinkEdge SE100 Messages and Codes Reference***
  - SE100 messages XClarity Controller, LXPM, and uEFI events
- ***UEFI Manual***
  - UEFI setting introduction

Support websites

This section provides driver and firmware downloads and support resources.

Support and downloads

- Drivers and Software download website for ThinkEdge SE100
  - https://datacentersupport.lenovo.com/tw/en/products/servers/thinkedge/se100/7dgv/downloads/driver-list/
- Lenovo Data Center Forum
  - https://forums.lenovo.com/t5/Datacenter-Systems/ct-p/sv_eg
- Lenovo Data Center Support for ThinkEdge SE100

  - https://datacentersupport.lenovo.com/products/servers/thinkedge/se100/7dgv
- Lenovo License Information Documents
  - https://datacentersupport.lenovo.com/documents/lnvo-eula
- Lenovo Press website (Product Guides/Datasheets/White papers)
  - https://lenovopress.lenovo.com/
- Lenovo Privacy Statement
  - https://www.lenovo.com/privacy
- Lenovo Product Security Advisories
  - https://datacentersupport.lenovo.com/product_security/home
- Lenovo Product Warranty Plans
  - http://datacentersupport.lenovo.com/warrantylookup
- Lenovo Server Operating Systems Support Center website
  - https://datacentersupport.lenovo.com/solutions/server-os
- Lenovo ServerProven website (Options compatibility lookup)
  - https://serverproven.lenovo.com
- Operating System Installation Instructions
  - https://pubs.lenovo.com/thinkedge#os-installation
- Submit an eTicket (service request)
  - https://support.lenovo.com/servicerequest
- Subscribe to Lenovo Data Center Group product notifications (Stay up to date on firmware updates)
  - https://datacentersupport.lenovo.com/solutions/ht509500

Appendix C. Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area.

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Important notes

Processor speed indicates the internal clock speed of the processor; other factors also affect application performance.

CD or DVD drive speed is the variable read rate. Actual speeds vary and are often less than the possible maximum.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for 1 024 bytes, MB stands for 1 048 576 bytes, and GB stands for 1 073 741 824 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1 000 000 bytes, and GB stands for 1 000 000 000 bytes. Total user-accessible capacity can vary depending on operating environments.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard-disk-drive bays with the largest currently supported drives that are available from Lenovo.

Maximum memory might require replacement of the standard memory with an optional memory module.

Each solid-state memory cell has an intrinsic, finite number of write cycles that the cell can incur. Therefore, a solid-state device has a maximum number of write cycles that it can be subjected to, expressed as `total bytes written` (TBW). A device that has exceeded this limit might fail to respond to system-generated commands or might be incapable of being written to. Lenovo is not responsible for replacement of a device that has exceeded its maximum guaranteed number of program/erase cycles, as documented in the Official Published Specifications for the device.

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When you attach a monitor to the equipment, you must use the designated monitor cable and any interference suppression devices that are supplied with the monitor.

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Taiwan Region BSMI RoHS declaration

單元 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛Lead (Pb)	汞Mercury (Hg)	鎘Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr^{+6})	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
機架	○	○	○	○	○	○
外部蓋板	○	○	○	○	○	○
機械組合件	–	○	○	○	○	○
空氣傳動設備	–	○	○	○	○	○
冷卻組合件	–	○	○	○	○	○
內存模組	–	○	○	○	○	○
處理器模組	–	○	○	○	○	○
電纜組合件	–	○	○	○	○	○
電源供應器	–	○	○	○	○	○
儲備設備	–	○	○	○	○	○
印刷電路板	–	○	○	○	○	○

備考1. 〝超出0.1 wt %〞及〝超出0.01 wt %〞係指限用物質之百分比含量超出百分比含量基準值。

Note1 : “exceeding 0.1wt%” and “exceeding 0.01 wt%” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.

備考2. 〝○〞係指該項限用物質之百分比含量未超出百分比含量基準值。

Note2 : “○”indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.

備考3. 〝-〞係指該項限用物質為排除項目。

Note3 : The “-“ indicates that the restricted substance corresponds to the exemption.

Taiwan Region import and export contact information

Contacts are available for Taiwan Region import and export information.

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