Lenovo

ThinkSystem SR675 V3
User Guide

Machine Type: 7D9Q and 7D9R

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

Thirteenth Edition (April 2024)

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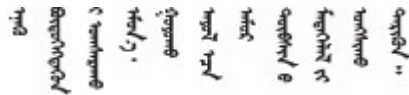
Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

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་སྐྱིད་མ་བྱས་གོང་། སྐོར་གྱི་ཡིད་གཟབ་ བྱ་འདུ་མིན་ཡོད་པའི་འོད་སྲེར་བལྟ་དགོས།

Bu ürünü kurmadan önce güvenlik bilgilerini okuyun.

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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.

Note: The set-up of the server is made in the server room only.

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.

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:

     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.

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Chapter 1. Introduction

The ThinkSystem SR675 V3 server (Types 7D9Q and 7D9R) is a 3U rack server designed for high-volume network transaction processing. This high-performance, multi-core server is ideally suited for networking environments that require superior microprocessor performance, input/output (I/O) flexibility, and high manageability.

Figure 1. ThinkSystem SR675 V3 — 8-DW GPU Model
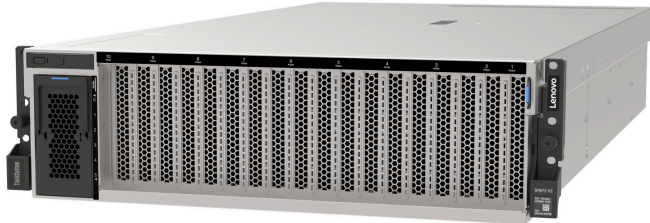
Features

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:

- **Features on Demand**

  If a Features on Demand feature is integrated in the server or in an optional device that is installed in the server, you can purchase an activation key to activate the feature. For information about Features on Demand, see:

  https://fod.lenovo.com/lkms

- **Lenovo XClarity Controller (XCC)**

  The Lenovo XClarity Controller is the common management controller for Lenovo ThinkSystem server hardware. The Lenovo XClarity Controller consolidates multiple management functions in a single chip on the system I/O board. Some of the features that are unique to the Lenovo XClarity Controller are enhanced performance, higher-resolution remote video, and expanded security options.

  The server supports Lenovo XClarity Controller 2 (XCC2). For additional information about Lenovo XClarity Controller 2 (XCC2), refer to https://pubs.lenovo.com/lxcc-overview/.

- **UEFI-compliant server firmware**

  Lenovo ThinkSystem firmware is Unified Extensible Firmware Interface (UEFI) compliant. UEFI replaces BIOS and defines a standard interface between the operating system, platform firmware, and external devices.

  Lenovo ThinkSystem servers are capable of booting UEFI-compliant operating systems, BIOS-based operating systems, and BIOS-based adapters as well as UEFI-compliant adapters.

  Note: The server does not support Disk Operating System (DOS).

- **Large system-memory capacity**

The server supports registered DIMMs (RDIMMs) with error correcting code (ECC) and 3DS RDIMM. For more information about the specific types and maximum amount of memory, see "Technical specifications" on page 4.

- **Integrated Trusted Platform Module (TPM)**

  This integrated security chip performs cryptographic functions and stores private and public secure keys. It provides the hardware support for the Trusted Computing Group (TCG) specification. You can download the software to support the TCG specification.

  Note: For customers in People's Republic of China, integrated TPM is not supported. However, customers in the People's Republic of China can install a Trusted Cryptographic Module (TCM) adapter or a Lenovo-qualified TPM adapter (sometimes called a daughter card).

- **Large data-storage capacity and hot-swap capability**

  With the hot-swap feature, you can add, remove, or replace hard disk drives without turning off the server.

  Storage capacity is different depending on server model. See "Technical specifications" on page 4 for more information.

  – The 4-DW GPU Model supports up to eight 2.5-inch hot-swap SAS/SATA/NVMe drives.
  – The 8-DW GPU Model supports up to six EDSFF E1.S 5.9mm hot-swap drives or up to four EDSFF E3.S 1T hot-swap drives.
  – The SXM5 GPU Model supports up to four 2.5-inch hot-swap NVMe drives or up to four EDSFF E3.S 1T hot-swap drives.

- **Lightpath Diagnostics**

  Lightpath Diagnostics provides LEDs to help you diagnose problems. For more information about the Lightpath Diagnostics, see "System LEDs and diagnostics display" on page 41.

- **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 servers, and improve energy efficiency using Lenovo XClarity Energy Manager.

- **Redundant networking connection**

  The Lenovo XClarity Controller provides failover capability to a redundant Ethernet connection with the applicable application installed. If a problem occurs with the primary Ethernet connection, all Ethernet traffic that is associated with the primary connection is automatically switched to the optional redundant Ethernet connection. If the applicable device drivers are installed, this switching occurs without data loss and without user intervention.

- **Redundant cooling**

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

- **ThinkSystem RAID support**

  The ThinkSystem RAID adapter provides hardware redundant array of independent disks (RAID) support to create configurations, supporting RAID levels 0, 1, 10, 5, 50, 6, and 60.

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	- Processor - Memory - M.2 Drive - Storage expansion - Expansion slots - Graphics processing units (GPU) - Integrated functions and I/O connectors - Network - Rear button - RAID adapter - Host bus adapter - 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.

Processor
- Up to two AMD® EPYC™ 9004 series processors   - Scalable up to 128 cores per socket, 256 cores in total   - Designed for LGA 6096 (SP5) socket   - Supports 4800 MHz DDR5 frequency   - Supports three x16 xGMI links up to 32 GT/s   - Supports TDP up to 400W   For a list of supported processors, see: https://serverproven.lenovo.com.

Memory

See "Memory module installation rules and order" on page 63 for detailed information about memory configuration and setup.
- Capacity
  - With one processor installed:
    - Minimum: 16 GB
    - Maximum: 1.5 TB
  - With two processors installed:
    - Minimum: 32 GB
    - Maximum: 3 TB
- Memory module types:
  - Double-data-rate 5 (TruDDR5) error correcting code (ECC) 4800 MT/s registered DIMM (RDIMM)
  - 3DS RDIMM
- Capacity:
  - TruDDR5 4800MHz RDIMM: 16 GB (1Rx8), 32 GB (2Rx8), 64 GB (2Rx4), and 96 GB (2Rx4)
  - TruDDR5 4800MHz Value RDIMM: 64 GB (2Rx4)
  - TruDDR5 4800MHz 3DS RDIMM: 128 GB (2S2RX4)
- Slots: 12 DIMM slots per processor, 24 DIMM slots in total

For a list of supported memory modules, see https://serverproven.lenovo.com.

M.2 Drive

The server support the following M.2 drive capacity:

- 960 GB
- 1.92 TB

The following form factors are supported:

- 42 mm (2242)
- 60 mm (2260)
- 80 mm (2280)
- 110 mm (22110)

For a list of supported M.2 drives, see https://serverproven.lenovo.com.

Storage expansion

The 4-DW GPU Model supports the following storage configuration:

- Up to eight 2.5-inch hot-swap SAS/SATA/NVMe drives

The 8-DW GPU Model supports one of the following storage configurations:

- Up to six E1.S 5.9mm hot-swap drives
- Up to four E3.S 1T hot-swap drives

The SXM5 GPU Model supports one of the following storage configurations:

- Up to four 2.5-inch hot-swap NVMe drives
- Up to four E3.S 1T hot-swap drives

Note: To support Tri-mode with U.3 NVMe drives, **U.3 x1 mode** must be enabled for the selected drive slots on the backplane through the XCC Web GUI. Otherwise, the U.3 NVMe drives cannot be detected. For more information, see "U.3 NVMe drive can be detected in NVMe connection, but cannot be detected in Tri-mode" on page 469 for more information.

For a list of supported drives, see https://serverproven.lenovo.com.

Expansion slots

- Up to fourteen PCIe slots (depending on the server model):
  - Slot 1-2:
    - PCIe x16, FH/FL (4-DW GPU Model and 8-DW GPU Model)
    - PCIe x16, FH/HL (SXM5 GPU Model)
  - Slot 3-10: PCIe x16 400W, FH/FL
  - Slot 15-16: PCIe x16 75W, FH/HL
  - Slot 20-21: PCIe x16 75W, FH/HL

  Note: PCIe slot 3-10 may operate at x8 link width when direct GPU distribution boards are installed in the 8-DW GPU Model.
- One OCP slot:
  - Slot 27

Graphics processing unit (GPU)

The 4-DW GPU Model supports the following GPU configuration:

- Up to four PCIe x16, double-wide, FH/FL GPUs

The 8-DW GPU Model supports the following GPU configuration:

- Up to eight PCIe x16, double-wide, FH/FL GPUs

The SXM5 GPU Model supports the following GPU configuration:

- One set of NVIDIA HGX H100 80GB 700W 4-GPU Board

For a list of supported GPUs, see https://serverproven.lenovo.com.

Integrated functions and I/O connectors

- Lenovo XClarity Controller (XCC), which provides service processor control and monitoring functions, video controller, and remote keyboard, video, mouse, and remote drive capabilities.
  - The server supports Lenovo XClarity Controller 2 (XCC2). For additional information about Lenovo XClarity Controller 2 (XCC2), refer to https://pubs.lenovo.com/lxcc-overview/.
- Front connectors:
  - One USB 3.2 Gen 1 connector (optional)
  - One USB 2.0 connector with XCC system management function (optional)
  - One VGA connector (optional)
  - One external diagnostics handset connector (optional)
- Rear connectors:
  - A group of two or four Ethernet connectors on the OCP 3.0 module (optional)
  - One XClarity Controller network connector (RJ-45 Ethernet connector)
  - Three USB 3.2 Gen1 connectors
  - One VGA connector
  - One serial port (optional)

Network

- One OCP module, which provides two or four Ethernet connectors for network support
- One OSFP port card with either two 400Gb or two 800Gb OSFP ports, connecting to four ConnectX-7 chip sets on the CX-7 mezz board (SXM5 GPU Model only)

Rear button

NMI button

RAID adapter

- Hardware RAID 0, 1, 10, 5, 50
    - ThinkSystem RAID 540-8i PCIe Gen4 12Gb Internal Adapter
    - ThinkSystem RAID 5350-8i PCIe 12Gb Internal Adapter
- Hardware RAID 0, 1, 10, 5, 50, 6, 60
    - ThinkSystem RAID 940-8i 4GB Flash PCIe Gen4 12Gb Internal Adapter
    - ThinkSystem RAID 940-8e 4GB Flash PCIe Gen4 12Gb External Adapter
    - ThinkSystem RAID 9350-8i 2GB Flash PCIe 12Gb Internal Adapter
    - ThinkSystem RAID 940-16i 8GB Flash PCIe Gen4 12Gb Adapter

For more information about the RAID/HBA adapters, see Lenovo ThinkSystem RAID Adapter and HBA Reference.

Host bus adapter

- ThinkSystem 440-8i SAS/SATA PCIe Gen4 12Gb Internal HBA
- ThinkSystem 440-8e SAS/SATA PCIe Gen4 12Gb External HBA
- ThinkSystem 440-16e SAS/SATA PCIe Gen4 12Gb External HBA
- ThinkSystem 4350-8i SAS/SATA 12Gb HBA

For more information about the RAID/HBA adapters, see Lenovo ThinkSystem RAID Adapter and HBA Reference.

System fan

Five 80 mm x 80 mm x 56 mm dual-rotor fans

Electrical input

This server supports up to four units of CFF v4 power supplies. Following is the list of supported types:

- 1800-watt Platinum, input voltage 230 Vac
- 1800-watt Titanium, input voltage 230 Vac
- 2400-watt Platinum, input voltage 230 Vac
- 2600-watt Titanium, input voltage 230 Vac

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

Minimal configuration for debugging

- One processor in socket 1
- One DRAM memory module in slots 6
- Two power supply units in bay 1 and 2
- One boot drive, M.2, 2.5-inch, EDSFF E1.S 5.9mm drive, or E3.S 1T drive and RAID adapter if configured. (If OS is needed by debugging)
- Five system fans
- One OCP module with required cable (if network is required)

Operating systems
Supported and certified operating systems: • Microsoft Windows Server • VMware ESXi • Red Hat Enterprise Linux • SUSE Linux Enterprise Server • Canonical Ubuntu References: • Complete list of available operating systems: https://lenovopress.lenovo.com/osig. • OS deployment instructions, see "Deploy the operating system" on page 432.

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
3 U server • Height: 131 mm (5.16 inches) • Width (with EIA flange): 482 mm (18.97 inches) • Depth: 891.6 mm (35.10 inches)

Weight
• The 4-DW GPU Model weights approximately 37.8 kg (83.3 lbs.), depending on the configuration. • The 8-DW GPU Model weights approximately 42.4 kg (93.5 lbs.), depending on the configuration. • The SXM5 GPU Model weights approximately 42 kg (92.6 lbs.), depending on the configuration.

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:
    - GPU Typical: 7.8 Bel
    - GPU Max: 8.0 Bel
    - SXM5: 7.8 Bel
  - Operating:
    - GPU Typical: 8.4 Bel
    - GPU Max: 8.6 Bel
    - SXM5: 9.0 Bel
- Sound pressure level (L~pAm~):
  - Idling:
    - GPU Typical: 62.5 dBA
    - GPU Max: 63.2 dBA
    - SXM5: 62.5 dBA
  - Operating:
    - GPU Typical: 68.3 dBA
    - GPU Max: 71.3 dBA
    - SXM5: 74.8 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.
- The declared acoustic sound levels are based on the specified configurations, which may change depending on configuration/conditions.
  - GPU Typical: two 360W processors, four or eight NVIDIA A100 80 GB GPU adapters, twelve 32 GB RDIMMs (2Rx8), two 2.5-inch NVMe SSDs or two E1.S 5.9mm NVMe SSDs, one ThinkSystem Broadcom 57504 10/25GbE SFP28 4-Port OCP Ethernet Adapter, one 1P NDR (NVIDIA ConnectX-7 card)
  - GPU Max: two 360W processors, four NVIDIA H100 80 GB GPU adapters, twenty-four 128 GB 3DS RDIMMs, eight 2.5-inch NVMe SSDs or six E1.S 5.9mm NVMe SSDs, one ThinkSystem Broadcom 57508 100GbE QSFP56 2-Port OCP Ethernet Adapter, six 1P NDR (NVIDIA ConnectX-7 card)
  - SXM5: two 360W processors, one set of NVIDIA HGX H100 80GB 700W 4-GPU Board, twenty-four 128 GB 3DS RDIMMs, four E3.S 1T NVMe SSDs, one ThinkSystem Broadcom 57508 100GbE QSFP56 2-Port OCP Ethernet Adapter, six 1P NDR (NVIDIA ConnectX-7 card)
- 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

Adjust ambient temperature when specific components are installed:

- Keep ambient temperature to 30°C or lower when one or more of the following components are installed.
  - NVIDIA L40 PCIe GPU
  - NVIDIA L40S/H100/H800 PCIe GPU, except that AMD EPYC 9174F processor is installed
  - NVIDIA H100 NVL PCIe GPU, except that one of the following processors is installed
    - AMD EPYC 9174F processor
    - AMD EPYC 9184X processor
    - AMD EPYC 9754 processor
  - NVIDIA HGX H100 80GB 700W 4-GPU Board, except that AMD EPYC 9174F processor is installed
  - NVIDIA ConnectX-7 dual-port NDR200 or single-port NDR400 with Active Optical Cable installed in the PCIe slot 15, 16, 20, or 21
  - Samsung 128 GB DDR5 RDIMMs
- Keep ambient temperature to 25°C or lower when the following components are installed:
  - NVIDIA L40S/H100/H800 PCIe GPU with AMD EPYC 9174F processor installed
  - NVIDIA H100 NVL PCIe GPU with one of the following processors installed
    - AMD EPYC 9174F processor
    - AMD EPYC 9184X processor
    - AMD EPYC 9754 processor
  - NVIDIA HGX H100 80GB 700W 4-GPU Board with AMD EPYC 9174F processor installed

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Environment

Depending on hardware configurations, ThinkSystem SR675 V3 complies with ASHRAE Class H1, A2 specifications with certain thermal restrictions. System performance may be impacted when operating temperature is out of permitted conditions.
- Air temperature:
  - Operating
    - ASHRAE Class H1: 5°C to 25°C (41°F to 77°F); the maximum ambient temperature decreases by 1°C for every 500 m (1640 ft) increase in altitude above 900 m (2,953 ft).
    - ASHARE Class A2: 10°C to 35°C (50°F to 95°F); the maximum ambient temperature decreases by 1°C for every 300 m (984 ft) increase in altitude above 900 m (2,953 ft).
  - Server off: 5°C to 45°C (41°F to 113°F)
  - Shipment/storage: -20°C to 60°C (-4°F to 140°F)
- Maximum altitude: 3,050 m (10,000 ft)
- Relative Humidity (non-condensing):
  - Operating
    - ASHRAE Class H1: 8% to 80%; maximum dew point: 17°C (62.6°F)
    - ASHRAE Class A2: 8% to 80%; maximum dew point: 21°C (70°F)
  - Shipment/storage: 8% to 90%
- 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 11.

Note: The server is designed for standard data center environment and recommended to be placed in industrial data center.

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 1. 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. **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]	√	√	√	√	√[7]	
Lenovo XClarity Energy Manager		√				√		√	
Lenovo Capacity Planner									√[8]

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. The Lenovo XClarity Integrator deployment check for System Center Configuration Manager (SCCM) supports Windows operating system deployment.

7. Power management function is supported only by Lenovo XClarity Integrator for VMware vCenter.

8. 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. Server components

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

Front view

The illustrations in this section provide information about the front view of the server.

The ThinkSystem SR675 V3 front view varies by model. Refer to the front view specific to each model to identify the components.

- "The 4-DW GPU Model front view" on page 15
- "The 8-DW GPU Model front view" on page 16
- "The SXM5 GPU Model front view" on page 19

The 4-DW GPU Model front view

This section contains information about the controls, LEDs, and connectors on the front of the 4-DW GPU Model server.

Note: The illustration in this section show the location of certain parts. Some parts may not be supported at the same time within certain configuration(s).
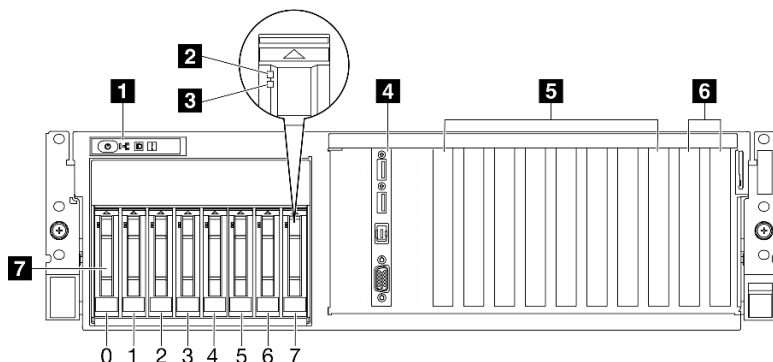
Figure 2. Front view of the 4-DW GPU Model

Table 2. Components on the front view of the 4-DW GPU Model

1 Front operator panel	**5** PCIe slot 3-6
2 Drive activity LED (green)	**6** PCIe slot 1-2
3 Drive status LED (yellow)	**7** 2.5-inch hot-swap drive bays (0 to 7)
4 Front I/O module	

1 Front operator panel

For more information about the front operator panel, see "Front operator panel LEDs" on page 438.

2 Drive activity LED (green)

Each hot-swap drive comes with an activity LED. When this LED is flashing, it indicates that the drive is in use.

3 Drive status LED (yellow)

The drive status LED indicates the following status:

- The LED is lit: the drive has failed.
- The LED is flashing slowly (once per second): the drive is being rebuilt.
- The LED is flashing rapidly (three times per second): the drive is being identified.

4 Front I/O module

For more information about the front I/O module, see "Front I/O module" on page 35.

5 PCIe slot 3-6

Install PCIe adapters, particularly GPUs to these slots. These PCIe slots support the following configuration:

- PCIe Gen5 x16, FH/FL

6 PCIe slot 1-2

Install PCIe adapters, particularly network adapters to these slots. These PCIe slots support the following configuration:

- PCIe Gen5 x16, FH/FL

7 2.5-inch hot-swap drive bays (0 to 7)

Install 2.5-inch drives to these bays. See "Install a 2.5-inch hot-swap drive" on page 183 for more information.

The 8-DW GPU Model front view

This section contains information about the controls, LEDs, and connectors on the front of the 8-DW GPU Model server.

Note: The illustrations in this section show the location of certain parts. Some parts may not be supported at the same time within certain configuration(s).

The 8-DW GPU Model offers two storage configurations, up to six EDSFF E1.S 5.9mm drives or up to four EDSFF E3.S 1T drives. Refer to the following sections for front view identification of each configuration:

- "Front view with 6x E1.S 5.9mm drives" on page 17
- "Front view with 4x E3.S 1T drives" on page 18

Front view with 6x E1.S 5.9mm drives
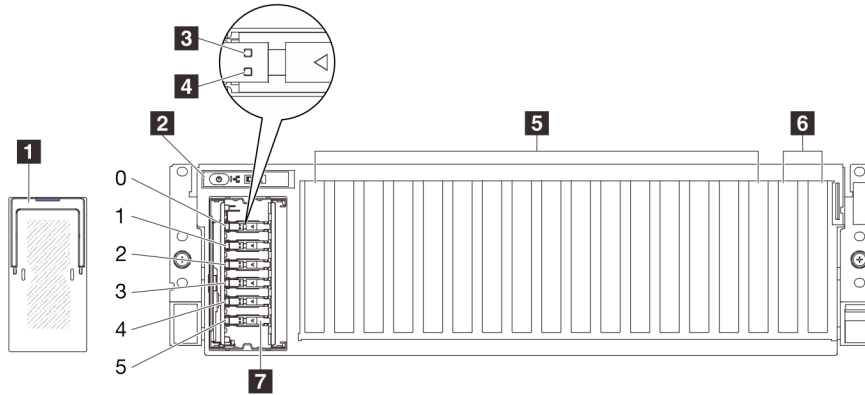
Figure 3. Front view with 6x E1.S 5.9mm drives

Table 3. Components on the front view with 6x E1.S 5.9mm drives

① EDSFF drive cage cover	⑤ PCIe slot 3-10
② Front operator panel	⑥ PCIe Slot 1-2
③ Drive activity LED (green)	⑦ E1.S 5.9mm hot-swap drive bays (0 to 5)
④ Drive status LED (yellow)	

① EDSFF drive cage cover

The 8-DW GPU Model servers should always operate with the EDSFF drive cage cover installed to the chassis.

② Front operator panel

For more information about the front operator panel, see "Front operator panel LEDs" on page 438.

③ Drive activity LED (green)

Each hot-swap drive comes with an activity LED. When this LED is flashing, it indicates that the drive is in use.

④ Drive status LED (yellow)

The drive status LED indicates the following status:

- The LED is lit: the drive has failed.
- The LED is flashing slowly (once per second): the drive is being rebuilt.
- The LED is flashing rapidly (three times per second): the drive is being identified.

⑤ PCIe slot 3-10

Install PCIe adapters, particularly GPUs to these slots. These PCIe slots support the following configuration:

- PCIe Gen5 x16, FH/FL

Note: PCIe slot 3-10 may operate at x8 link width when the direct GPU distribution boards are installed in the system.

6 PCIe slot 1-2

Install PCIe adapters, particularly network adapters to these slots. These PCIe slots support the following configuration:

• PCIe Gen5 x16, FH/FL

7 E1.S 5.9mm hot-swap drive bays (0 to 5)

Install E1.S 5.9mm hot-swap drives to these bays. See "Install an E1.S/E3.S hot-swap drive" on page 193 for more information.

Front view with 4x E3.S 1T drives
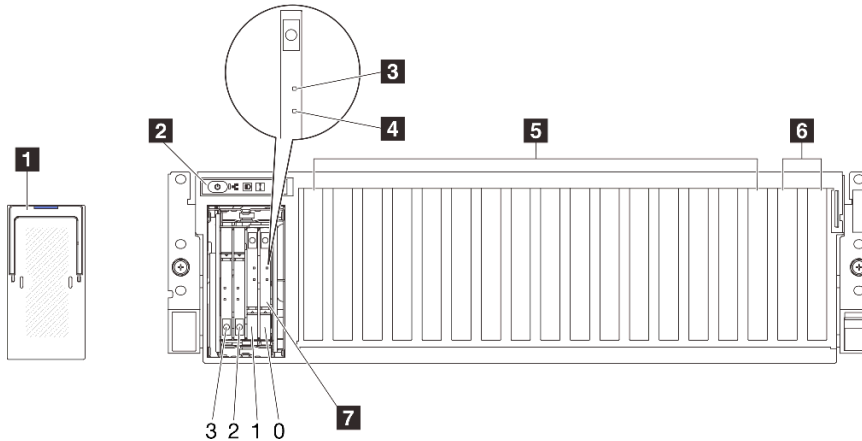
Figure 4. Front view with 4x E3.S 1T drives

Table 4. Components on the front view with 4x E3.S 1T drives

1 EDSFF drive cage cover	**5** PCIe slot 3-10
2 Front operator panel	**6** PCIe Slot 1-2
3 Drive activity LED (green)	**7** E3.S 1T hot-swap drive bays (0 to 3)
4 Drive status LED (yellow)	

1 EDSFF drive cage cover

The 8-DW GPU Model servers should always operate with the EDSFF drive cage cover installed to the chassis.

2 Front operator panel

For more information about the front operator panel, see "Front operator panel LEDs" on page 438.

3 Drive activity LED (green)

Each hot-swap drive comes with an activity LED. When this LED is flashing, it indicates that the drive is in use.

4 Drive status LED (yellow)

The drive status LED indicates the following status:

- The LED is lit: the drive has failed.
- The LED is flashing slowly (once per second): the drive is being rebuilt.
- The LED is flashing rapidly (three times per second): the drive is being identified.

5 PCIe slot 3-10

Install PCIe adapters, particularly GPUs to these slots. These PCIe slots support the following configuration:

- PCIe Gen5 x16, FH/FL

Note: PCIe slot 3-10 may operate at x8 link width when the direct GPU distribution boards are installed in the system.

6 PCIe slot 1-2

Install PCIe adapters, particularly network adapters to these slots. These PCIe slots support the following configuration:

- PCIe Gen5 x16, FH/FL

7 E3.S 1T hot-swap drive bays (0 to 3)

Install E3.S 1T hot-swap drives to these bays. See "Install an E1.S/E3.S hot-swap drive" on page 193 for more information.

The SXM5 GPU Model front view

This section contains information about the controls, LEDs, and connectors on the front of the SXM5 GPU Model server.

Note: The illustrations in this section show the location of certain parts. Some parts may not be supported at the same time within certain configuration(s).

Refer to the following sections for front view identification of each configuration:

Front view with 4x 2.5-inch drives and SXM5 PCIe switch board

Figure 5. Front view with 4x 2.5-inch drives and SXM5 PCIe switch board

Table 5. Components on the front view with 4x 2.5-inch drives and SXM5 PCIe switch board

1 SXM5 PCIe switch board	**6** Front I/O module
2 Front operator panel	**7** PCIe Slot 1-2
3 Drive activity LED (green)	**8** GPU-L2A assembly
4 Drive status LED (yellow)	**9** Interposer card
5 2.5-inch hot-swap drive bays (0 to 3)	

1 SXM5 PCIe switch board

Install the SXM5 PCIe switch board in this space. See "Install the SXM5 PCIe switch board" on page 339 for more information.

2 Front operator panel

For more information about the front operator panel, see "Front operator panel LEDs" on page 438.

3 Drive activity LED (green)

Each hot-swap drive comes with an activity LED. When this LED is flashing, it indicates that the drive is in use.

4 Drive status LED (yellow)

The drive status LED indicates the following status:

- The LED is lit: the drive has failed.
- The LED is flashing slowly (once per second): the drive is being rebuilt.
- The LED is flashing rapidly (three times per second): the drive is being identified.

5 2.5-inch hot-swap drive bays (0 to 3)

Install 2.5-inch drives to these bays. See "Install a 2.5-inch hot-swap drive" on page 228 for more information.

6 Front I/O module

For more information about the front I/O module, see "Front I/O module" on page 35.

7 PCIe Slot 1-2

Install PCIe adapters, particularly network adapters to these slots. These PCIe slots support the following configuration:

- PCIe Gen5 x16, FH/HL

8 GPU-L2A assembly

Install the GPU-L2A assembly in this space. A GPU-L2A assembly consists of the Lenovo Neptune™ liquid-to-air (L2A) hybrid cooling module and the SXM5 GPU board which contains one set of NVIDIA HGX H100 80GB 700W 4-GPU Board. See "Install the Lenovo Neptune(TM) liquid-to-air (L2A) hybrid cooling module" on page 301 for more information.

9 Interposer card

Install the interposer card in this space. See "Install the interposer card" on page 284 for more information.

Front view with 4x 2.5-inch drives and CX-7 mezz board
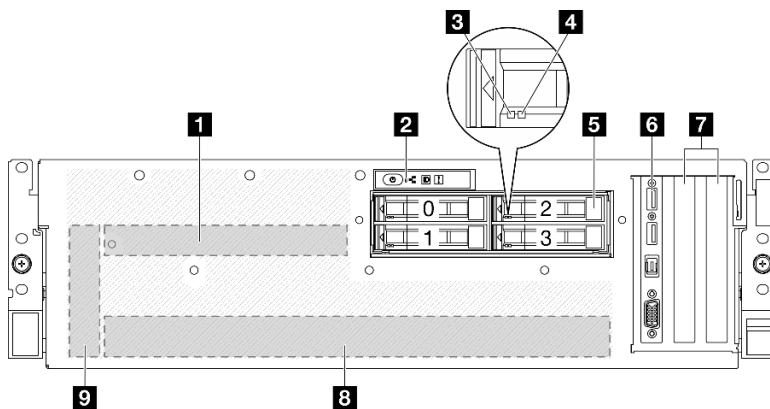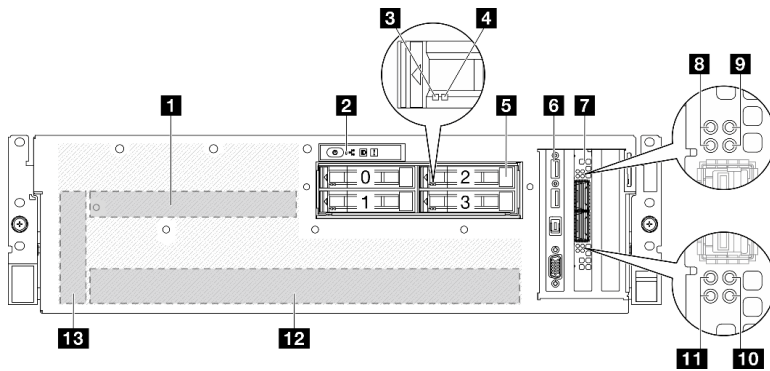

Figure 6. Front view with 4x 2.5-inch drives and CX-7 mezz board

Table 6. Components on the front view with 4x 2.5-inch drives and CX-7 mezz board

1 CX-7 mezz board	**8** CX-7 mezz board link status LED (yellow)
2 Front operator panel	**9** CX-7 mezz board link activity LED (green)
3 Drive activity LED (green)	**10** CX-7 mezz board link activity LED (green)
4 Drive status LED (yellow)	**11** CX-7 mezz board link status LED (yellow)
5 2.5-inch hot-swap drive bays (0 to 3)	**12** GPU-L2A assembly
6 Front I/O module	**13** Interposer card
7 OSFP port card	

1 CX-7 mezz board

Install the CX-7 mezz board in this space. See "Install the CX-7 carrier board and CX-7 mezz board" on page 242 for more information.

2 Front operator panel

For more information about the front operator panel, see "Front operator panel LEDs" on page 438.

3 Drive activity LED (green)

Each hot-swap drive comes with an activity LED. When this LED is flashing, it indicates that the drive is in use.

4 Drive status LED (yellow)

The drive status LED indicates the following status:

- The LED is lit: the drive has failed.
- The LED is flashing slowly (once per second): the drive is being rebuilt.
- The LED is flashing rapidly (three times per second): the drive is being identified.

5 2.5-inch hot-swap drive bays (0 to 3)

Install 2.5-inch drives to these bays. See for more information.

◪ Front I/O module

For more information about the front I/O module, see .

◨ OSFP port card

Install the OSFP port card in this space. See for more information.

◨/⓫ CX-7 mezz board link status LED (yellow)

Use these yellow LEDs to distinguish the link status of the four ConnectX-7 chip sets on the CX-7 mezz board.

- For one-processor configuration: from top to bottom, these LEDs represent ConnectX-7 chip sets 0, 1, 2, and 3.
- For two-processor configuration: from top to bottom, these LEDs represent ConnectX-7 chip sets 0, 1, 2, and 3.

  Off: The network is disconnected from switch.

  Blinking (1 Hz): The beacon command is used to locate the OSFP port card.

  Blinking (4 Hz): An error has occurred to the link. The error can be from I^2C or overcurrent.

  On: A physical network link is detected.

Note: Using command to light up locating LED is available when transceiver or cable is attached to the OSFP port.

◪/⓾ CX-7 mezz board link activity LED (green)

Use these green LEDs to distinguish the link activity of the four ConnectX-7 chip sets on the CX-7 mezz board.

- For one-processor configuration: from top to bottom, these LEDs represent ConnectX-7 chip sets 0, 1, 2, and 3.
- For two-processor configuration: from top to bottom, these LEDs represent ConnectX-7 chip sets 0, 1, 2, and 3.

  Off: The network is disconnected from switch.

  Blinking: The network link is connected and active.

  On: The network link is connected with no active traffic.

⓬ GPU-L2A assembly

Install the GPU-L2A assembly in this space. A GPU-L2A assembly consists of the Lenovo Neptune™ liquid-to-air (L2A) hybrid cooling module and the SXM5 GPU board which contains one set of NVIDIA HGX H100 80GB 700W 4-GPU Board. See for more information.

⓭ Interposer card

Install the interposer card in this space. See for more information.

Front view with 4x E3.S 1T drives and SXM5 PCIe switch board

Figure 7. Front view with 4x E3.S 1T drives and SXM5 PCIe switch board

Table 7. Components on the front view with 4x E3.S 1T drives and SXM5 PCIe switch board

1 SXM5 PCIe switch board	**6** Front I/O module
2 Front operator panel	**7** PCIe Slot 1-2
3 E3.S 1T hot-swap drive bays (0 to 3)	**8** E3.S drive cage cover
4 Drive activity LED (green)	**9** GPU-L2A assembly
5 Drive status LED (yellow)	**10** Interposer card

1 SXM5 PCIe switch board

Install the SXM5 PCIe switch board in this space. See "Install the SXM5 PCIe switch board" on page 339 for more information.

2 Front operator panel

For more information about the front operator panel, see "Front operator panel LEDs" on page 438.

3 E3.S 1T hot-swap drive bays (0 to 3)

Install E3.S 1T drives to these bays. See "Install an E3.S hot-swap drive" on page 250 for more information.

4 Drive activity LED (green)

Each hot-swap drive comes with an activity LED. When this LED is flashing, it indicates that the drive is in use.

5 Drive status LED (yellow)

The drive status LED indicates the following status:

- The LED is lit: the drive has failed.
- The LED is flashing slowly (once per second): the drive is being rebuilt.
- The LED is flashing rapidly (three times per second): the drive is being identified.

6 Front I/O module

For more information about the front I/O module, see "Front I/O module" on page 35.

7 PCIe Slot 1-2

Install PCIe adapters, particularly network adapters to these slots. These PCIe slots support the following configuration:

- PCIe Gen5 x16, FH/HL

8 E3.S drive cage cover

The SXM5 GPU Model with 4x E3.S 1T drives should always operate with the E3.S drive cage cover installed to the chassis.

9 GPU-L2A assembly

Install the GPU-L2A assembly in this space. A GPU-L2A assembly consists of the Lenovo Neptune™ liquid-to-air (L2A) hybrid cooling module and the SXM5 GPU board which contains one set of NVIDIA HGX H100 80GB 700W 4-GPU Board. See "Install the Lenovo Neptune(TM) liquid-to-air (L2A) hybrid cooling module" on page 301 for more information.

10 Interposer card

Install the interposer card in this space. See "Install the interposer card" on page 284 for more information.
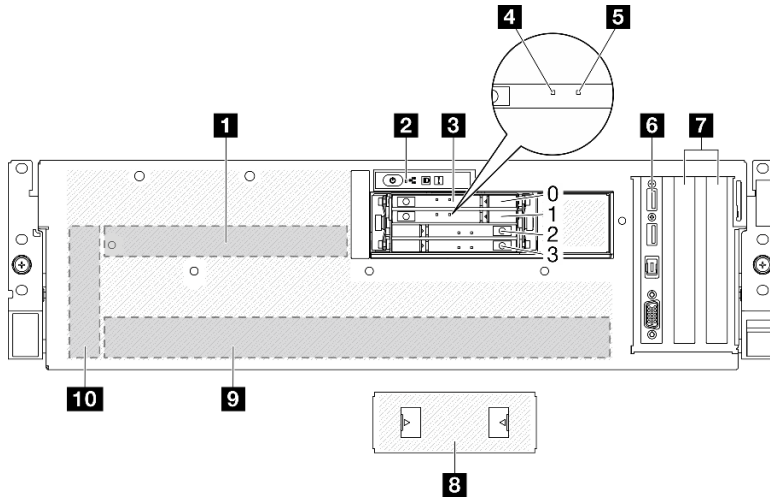
Front view with 4x E3.S 1T drives and CX-7 mezz board
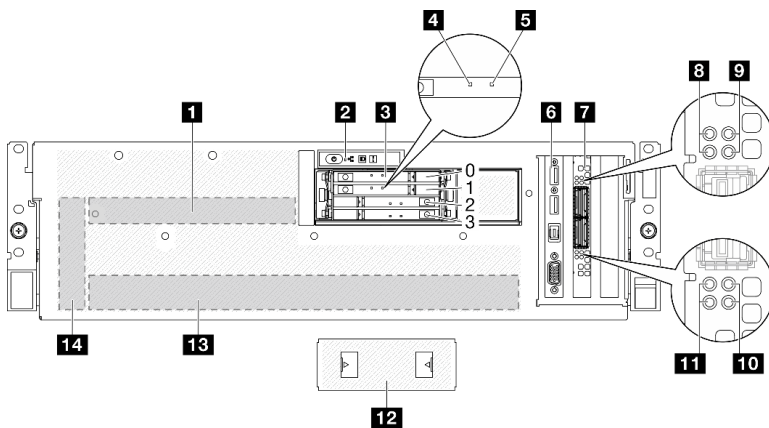
Figure 8. Front view with 4x E3.S 1T drives and CX-7 mezz board

Table 8. Components on the front view with 4x E3.S 1T drives and CX-7 mezz board

1 CX-7 mezz board	**8** CX-7 mezz board link status LED (yellow)
2 Front operator panel	**9** CX-7 mezz board link activity LED (green)
3 E3.S 1T hot-swap drive bays (0 to 3)	**10** CX-7 mezz board link activity LED (green)
4 Drive activity LED (green)	**11** CX-7 mezz board link status LED (yellow)
5 Drive status LED (yellow)	**12** E3.S drive cage cover

6 Front I/O module	**13** GPU-L2A assembly
7 OSFP port card	**14** Interposer card

1 CX-7 mezz board

Install the CX-7 mezz board in this space. See "Install the CX-7 carrier board and CX-7 mezz board" on page 242 for more information.

2 Front operator panel

For more information about the front operator panel, see "Front operator panel LEDs" on page 438.

3 E3.S 1T hot-swap drive bays (0 to 3)

Install E3.S 1T drives to these bays. See "Install an E3.S hot-swap drive" on page 250 for more information.

4 Drive activity LED (green)

Each hot-swap drive comes with an activity LED. When this LED is flashing, it indicates that the drive is in use.

5 Drive status LED (yellow)

The drive status LED indicates the following status:

- The LED is lit: the drive has failed.
- The LED is flashing slowly (once per second): the drive is being rebuilt.
- The LED is flashing rapidly (three times per second): the drive is being identified.

6 Front I/O module

For more information about the front I/O module, see "Front I/O module" on page 35.

7 OSFP port card

Install the OSFP port card in this space. See "Install the OSFP port card" on page 315 for more information.

8/**11** CX-7 mezz board link status LED (yellow)

Use these yellow LEDs to distinguish the link status of the four ConnectX-7 chip sets on the CX-7 mezz board.

- For one-processor configuration: from top to bottom, these LEDs represent ConnectX-7 chip sets 0, 1, 2, and 3.
- For two-processor configuration: from top to bottom, these LEDs represent ConnectX-7 chip sets 0, 1, 2, and 3.

    Off: The network is disconnected from switch.

    Blinking (1 Hz): The beacon command is used to locate the OSFP port card.

    Blinking (4 Hz): An error has occurred to the link. The error can be from I^2C or overcurrent.

    On: A physical network link is detected.

Note: Using command to light up locating LED is available when transceiver or cable is attached to the OSFP port.

9/10 CX-7 mezz board link activity LED (green)

Use these green LEDs to distinguish the link activity of the four ConnectX-7 chip sets on the CX-7 mezz board.

- For one-processor configuration: from top to bottom, these LEDs represent ConnectX-7 chip sets 0, 1, 2, and 3.
- For two-processor configuration: from top to bottom, these LEDs represent ConnectX-7 chip sets 0, 1, 2, and 3.

   Off: The network is disconnected from switch.

   Blinking: The network link is connected and active.

   On: The network link is connected with no active traffic.

12 E3.S drive cage cover

The SXM5 GPU Model with 4x E3.S 1T drives should always operate with the E3.S drive cage cover installed to the chassis.

13 GPU-L2A assembly

Install the GPU-L2A assembly in this space. A GPU-L2A assembly consists of the Lenovo Neptune™ liquid-to-air (L2A) hybrid cooling module and the SXM5 GPU board which contains one set of NVIDIA HGX H100 80GB 700W 4-GPU Board. See "Install the Lenovo Neptune(TM) liquid-to-air (L2A) hybrid cooling module" on page 301 for more information.

14 Interposer card

Install the interposer card in this space. See "Install the interposer card" on page 284 for more information.

Rear view

The rear of the server provides access to several components, including the power supplies, PCIe adapters, serial port, and Ethernet port.
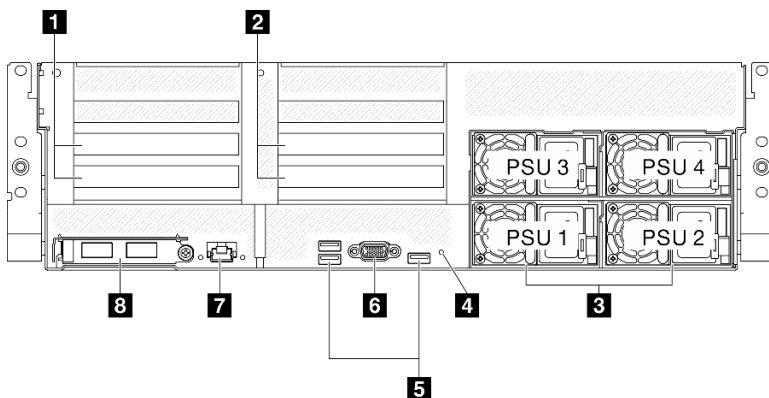
Figure 9. Rear view

Table 9. Components on the rear view

1 PCIe riser 1 (PCIe slot 15-16)	**5** USB 3.2 Gen 1 (5 Gbps) connectors (total of three connectors)
2 PCIe riser 2 (PCIe slot 20-21)	**6** VGA connector
3 Power supply units	**7** XCC system management port (1 GB RJ-45)
4 NMI button	**8** OCP module (slot 27)

1 PCIe riser 1 (PCIe slot 15-16)

Install PCIe adapters to the PCIe riser. These PCIe slots support the following configuration:

- PCIe x16 75W, FH/HL

2 PCIe riser 2 (PCIe slot 20-21)

Install PCIe adapters to the PCIe riser. These PCIe slots support the following configuration:

- PCIe x16 75W, FH/HL

3 Power supply units

Install power supply units to these bays, connect them to power cords. Make sure the power cords are connected properly. Following are the power supplies supported by this system:

- 1800-watt Platinum, input voltage 230 Vac
- 1800-watt Titanium, input voltage 230 Vac
- 2400-watt Platinum, input voltage 230 Vac
- 2600-watt Titanium, input voltage 230 Vac

Each hot-swap power supply has three status LEDs:

Figure 10. Power supply LEDs

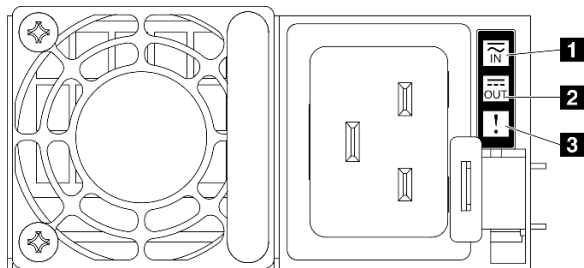| LED	Description
1 Input status	The input status LED can be in one of the following states: • Off: The power supply is disconnected from the AC power source • Green: The power supply is connected to the AC power source.
2 Output status	The output status LED can be in one of the following states: • Off: The server is powered off, or the power supply is not working properly. If the server is powered on but the output status LED is off, replace the power supply. • Green: The server is on and the power supply is working normally.
3 Fault LED	• Off: The power supply is working normally • Amber: The power supply has failed. To resolve the issue, replace the power supply.

4 NMI button

Press this button to force a nonmaskable interrupt to the processor. You might have to use a pen or the end of a straightened paper clip to press the button. You can also use it to force a blue-screen memory dump. Use this button only when you are directed to do so by Lenovo Support.

5 USB 3.2 Gen 1 (5 Gbps) connectors

There are three USB 3.2 Gen 1 (5 Gbps) connectors on the rear of the server. Connect a USB device, such as a mouse, keyboard, or other devices, to either of these connectors.

6 VGA connector

Connect a monitor to this connector.

7 XCC system management port (1 GB RJ-45)

The server has a 1 GB RJ-45 connector dedicated to Lenovo XClarity Controller (XCC) functions. Through the system management port, you can access the Lenovo XClarity Controller directly by connecting your laptop to the management port using an Ethernet cable. Make sure that you modify the IP settings on the laptop so that it is on the same network as the server default settings. A dedicated management network provides additional security by physically separating the management network traffic from the production network.

See the following for more information:

Note: In addition to the standard 1000 Mbps data transfer rate, the XCC system management port also supports 10 Mbps, 100 Mbps speeds.

8 OCP module (slot 27)

The system may support a 2-port or a 4-port OCP module for network connections. Port numbering are shown in the illustrations below.

Figure 11. Port numbering — 2-port OCP module
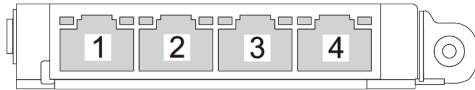
Figure 12. Port numbering — 4-port OCP 3.0 module

Top view

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

The ThinkSystem SR675 V3 top view varies by model. Refer to the top view specific to each model to identify the components.

The 4-DW GPU Model top view

This section contains information on the top view of the 4-DW GPU Model server.

Note: The illustration in this section show the location of certain parts. Some parts may not be supported at the same time within certain configuration(s).

Figure 13. Top view of the 4-DW GPU Model

Table 10. Components on the top view of the 4-DW GPU Model

1 PCIe riser 1	9 Front I/O module
2 System board assembly	10 Front operator panel
3 PCIe riser 2	11 2.5-inch drive cage assembly
4 Memory modules	12 Processor 2
5 Processor 1	13 Power distribution board
6 Fan cage and fans	14 Power supply bays
7 Network adapters	15 Intrusion switch
8 GPU adapters	

The 8-DW GPU Model top view

This section contains information on the top view of the 8-DW GPU Model server.

Note: The illustration in this section show the location of certain parts. Some parts may not be supported at the same time within certain configuration(s).
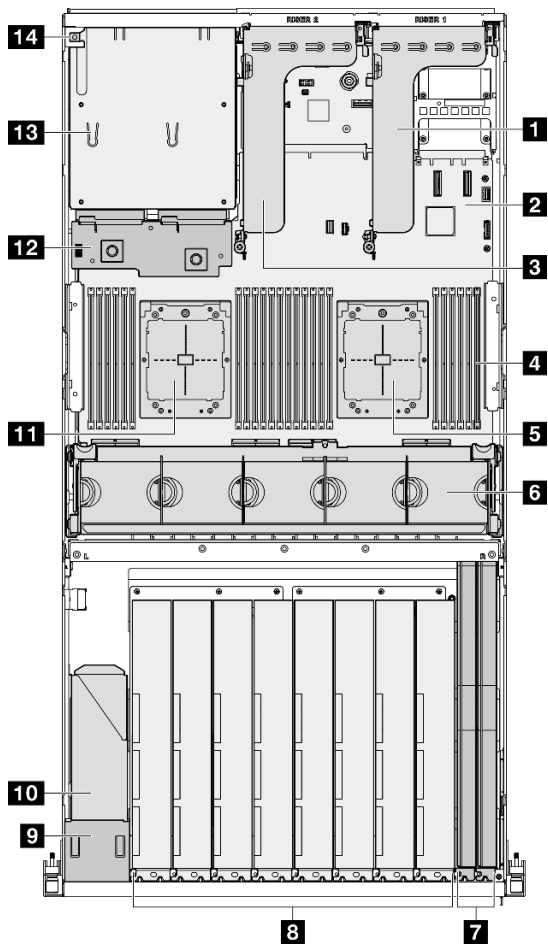
Figure 14. Top view of the 8-DW GPU Model

Table 11. Components on the top view of the 8-DW GPU Model

1 PCIe riser 1	**8** GPU adapters
2 System board assembly	**9** Front operator panel
3 PCIe riser 2	**10** EDSFF drive cage assembly
4 Memory modules	**11** Processor 2
5 Processor 1	**12** Power distribution board
6 Fan cage and fans	**13** Power supply bays
7 Network adapters	**14** Intrusion switch

The SXM5 GPU Model top view

This section contains information on the top view of the SXM5 GPU Model server.

Note: The illustrations in this section show the location of certain parts. Some parts may not be supported at the same time within certain configuration(s).
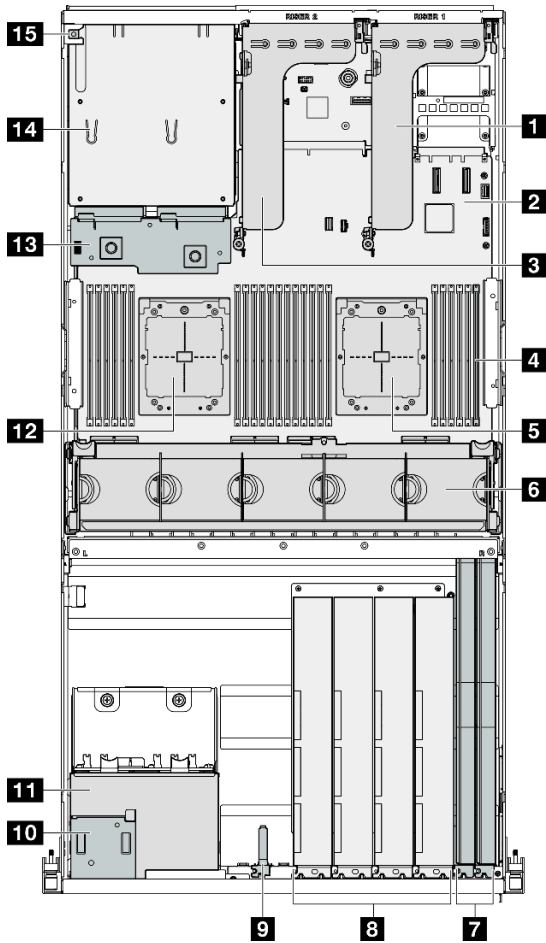
Refer to the following sections for top view identification of each configuration:

- "Top view with 4x 2.5-inch drives and SXM5 PCIe switch board" on page 32

Top view with 4x 2.5-inch drives and SXM5 PCIe switch board

Figure 15. Top view with 4x 2.5-inch drives and SXM5 PCIe switch board

Table 12. Components on the top view with 4x 2.5-inch drives and SXM5 PCIe switch board

1 PCIe riser 1	**10** Front I/O module
2 System board assembly	**11** Front operator panel
3 PCIe riser 2	**12** SXM5 PCIe switch board
4 Memory modules	**13** Interposer card
5 Processor 1	**14** Radiator
6 Fan cage and fans	**15** Processor 2
7 Front drive tray	**16** SXM5 GPU power distribution board
8 2.5-inch drive cage assembly	**17** Power supply bays
9 Network adapters	**18** Intrusion switch

Top view with 4x 2.5-inch drives and CX-7 mezz board

Figure 16. Top view with 4x 2.5-inch drives and CX-7 mezz board

Table 13. Components on the top view with 4x 2.5-inch drives and CX-7 mezz board

1 PCIe riser 1	**10** Front I/O module
2 System board assembly	**11** Front operator panel
3 PCIe riser 2	**12** CX-7 mezz board
4 Memory modules	**13** Interposer card
5 Processor 1	**14** Radiator
6 Fan cage and fans	**15** Processor 2
7 Front drive tray	**16** SXM5 GPU power distribution board
8 2.5-inch drive cage assembly	**17** Power supply bays
9 OSFP port card	**18** Intrusion switch

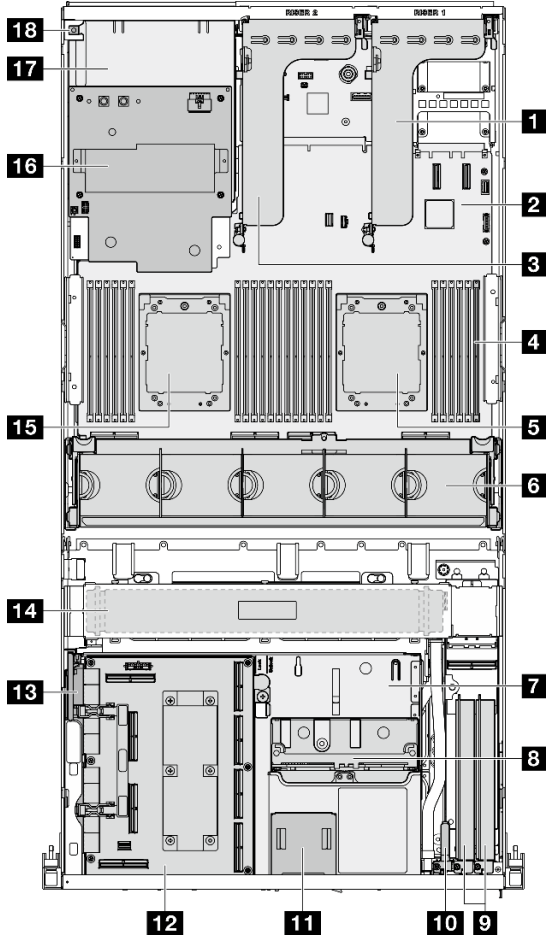**Top view with 4x E3.S 1T drives and SXM5 PCIe switch board**

Figure 17. Top view with 4x E3.S 1T drives and SXM5 PCIe switch board

Table 14. Components on the top view with 4x E3.S 1T drives and SXM5 PCIe switch board

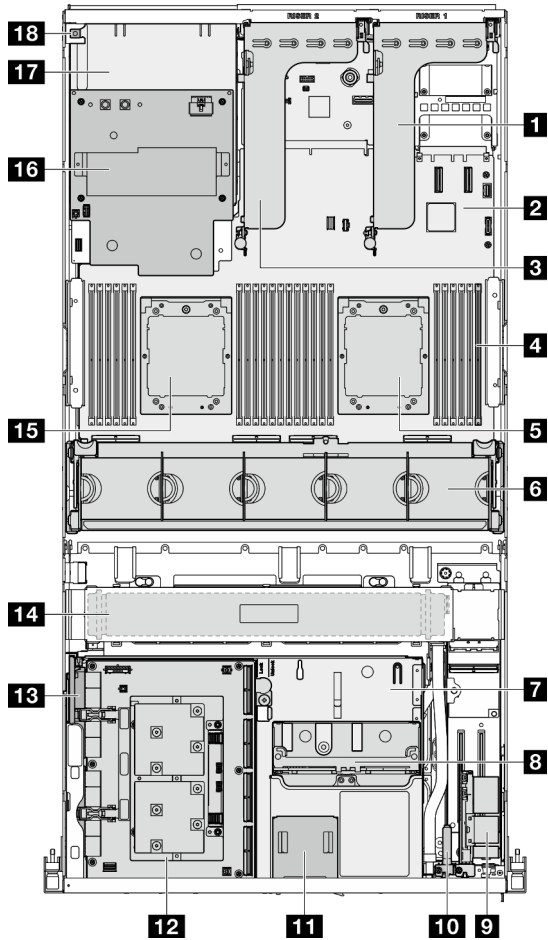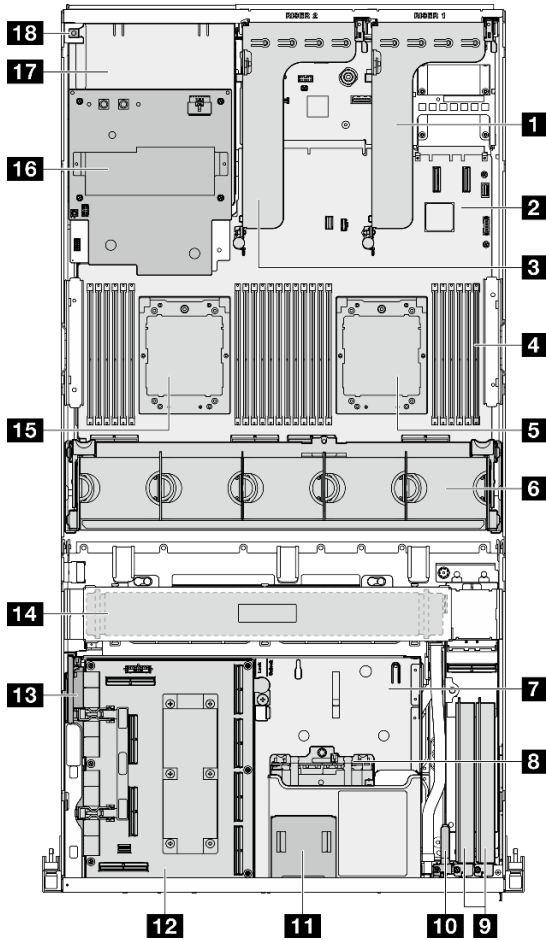|			
1	PCIe riser 1	**10**	Front I/O module
2	System board assembly	**11**	Front operator panel
3	PCIe riser 2	**12**	SXM5 PCIe switch board
4	Memory modules	**13**	Interposer card
5	Processor 1	**14**	Radiator
6	Fan cage and fans	**15**	Processor 2
7	Front drive tray	**16**	SXM5 GPU power distribution board
8	E3.S drive cage assembly	**17**	Power supply bays
9	Network adapters	**18**	Intrusion switch

Top view with 4x E3.S 1T drives and CX-7 mezz board

Figure 18. Top view with 4x E3.S 1T drives and CX-7 mezz board

Table 15. Components on the top view with 4x E3.S 1T drives and CX-7 mezz board

1 PCIe riser 1	**10** Front I/O module
2 System board assembly	**11** Front operator panel
3 PCIe riser 2	**12** CX-7 mezz board
4 Memory modules	**13** Interposer card
5 Processor 1	**14** Radiator
6 Fan cage and fans	**15** Processor 2
7 Front drive tray	**16** SXM5 GPU power distribution board
8 E3.S drive cage assembly	**17** Power supply bays
9 OSFP port card	**18** Intrusion switch

Front I/O module

The front I/O module of the server provides controls, connectors, and LEDs. The front I/O module varies by model.

The following illustration shows the front I/O module for different server models. To locate the front I/O module, see Chapter 2 "Server components" on page 15.
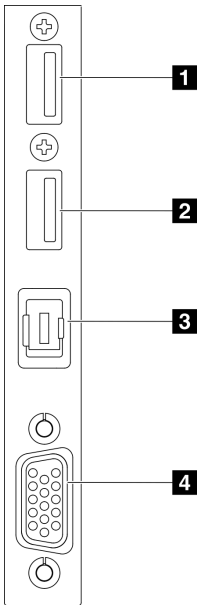
Figure 19. Front I/O module

Table 16. Components on the front I/O module

1 USB 2.0 connector with Lenovo XClarity Controller management	**3** External diagnostics handset connector
2 USB 3.2 Gen 1 (5 Gbps) connector	**4** VGA connector

1 USB 2.0 connector with Lenovo XClarity Controller management

Connect a USB 2.0 device, such as a mouse, keyboard, or other devices, to this connector.

Note: This is the only USB port that supports USB automation update of the firmware and RoT security module.

Connection to Lenovo XClarity Controller is primarily intended for users with a mobile device running the Lenovo XClarity Controller mobile application. When a mobile device is connected to this USB port, an Ethernet over USB connection is established between the mobile application running on the device and the Lenovo XClarity Controller.

Select **Network** in **BMC Configuration** to view or modify settings.

Four types of settings are available:

- **Host only mode**

  In this mode, the USB port is always solely connected to the server.

- **BMC only mode**

  In this mode, the USB port is always solely connected to Lenovo XClarity Controller.

- **Shared mode: owned by BMC**

In this mode, connection to the USB port is shared by the server and Lenovo XClarity Controller, while the port is switched to Lenovo XClarity Controller.

- **Shared mode: owned by host**

  In this mode, connection to the USB port is shared by the server and Lenovo XClarity Controller, while the port is switched to the server.

2 USB 3.2 Gen 1 (5 Gbps) connector

The USB 3.2 Gen 1 (5 Gbps) connector can be used to attach a USB-compatible device, such as a USB keyboard, USB mouse, or USB storage device.

3 External diagnostics handset connector

Connect the external diagnostics handset here. See "External diagnostics handset" on page 446 for more details.

4 VGA connector

Connect a monitor to this connector.

System-board-assembly layout

The illustrations in this section provide information about the connectors, switches, and jumpers that are available on the system board assembly.

The following illustration shows the layout of the system board assembly which contains the firmware and RoT security module, system I/O board, and processor board.
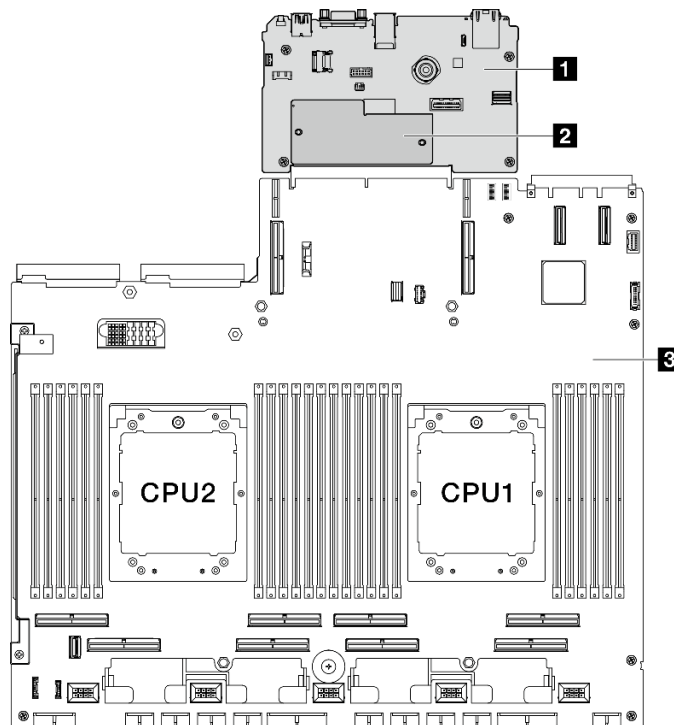

Figure 20. System-board-assembly layout

1 System I/O board	**2** Firmware and RoT security module	**3** Processor board

For more information about the LEDs that are available on the system board assembly, see "System-board-assembly LEDs" on page 442.

System-board-assembly connectors

The following illustration shows the internal connectors on the system board assembly.
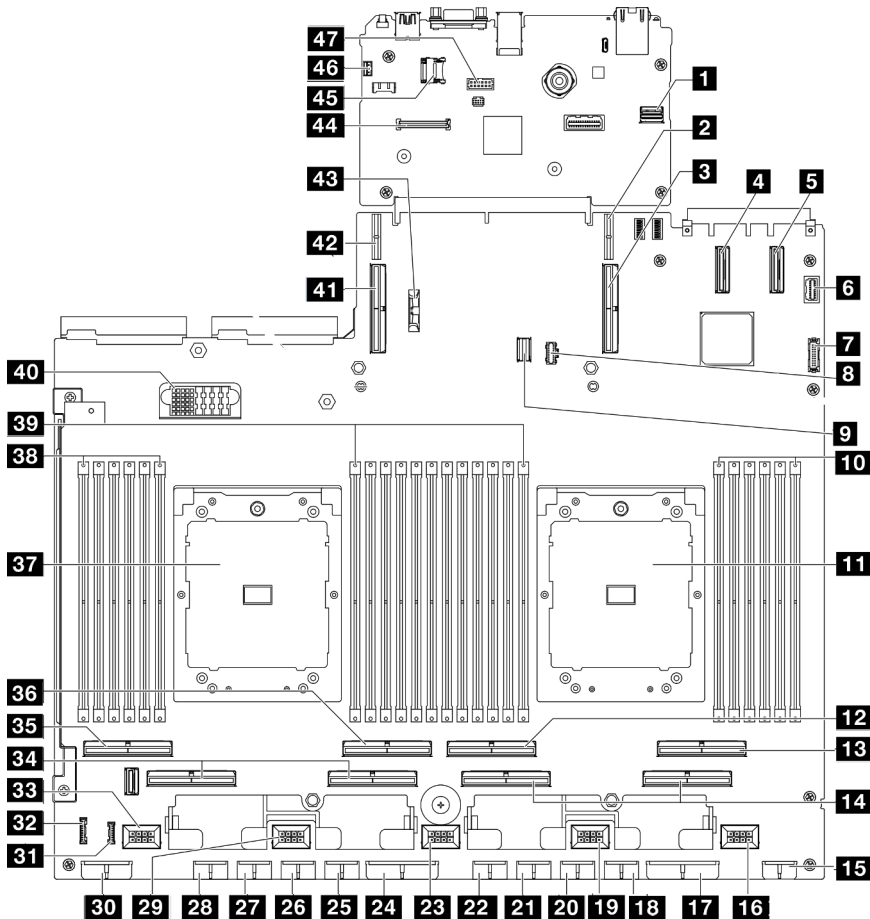
Figure 21. System-board-assembly connectors

Table 17. System-board-assembly connectors

1 Front SXM5 GPU management PCIe connector	**25** GPU 5 power connector
2 PCIe riser 1 power connector	**26** GPU 6 power connector
3 PCIe connector 9 / PCIe riser 1 connector	**27** GPU 7 power connector
4 PCIe connector 12	**28** GPU 8 power connector
5 PCIe connector 11	**29** Fan 4 connector
6 Front VGA connector	**30** Backplane power connector
7 Front USB connector	**31** LCD connector
8 M.2 power connector	**32** Front operator panel connector
9 M.2 signal connector	**33** Fan 5 connector
10 Memory module slot 1-6 (right to left)	**34** PCIe connector 5, 7 (right to left)

Table 17. System-board-assembly connectors (continued)

11	Processor 1	**35**	PCIe 8 connector
12	PCIe connector 4	**36**	PCIe 6 connector
13	PCIe connector 2	**37**	Processor 2
14	PCIe connector 1, 3 (right to left)	**38**	Memory module slot 19-24 (right to left)
15	Front riser power connector	**39**	Memory module slot 7-18 (right to left)
16	Fan 1 connector	**40**	Power distribution board connector
17	PCIe distribution board power connector	**41**	PCIe connector 10 / PCIe riser 2 connector
18	GPU 1 power connector	**42**	PCIe riser 2 power connector
19	Fan 2 connector	**43**	3V battery (CR2032)
20	GPU 2 power connector	**44**	Firmware and RoT security module connector
21	GPU 3 power connector	**45**	MicroSD socket
22	GPU 4 power connector	**46**	Intrusion switch connector
23	Fan 3 connector	**47**	Serial port connector
24	PCIe distribution board power connector		

System-board-assembly switches

The following illustration shows the location of the switches, jumpers, and buttons on the system board assembly.

Note: If there is a clear protective sticker on the top of the switch blocks, you must remove and discard it to access the switches.
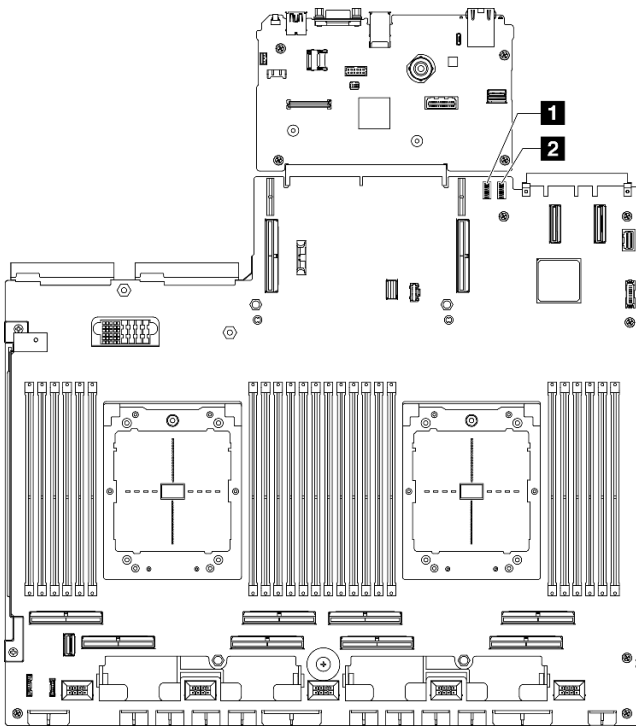
Figure 22. System-board-assembly switches

Table 18. System-board-assembly switches

1 Switch block 6 (SW6)	**2** Switch block 5 (SW5)

Important:

1. Before you change any switch settings or move any jumpers, turn off the server; then, disconnect all power cords and external cables. Review the following information:

   - https://pubs.lenovo.com/safety_documentation/
   - "Installation Guidelines" on page 59
   - "Handling static-sensitive devices" on page 61
   - "Power off the server" on page 68

2. Any system-board-assembly switch or jumper block that is not shown in the illustrations in this document are reserved.

Switch block 6 (SW6)

The following table describes the functions of the switch block 6 (SW6) on the system board assembly.

Table 19. Switch block 6 (SW6) description

Switch number	Default position	Description
1	Off	Reserved
2	Off	Reserved
3	Off	Reserved
4	Off	Reserved
5	Off	Reserved

Table 19. Switch block 6 (SW6) description (continued)

Switch number	Default position	Description
6	Off	Reserved
7	Off	Reserved
8	Off	Reserved

Switch block 5 (SW5)

The following table describes the functions of the switch block 5 (SW5) on the system board assembly.

Table 20. Switch block 5 (SW5) description

Switch number	Default position	Description
1	Off	Changing this switch to the On position forces the XCC processor into reset.
2	Off	Changing this switch to the On position forces the real time clock to reset.
3	Off	Changing this switch to the On position provides one time Power-On password bypass.
4	Off	Changing this switch to the On position forces FPGA into reset.
5	Off	Reserved
6	Off	Reserved
7	Off	Reserved
8	Off	Reserved

System LEDs and diagnostics display

See the following section for information on available system LEDs and diagnostics display.

For more information, refer to .

Chapter 3. Parts list

Use the parts list to identify each of the components that are available for your server.

The ThinkSystem SR675 V3 parts list varies by model. Refer to the parts list specific to each model to identify the components.

The 4-DW GPU Model 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.
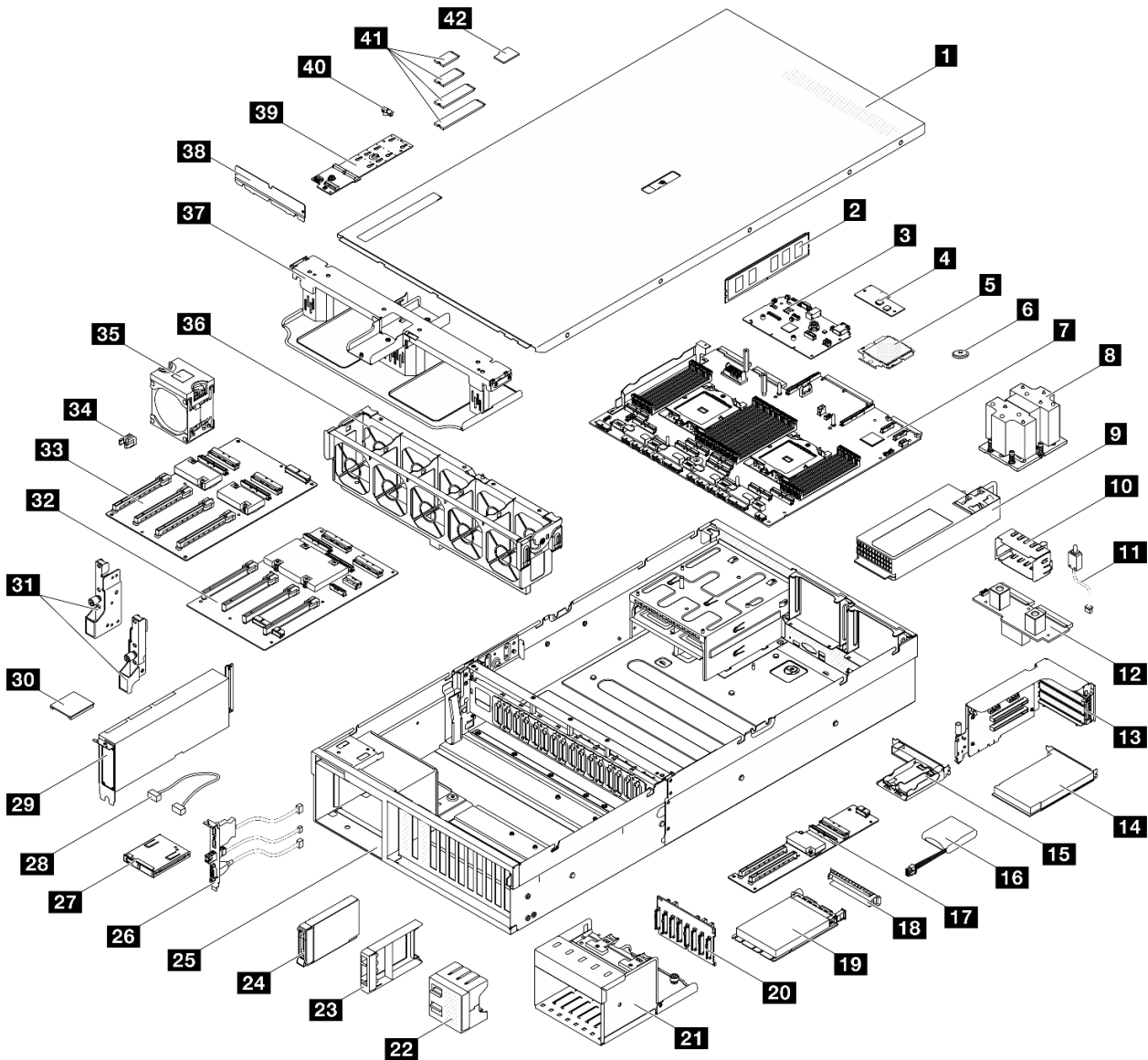
Figure 23. Server components of the 4-DW GPU Model

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.

Table 21. Parts list of the 4-DW GPU Model

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	Top cover	T1
2	Memory module	T1
3	System I/O board	F
4	Firmware and RoT security module	F
5	Processor	F
6	CMOS battery (CR2032)	C
7	Processor board	F
8	Processor heat sink	F
9	Power supply unit	T1
10	Power supply unit filler	C
11	Intrusion switch	T1
12	Power distribution board	T2
13	PCIe riser	T2
14	PCIe adapter	T1
15	Flash power module holder	C
16	Flash power module	T1
17	Front I/O expansion board	T2
18	OCP module filler	C
19	OCP module	T1
20	2.5-inch drive backplane	T1
21	2.5-inch drive cage	C
22	4x1 2.5-inch drive filler	C
23	1x1 2.5-inch drive filler	C
24	2.5-inch hot-swap drive	T1
25	Chassis	F
26	Front I/O module	T1
27	Front operator panel	T1
28	Cable	T1
29	GPU adapter	T1
30	GPU adapter link bridge	T2
31	Mounting ears	T1

Table 21. Parts list of the 4-DW GPU Model (continued)

Index	Description	Type
32	Switched GPU distribution board	F
33	Direct GPU distribution board	F
34	PCIe slot reinforcement	F
35	Fan	T1
36	Fan cage	T1
37	Air baffle	T1
38	Thermal air flow rear baffle	C
39	M.2 drive backplane	T1
40	M.2 drive retainer	C
41	M.2 drive	T1
42	MicroSD card	T1

The 8-DW GPU Model 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.

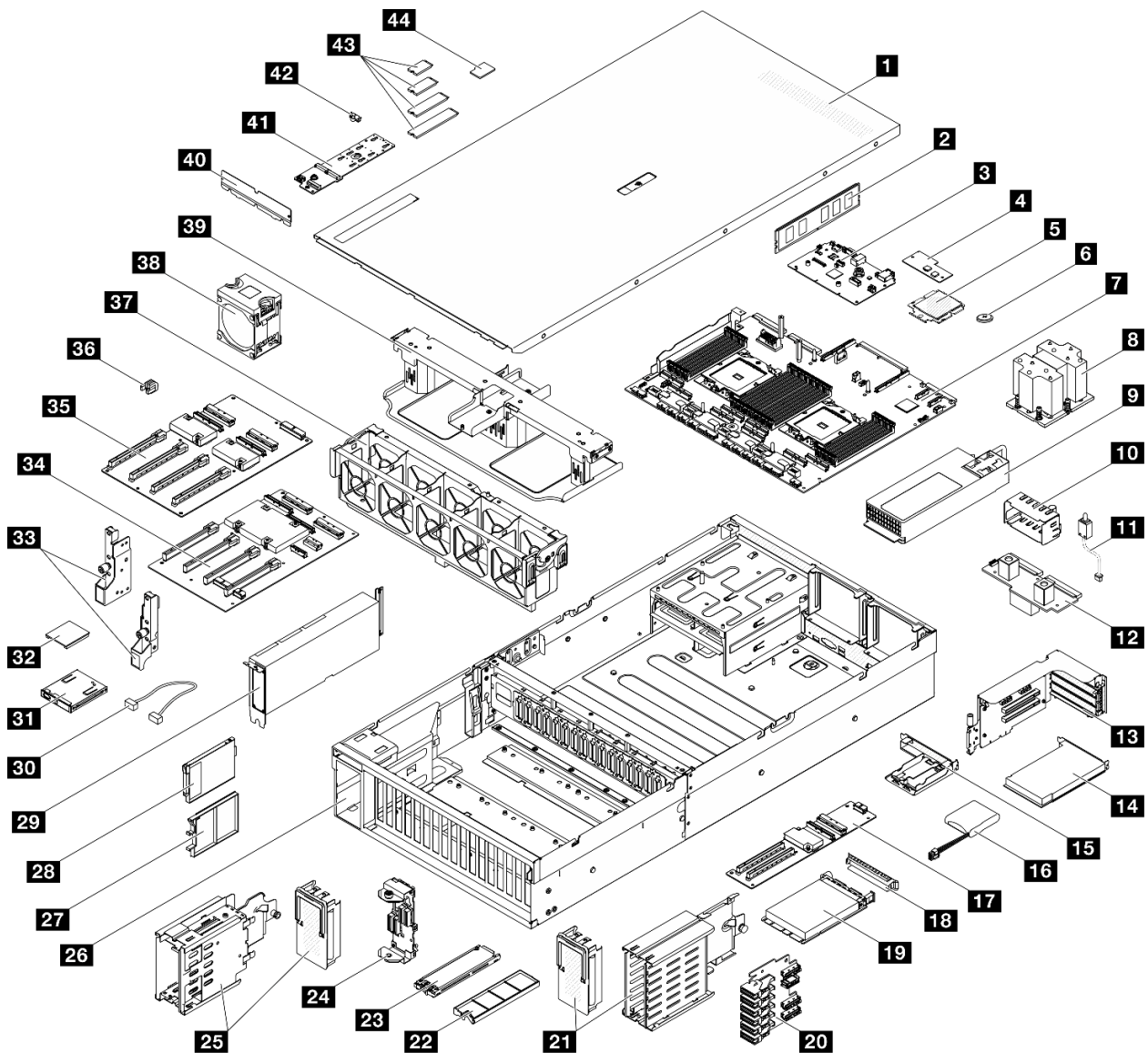**Note:** Depending on the model, your server might look slightly different from the illustration.

Figure 24. Server components of the 8-DW GPU Model

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.

Table 22. Parts list of the 8-DW GPU Model

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	Top cover	T1
2	Memory module	T1
3	System I/O board	F
4	Firmware and RoT security module	F
5	Processor	F
6	CMOS battery (CR2032)	C
7	Processor board	F
8	Processor heat sink	F
9	Power supply unit	T1
10	Power supply unit filler	C
11	Intrusion switch	T1
12	Power distribution board	T2
13	PCIe riser	T2
14	PCIe adapter	T1
15	Flash power module holder	C
16	Flash power module	T1
17	Front I/O expansion board	T2
18	OCP module filler	C
19	OCP module	T1
20	E1.S drive backplane	T1
21	E1.S drive cage (with cage cover)	T1
22	E1.S drive filler	C
23	E1.S hot-swap drive	T1
24	E3.S drive backplane module	T1
25	E3.S drive cage (with cage cover)	T1
26	Chassis	F
27	E3.S drive filler	C
28	E3.S hot-swap drive	T1
29	GPU adapter	T1
30	Cable	T1
31	Front operator panel	T1

Table 22. Parts list of the 8-DW GPU Model (continued)

Index	Description	Type
32	GPU adapter link bridge	T2
33	Mounting ears	T1
34	Switched GPU distribution board	F
35	Direct GPU distribution board	F
36	PCIe slot reinforcement	F
37	Fan cage	T1
38	Fan	T1
39	Air baffle	T1
40	Thermal air flow rear baffle	C
41	M.2 drive backplane	T1
42	M.2 drive retainer	C
43	M.2 drive	T1
44	MicroSD card	T1

The SXM5 GPU Model 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.
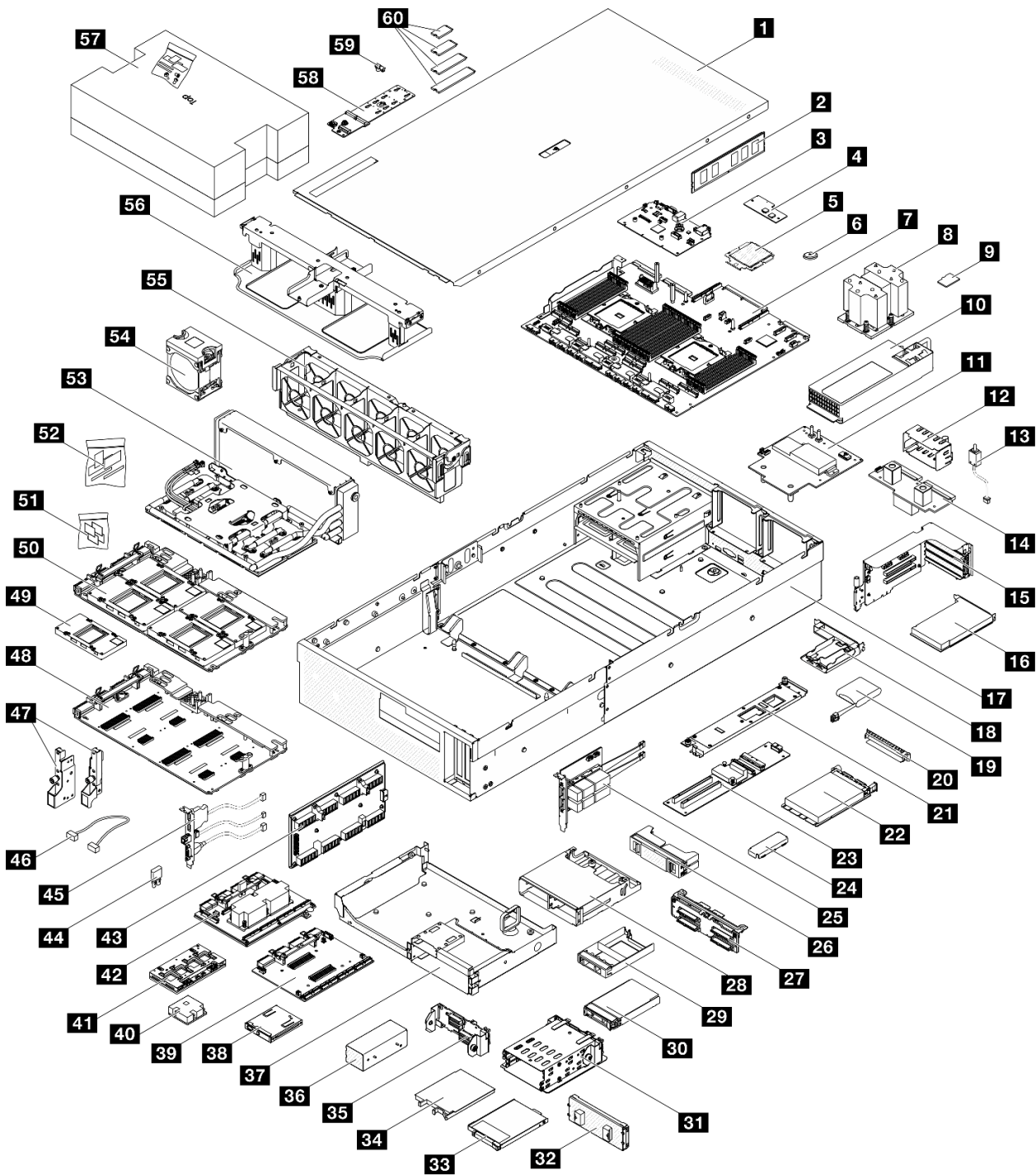
Figure 25. Server components of the SXM5 GPU Model

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.

Table 23. Parts list of the SXM5 GPU Model

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	Top cover	T1
2	Memory module	T1
3	System I/O board	F
4	Firmware and RoT security module	F
5	Processor	F
6	CMOS battery (CR2032)	C
7	Processor board	F
8	Processor heat sink	F
9	MicroSD card	T1
10	Power supply unit	T1
11	SXM5 GPU power distribution board	F
12	Power supply unit filler	C
13	Intrusion switch	T1
14	Power distribution board	T2
15	PCIe riser	T2
16	PCIe adapter	T1
17	Chassis	F
18	Flash power module holder	C
19	Flash power module	T1
20	OCP module filler	C
21	Front I/O expansion board carrier	T1
22	OCP module	T1
23	Front I/O expansion board	T2
24	SXM5 GPU board assembly retention bracket	T1
25	OSFP port card	T2
26	2x2 2.5-inch drive filler	C
27	2.5-inch drive backplane module	T1
28	2.5-inch drive cage	T1
29	1x1 2.5-inch drive filler	C

Table 23. Parts list of the SXM5 GPU Model (continued)

Index	Description	Type
30	2.5-inch hot-swap drive	T1
31	E3.S drive cage	T1
32	E3.S drive cage cover	T1
33	E3.S drive filler	C
34	E3.S hot-swap drive	T1
35	E3.S drive backplane module	T1
36	E3.S drive cage filler	C
37	Front drive tray	T1
38	Front operator panel	T1
39	CX-7 carrier board	F
40	CX-7 heat sink	F
41	CX-7 mezz board	F
42	SXM5 PCIe switch board	F
43	Interposer card	F
44	Rubber pad	F
45	Front I/O module	T1
46	Cable	T1
47	Mounting ears	T1
48	SXM5 GPU board	F
49	SXM5 GPU	F
50	SXM5 GPU board assembly	F
51	SXM5 PCM Kit	F
52	Putty pad kit	F
53	Lenovo Neptune™ liquid-to-air (L2A) hybrid cooling module	F
54	Fan	T1
55	Fan cage	T1
56	Air baffle	T1
57	SR675 V3 water loop service kit	F
58	M.2 drive backplane	T1
59	M.2 drive retainer	C
60	M.2 drive	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:

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 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:

- Server

- Rail installation kit*. 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.

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.
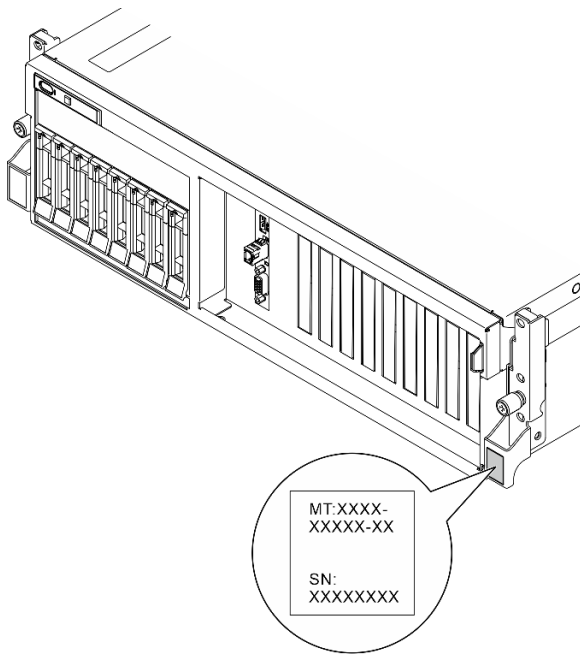
Figure 26. Location of the ID label

Lenovo XClarity Controller network access label

In addition, the Lenovo XClarity Controller network access label is attached to the pull-out information tab located near the upper right corner in the front of the chassis, with MAC address accessible with a pull.
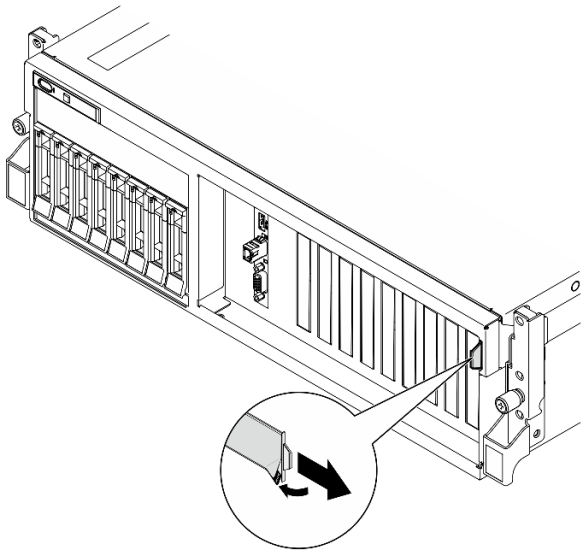
Figure 27. Lenovo XClarity Controller network access label on the pull-out information tab

Service Label and QR code

In addition, the system Service Label is located on the inside surface of the top cover, provides a quick response (QR) code for mobile access to service information. 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.
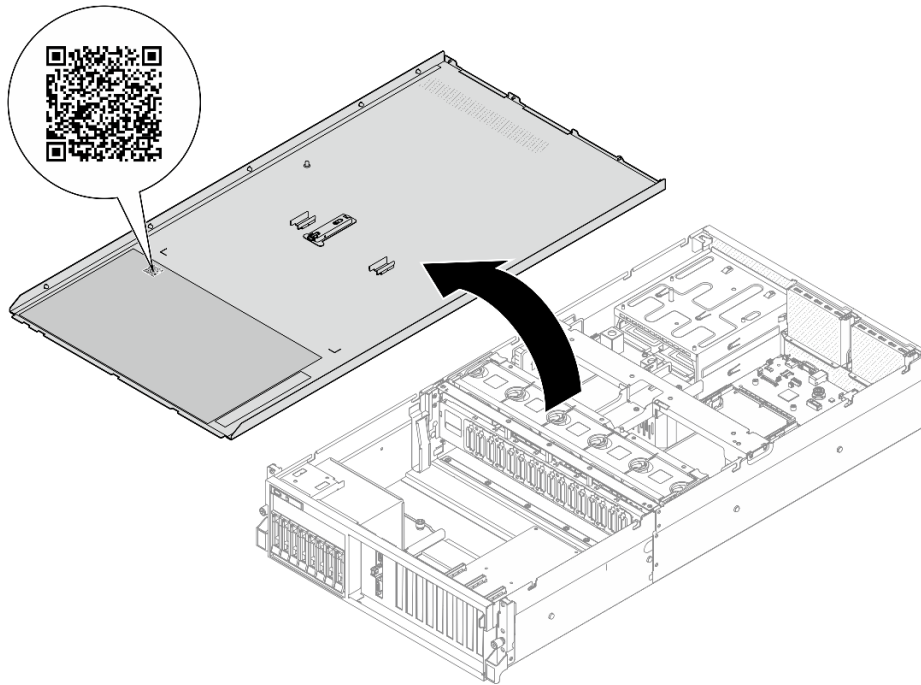
Figure 28. Service Label and QR code

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 55.

2. Install any required hardware or server options. See the related topics in Chapter 5 "Hardware replacement procedures" on page 59.

3. If necessary, install the rail to a standard rack cabinet. Follow the instruction in *Rail Installation Guide* that comes with the rail installation kit.

4. If necessary, install the server into a standard rack cabinet. See "Install the server to rack" on page 71.

5. Connect all external cables to the server. See Chapter 2 "Server components" on page 15 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. Power on the server.

   Power button location and power LED are specified in:

   - Chapter 2 "Server components" on page 15
   - "Troubleshooting by system LEDs and diagnostics display" on page 437

   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/.

7. 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 "System LEDs and diagnostics display" on page 41 for more information on the LED indications.

Configure the system

Complete the following procedures to configure the system. For detailed instructions, refer to Chapter 7 "System configuration" on page 425.

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.

   The following information is available for RAID configuration:

   - https://lenovopress.lenovo.com/lp0578-lenovo-raid-introduction
   - https://lenovopress.lenovo.com/lp0579-lenovo-raid-management-tools-and-resources

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.

Chapter 5. 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: "Handling static-sensitive devices" on page 61.
- 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/thinksystem/sr675v3/7d9q/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. For more information about updating firmware, see "Update the firmware" on page 427.
- 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.

- Orange on a component or a orange 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.

Note: The set-up of the server is made in the server room only.

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.

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 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 might damage the processor.

- All processor sockets must contain either a socket cover or a processor with heat sink.

- When more than one processor is installed, fan population rules for each server must be strictly followed.

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.

Memory module installation rules and order

Memory modules must be installed in a specific order based on the memory configuration that you implement and the number of processors and memory modules installed in the server.

Supported memory types

For information on the types of memory module supported by this server, see "Memory" section in "Technical specifications" on page 4.

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

Specific information about the required installation order of memory modules in your server based on the system configuration and memory mode that you are implementing is shown below.

Memory modules and processors layout
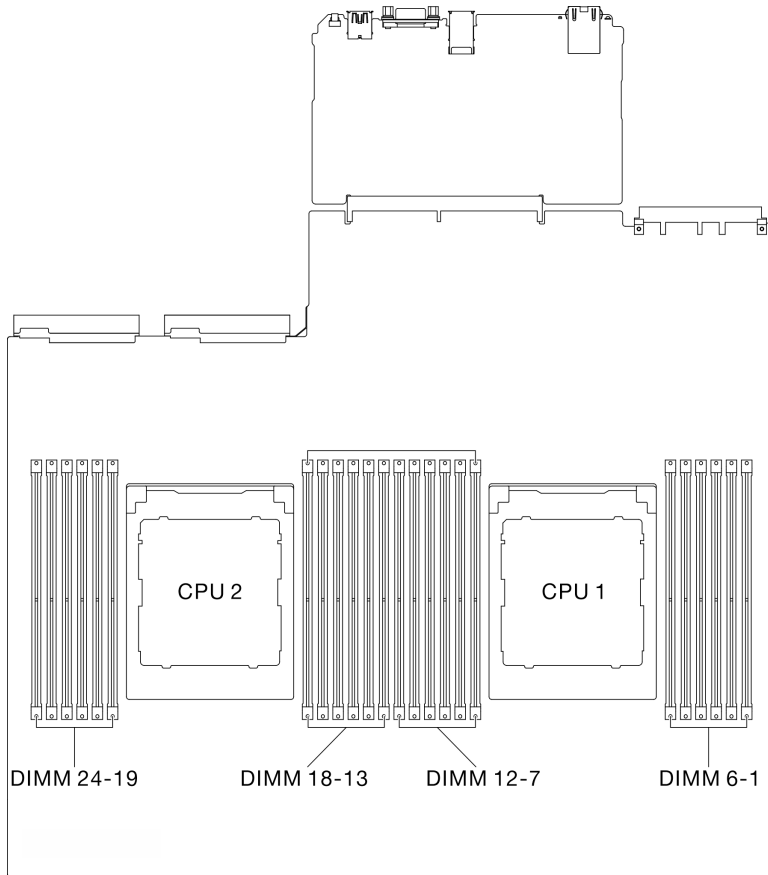
Figure 29. Memory modules and processors layout

The memory-channel configuration table below shows the relationship between the processors, memory controllers, memory channels, and memory module slot numbers.

Table 24. Memory slot and channel identification

Process-or	Processor 2												Processor 1											
Channel number	L	K	J	I	H	G	A	B	C	D	E	F	L	K	J	I	H	G	A	B	C	D	E	F
DIMM slot number	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Memory module installation guideline

The ThinkSystem SR675 V3 supports .

Independent memory mode installation order

In independent memory mode, memory channels can be populated with DIMMs in any order and you can populate all channels for each processor in any order with no matching requirements. Independent memory mode provides the highest level of memory performance, but lacks failover protection. The DIMM installation order for independent memory mode varies based on the number of processors and memory modules installed in the server.

Independent memory mode guidelines:

- Populate identical memory capacity and rank per memory channel and processor.
- Mixing x4/x8, EC4/EC8, 3DS/Non-3DS RDIMM, 4Rank 3DS/8Rank 3DS RDIMM are not allowed in a system.
- Dual Socket (2P) socket interleaving (NPS0, dual socket system as one NUMA node) can be supported only if:
    1. There is an equal number of populated memory channels per socket and equal number of channels populated in each side of both sockets.
    2. All populated memory channels across both sockets are populated with symmetric memory capacity.
    3. One of the following configurations is used:
        - 12 memory channels populated per socket, 12 channels total.
        - 8 memory channels populated per socket, 16 channels total (Channels ABCEGHIK).
        - 4 memory channels populated per socket, 8 channels total (Channels ACGI).

Notes: The following notes describe the quantity and capacity of memory modules that must be followed in the SXM5 GPU Model.

- For one-processor configuration, select one of the following:
    - Ten or twelve 64 GB DIMMs
    - Eight, ten, or twelve 96 GB DIMMs
    - Eight, ten, or twelve 128 GB DIMMs
- For two-processor configuration, select one of the following:
    - Sixteen, twenty, or twenty-four 32 GB DIMMs
    - Sixteen, twenty, or twenty-four 64 GB DIMMs
    - Sixteen, twenty, or twenty-four 96 GB DIMMs
    - Sixteen, twenty, or twenty-four 128 GB DIMMs

With one processor

The following table shows the DIMM population sequence for independent memory mode when one processor is installed.

Table 25. Independent mode memory population sequence for one processor

Total DIM-Ms	Processor 1											
	12	11	10	9	8	7	6	5	4	3	2	1
1							6					
2						7	6					
4				9		7	6		4			
6				9	8	7	6	5	4			
8		11		9	8	7	6	5	4		2	
10		11	10	9	8	7	6	5	4	3	2	
12	12	11	10	9	8	7	6	5	4	3	2	1

With two processors

The following tables show the DIMM population sequence for independent memory mode when two processors are installed.

Table 26. Independent mode memory population sequence for two processors

Total DIMMs	Processor 1											
	12	11	10	9	8	7	6	5	4	3	2	1
2							6					
4						7	6					
8				9		7	6		4			
12				9	8	7	6	5	4			
16		11		9	8	7	6	5	4		2	
20		11	10	9	8	7	6	5	4	3	2	
24	12	11	10	9	8	7	6	5	4	3	2	1
Total DIMMs	Processor 2											
	24	23	22	21	20	19	18	17	16	15	14	13
2							18					
4						19	18					
8				21		19	18		16			
12				21	20	19	18	17	16			
16		23		21	20	19	18	17	16		14	
20		23	22	21	20	19	18	17	16	15	14	
24	24	23	22	21	20	19	18	17	16	15	14	13

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:

- Chapter 2 "Server components" on page 15
- "Troubleshooting by system LEDs and diagnostics display" on page 437

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 68.

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:

- Chapter 2 "Server components" on page 15
- "Troubleshooting by system LEDs and diagnostics display" on page 437

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 67.

Server replacement

Follow instructions in this section to remove and install the server.

Remove the server from rack

Follow instructions in this section to remove the server from the rack.

S036

18 - 32 kg (39 - 70 lb)   32 - 55 kg (70 - 121 lb)

CAUTION:
Use safe practices when lifting.

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.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

CAUTION:
Make sure to have three people operate the server removal procedures to prevent injury.

Procedure

Step 1.   Loosen the two thumbscrews located on the front of the server to disengage it from the rack.

Rack front
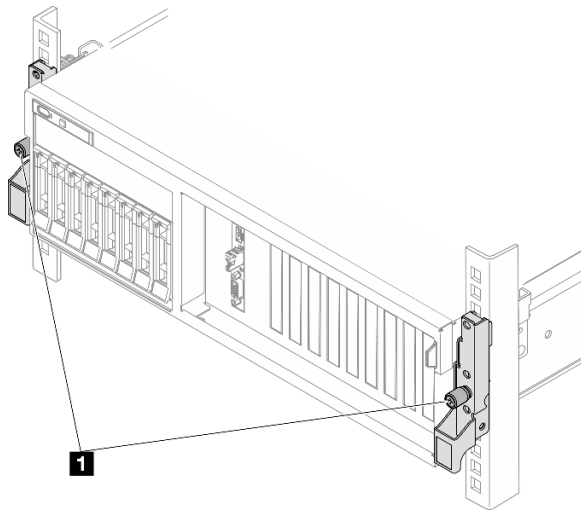
Figure 30. Disengaging server from the rack

1	Thumbscrew

Step 2.   Hold the mounting ears on the front of the server; then, slide the server all the way out until it stops.
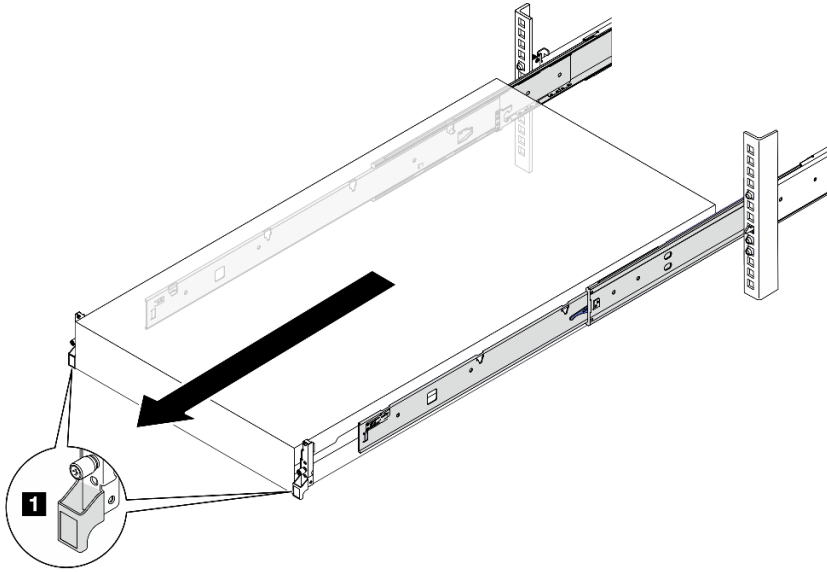
Figure 31. Pulling out the server

| **1** | Mounting ear |

Step 3. Remove the server from the rack.

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

Rack front
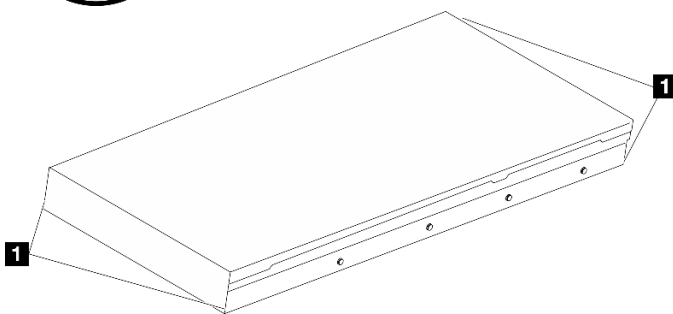
Figure 32. Lifting up the server

| **1** | Lift point |

a. ❶ Press the release tabs to disengage the rails from the server.

b. ❷ Carefully lift up the front end of the server slightly to detach the nailheads from the slots on the rails.

c. ❸ With three people, lift up the serve to remove it from the rails completely. Place the server on a flat and sturdy surface.

Rack Front
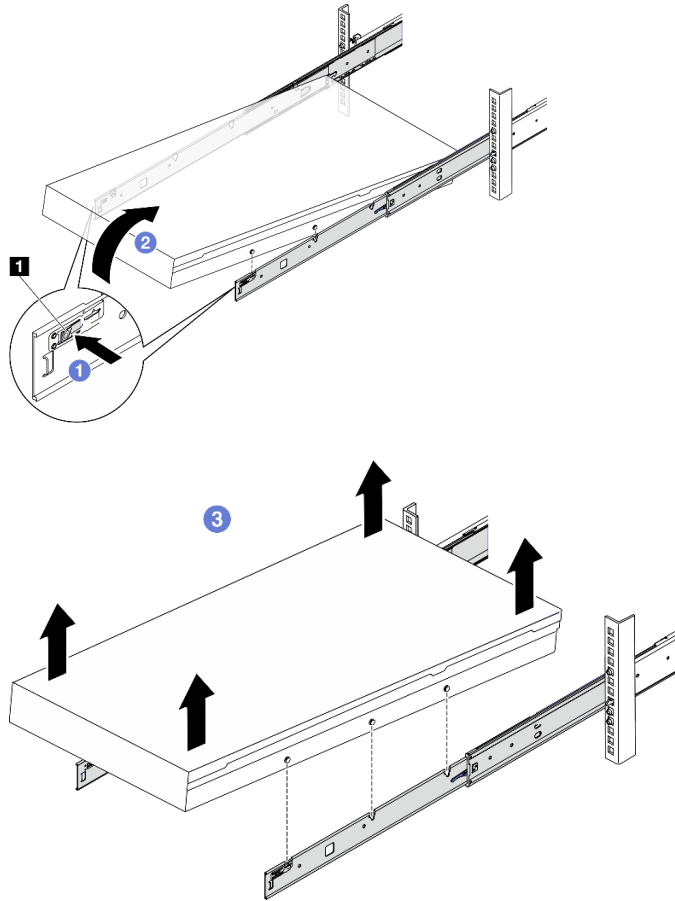
Figure 33. Removing the server from the rack

1	Release tab

After you finish

Carefully lay the server on a flat, static-protective surface.

Install the server to rack

Follow instructions in this section to install the server to the rack.

S036

18 - 32 kg (39 - 70 lb)

32 - 55 kg (70 - 121 lb)

CAUTION:
Use safe practices when lifting.

<u>R006</u>

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.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

CAUTION:
Make sure to have three people operate the server installation procedures to prevent injury.

Procedure

Step 1. From the front of the rack, pull the rails all the way out until they stop

> **Attention:** You can only install the server successfully when the rails are fully extended.
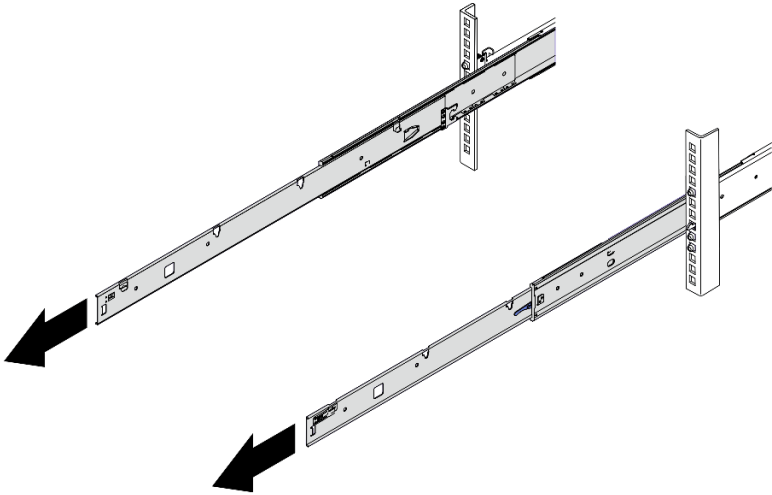
Rack front

Figure 34. Pulling out the rails

Step 2. Carefully lift up the server with three people.

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

Rack front
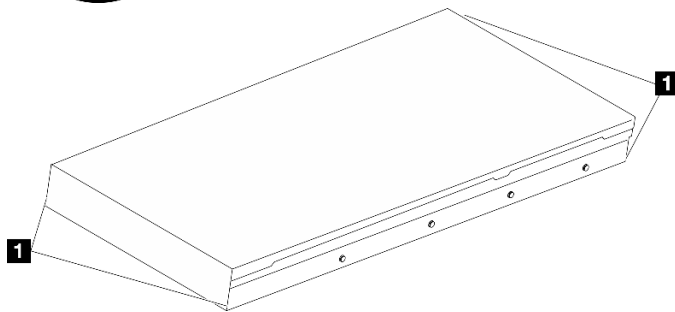
Figure 35. Lifting up the server

1	Lift point

Step 3. From the front of the rack, install server into the rails.

    a. ❶ Tilt the server and slowly lower the rear end; then, push the rails toward the server and make sure the farthest nailheads on server's left and right side go into the slots on the rail.

    b. ❷ Slowly lower the server down and make sure the other 3 nailheads on server's left and right side slip into corresponding slots.

    Note: Inspect the sides of the rails to make sure the nailheads are placed in the slots.

    Attention: You can only install the server successfully when the rails are fully extended.

Rack front
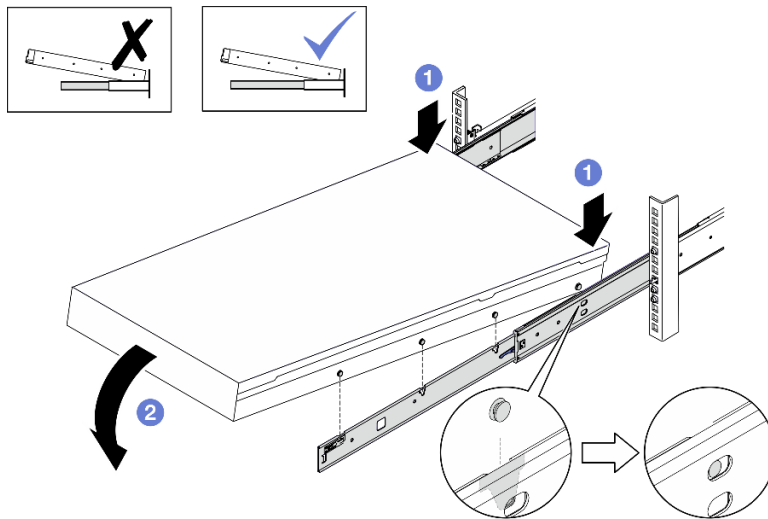
Figure 36. Installing the server into the rails

Step 4. Slide the server into rack.

    a. ❶ Push up the latches on the rails.

    b. ❷ Push the server all the way into the rack.
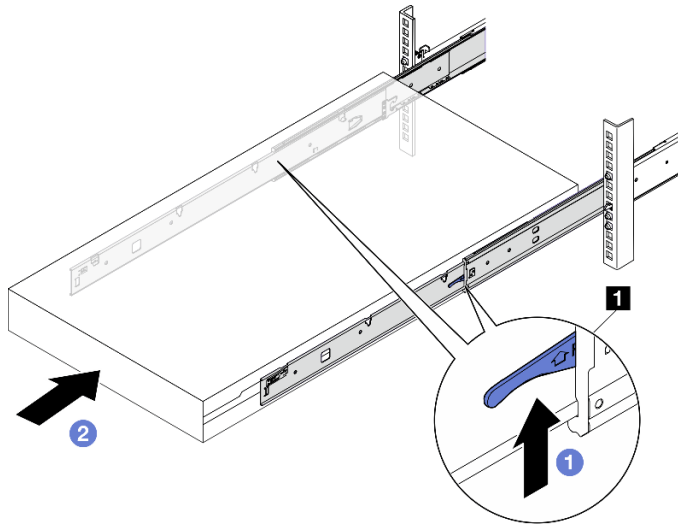
Figure 37. Installing the server into the rack

1	Latch

Step 5.   (Optional) Secure the server to the rack.

a.   Secure the server to the rear of the rack. Select the first rail you want to secure. Insert a washer and M5 screw; then, fasten the M5 screw. Repeat to secure the other rail.

Rack rear
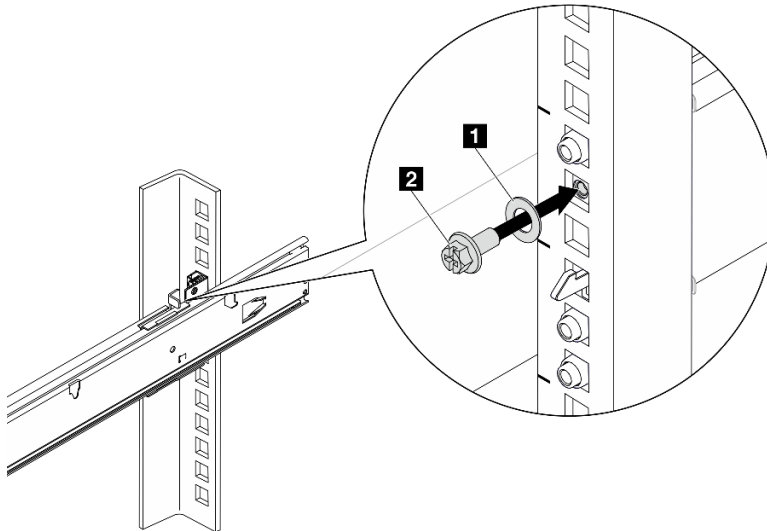
Figure 38. Securing the server to the rear of the rack

1	Washer
2	M5 screw

b.   Secure the server to the front of the rack. Fasten the two thumbscrews located on the front of the server.

Rack front
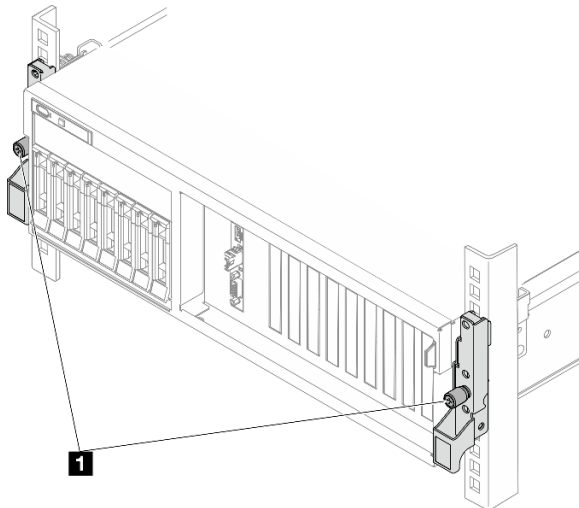
Figure 39. Securing the server to the front of the rack

1	Thumbscrew

After you finish

1. Reconnect the power cords and any cables that you removed.

2. Power on the server and any peripheral devices. See "Power on the server" on page 67.

3. Update the server configuration. See "Complete the parts replacement" on page 341.

Remove the rails from the rack

Follow instructions in this section to remove the rails from the rack.

Step 1.   Remove the rails from the rack.

Rack Front

1 Latch

1 Pull the latch towards the flange holes.

2 Slide the rail backward to disengage pins from the flange holes.

Rack Rear

1 Latch

1 Pull the latch towards the flange holes.

2 Slide the rail backward to disengage pins from the flange holes.
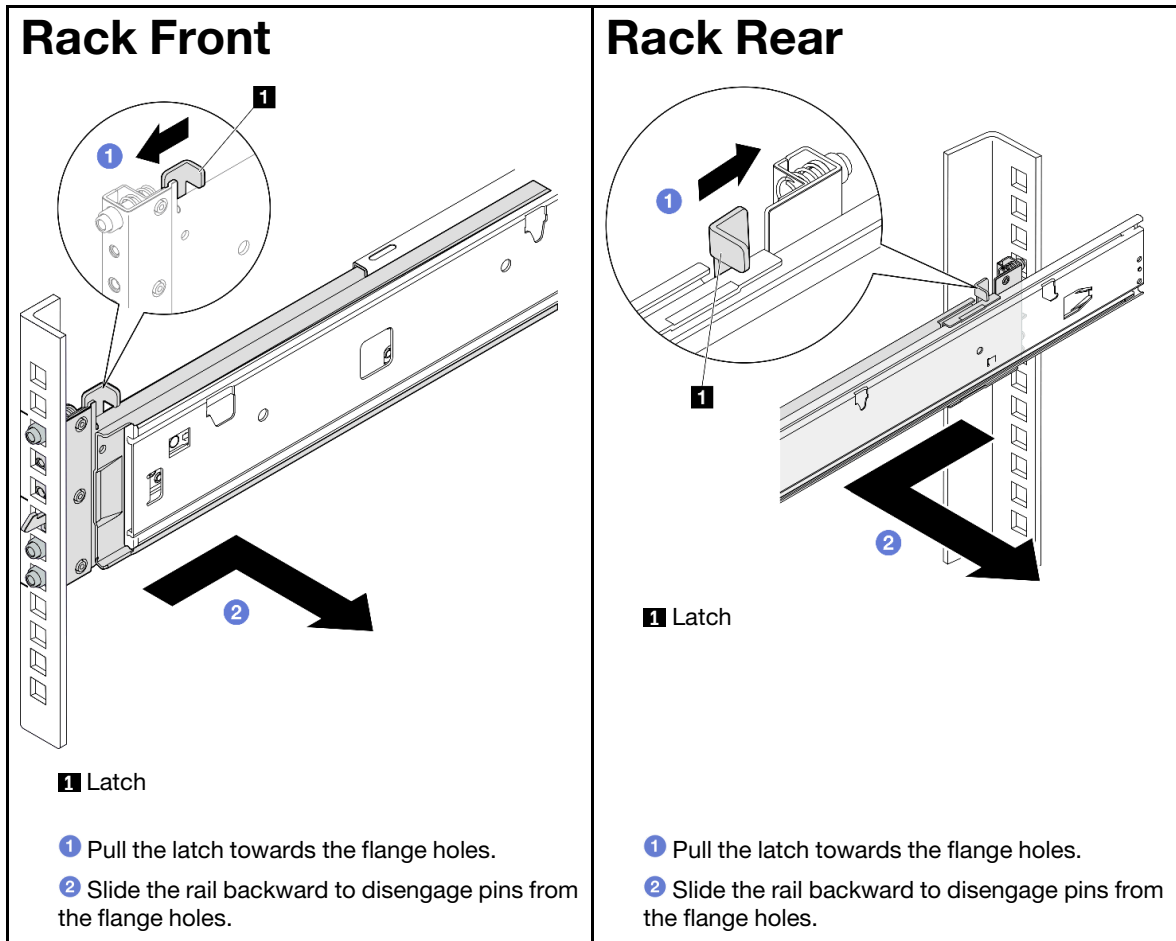
Common components

Follow instructions in this section to remove and install common components in chassis.

Notes:

- The illustrations in this document are for reference only and might differ slightly from your hardware.

- The replacement procedures in this section uses the 4-DW GPU Model as an example, the replacement procedures for the 8-DW GPU Model and SXM5 GPU Model are similar.

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 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.
- If you intend to install memory modules in the server, you must first remove the air baffle from the server.

Procedure

Step 1. Remove the top cover. See "Remove the top cover" on page 179.

Step 2. If applicable, depending on the configuration, disconnect the M.2 backplane cables from the system board assembly or the RAID adapter.

Step 3. Grasp the air baffle and carefully lift it out of the chassis.

> **Attention:** For proper cooling and airflow, reinstall the air baffle before you turn on the server. Operating the server with the air baffle removed might damage server components.
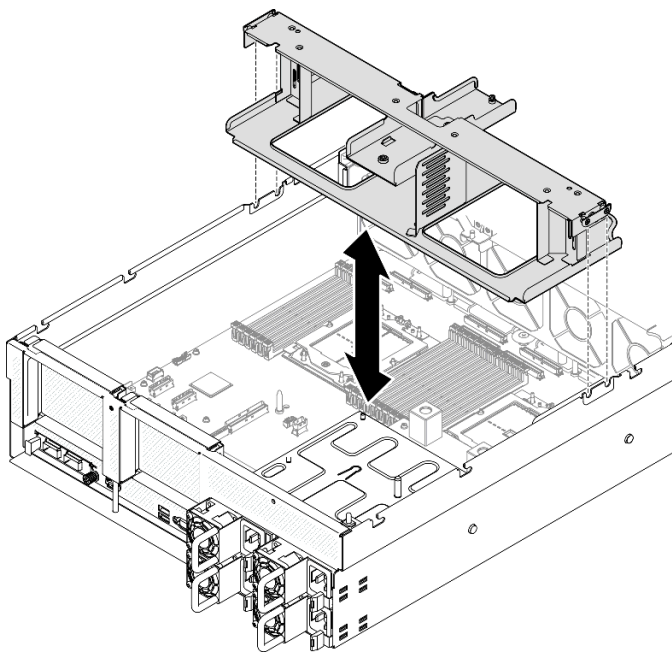
Figure 40. Air baffle removal

After you finish

1. 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.

2. Remove the M.2 backplane from the air baffle. See "Remove the M.2 backplane" on page 109.

Demo video

Watch the procedure on YouTube

Install the air baffle

Follow instructions in this section to install the air baffle.

About this task

Attention: Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

Procedure

Note: Close the retaining clip on each end of the memory module connector before installing the air baffle for proper cooling.

Step 1. Align the air baffle tabs with the air baffle slots on both sides of the chassis; then, lower the air baffle into the server until it is securely seated.
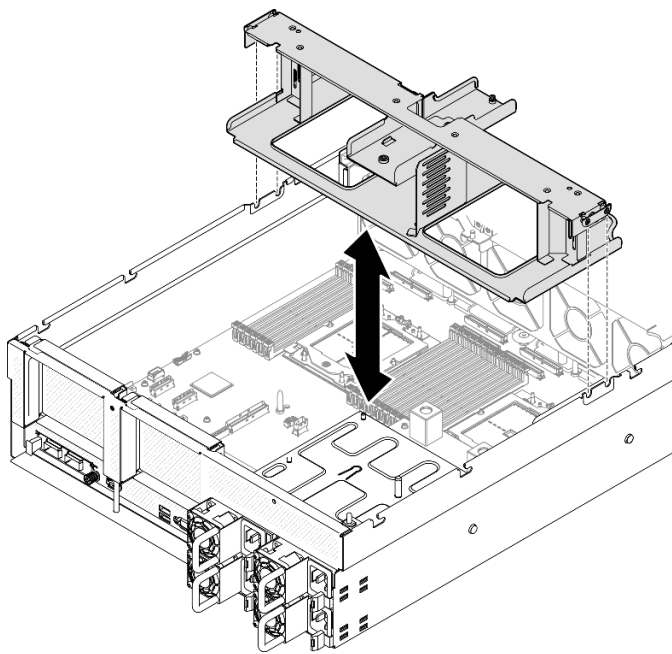
Figure 41. Air baffle installation

Step 2. Slightly press the air baffle down until it is securely seated.

After you finish

1. If applicable, depending on the configuration, reconnect the M.2 backplane cables to the system board assembly or the RAID adapter. See "M.2 backplane cable routing" on page 363 for more information.

2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

CMOS battery (CR2032) replacement

Follow instructions in this section to remove and install the CMOS battery (CR2032).

Remove the CMOS battery (CR2032)

Follow instructions in this section to remove the CMOS battery (CR2032).

- Lenovo has designed this product with your safety in mind. The lithium battery must be handled correctly to avoid possible danger. If you replace the battery, you must adhere to the following instructions.

- If you replace the original lithium battery with a heavy-metal battery or a battery with heavy-metal components, be aware of the following environmental consideration. Batteries and accumulators that contain heavy metals must not be disposed of with normal domestic waste. They will be taken back free of charge by the manufacturer, distributor, or representative, to be recycled or disposed of in a proper manner.

- After you replace the battery, you must reconfigure the server and reset the system date and time.

S004

CAUTION:
When replacing the lithium battery, use only Lenovo specified part number or an equivalent type of battery recommended by the manufacturer. If your system has a module containing a lithium battery, replace it only with the same module type made by the same manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of.

Do not:

- **Throw or immerse into water**

- **Heat to more than 100°C (212°F)**

- **Repair or disassemble**

Dispose of the battery as required by local ordinances or regulations.

S005

CAUTION:
The battery is a lithium ion battery. To avoid possible explosion, do not burn the battery. Exchange it only with the approved part. Recycle or discard the battery as instructed by local regulations.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Remove the PCIe riser 2 if necessary. See "Remove a PCIe riser" on page 132.

Step 2. Locate the battery socket on the system board assembly.

Step 3. Pivot the CMOS battery away from the power supply bays, and lift the CMOS battery out of the battery socket.
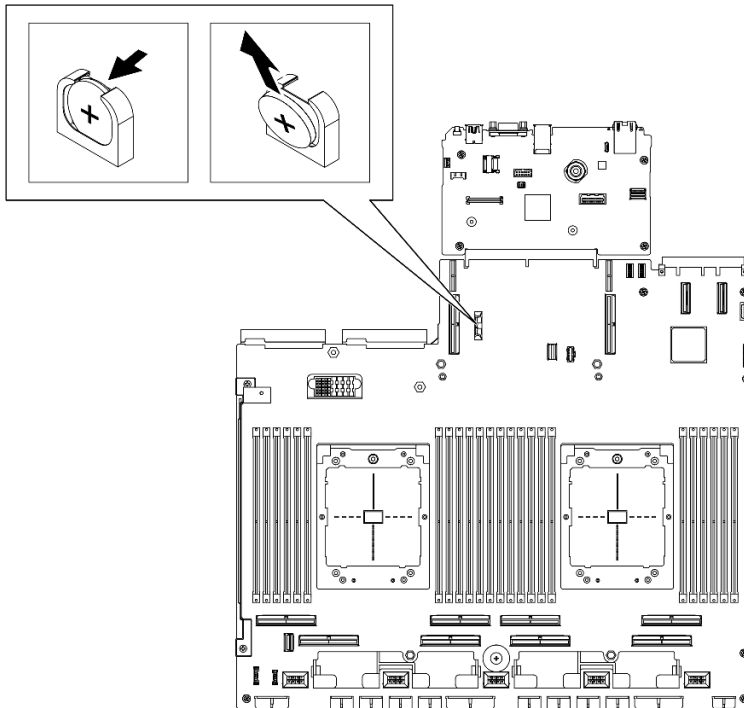
Figure 42. CMOS battery removal

After you finish

Dispose the component with compliance to local regulations.

Demo video

Watch the procedure on YouTube

Install the CMOS battery (CR2032)

Follow instructions in this section to install the CMOS battery (CR2032).

S005

CAUTION:
The battery is a lithium ion battery. To avoid possible explosion, do not burn the battery. Exchange it only with the approved part. Recycle or discard the battery as instructed by local regulations.

About this task

Attention: Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

Important: The following notes describe information that you must consider when you are replacing the CMOS battery in the server:

- You must replace the CMOS battery with a lithium CMOS battery of the same type from the same manufacturer.
- After you replace the CMOS battery, you must reconfigure the server and reset the system date and time.

Procedure

Step 1. Follow any special handling and installation instructions that come with the CMOS battery.

   Attention: Touching the CMOS battery on a metal surface, such as the side of the server, when you replace the CMOS battery can cause it to fail.

Step 2. Locate the battery socket on the system board assembly.

Step 3. Orient the CMOS battery so that the positive (+) side faces toward the center of the server.

Step 4. Tilt the CMOS battery at an angle and insert it into the battery socket.
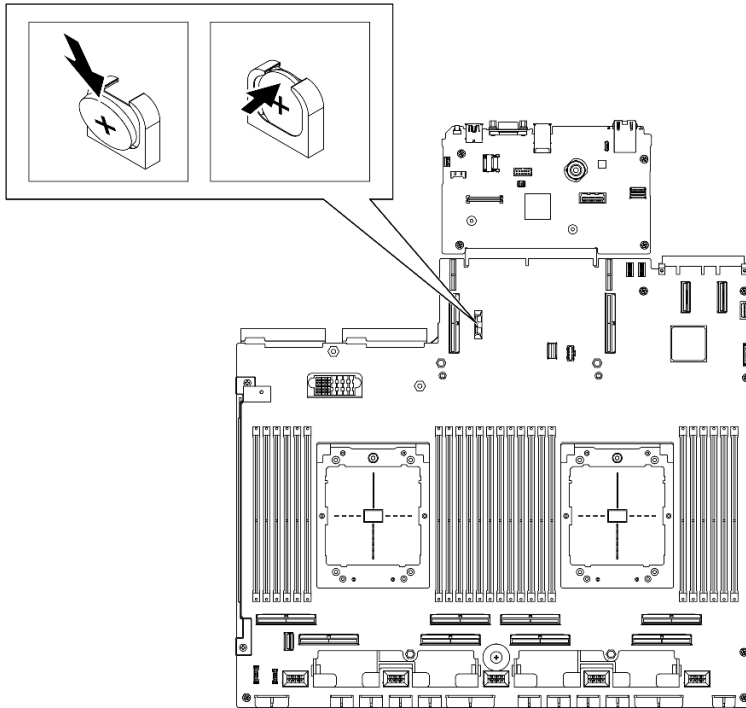
Figure 43. CMOS battery installation

After you finish

1. Reinstall the PCIe riser 2 if necessary. See "Install a PCIe riser" on page 136.

2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

3. Reconfigure the server and reset the system date and time.

Demo video

Watch the procedure on YouTube

External diagnostics handset replacement

Follow instructions in this section to remove or install the external diagnostics handset.

Remove the external diagnostics handset

Follow instructions in this section to remove the external diagnostics handset.

About this task

To avoid possible danger, read and follow the following safety statement.

- **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.

- **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 59 and "Safety inspection checklist" on page 60 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 68.

Procedure

Step 1.   ❶ Press the plastic clip on the plug forward.

Step 2.   ❷ Pull to disconnect the cable from the server.

> **Note:** Depending on your configuration, the server and the location of the connector might look different from those shown in the illustrations.

Figure 44. Disconnecting the external diagnostics handset cable
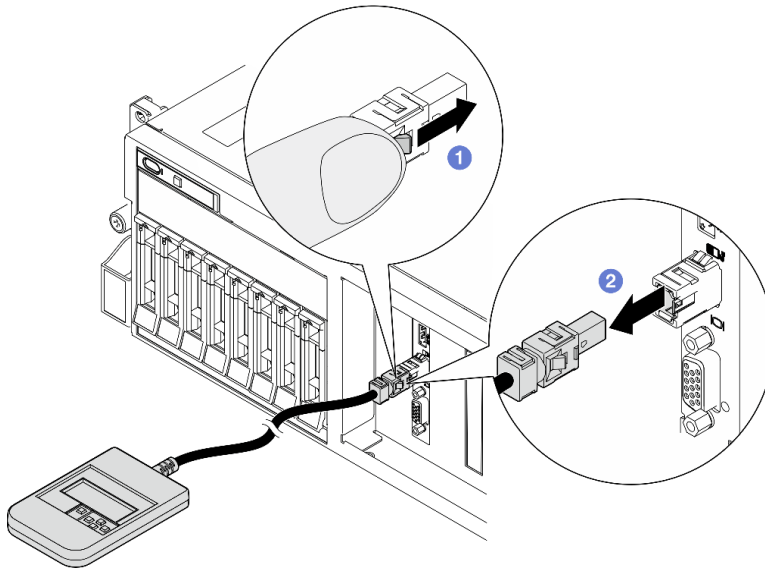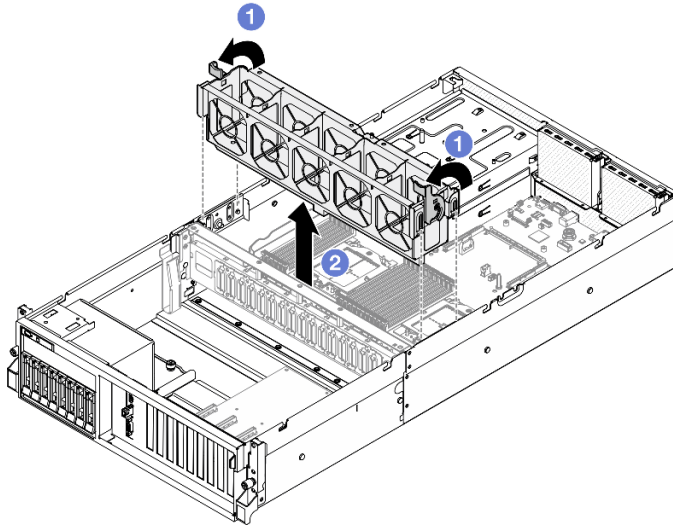
After you finish

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.

Demo video

[Watch the procedure on YouTube](#)

Install the external diagnostics handset

Follow instructions in this section to install the external diagnostics handset.

About this task

To avoid possible danger, read and follow the following safety statement.

- **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.

- **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 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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 connector on the cable with that on the server and push it in.

> **Note:** Depending on your configuration, the server and the location of the connector might look different from those shown in the illustrations.
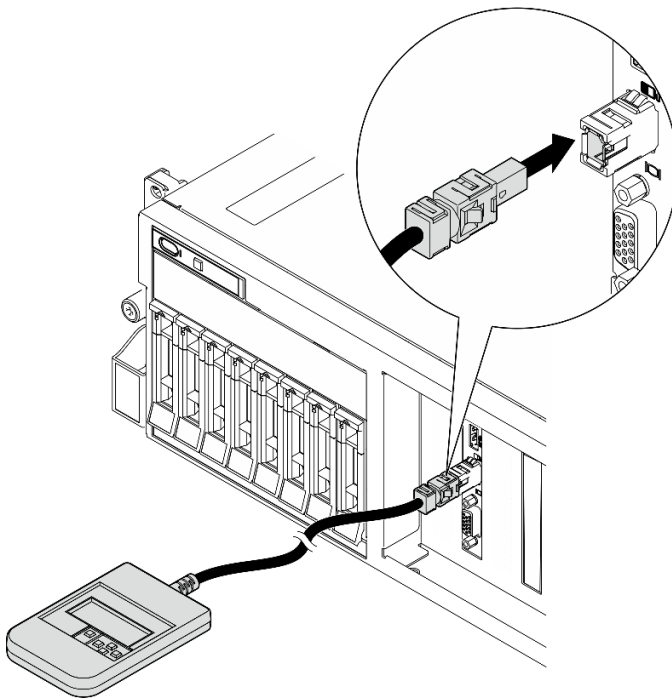
Figure 45. Connecting the external diagnostics handset cable

Step 2. Attach the external diagnostics handset to a metal surface with the magnetic bottom.
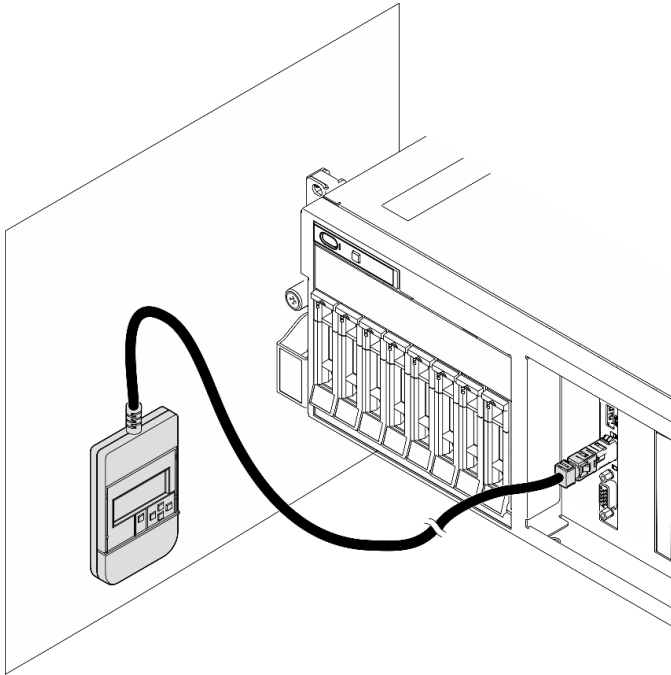
Figure 46. Attaching the external diagnostics handset to a metal surface

After you finish

Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Fan replacement

Follow instructions in this section to remove or install a fan.

Remove a fan

Follow instructions in this section to remove a fan.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Procedure

Step 1.　Remove the top cover. See "Remove the top cover" on page 179.

Step 2.　Remove the fan.

a.   ❶ Pinch and hold the blue touch points on the top of the fan.
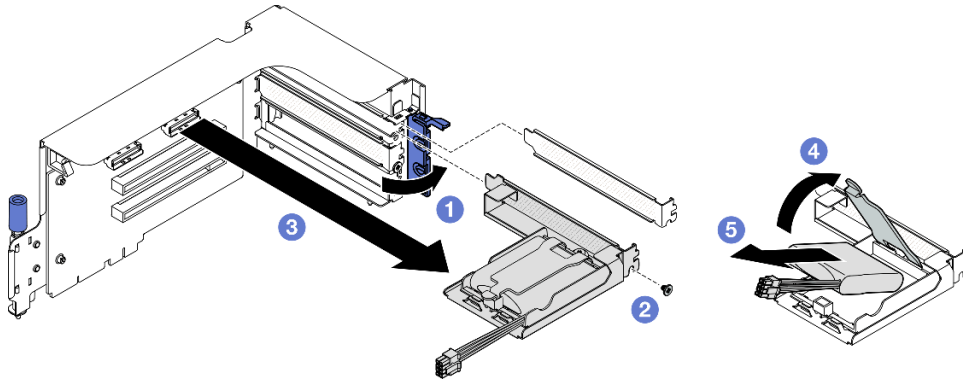
b.   ❷ Lift the fan out of the chassis.
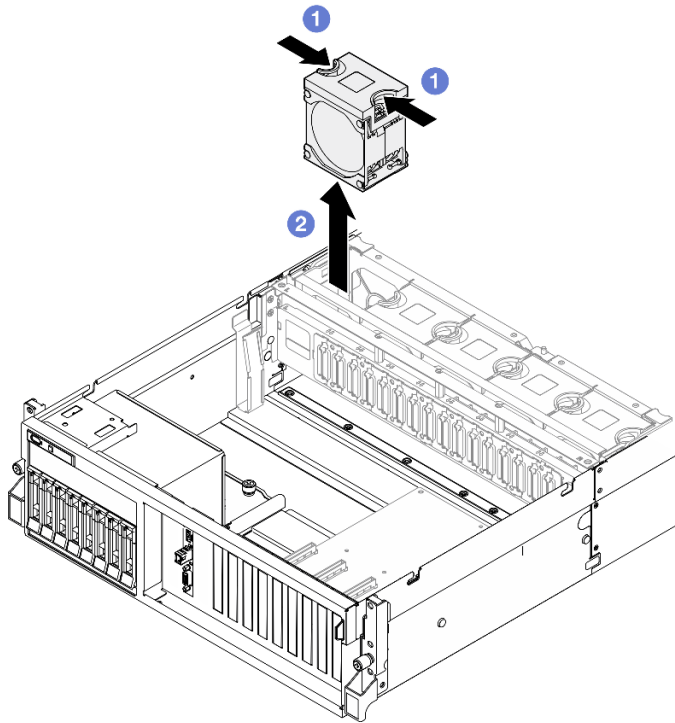
Figure 47. Fan removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Install a fan
Follow instructions in this section to install a fan.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- Make sure to replace a defective fan with another unit of the exact same type.

- 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.   Make sure the fan cage is installed in the chassis. See "Install the fan cage" on page 91.

Step 2. Align the fan to the fan slot in the fan cage; then, insert the fan into the fan cage and press it until it clicks into place.
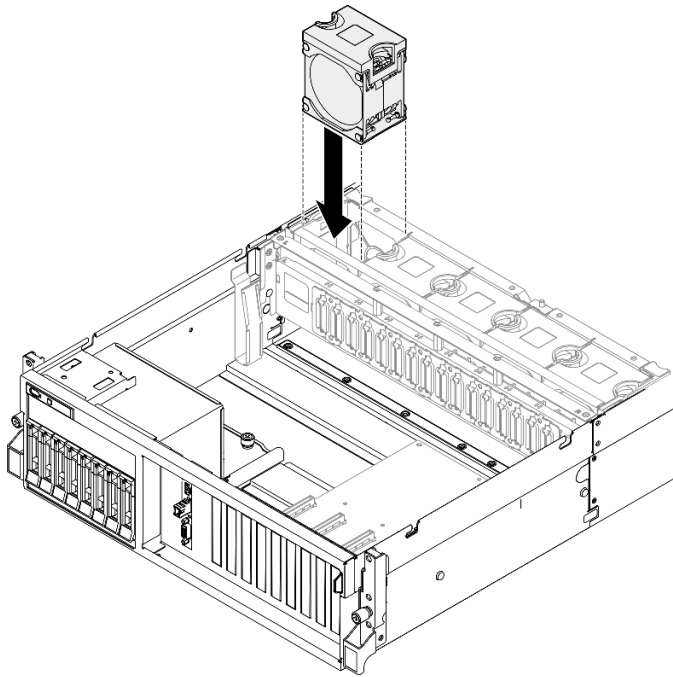
Figure 48. Fan installation

After you finish

Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Fan cage replacement

Follow instructions in this section to remove or install the fan cage.

Remove the fan cage

Follow instructions in this section to remove the fan cage.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Procedure

Step 1.   Make preparation for this task.

a.   Remove the top cover. See "Remove the top cover" on page 179.

b.   Remove all of the fans. See "Remove a fan" on page 88.

Step 2.   Remove the fan cage.

a.   ❶ Rotate the two release latches on the fan cage up to disengage it from the chassis.

b.   ❷ Hold the handles, and lift the fan cage out of the chassis.

Figure 49. Fan cage removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Install the fan cage

Follow instructions in this section to install the fan cage.

About this task

Attention: Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

Procedure

Step 1.   ❶ Align the guide slots on the fan cage with the guide pins on the chassis, and lower the fan cage into the chassis.

Step 2.   ❷ Rotate the two release latches down until they stop.
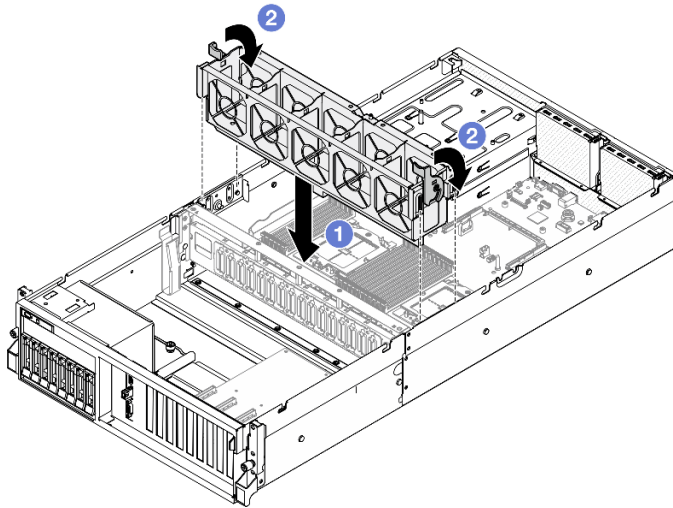
Figure 50. Fan cage installation

After you finish

1. Reinstall the fans. See "Install a fan" on page 89.

2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Flash power module replacement

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

Remove the flash power module

Follow instructions in this section to remove the flash power module.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Disconnect the cable from the flash power module.

    c. Remove the PCIe riser where the flash power module has been installed. See "Remove a PCIe riser" on page 132.

Step 2. Remove the flash power module.

    a. ❶ Open the retention latch on the PCIe riser.

    b. ❷ Unfasten the screw that secures the flash power module holder bracket to the PCIe riser.

    c. ❸ Remove the holder bracket from the PCIe riser.

    d. ❹ Press and release the retaining latch.

    e. ❺ Remove the flash power module from the holder.

Figure 51. Flash power module removal

After you finish

1. 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.

2. If you plan to remove or recycle the flash power module holder:

    a. Remove the holder from the bracket.

       1) ❶ Remove the screw that secures the holder to the bracket.

       2) ❷ Slide the holder forward slightly to disengage it from the bracket, and remove the holder.
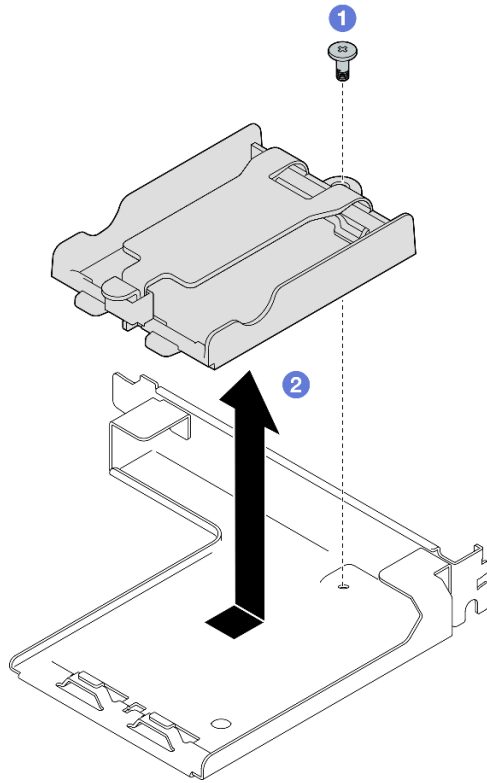
Figure 52. Flash power module holder removal

b. Recycle the component in compliance with local regulations.

Demo video

[Watch the procedure on YouTube](#)

Install the flash power module
Follow instructions in this section to install the flash power module.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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. ❶ Align the flash power module with the holder hinge; then, rotate the other end of the module inward until it is secured in the holder.

Step 2. ❷ Close the retaining latch.

Step 3. ❸ Insert the holder bracket into the PCIe riser.

Step 4. ❹ Fasten the screw to secure the holder bracket to the PCIe riser.

Step 5. ❺ Close the retention latch.
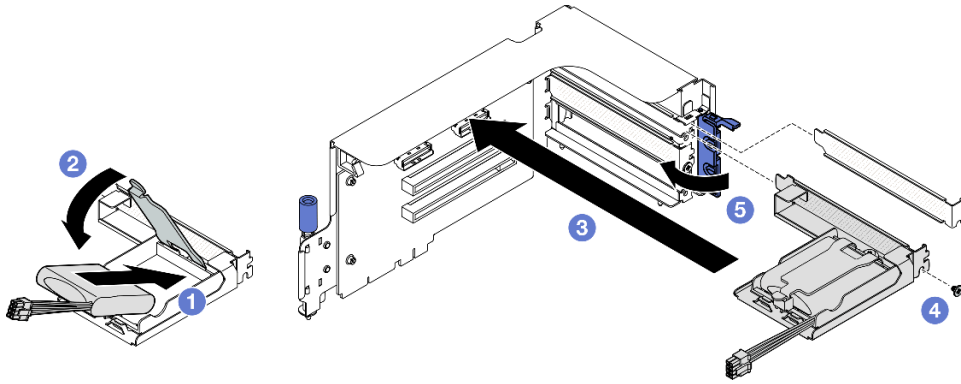
Figure 53. Flash power module installation

Step 6.   Connect the cable to the corresponding RAID adapter.

After you finish

1. Reinstall the PCIe riser. See "Install a PCIe riser" on page 136.
2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Front I/O module replacement

Follow instructions in this section to remove or install the front I/O module.

Remove the front I/O module

Follow instructions in this section to remove the front I/O module.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Procedure

Step 1.   Make preparation for this task.

a.   Remove the top cover. See "Remove the top cover" on page 179.

b.   **(SXM5 GPU Model only)** Depending on the configuration, disconnect the power cable from the CX-7 carrier board (connected to the **power connector 1**) or the SXM5 PCIe switch board.

Step 2.   Disconnect the front USB, video and external diagnostics handset cables of the front I/O module from their respective connectors on the system board assembly. See "System-board-assembly connectors" on page 38 for more details.

Step 3. Remove the front I/O module.

    a. ❶ Remove the front I/O module retention screw.

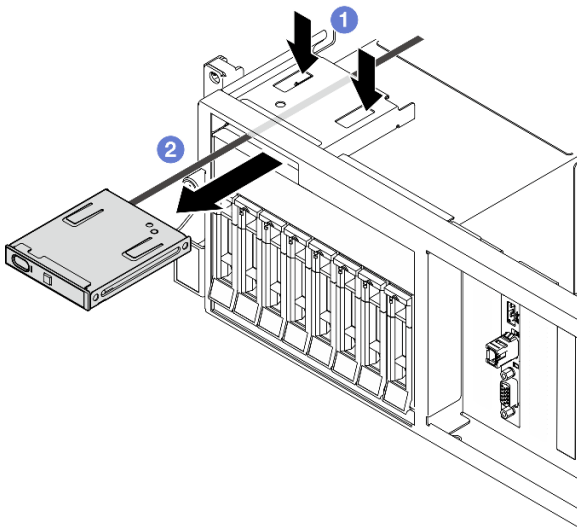   b. ❷ Lift the front I/O module out of the chassis.
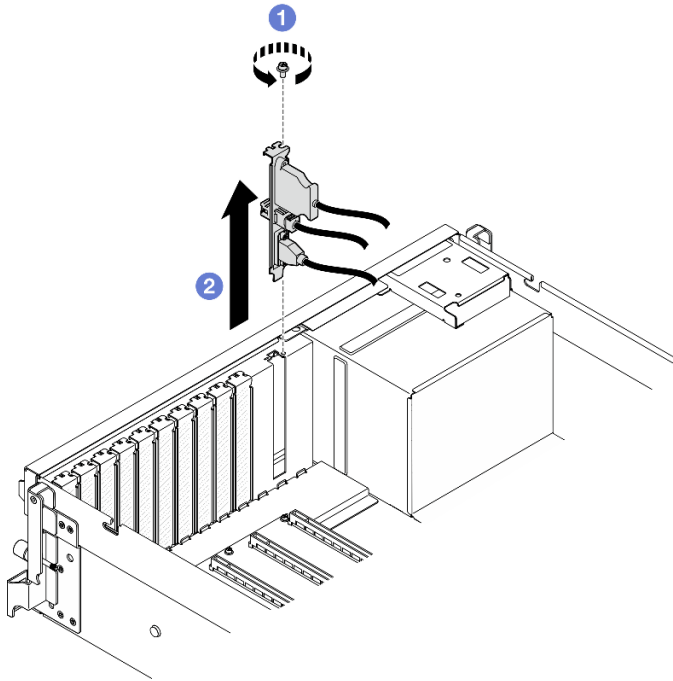
Figure 54. Front I/O module removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Install the front I/O module

Follow instructions in this section to install the front I/O module.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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. Depending on the server model, see below to locate the front I/O module slot:

    - "The 4-DW GPU Model front view" on page 15

Step 2.   Install the front I/O module.

> **Note:** If the front I/O module slot is covered with a slot bracket, remove the bracket from the chassis first.

a.   ❶ Insert the front I/O module into the front I/O module slot. Ensure that the module is fully seated.

b.   ❷ Fasten the front I/O module retention screw.
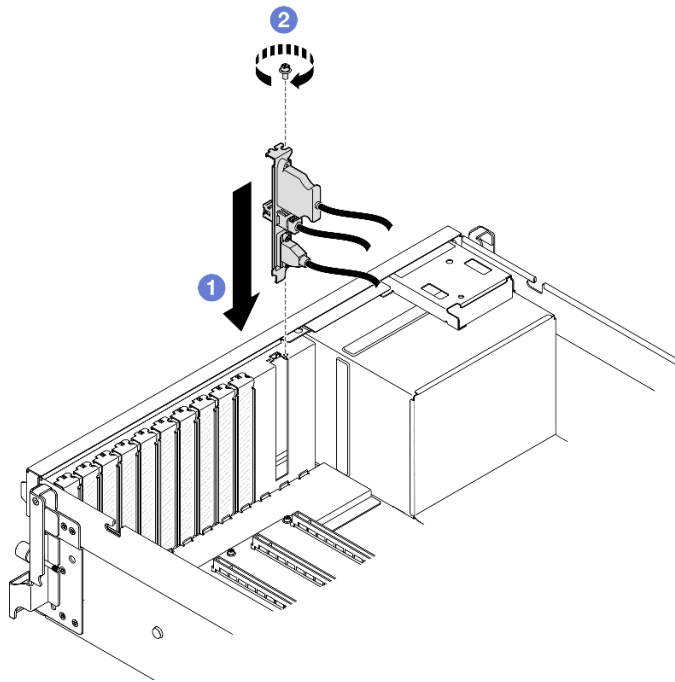
Figure 55. Front I/O module installation

Step 3.   Connect the front USB, video and external diagnostics handset cables from the front I/O module to their respective connectors on the system board assembly. Refer to the front I/O module cable routing guide for each server model below.
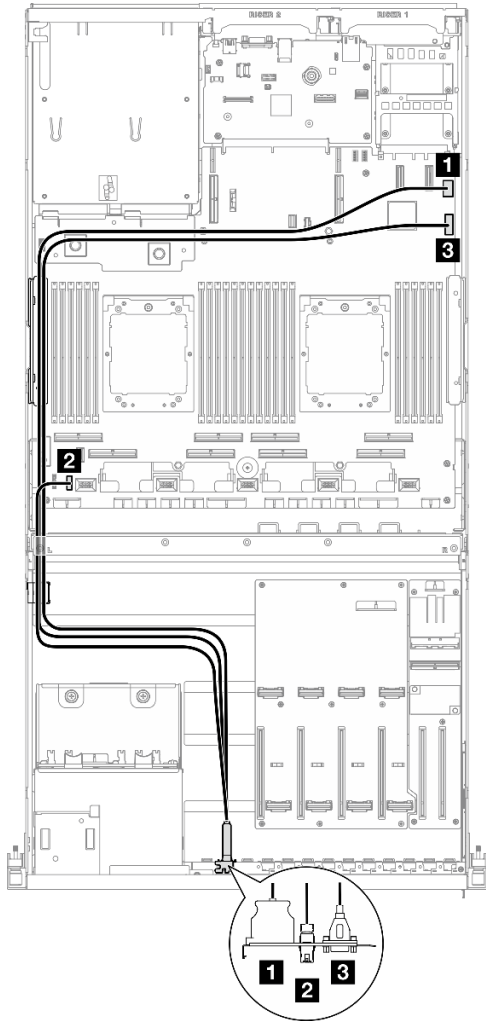
Figure 56. Cable routing for the front I/O module — 4-DW GPU Model
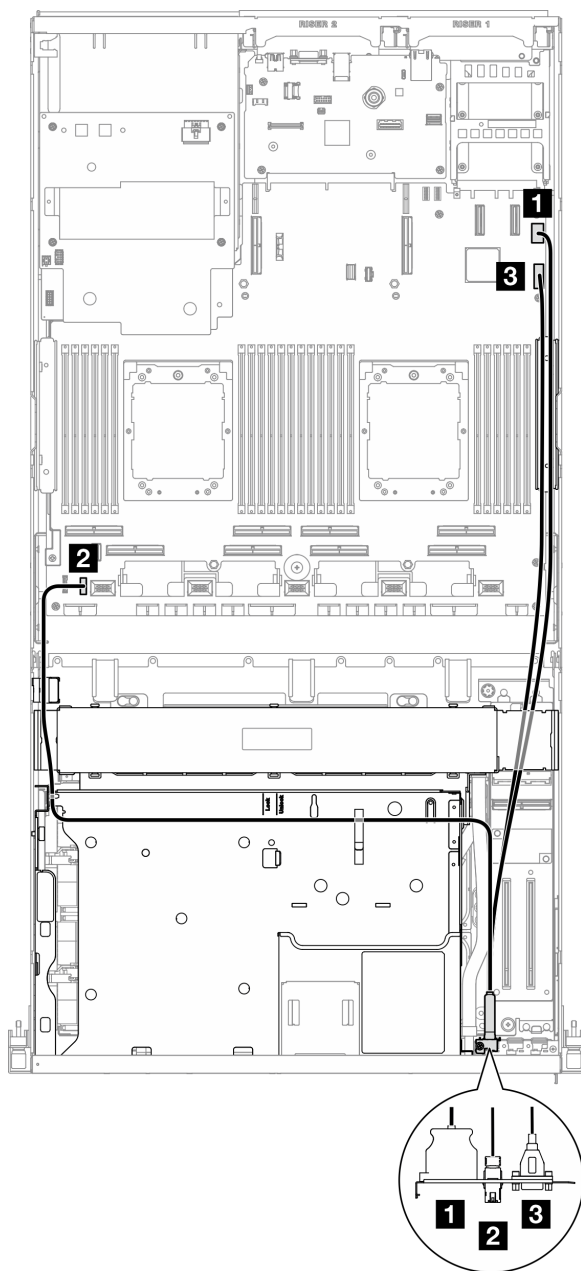
Figure 57. Cable routing for the front I/O module — SXM5 GPU Model

Cable	From	To
1	Front I/O module: Video cable	System board assembly: Front VGA connector
2	Front I/O module: External diagnostics handset cable	System board assembly: LCD connector
3	Front I/O module: USB cable	System board assembly: Front USB connector

After you finish

1. **(SXM5 GPU Model only)** Depending on the configuration, reconnect the power cable to the CX-7 carrier board or the SXM5 PCIe switch board. See "CX-7 carrier board cable routing" on page 402 or "SXM5 PCIe switch board cable routing" on page 421 for more information. Then, press the power cable down to secure all the cables under the cable retaining guide on the front drive tray.

2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Front operator panel replacement

Follow instructions in this section to remove or install the front operator panel.

Remove the front operator panel

Follow instructions in this section to remove the front operator panel.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. **(SXM5 GPU Model only)** Depending on the configuration, disconnect the power cable from the CX-7 carrier board (connected to the **power connector 1**) or the SXM5 PCIe switch board.

Step 2. Disconnect the front operator panel cable from the system board assembly as illustrated.

Note: The 4-DW GPU Model is used as an example for illustration. The cable routing path is the same for the 8-DW GPU Model.
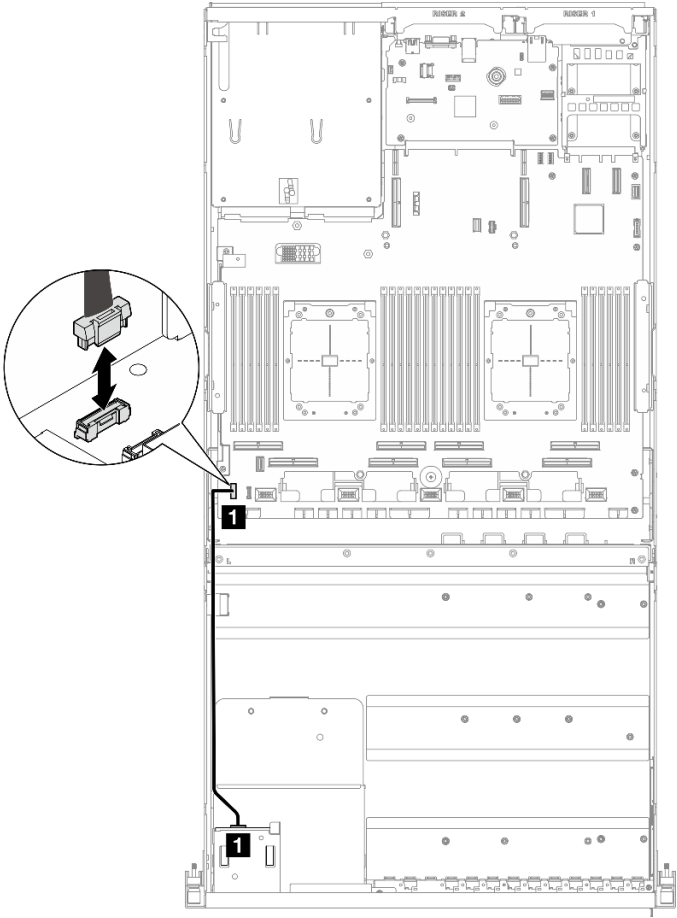
Figure 58. Front operator panel cable disconnection — 4-DW GPU Model and 8-DW GPU Model
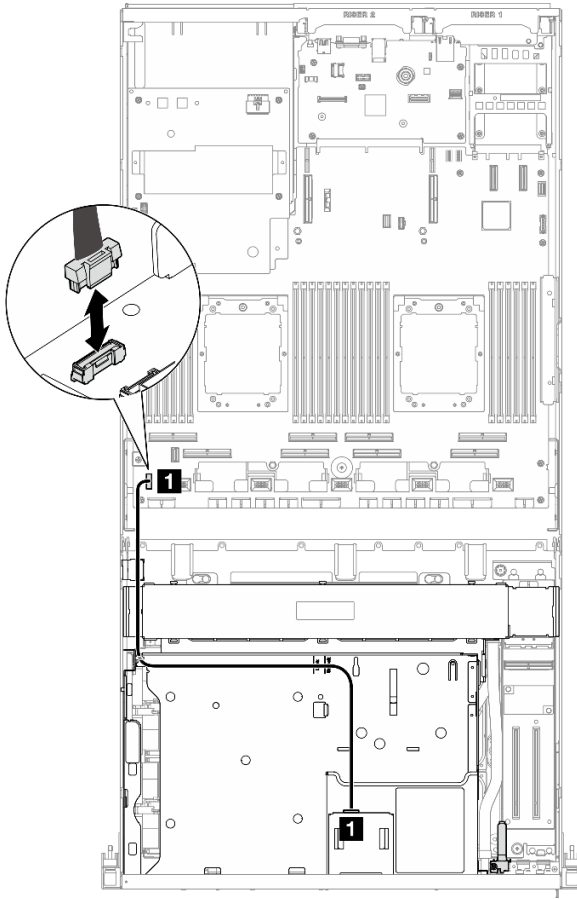
Figure 59. Front operator panel cable disconnection — SXM5 GPU Model

Step 3. Remove the front operator panel.

    a. **❶** Press and hold on the two release tabs on the top of the drive bays.

    b. **❷** Grasp and pull the front operator panel to remove it from the server.

Figure 60. Front operator panel removal

After you finish

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.

Demo video

[Watch the procedure on YouTube](#)

Install the front operator panel

Follow instructions in this section to install the front operator panel.

About this task

Attention:

- Read ["Installation Guidelines" on page 59](#) and ["Safety inspection checklist" on page 60](#) to ensure that you work safely.
- 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 front operator panel slot based on the server front view of your configuration. See below for more details:

- ["The 4-DW GPU Model front view" on page 15](#)
- ["The 8-DW GPU Model front view" on page 16](#)
- ["The SXM5 GPU Model front view" on page 19](#)

Step 2. Align the front operator panel with the slot on the top of the drive bays and slide it in.
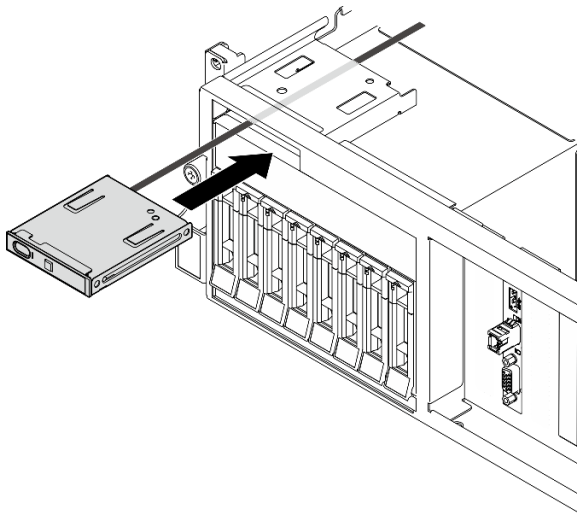
Figure 61. Front operator panel installation

Step 3. Connect the front operator panel cable to the system board assembly. Refer to the front operator panel cable routing guide for each server model below.

Note: The 4-DW GPU Model is used as an example for illustration. The cable routing path is the same for the 8-DW GPU Model.
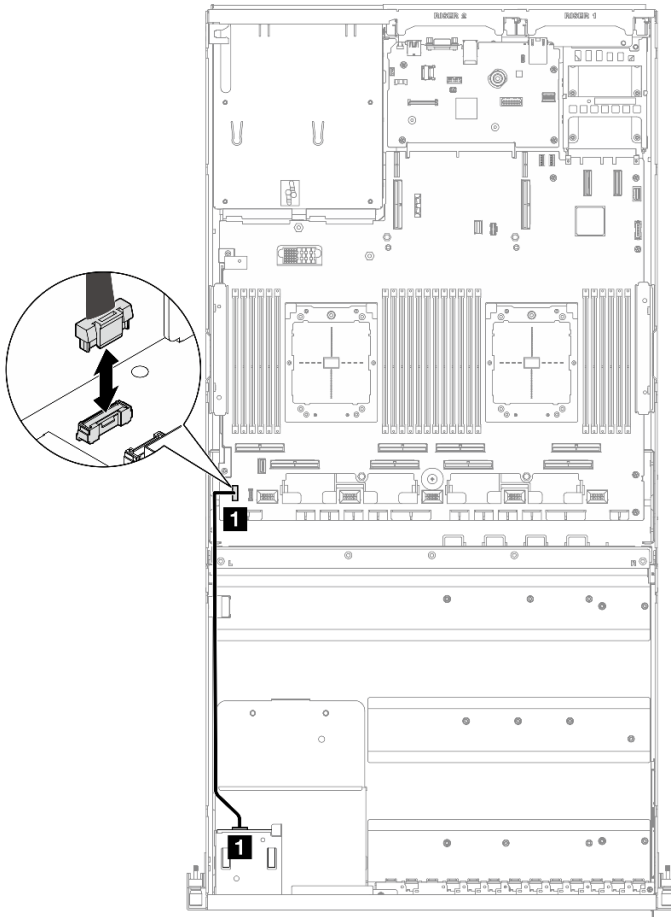
Figure 62. Cable routing for the front operator panel — 4-DW GPU Model and 8-DW GPU Model
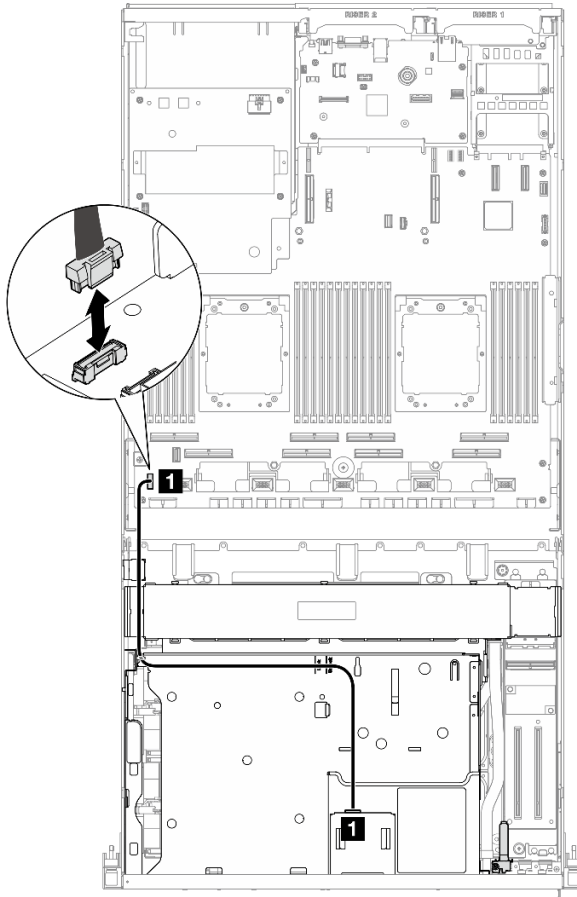
Figure 63. Cable routing for the front operator panel — SXM5 GPU Model

Cable	From	To
1	Front operator panel	System board assembly: Front operator panel connector

After you finish

1. **(SXM5 GPU Model only)** Depending on the configuration, reconnect the power cable to the CX-7 carrier board or the SXM5 PCIe switch board. See "CX-7 carrier board cable routing" on page 402 or "SXM5 PCIe switch board cable routing" on page 421 for more information. Then, press the power cable down to secure all the cables under the cable retaining guide on the front drive tray.

2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Intrusion switch replacement

Follow instructions in this section to remove and install the intrusion switch.

Remove the intrusion switch

Follow instructions in this section to remove the intrusion switch.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Procedure

Step 1. Make preparation for this task.

a. Remove the top cover. See "Remove the top cover" on page 179.

b. Remove the PCIe riser 2 if necessary. See "Remove a PCIe riser" on page 132.

Step 2. Remove the intrusion switch.

a. ❶ Disconnect the intrusion switch cable from the system board assembly.

b. ❷ Remove the intrusion switch cable from the three cable clips on the outside of the power supply bays.

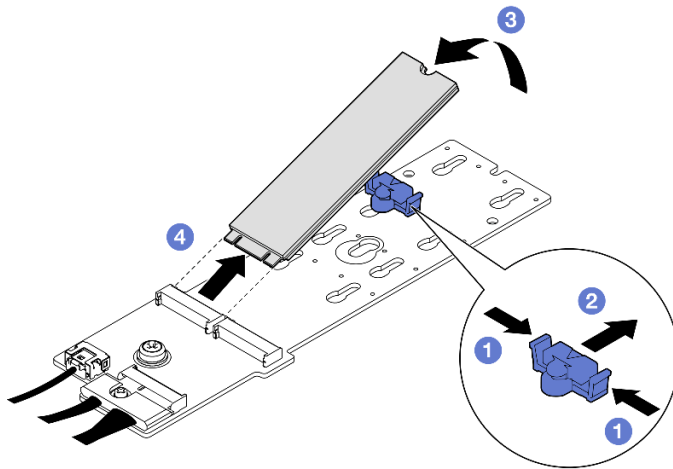c. ❸ Pull the intrusion switch out of the intrusion switch bracket.
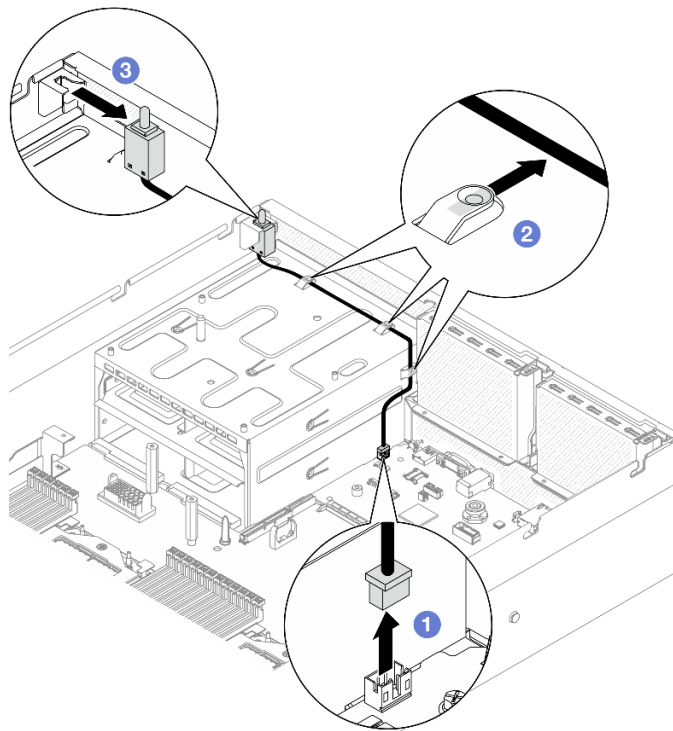
Figure 64. Intrusion switch removal

After you finish

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.

Demo video

Install the intrusion switch

Follow instructions in this section to install the intrusion switch.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- 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. ❶ Push the intrusion switch into the intrusion switch bracket on the top of the power supply bays. Make sure the intrusion switch is fully seated in the bracket.

Step 2. ❷ Route the intrusion switch cable through the three cable clips on the outside of the power supply bays.

Step 3. ❸ Connect the intrusion switch cable to the system board assembly.
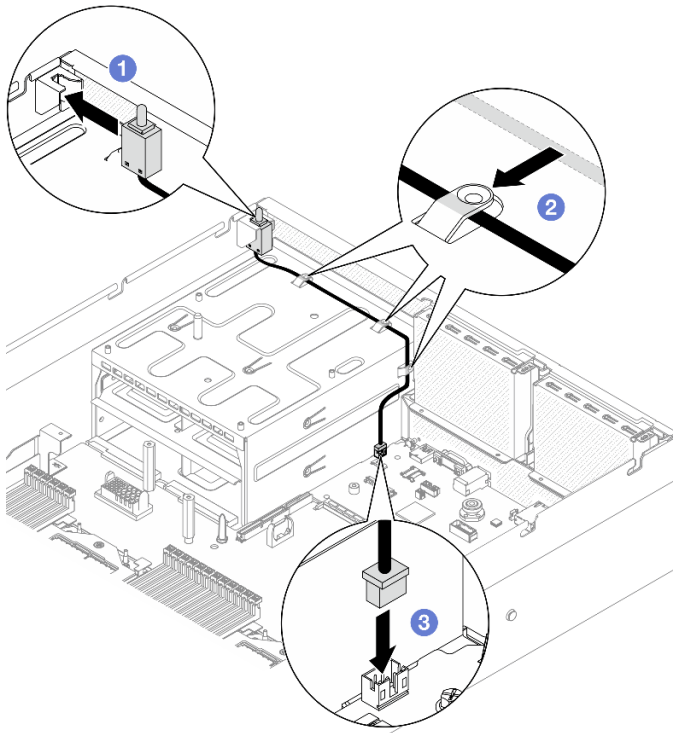
Figure 65. Intrusion switch installation
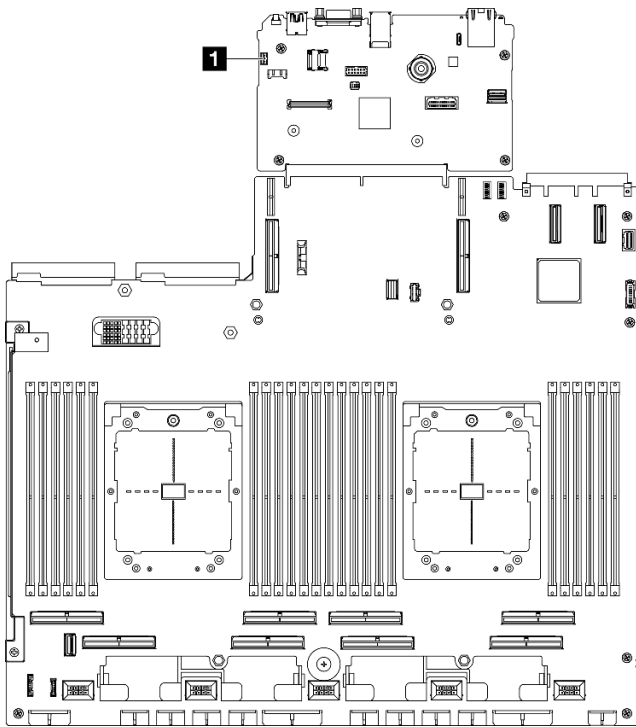
Figure 66. Intrusion switch connector location

1 Intrusion switch connector

After you finish

1. Reinstall the PCIe riser 2 if necessary. See "Install a PCIe riser" on page 136.

2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

M.2 backplane and M.2 drive replacement

Follow instructions in this section to remove and install the M.2 backplane and an M.2 drive.

Remove an M.2 drive

Follow instructions in this section to remove an M.2 drive.

About this task

Attention:

• Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

• 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 the server from rack" on page 68.

- If one or more NVMe solid-state drives are to be removed, it is recommended to disable them beforehand via the operating system.
- Before you remove or make changes to drives, drive controllers (including controllers that are integrated on the system board assembly), drive backplanes or drive cables, back up all important data that is stored on drives.
- Before you remove any component of a RAID array (drive, RAID card, etc.), back up all RAID configuration information.

Procedure

Step 1.   Remove the top cover. See "Remove the top cover" on page 179.

Step 2.   Remove the M.2 drive.

a.   ❶ Press the retainer from the both sides.

b.   ❷ Slide the retainer away from the M.2 drive

c.   ❸ Rotate the rear end of the M.2 drive to an angle.

d.   ❹ Remove the M.2 drive from the M.2 backplane.

Figure 67. M.2 drive removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Remove the M.2 backplane

Follow instructions in this section to remove the M.2 backplane.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

- If one or more NVMe solid-state drives are to be removed, it is recommended to disable them beforehand via the operating system.

- Before you remove or make changes to drives, drive controllers (including controllers that are integrated on the system board assembly), drive backplanes or drive cables, back up all important data that is stored on drives.

- Before you remove any component of a RAID array (drive, RAID card, etc.), back up all RAID configuration information.

Procedure

Step 1.   Make preparation for this task.

a.   Remove the top cover. See "Remove the top cover" on page 179.

b.   Remove the M.2 drives. See "Remove an M.2 drive" on page 108.

c.   Depending on the configuration, disconnect the M.2 backplane cables from the system board assembly or the RAID adapter.

d.   Remove the air baffle from the server and place it on a static-protective surface. See "Remove the air baffle" on page 79.

Step 2.   Remove the M.2 backplane.

a.   ❶ Remove the screw that secures the end of the M.2 backplane to the air baffle.

b.   ❷ Remove the screw that secures the middle of the M.2 backplane to the air baffle

c.   ❸ Slide the M.2 backplane backward, and lift it out of the air baffle.
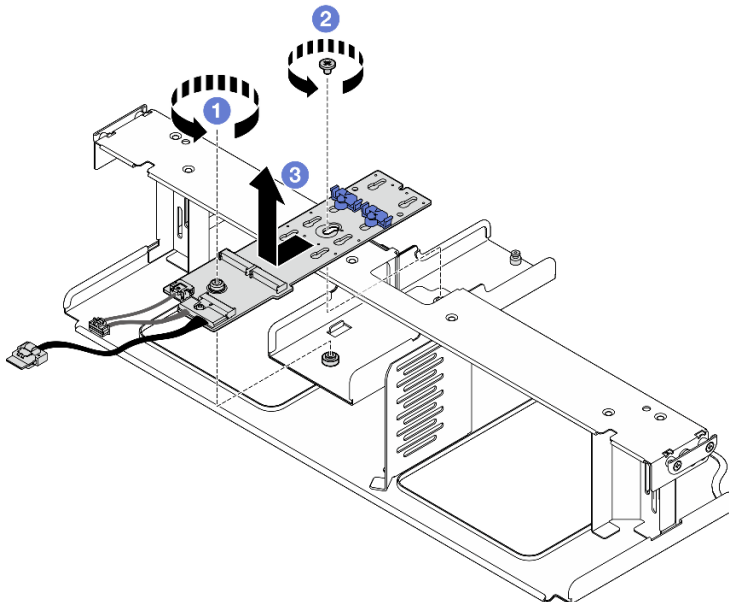
Figure 68. M.2 backplane removal

Step 3.   If needed, disconnect the M.2 backplane cables from the M.2 backplane.

- **SATA/NVMe or NVMe RAID M.2 backplane**

1. **①** Loosen the screw on the signal cable.
2. **②** Tilt the connector and remove it.
3. **③** Remove the power cable.
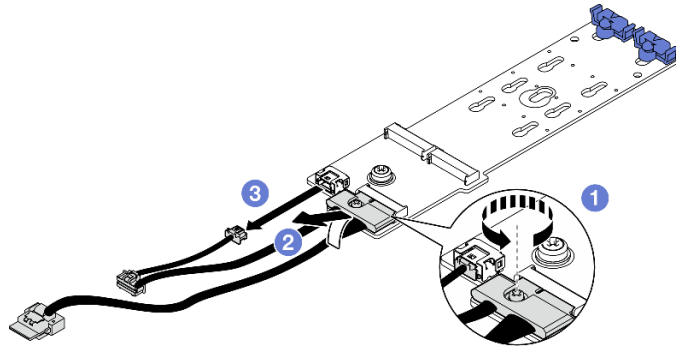
Figure 69. SATA/NVMe or NVMe RAID M.2 backplane cable disconnection

- **SATA/x4 NVMe M.2 backplane**

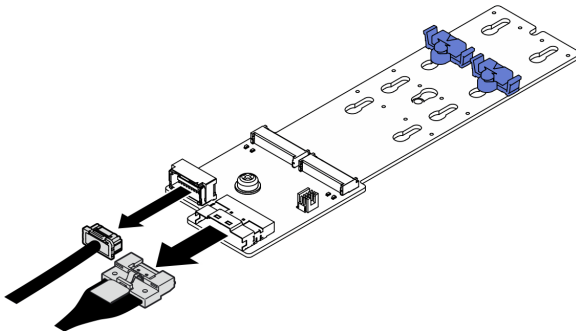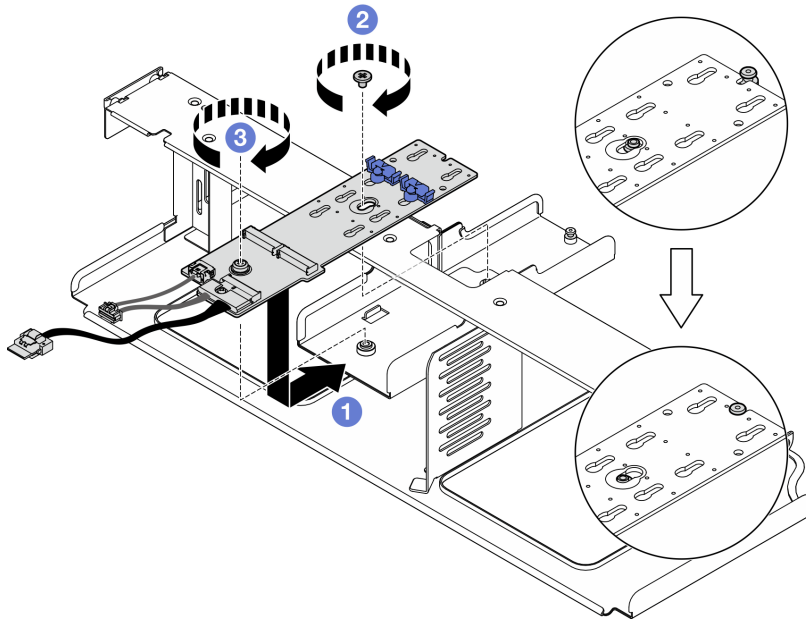 Disconnect the M.2 backplane cables from the M.2 backplane.
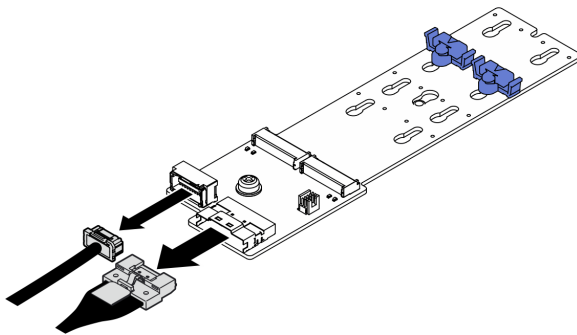
Figure 70. SATA/x4 NVMe M.2 backplane cable disconnection

After you finish

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.

Demo video

[Watch the procedure on YouTube](#)

Install the M.2 backplane

Follow instructions in this section to install the M.2 backplane.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- 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.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. Remove the air baffle from the server and place it on a static-protective surface. See "Remove the air baffle" on page 79.

Step 2. If needed, connect the M.2 backplane cables to the M.2 backplane.

- **SATA/NVMe or NVMe RAID M.2 backplane**
    1. ❶ Tilt the connector at an angle of 20 degrees or lower, and insert it until its bottom surface reaches the ramp.
    2. ❷ Press the connector down flat.
    3. ❸ Tighten the screw on the signal cable.
    4. ❹ Connect the power cable.
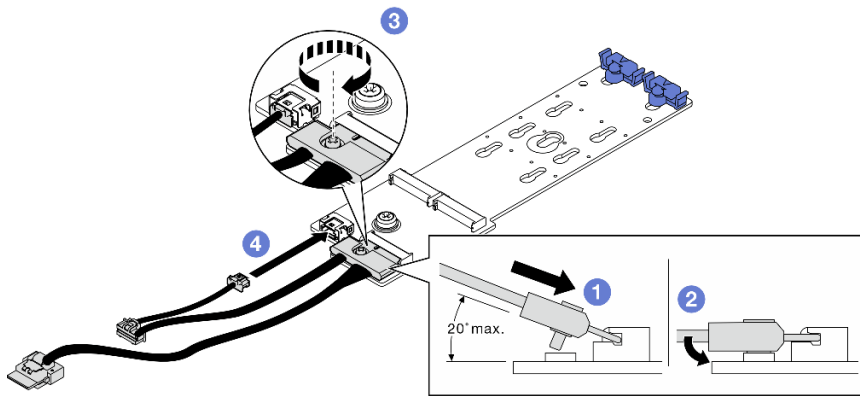
Figure 71. SATA/NVMe or NVMe RAID M.2 backplane cable connection

- **SATA/x4 NVMe M.2 backplane**

    Connect the M.2 backplane cables from the M.2 backplane.

Figure 72. SATA/x4 NVMe M.2 backplane cable connection

Step 3. Install the M.2 backplane.

    a. ❶ Lower the M.2 backplane into the air baffle; then, slide the M.2 backplane forward until it is seated in place.

    b. ❷ Install the screw that secures the middle of the M.2 backplane to the air baffle

    c. ❸ Install the screw that secures the end of the M.2 backplane to the air baffle.

Figure 73. M.2 backplane installation

Step 4. Reinstall the air baffle in the server. See "Install the air baffle" on page 80.

Step 5. Depending on the configuration, connect the M.2 backplane cables to the system board assembly or the RAID adapter. See "M.2 backplane cable routing" on page 363 for more information.

After you finish

1. Reinstall the M.2 drives. See "Install an M.2 drive" on page 113.

2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Install an M.2 drive

Follow instructions in this section to install an M.2 drive.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- 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 connector you want to install the M.2 drive on the M.2 backplane.

Step 2. If needed, adjust the position of the M.2 drive retainer so that it is compatible with the size of the M.2 drive you are installing.

Step 3. Slide the M.2 retainer backward to ensure enough space for the M.2 drive installation.

Step 4. Install the M.2 drive.

    a. ❶ Hold the M.2 drive at an angle, and insert it into the M.2 slot.

    b. ❷ Lower the M.2 drive.

    c. ❸ Slide the retainer toward the M.2 drive to secure it in place.
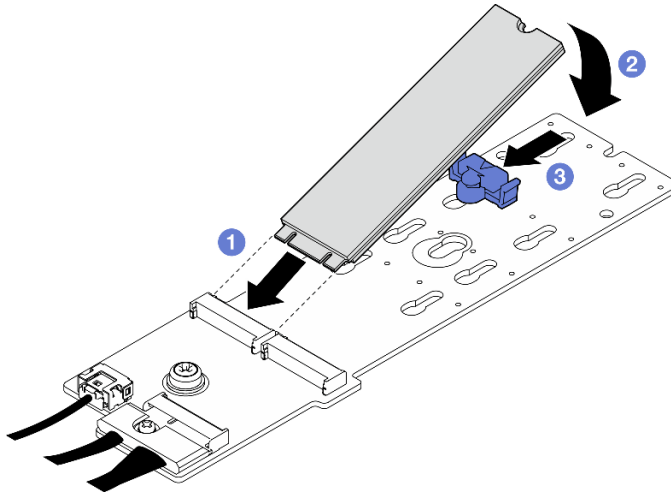
Figure 74. M.2 drive installation

After you finish

Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Memory module replacement

Use the following procedures to remove and install a memory module.

Remove a memory module

Use this information to remove a memory module.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- Make sure to remove or install memory module at least 20 seconds after disconnecting power cords from the system. It allows the system to be completely discharged of electricity and safe for handling memory module.
- 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 .
- If you are not installing a replacement memory module to the same slot, make sure you have memory module filler available.
- Memory modules are sensitive to static discharge and require special handling. Refer to the standard guidelines for .
  – Always wear an electrostatic-discharge strap when removing or installing memory modules. Electrostatic-discharge gloves can also be used.
  – Never hold two or more memory modules together so that they do not touch each other. Do not stack memory modules directly on top of each other during storage.
  – Never touch the gold memory module connector contacts or allow these contacts to touch the outside of the memory module connector housing.
  – Handle memory modules with care: never bend, twist, or drop a memory module.
  – Do not use any metal tools (such as jigs or clamps) to handle the memory modules, because the rigid metals may damage the memory modules.
  – Do not insert memory modules while holding packages or passive components, which can cause package cracks or detachment of passive components by the high insertion force.

Important: Remove or install memory modules for one processor at a time.

Procedure

Attention: Make sure to remove or install memory module at least 20 seconds after disconnecting power cords from the system. It allows the system to be completely discharged of electricity and safe for handling memory module.

Step 1. Make preparation for this task.

    a. Remove the top cover. See .

    b. Remove the air baffle. See .

    c. Locate the memory module slots and determine which memory module to be removed.
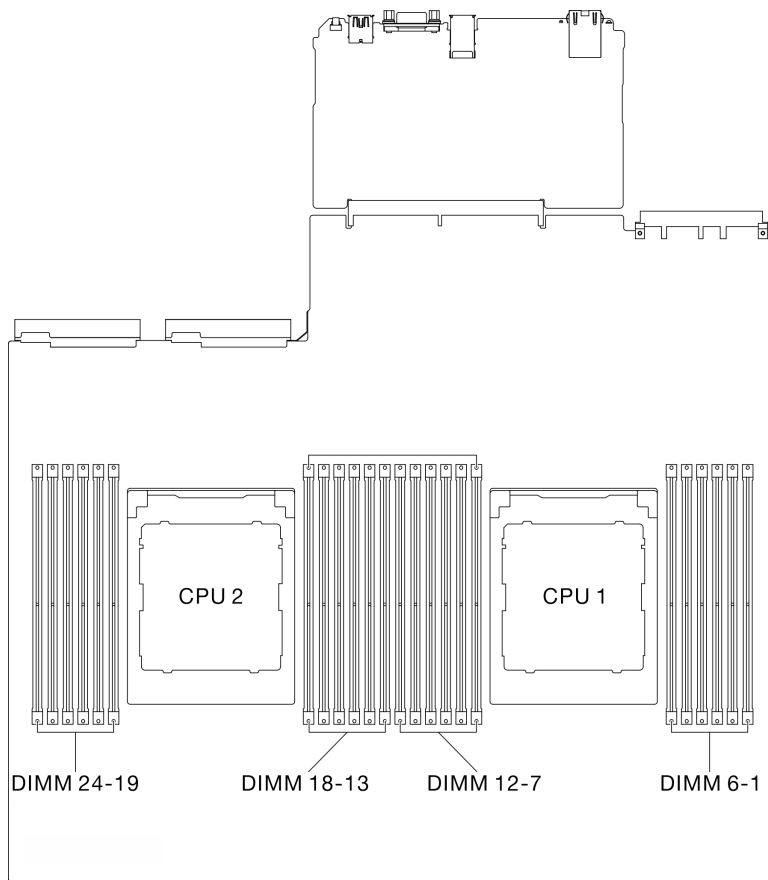
Figure 75. Memory modules and processors layout

Step 2.   If necessary, remove a cable guide from the chassis wall to access the memory module slots.
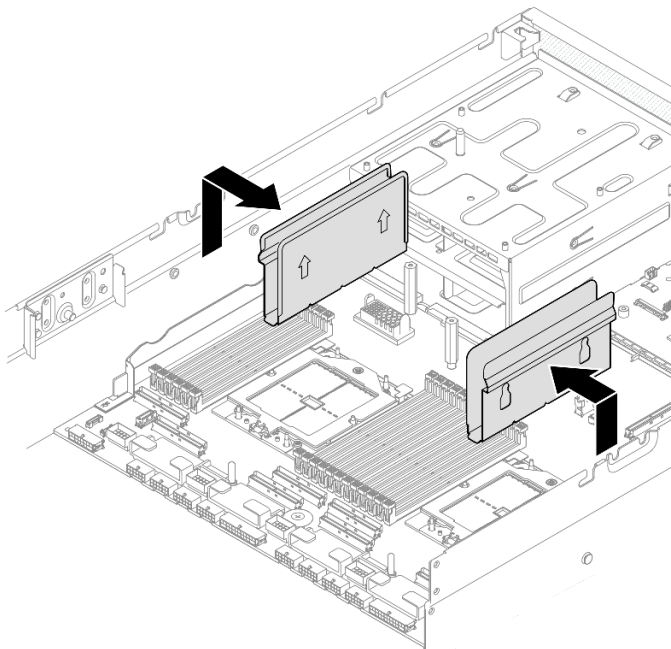
Figure 76. Cable guide removal

Step 3. Remove the memory module from the slot.

> **Attention:** To avoid breaking the retaining clips or damaging the memory module slots, handle the clips gently.

> a. ❶ Gently open the retaining clip on each end of the memory module slot.

> b. ❷ Grasp the memory module at both ends and carefully lift it out of the slot.
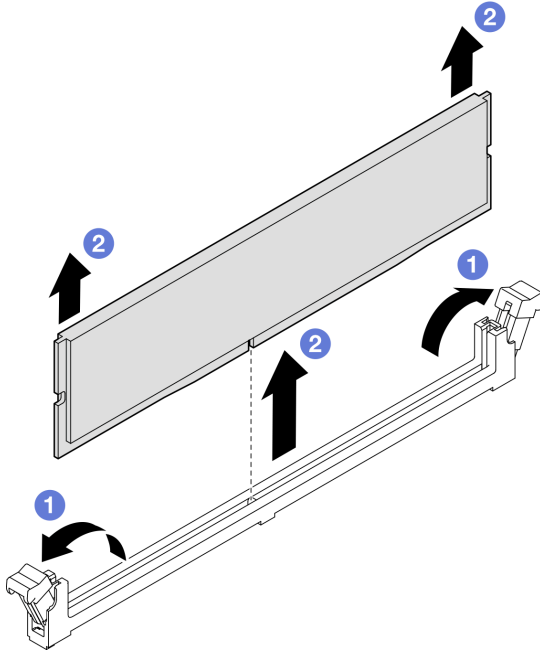
Figure 77. Memory module removal

After you finish

1. A memory module slot must be installed with a memory module or a memory module filler. See "Install a memory module" on page 117.

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.

Demo video

[Watch the procedure on YouTube](#)

Install a memory module

Follow instructions in this section to install a memory module.

About this task

See "Memory module installation rules and order" on page 63 for detailed information about memory configuration and setup.

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- Make sure to remove or install memory module at least 20 seconds after disconnecting power cords from the system. It allows the system to be completely discharged of electricity and safe for handling memory module.
- Make sure to adopt one of the supported configurations listed in "Memory module installation rules and order" on page 63.
- Memory modules are sensitive to static discharge and require special handling. Refer to the standard guidelines at "Handling static-sensitive devices" on page 61:
  - Always wear an electrostatic-discharge strap when removing or installing memory modules. Electrostatic-discharge gloves can also be used.
  - Never hold two or more memory modules together so that they do not touch each other. Do not stack memory modules directly on top of each other during storage.
  - Never touch the gold memory module connector contacts or allow these contacts to touch the outside of the memory module connector housing.
  - Handle memory modules with care: never bend, twist, or drop a memory module.
  - Do not use any metal tools (such as jigs or clamps) to handle the memory modules, because the rigid metals may damage the memory modules.
  - Do not insert memory modules while holding packages or passive components, which can cause package cracks or detachment of passive components by the high insertion force.

Important:

- Remove or install memory modules for one processor at a time.
- Before installing 24 Gb DRAM RDIMMs, make sure to update the UEFI firmware to the latest version first, then remove all existing 16 Gb DRAM RDIMMs.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Attention: Make sure to remove or install memory module at least 20 seconds after disconnecting power cords from the system. It allows the system to be completely discharged of electricity and safe for handling memory module.

Step 1. Touch the static-protective package that contains the memory module to any unpainted surface on the outside of the server. Then, take the memory module out of the package and place it on a static-protective surface.

Step 2. Locate the required memory module slot on the system board assembly.

Note: Ensure that you observe the installation rules and sequence order in "Memory module installation rules and order" on page 63.
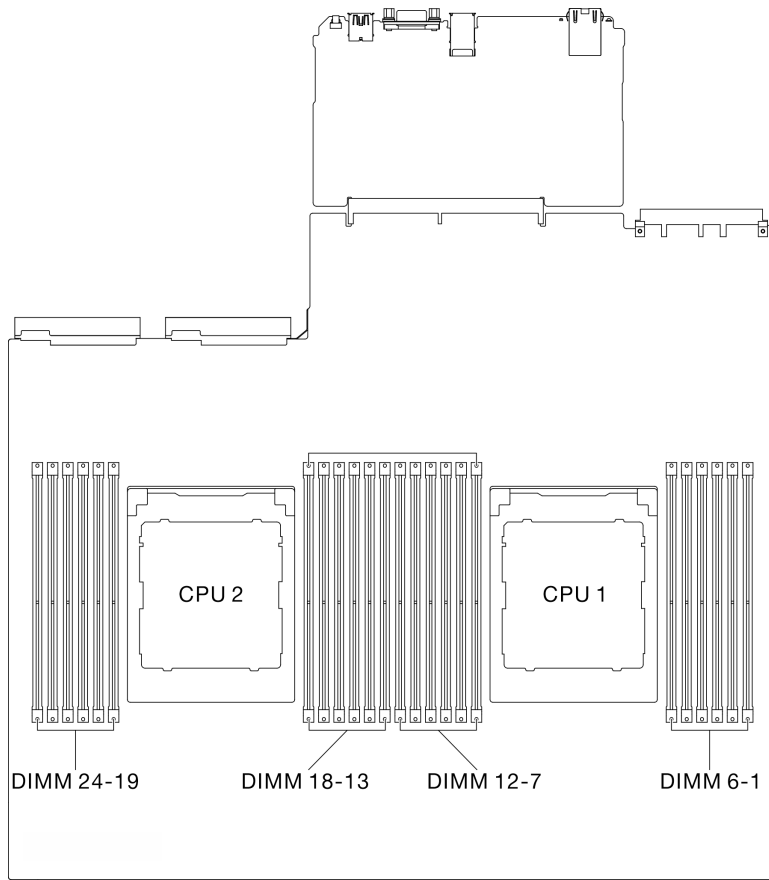
Figure 78. Memory modules and processors layout

Step 3.   Install the memory module into the slot.

a.   ❶ Gently open the retaining clip on each end of the memory module slot.

b.   ❷ Align the memory module with the slot, and gently place the memory module on the slot with both hands.

c.   ❸ Firmly press both ends of the memory module straight down into the slot until the retaining clips snap into the locked position.

Attention:

- To avoid breaking the retaining clips or damaging the memory module slots, open and close the clips gently.

- If there is a gap between the memory module and the retaining clips, the memory module has not been correctly inserted. In this case, open the retaining clips, remove the memory module, and then reinsert it.
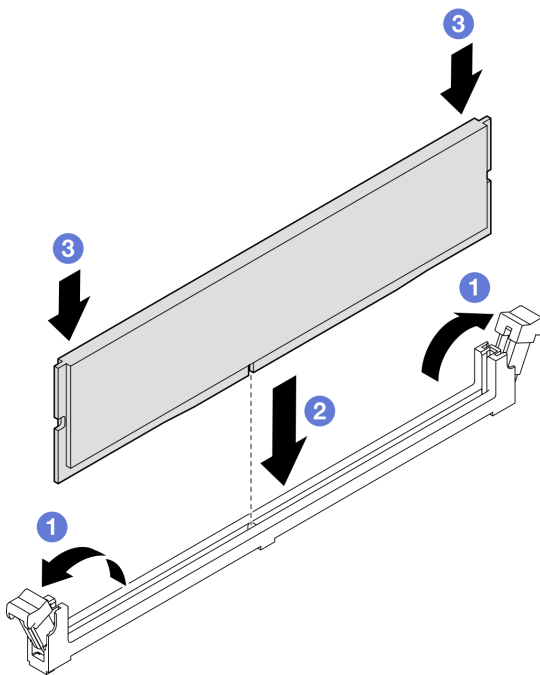
Figure 79. Memory module installation

Step 4.   If needed, align a cable guide with the guide pins on the chassis; then, attach the cable guide to the chassis wall, and slide it down to secure it in place.
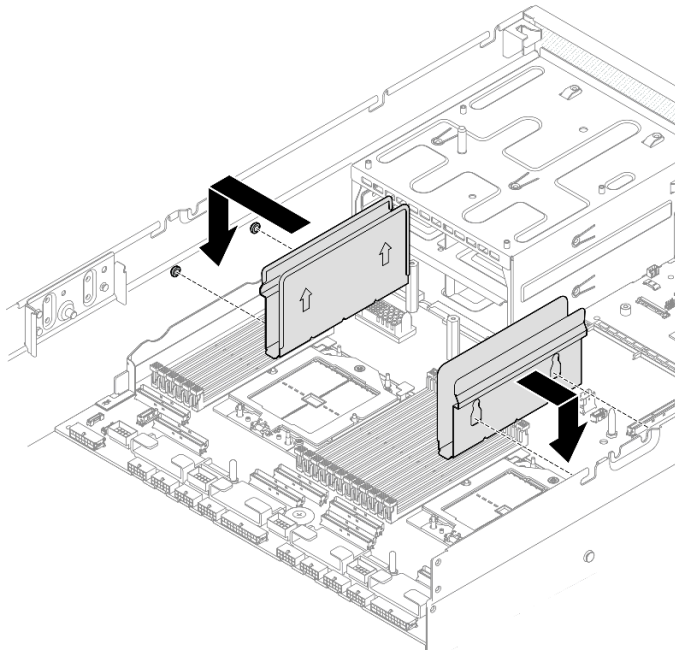
Figure 80. Cable guide installation

After you finish

Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

MicroSD card replacement

Follow instructions in this section to remove and install the MicroSD card.

Remove the MicroSD card

Follow instructions in this section to remove the MicroSD card.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Procedure

Step 1.   Make preparation for this task.

        a.   Remove the top cover. See "Remove the top cover" on page 179.

        b.   If applicable, remove the PCIe riser 2. See "Remove a PCIe riser" on page 132.

Step 2.   Remove the MicroSD card.

    a.   ❶ Slide the socket lid to the open position.

    b.   ❷ Lift open the socket lid.
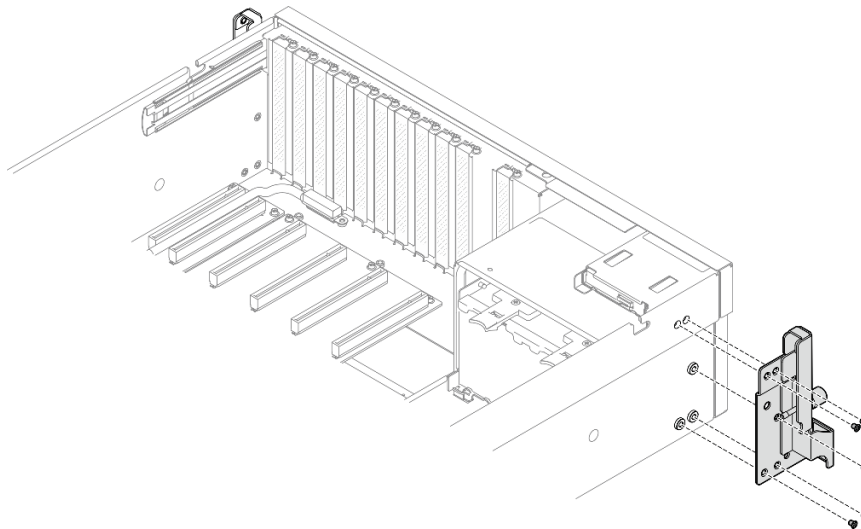
    c.   ❸ Remove the MicroSD card from the socket.
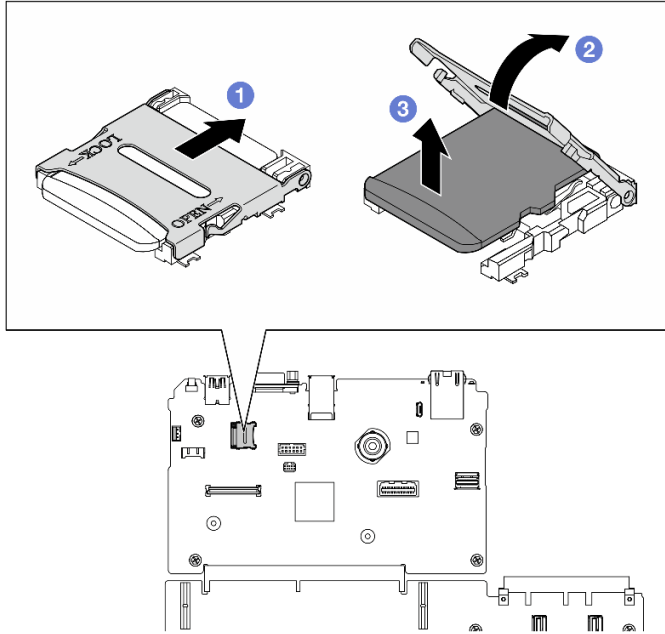
Figure 81. MicroSD card removal

After you finish

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.

Demo video

Install the MicroSD card

Follow instructions in this section to install the MicroSD card.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.   ❶ Place the MicroSD card into the socket.

Step 2.   ❷ Close the socket lid.

Step 3. ❸ Slide the socket lid to the lock position.
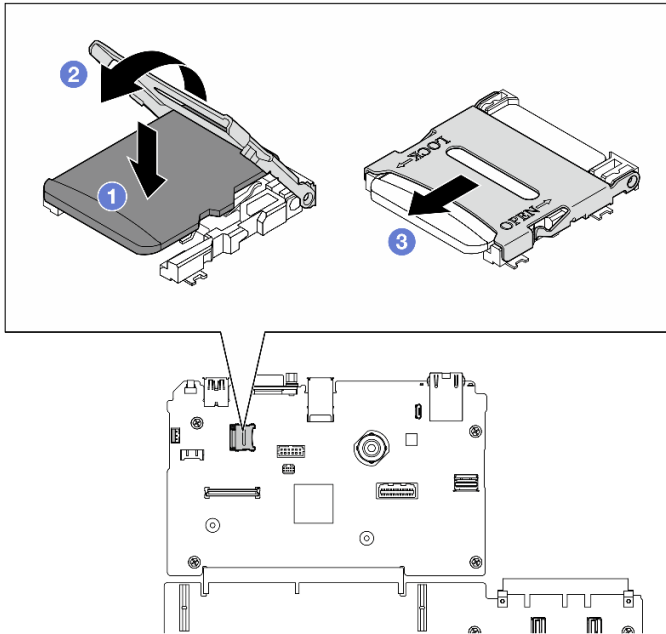
Figure 82. MicroSD card installation

After you finish

1. If applicable, reinstall the PCIe riser 2. See "Install a PCIe riser" on page 136.

2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Mounting ears replacement

Follow instructions in this section to remove and install the mounting ears.

Remove the mounting ears

Follow instructions in this section to remove the mounting ears.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

Note: Make sure you have Phillips #1 head screwdriver available to properly replace the component.

Procedure

Step 1. Unfasten the five screws to remove the right mounting ear from the chassis.
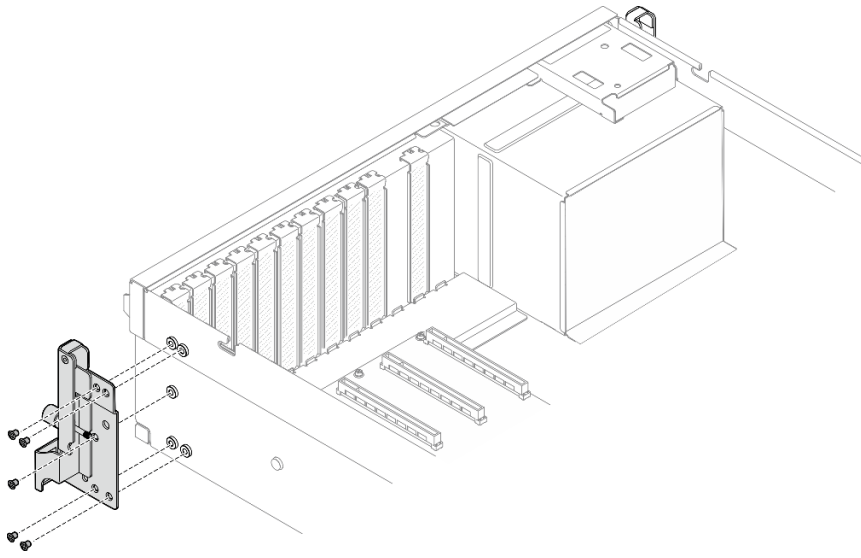
Figure 83. Right mounting ear removal

Step 2. Unfasten the five screws to remove the left mounting ear from the chassis.

Figure 84. Left mounting ear removal
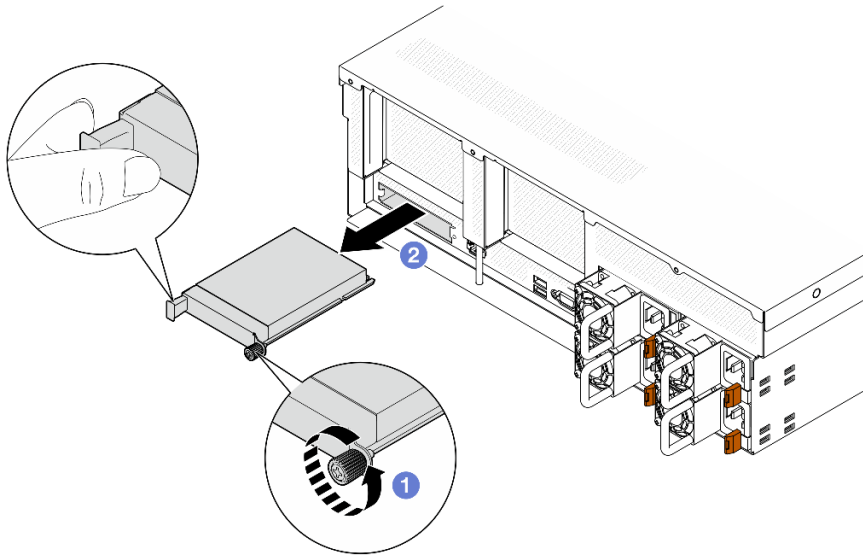
After you finish

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.

Demo video

[Watch the procedure on YouTube](#)

Install the mounting ears
Follow instructions in this section to install the mounting ears.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- 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.

Note: Make sure you have Phillips #1 head screwdriver available to properly replace the component.

Procedure

Step 1. Align the right mounting ear with the screw holes on the side of the chassis; then, fasten the five screws to secure the right mounting ear to the chassis.
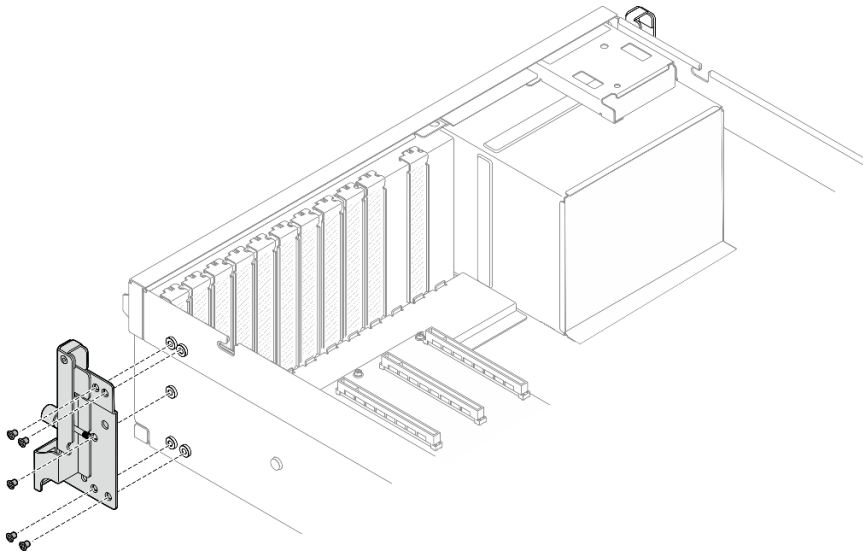
Figure 85. Right mounting ear installation

Step 2. Align the left mounting ear with the screw holes on the side of the chassis; then, fasten the five screws to secure the left mounting ear to the chassis.
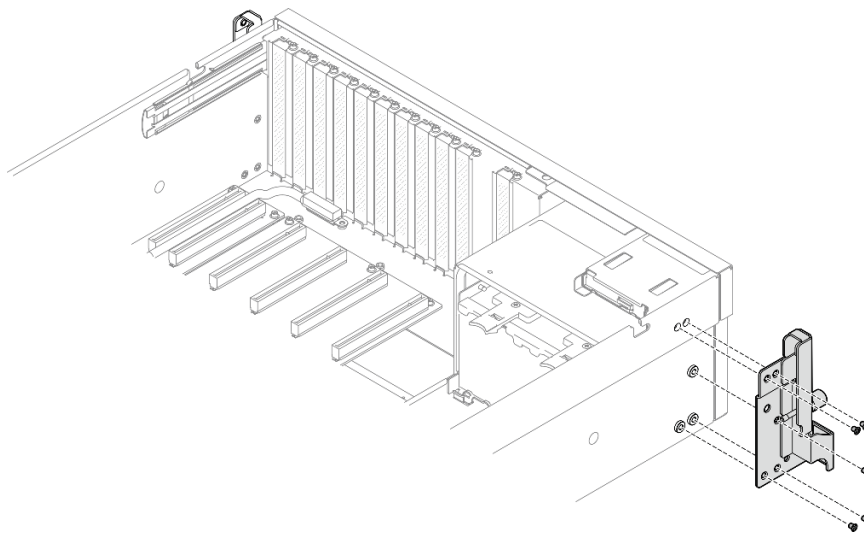
Figure 86. Left mounting ear installation

After you finish

Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

OCP module replacement

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

Remove the OCP module

Follow instructions in this section to remove the OCP module.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

Procedure

Step 1.   ❶ Loosen the thumbscrew.

Step 2.   ❷ Grasp the handle and slide the OCP module out.

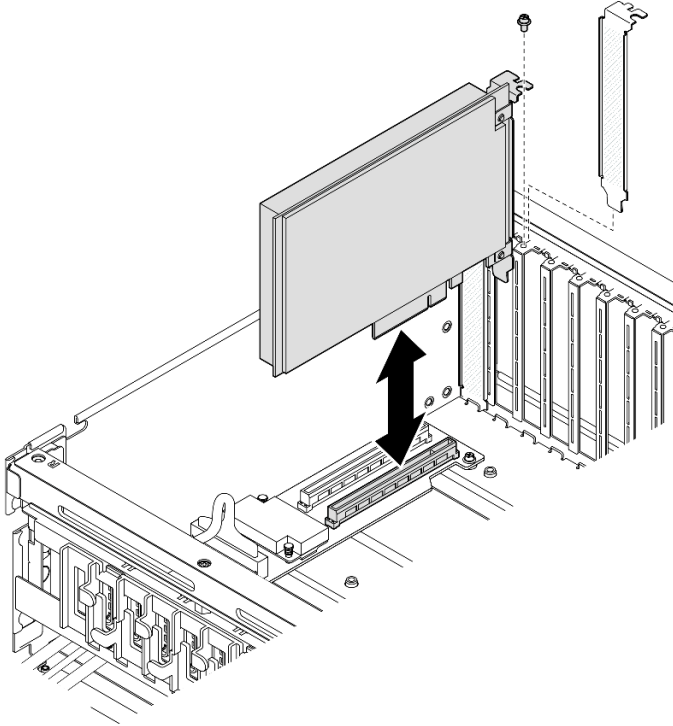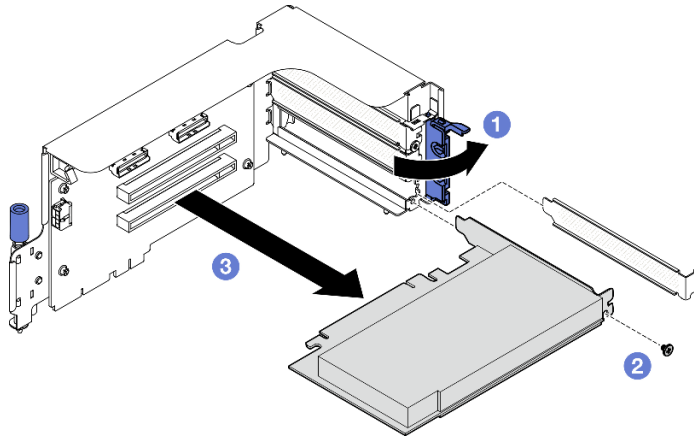*Figure 87. OCP module removal*

After you finish

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.

Demo video

Watch the procedure on YouTube

Install the OCP module

Follow instructions in this section to install the OCP module.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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. If the OCP is covered with a OCP filler, remove the filler from the chassis first.

Step 2. Install the OCP module.

    a. ❶ Slide the OCP module into the slot until it is fully seated.

    b. ❷ Tighten the thumbscrew to secure the OCP module.
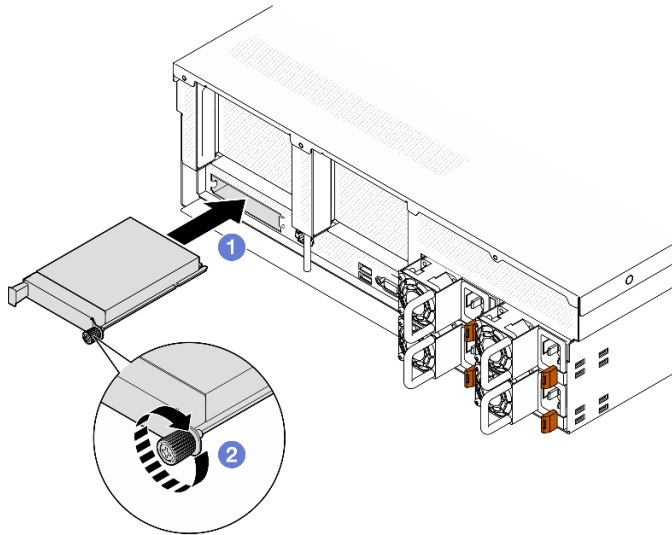
Figure 88. OCP module installation

After you finish

Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

PCIe adapter replacement

Follow instructions in this section to remove and install a PCIe adapter.

Remove a PCIe adapter

Follow instructions in this section to remove a PCIe adapter.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Note: The PCIe adapter might look different from the illustration.

Select the PCIe adapter removal scenario

Based on the location of the PCIe adapter, see corresponding instructions below for proper removal procedure:

- "Remove a front PCIe adapter" on page 129
- "Remove a rear PCIe adapter" on page 129

Remove a front PCIe adapter

Procedure

Step 1. Remove the top cover. See "Remove the top cover" on page 179.

Step 2. If applicable, record the cable connections first; then, disconnect all cables from the front PCIe adapter.

Step 3. Unfasten the screw that secures the front PCIe adapter to the chassis; then, lift the front PCIe adapter out of the PCIe slot.

Figure 89. Front PCIe adapter removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Remove a rear PCIe adapter

Procedure

Step 1. Make preparation for this task.

   a. Remove the top cover. See "Remove the top cover" on page 179.

   b. Remove the PCIe riser where the rear PCIe adapter has been installed. See "Remove a PCIe riser" on page 132.

Step 2. Remove the rear PCIe adapter.

   a. ❶ Open the retention latch on the PCIe riser.

b. ❷ Unfasten the screw that secures the rear PCIe adapter to the PCIe riser.

c. ❸ Grasp the rear PCIe adapter by its edges and carefully pull it out of the PCIe slot.

Figure 90. Rear PCIe adapter removal

After you finish

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.

Demo video

[Watch the procedure on YouTube](#)

Install a PCIe adapter

Follow instructions in this section to install a PCIe adapter.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.

Note: The PCIe adapter might look different from the illustration.

Select the PCIe adapter installation scenario

Based on the location of the PCIe adapter, see corresponding instructions below for proper installation procedure:

- "Install a front PCIe adapter" on page 130
- "Install a rear PCIe adapter" on page 131

Install a front PCIe adapter

Procedure

Step 1. Align the front PCIe adapter with the PCIe slot on the front I/O expansion board; then, press the front PCIe adapter into the slot until it is fully seated.

Step 2. Fasten the screw that secures the front PCIe adapter to the front I/O expansion board.
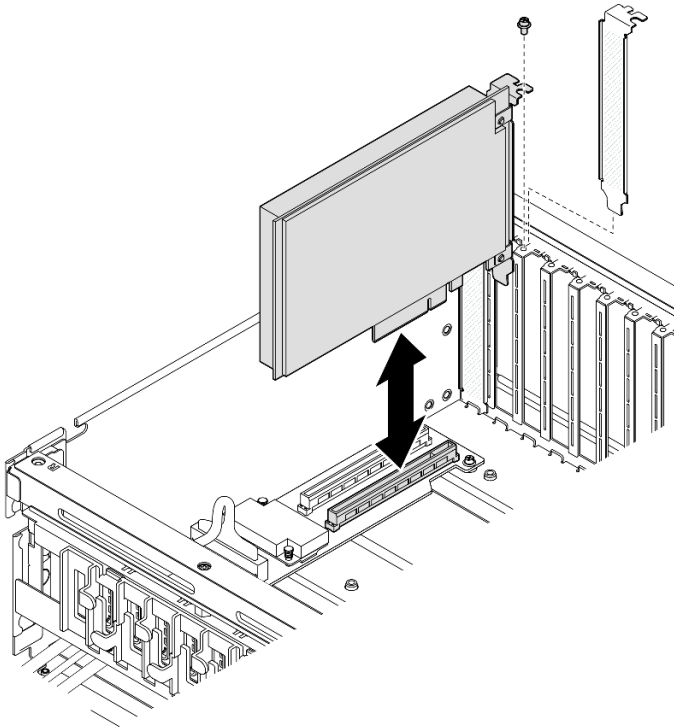
Figure 91. Front PCIe adapter installation

Step 3. If applicable, reconnect all cables to the front PCIe adapter.

After you finish

Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Install a rear PCIe adapter

Procedure

Step 1. Open the retention latch on the PCIe riser.

Step 2. Install the rear PCIe adapter.

    a. ❶ Insert the rear PCIe adapter into the PCIe riser.

    b. ❷ Fasten the screw to secure the rear PCIe adapter to the PCIe riser.

    c. ❸ Close the retention latch.
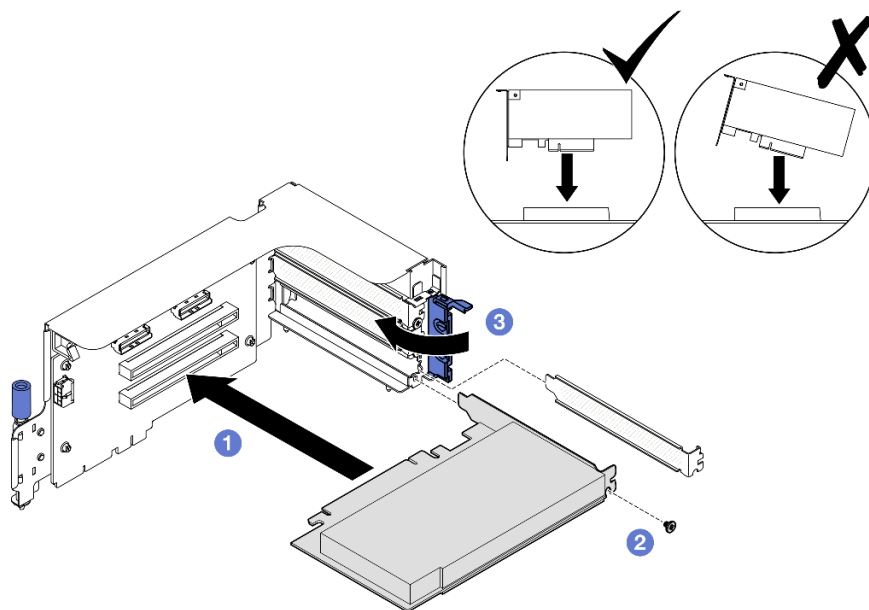
Figure 92. Rear PCIe adapter installation

After you finish

1. Reinstall the PCIe riser. See "Install a PCIe riser" on page 136.
2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

PCIe riser replacement

Follow instructions in this section to remove and install a PCIe riser.

Remove a PCIe riser

Follow instructions in this section to remove a PCIe riser.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Note: To maintain proper system cooling, do not operate the server without a PCIe riser or a riser filler installed in the chassis.

Select the PCIe riser removal scenario

There are three PCIe riser removal scenarios differentiated by PCIe riser location and serial port installation. See corresponding instructions below for proper removal procedure.
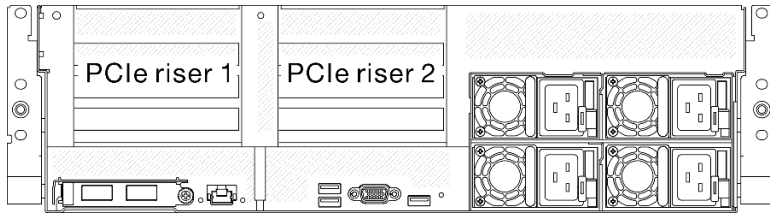
Figure 93. PCIe riser locations

- "Remove a PCIe riser without serial port module" on page 133
- "Remove PCIe riser 1 installed with serial port module" on page 134
- "Remove PCIe riser 2 installed with serial port module" on page 135

Remove a PCIe riser without serial port module

Procedure

Step 1.   Make preparation for this task.

    a.   Remove the top cover. See "Remove the top cover" on page 179.

    b.   Disconnect the cables from the PCIe riser and the PCIe adapter.

Step 2.   Remove the PCIe riser.

    a.   ❶ Unfasten the thumbscrew on the PCIe riser.

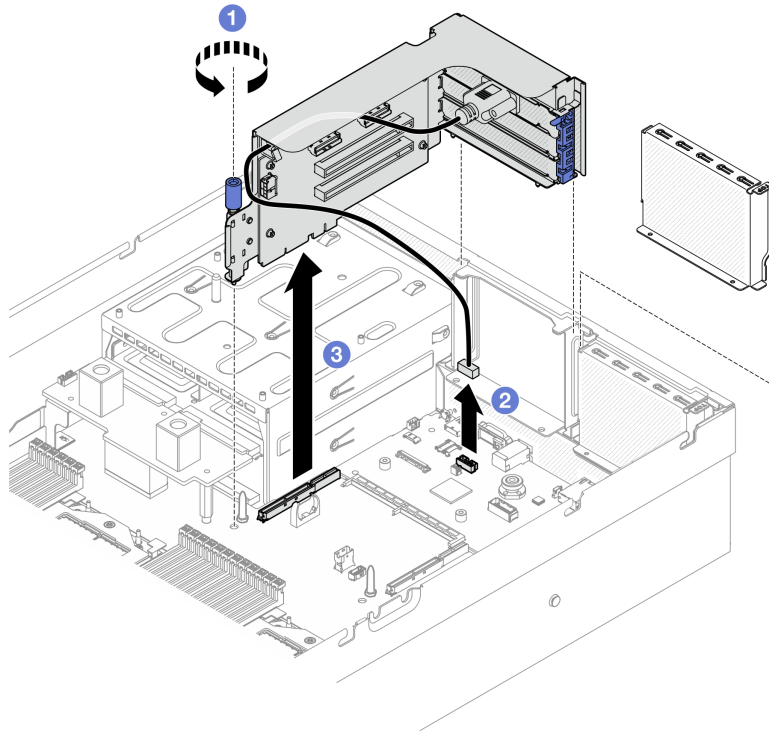   b.   ❷ Lift the PCIe riser out of the chassis.
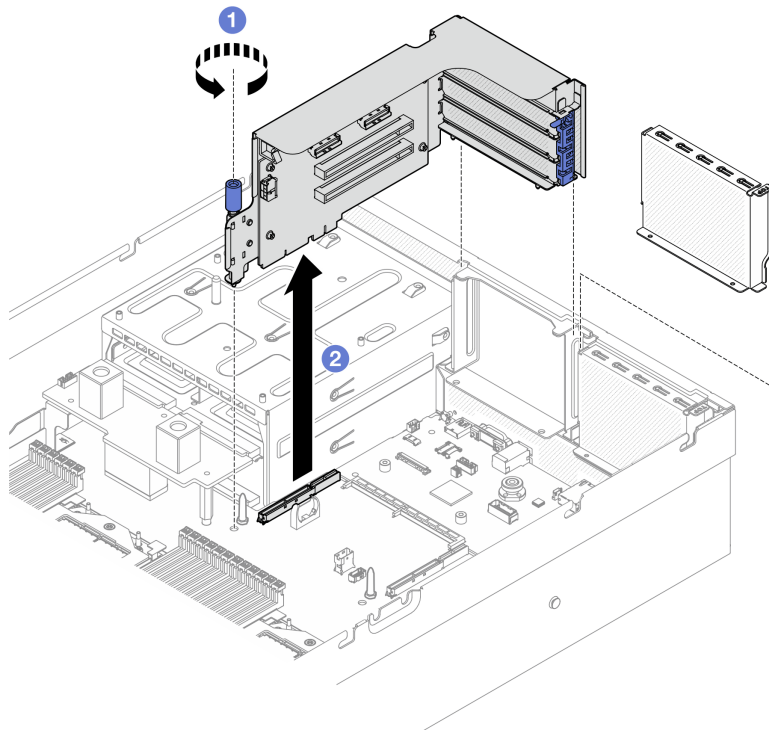
Figure 94. PCIe riser removal (without serial port module)

After you finish

1. If no PCIe riser is going to be installed to the chassis, install a riser filler into the chassis. See "Install a PCIe riser" on page 136.

2. To replace the PCIe adapter, see "Remove a PCIe adapter" on page 128.

3. 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.

Demo video

Watch the procedure on YouTube

Remove PCIe riser 1 installed with serial port module

Procedure

Step 1. Make preparation for this task.

   a. Remove the top cover. See "Remove the top cover" on page 179.

   b. Disconnect the cables from the PCIe riser and the PCIe adapter.

Step 2. If the PCIe riser 2 is installed, remove it from the chassis. See "Remove a PCIe riser without serial port module" on page 133.

Step 3. Remove the PCIe riser 1 installed with serial port module.

   a. ❶ Disconnect the serial port cable from the system board assembly.

   b. ❷ Unfasten the thumbscrew on the PCIe riser.

   c. ❸ Lift the PCIe riser out of the chassis.
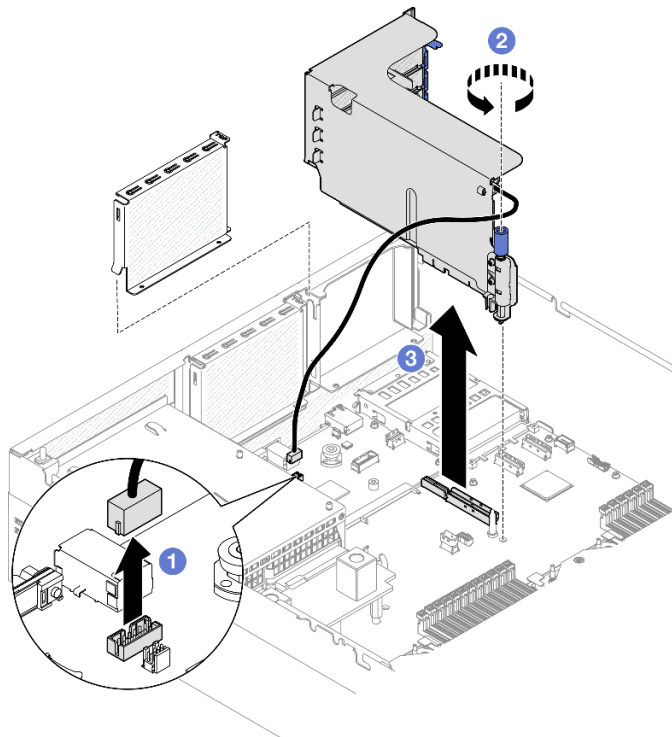
Figure 95. PCIe riser 1 removal (with serial port module)

After you finish

1. If no PCIe riser is going to be installed to the chassis, install a riser filler into the chassis. See "Install a PCIe riser" on page 136.

2. To replace the PCIe adapter, see "Remove a PCIe adapter" on page 128.

3. 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.

Demo video

Watch the procedure on YouTube

Remove PCIe riser 2 installed with serial port module

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Disconnect the cables from the PCIe riser and the PCIe adapter.

Step 2. Remove the PCIe riser 2 installed with serial port module.

    a. ❶ Unfasten the thumbscrew on the PCIe riser.

    b. ❷ Slightly lift the PCIe riser, and disconnect the serial port cable from the system board assembly.

    c. ❸ Lift the PCIe riser out of the chassis.

Figure 96. PCIe riser 2 removal (with serial port module)

After you finish

1. If no PCIe riser is going to be installed to the chassis, install a riser filler into the chassis. See "Install a PCIe riser" on page 136.

2. To replace the PCIe adapter, see "Remove a PCIe adapter" on page 128.

3. 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.

Demo video

Watch the procedure on YouTube

Install a PCIe riser
Follow instructions in this section to install a PCIe riser.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.

Note: To maintain proper system cooling, do not operate the server without a PCIe riser or a riser filler installed in the chassis.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Select the PCIe riser installation scenario

There are three PCIe riser installation scenarios differentiated by PCIe riser location and serial port installation. See corresponding instructions below for proper installation procedure.
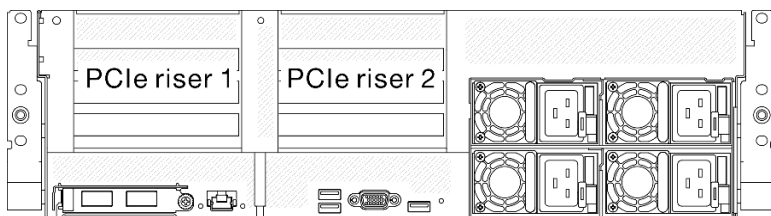
Figure 97. PCIe riser locations

- "Install a PCIe riser without serial port module" on page 136
- "Install PCIe riser 1 installed with serial port module" on page 137
- "Install PCIe riser 2 installed with serial port module" on page 138

Install a PCIe riser without serial port module

Procedure

Step 1.   ❶ Align the guide hole on the PCIe riser with the guide post on the system board assembly; then, insert the PCIe riser into the PCIe slot on the system board assembly.
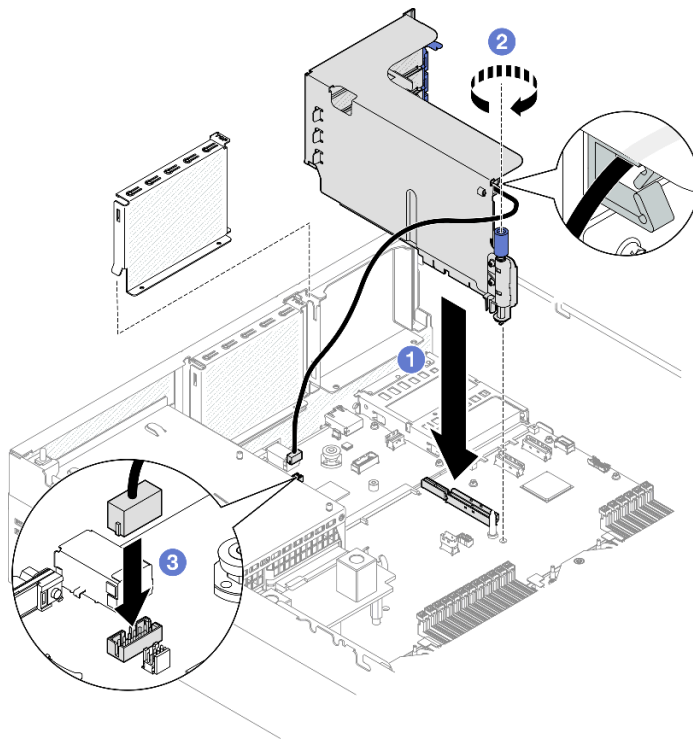
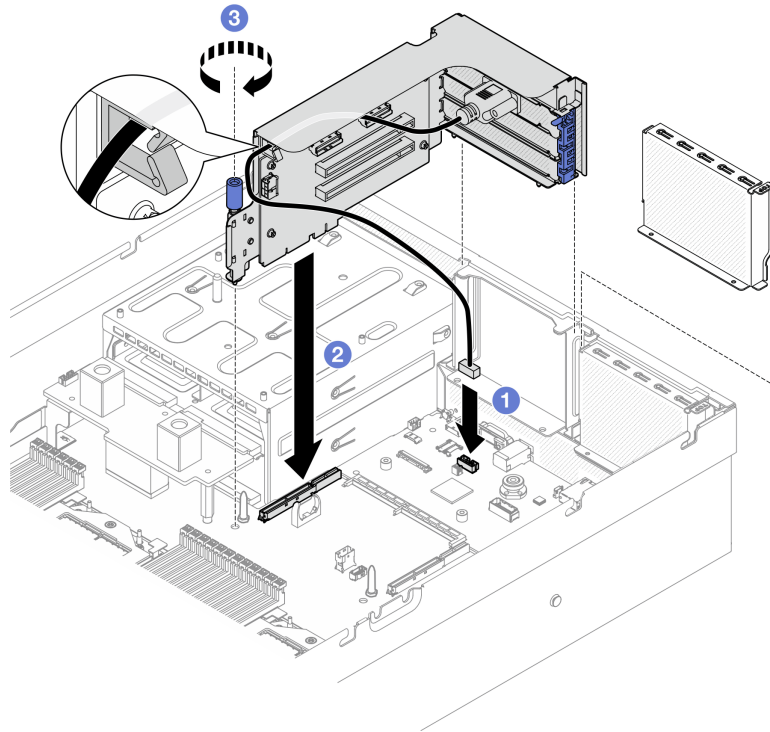Step 2. ❷ Fasten the thumbscrew to secure the PCIe riser.
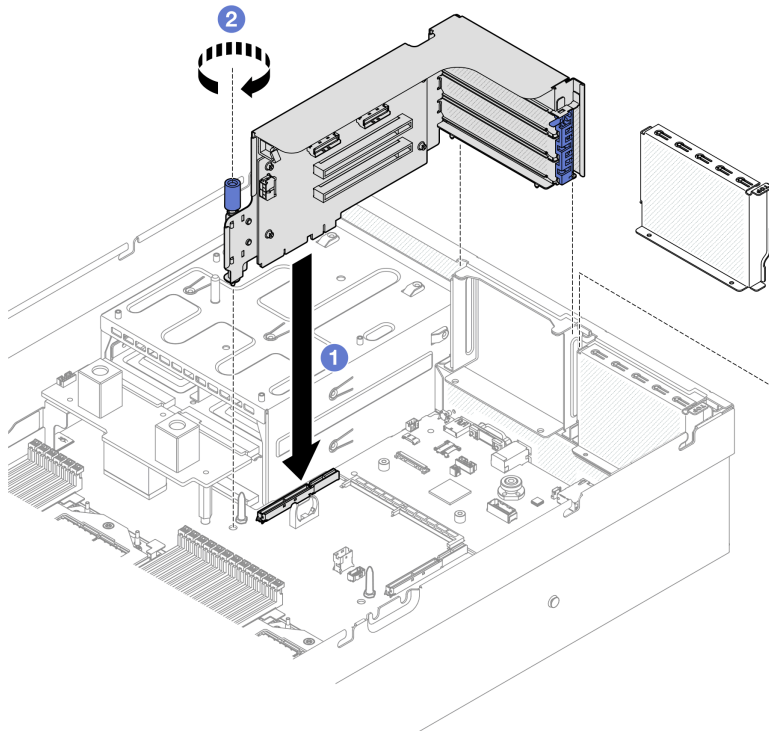
Figure 98. PCIe riser installation (without serial port module)

After you finish

1. Reconnect the required cables.
2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Install PCIe riser 1 installed with serial port module

Procedure

Step 1. If the PCIe riser 2 is installed, remove it. See "Remove a PCIe riser" on page 132.

Step 2. Install the PCIe riser 1 installed with serial port.

Attention: Make sure the serial port cable is routed through the cable clip inside the PCIe riser.

a. ❶ Align the guide hole on the PCIe riser with the guide post on the system board assembly; then, insert the PCIe riser into the PCIe slot on the system board assembly.

b. ❷ Fasten the thumbscrew to secure the PCIe riser.

c. ❸ Connect the serial port cable to the serial port connector on the system board assembly.

Figure 99. PCIe riser 1 installation (with serial port module)

After you finish

1. Reconnect the required cables.

2. Reinstall the PCIe riser 2. See .

3. Complete the parts replacement. See .

Demo video

[Watch the procedure on YouTube](#)

Install PCIe riser 2 installed with serial port module

Procedure

Step 1.   Install the PCIe riser 2 installed with the serial port module.

Attention: Make sure the serial port cable is routed through the cable clip inside the PCIe riser.

a.   ❶ Connect the serial port cable to the serial port connector on the system board assembly.

b.   ❷ Align the guide hole on the PCIe riser with the guide post on the system board assembly; then, insert the PCIe riser into the PCIe slot on the system board assembly.

c.   ❸ Fasten the thumbscrew to secure the PCIe riser.

Figure 100. PCIe riser 2 installation (with serial port module)

After you finish

1. Reconnect the required cables.
2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

PCIe riser card replacement

Follow instructions in this section to remove and install a PCIe riser card.

Remove a PCIe riser card

Follow instructions in this section to remove a PCIe riser card.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Note: To maintain proper system cooling, do not operate the server without a PCIe riser or a rise filler installed in the chassis.

Notes: Make sure you have the required tools listed below available to properly replace the component:

- Phillips #1 head screwdriver
- SR675 V3 Misc kit

Procedure

Step 1.   Make preparation for this task.

   a.   Remove the top cover. See "Remove the top cover" on page 179.

   b.   Remove the PCIe riser where the PCIe riser card has been installed. See "Remove a PCIe riser" on page 132.

   c.   Remove the PCIe adapter or the serial port module. See "Remove a PCIe adapter" on page 128 or "Remove the serial port module" on page 155.

Step 2.   Unfasten the five screws to remove the PCIe riser card from the PCIe riser cage.
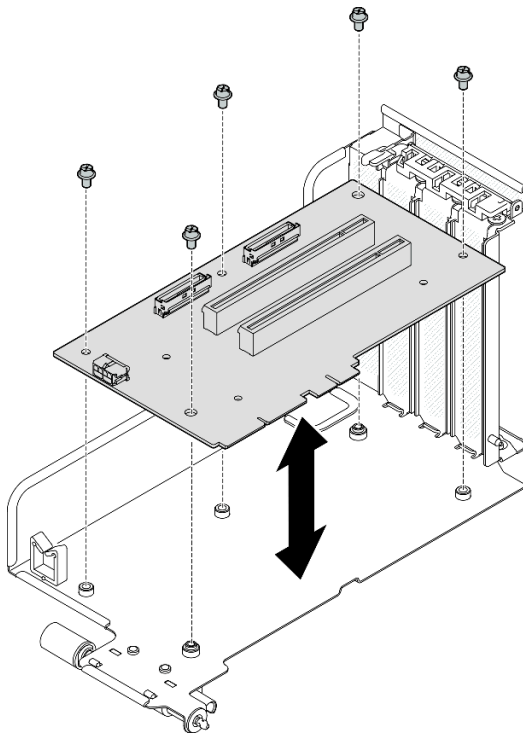
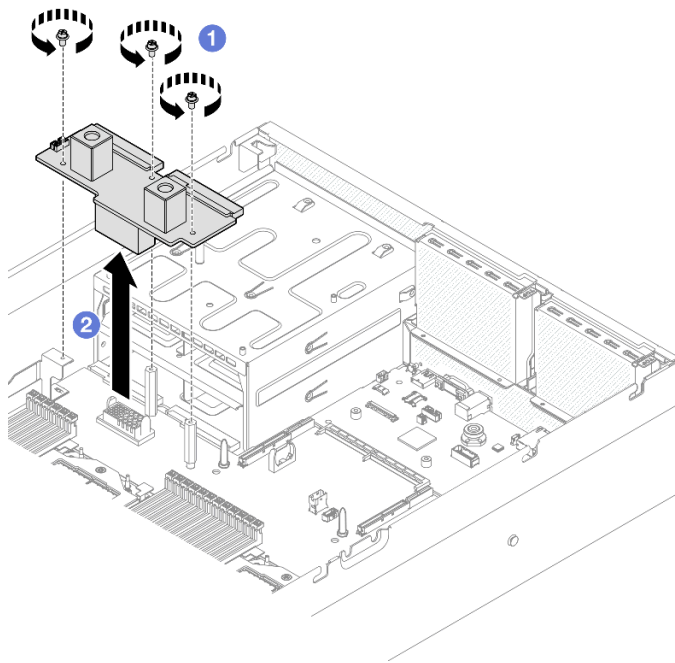*Figure 101. PCIe riser card removal*

After you finish

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.

Demo video

Watch the procedure on YouTube

Install a PCIe riser card
Follow instructions in this section to install a PCIe riser card.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.

Notes: Make sure you have the required tools listed below available to properly replace the component:

- Phillips #1 head screwdriver
- SR675 V3 Misc kit

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. Fasten the five screws to secure the PCIe riser card to the PCIe riser cage.
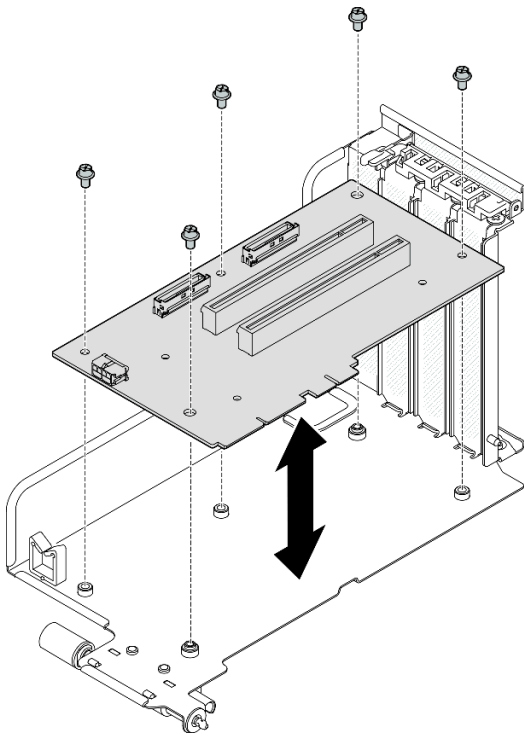
Figure 102. PCIe riser card installation

After you finish

1. Reinstall the PCIe adapter or the serial port module. See "Install a PCIe adapter" on page 130 or "Install the serial port module" on page 156.
2. Reinstall the PCIe riser. See "Install a PCIe riser" on page 136.

3. Reconnect the required cables.

4. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Power distribution board replacement

Follow instructions in this section to remove and install the power distribution board.

Remove the power distribution board

Follow instructions in this section to remove the power distribution board.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Procedure

Step 1.   Make preparation for this task.

a.   Remove the top cover. See "Remove the top cover" on page 179.

b.   Remove all of the power supply units. See "Remove a power supply unit" on page 144.

c.   **(SXM5 GPU Model only)** Remove the GPU power distribution board. See "Remove the SXM5 GPU power distribution board" on page 329.

Step 2.   Remove the power distribution board.

a.   ❶ Remove the three screws from the power distribution board.

b.   ❷ Lift the power distribution board out of its connector.

Figure 103. Power distribution board removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Install the power distribution board

Follow instructions in this section to install the power distribution board.

About this task

**Attention:** Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1.   ❶ Align the connector on the power distribution board with that on the system board assembly with the two power supply connectors facing the power supply bays; then, press the power distribution board into the connector until it is fully seated.

Step 2.   ❷ Fasten the three screws to secure the power distribution board to the system board assembly.
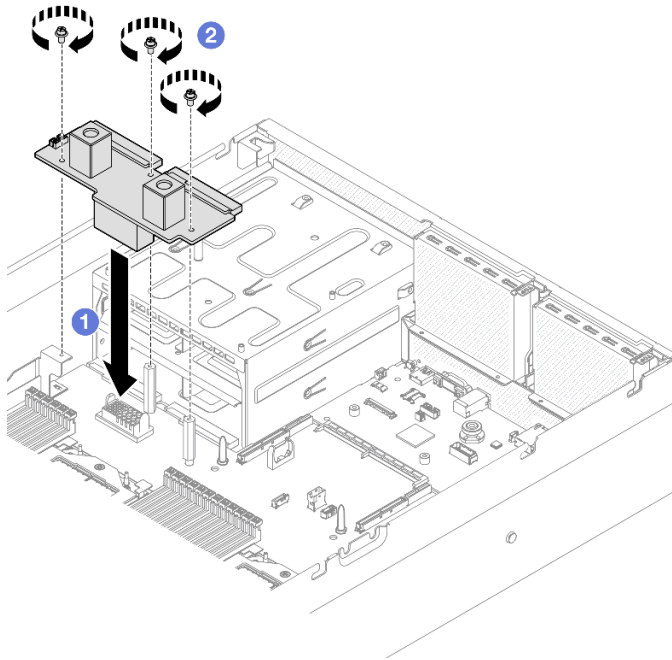
Figure 104. Power distribution board installation

After you finish

1. **(SXM5 GPU Model only)** Reinstall the SXM5 GPU power distribution board and connect the sideband cable between the power distribution board and the SXM5 GPU power distribution board. See "Install the SXM5 GPU power distribution board" on page 332.

2. Reinstall the power supply units. See "Install a power supply unit" on page 145.

3. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Power supply unit replacement

Follow instructions in this section to remove or install a power supply unit.

Remove a power supply unit

Follow instructions in this section to remove a power supply unit.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- Make sure you have a power supply unit filler available if some power supply bays will be left empty after the removal.

Procedure

Step 1.   ❶ Press and hold the orange release tab.

Step 2.   ❷ Grasp the handle, and pull the power supply unit out of the server.
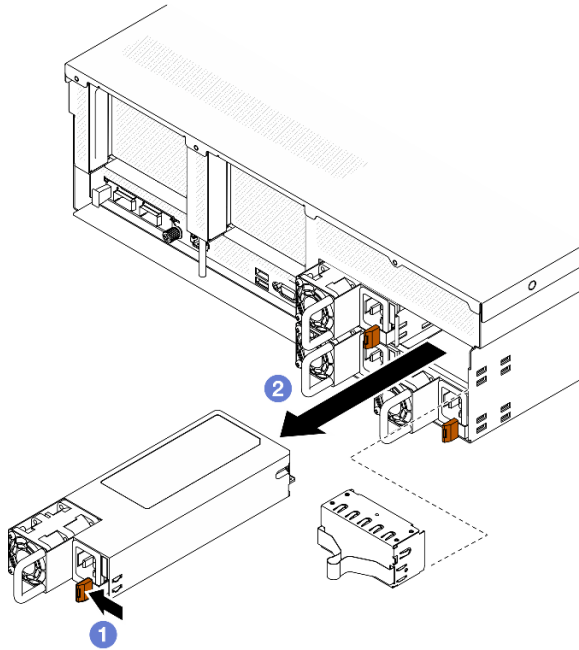
Figure 105. Power supply unit removal

After you finish

1. Install a power supply or power supply filler as soon as possible. See "Install a power supply unit" on page 145.

   Important: During normal operation, each power supply bay must contain either a power supply unit or a power supply filler for proper cooling.

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.

Demo video

Watch the procedure on YouTube

Install a power supply unit

Follow instructions in this section to install a power supply unit.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- 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.

Note: During normal operation, each power supply bay must contain either a power supply unit or a power supply filler for proper cooling.
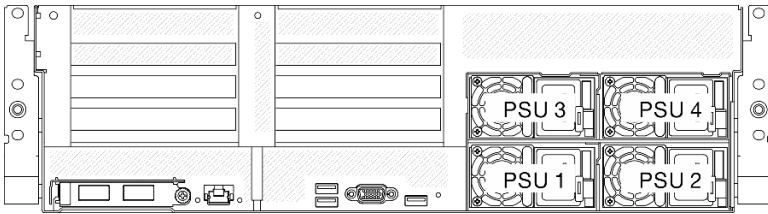
Figure 106. Power supply bay numbering

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. If a power supply filler is installed in the bay, pull the filler out of the bay.

Step 2. Make sure the label on the power supply is facing up; then, grasp the handle and slide it into the power supply bay until it clicks into place.
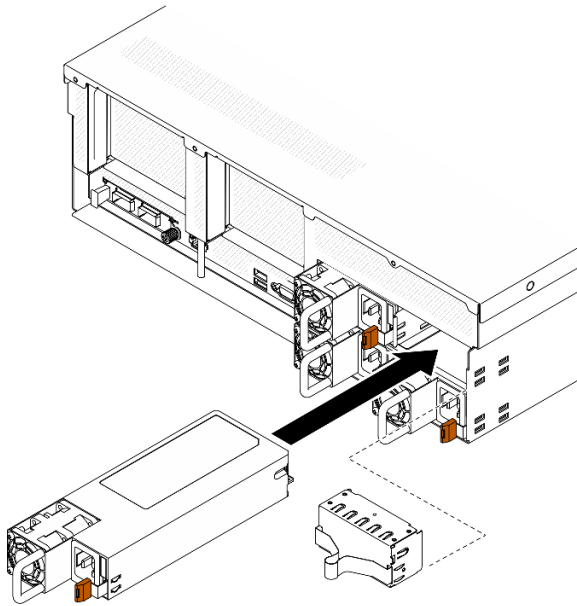
Figure 107. Power supply unit installation

Step 3. Connect the power supply unit to a properly grounded electrical socket with a power cord.

Step 4. Make sure that the AC power LED on the power supply unit is lit, indicating that the power supply unit is operating correctly.

After you finish

Check the PSU LEDs to verify that the PSU is operating correctly. See Figure 10 "Power supply LEDs on the Rear view" on page 27.

Demo video

Watch the procedure on YouTube

Processor and heat sink replacement (trained technician only)

Follow instructions in this section to remove and install a processor and a heat sink.

Important:

- This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install the part without proper training and qualification.
- Before replacing a processor, check the current PSB fuse policy. See *Service process before replacement* at Service process for updating PSB fuse state.
- After replacing a processor, ensure that the processor fuse status is expected without unexpected XCC event logs. See *Service process after replacing a processor* at Service process for updating PSB fuse state.

Attention:

- Before reusing a processor or heat sink, make sure you use Lenovo proven alcohol cleaning pad and thermal grease.
- Each processor socket must always contain a cover or a processor. When replacing a processor, protect the empty processor socket with a cover.
- Do not touch the processor socket or processor contacts. Processor-socket contacts are very fragile and easily damaged. Contaminants on the processor contacts, such as oil from your skin, can cause connection failures.
- Do not allow the thermal grease on the processor or heat sink to come in contact with anything. Contact with any surface can compromise the thermal grease, rendering it ineffective. Thermal grease can damage components, such as the electrical connectors in the processor socket.

The following illustration shows the components of the processor and heat sink.
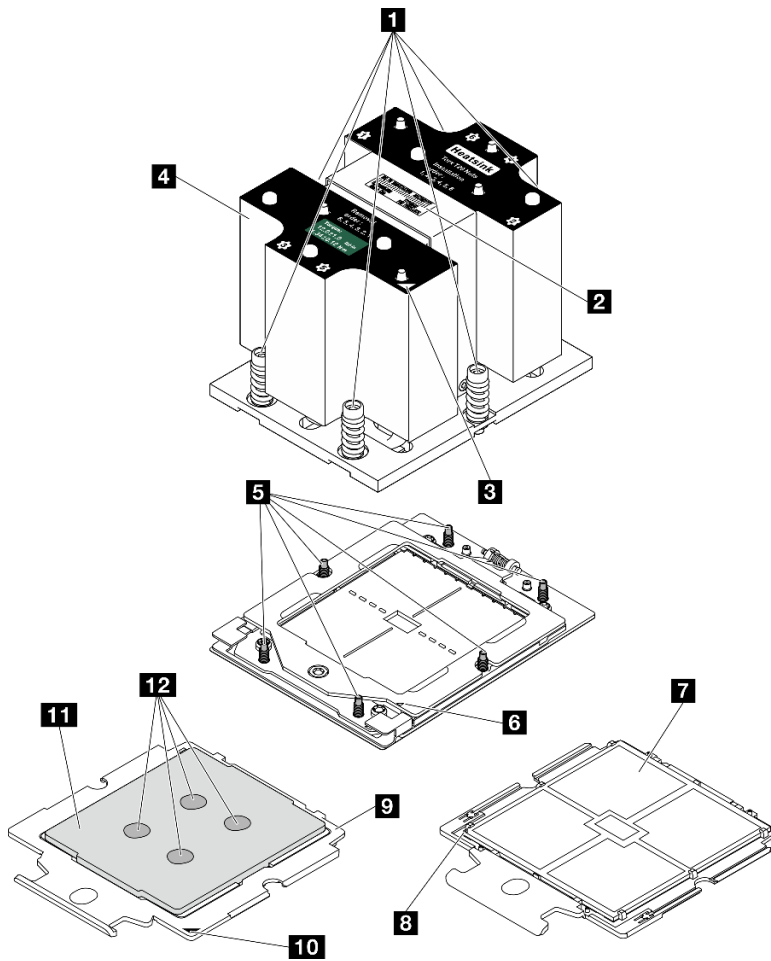
Figure 108. Processor and heat sink components

1 Captive screws (6)		**7** Processor contacts	
2 Processor identification label		**8** Processor triangular mark	
3 Heat sink triangular mark		**9** Processor carrier	
4 Heat sink		**10** Carrier triangular mark	
5 Screw bolts (6)		**11** Processor heat spreader	
6 Retention frame triangular mark		**12** Thermal grease	

Remove a heat sink

Follow instructions in this section to remove a heat sink. This task requires a Torx T20 driver. The procedure must be executed by a trained technician.

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 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.
- 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.

Procedure

Step 1.   Make preparation for this task.

   a.   Remove the top cover. See "Remove the top cover" on page 179.

   b.   Remove the air baffle. See "Remove the air baffle" on page 79.

Step 2.   Remove the heat sink.

Notes:

- Do not touch the contacts on the bottom of the processor.
- Keep the processor socket clean from any object to prevent possible damages.

   a.   ❶ Fully loosen all the screws on the heat sink *in the removal sequence shown* on the heat-sink label.

   b.   ❷ Carefully lift the heat sink from the processor socket.
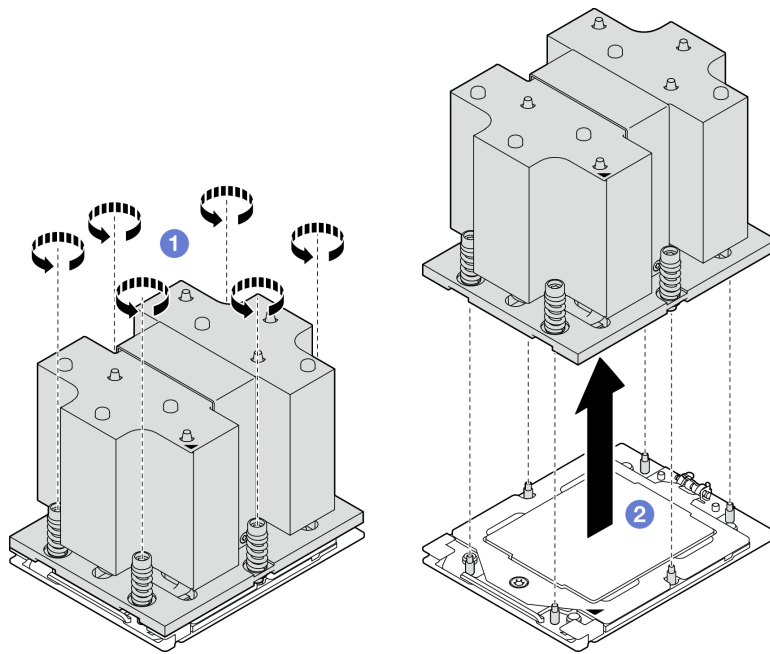
Figure 109. Heat sink removal

After you finish

1. If you are replacing a heat sink, install a new heat sink. See "Install a heat sink" on page 153.

2. If you are replacing a processor, remove the processor. See "Remove a processor" on page 151.

3. 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.

Demo video

Watch the procedure on YouTube

Remove a processor

Follow instructions in this section to remove a processor. This task requires a Torx T20 driver. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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.

- The system will load factory default UEFI settings when processor 1 is removed. In this case, make sure to back up the UEFI settings before processor 1 removal.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Remove the air baffle. See "Remove the air baffle" on page 79.

    c. Remove the heat sink. See "Remove a heat sink" on page 149.

Step 2. Remove the processor.

    a. ❶ Use a Torx T20 screwdriver to loosen the screw; then, slightly lift up the retention frame.

    b. ❷ Slightly lift up the rail frame in the direction shown. The processor in the rail frame is spring-loaded.

    c. ❸ Hold the blue tab of the processor carrier and slide the processor carrier out of the rail frame.
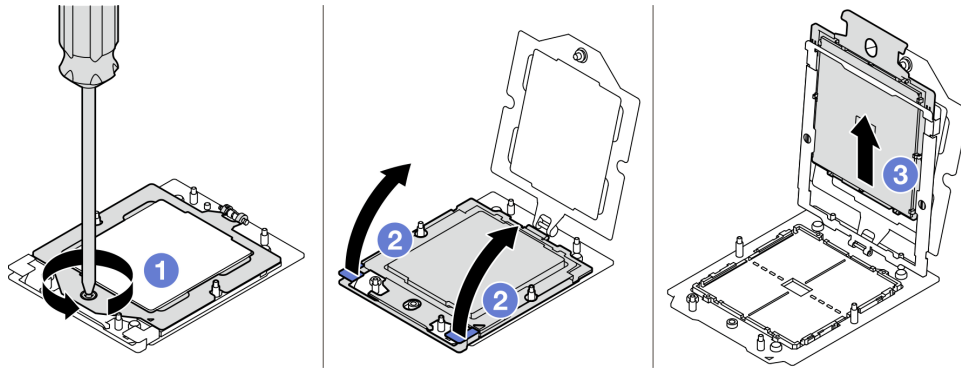
Figure 110. Processor removal

After you finish

1. If you are going to install a new processor. See "Install a processor" on page 152.

2. Empty processor socket must always contain a socket cover and a filler before the server is powered on.

3. 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.

Demo video

Watch the procedure on YouTube

Install a processor

Follow instructions in this section to install a processor. This task requires a Torx T20 driver. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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.

Notes:

- See https://serverproven.lenovo.com for a list of processors supported for your server. All processors on the system board assembly must have the same speed, number of cores, and frequency.
- Before you install a new processor, update your system firmware to the latest level. See "Update the firmware" on page 427.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. Remove the processor socket cover.

Step 2. Install the processor.

    a.   ❶ Slide the processor carrier into the rail frame.

    b.   ❷ Push the rail frame down until the blue latches lock into place; then, close the retention frame.

    c.   ❸ Use a Torx T20 screwdriver to tighten the screw.

        Attention:

- Make sure the processor carrier is well seated inside the rail frame.
- Make sure the rear of processor carrier does not float above the rail frame.
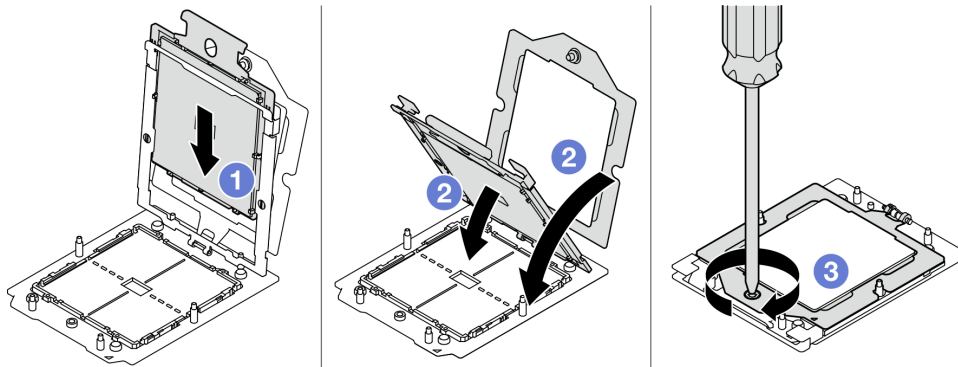
Figure 111. Processor installation

After you finish

1. Install the heat sink. See "Install a heat sink" on page 153.
2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Install a heat sink

Follow the instructions in this section to install a heat sink. This task requires a Torx T20 driver. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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.

Procedure

Step 1.   Record the processor identification label.

To replace a processor and reuse the heat sink:

1. Remove the processor identification label from the heat sink and replace it with the new label that comes with the replacement processor.
2. Wipe off old thermal grease on the heat sink with an alcohol cleaning pad.

To replace a heat sink and reuse the processor:

1. Remove the processor identification label from the old heat sink and place it on the new heat sink in the same location.

   Note: If you are unable to remove the label and place it on the new heat sink, or if the label is damaged during transfer, write the processor serial number from the processor identification label on the new heat sink in the same location as the label would be placed using a permanent marker.

2. Wipe off old thermal grease on the heat sink with an alcohol cleaning pad.
3. Check whether the manufacturing date on the new heat sink exceeds two years.

   - If yes, wipe off the thermal grease on the new heat sink with an alcohol cleaning pad, and go to Step 2 on page 154
   - If no, go to Step 3 on page 155

Step 2.   Apply new thermal grease on the top of the processor with a syringe by forming four uniformly spaced dots, while each dot consists of about 0.1 ml of thermal grease.
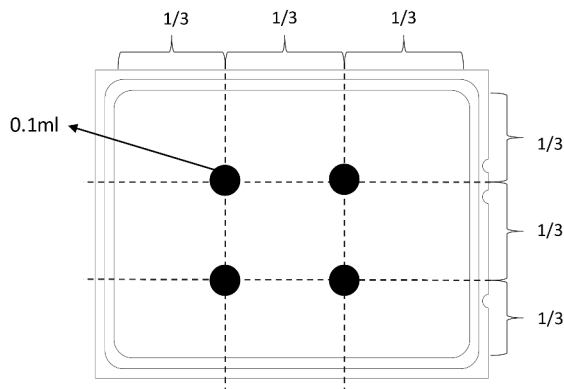
Figure 112. Thermal grease application

Step 3. Install the heat sink.

a. **①** Align the triangular mark and screws on the heat sink with the triangular mark and threaded posts on the processor socket; then install the heat sink on the processor socket.

b. **②** Fully tighten all the screws *in the installation sequence shown* on the heat sink label.
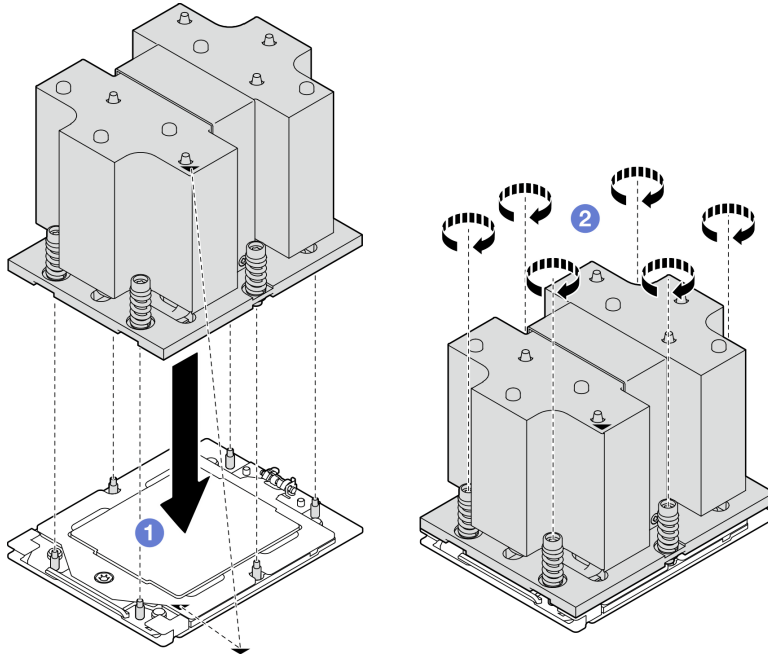
Figure 113. Heat sink installation

After you finish

Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Serial port module replacement

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

Remove the serial port module

Follow instructions in this section to remove the serial port module.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Disconnect the serial port cable from the system board assembly.

    c. Remove the PCIe riser where the serial port module has been installed. See "Remove a PCIe riser" on page 132.

Step 2. Remove the serial port module.

    a. ❶ Remove the serial port cable from the cable clip.

    b. ❷ Open the retention latch on the PCIe riser.

    c. ❸ Unfasten the screw that secures the serial port module to the PCIe riser.

    d. ❹ Remove the serial port module from the PCIe riser.
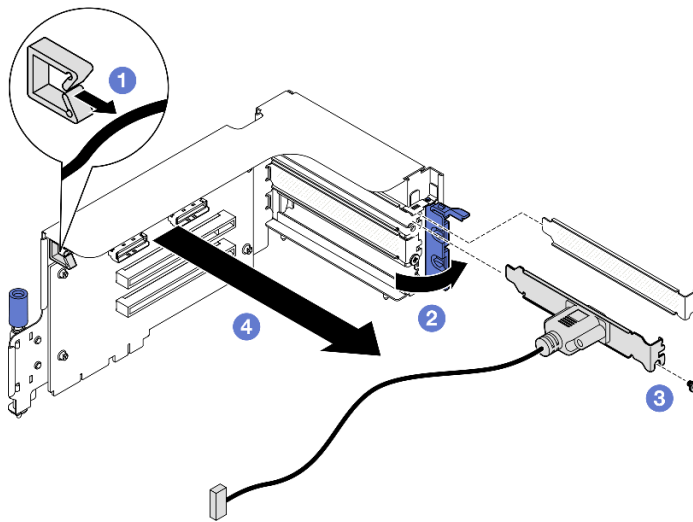
Figure 114. Serial port module removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Install the serial port module

Follow instructions in this section to install the serial port module.

About this task

Attention: Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

Procedure

Step 1. Open the retention latch on the PCIe riser.

Step 2. Install the serial port module.

    a. ❶ Insert the serial port module into the PCIe riser.

    b. ❷ Fasten the screw to secure the serial port module to the PCIe riser.

    c. ❸ Close the retention latch.

    d. ❹ Route the serial port cable through the cable clip.
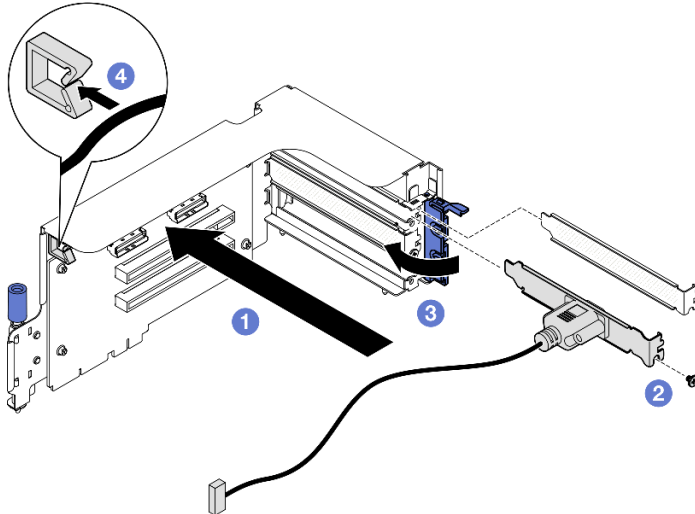
Figure 115. Serial port module installation

After you finish

1. Connect the serial port cable to the serial port connector on the system board assembly.

2. Reinstall the PCIe riser. See "Install a PCIe riser" on page 136.

3. Complete the parts replacement. See "Complete the parts replacement" on page 341.

4. 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.

Demo video

System board assembly replacement (trained technician only)

Follow instructions in this section to remove and install the system board assembly.

Important:

- This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install the part without proper training and qualification.

- If you need to replace a processor board and a firmware and RoT security module together, do the following:

  - Check the current PSB fuse policy before replacement. See *Service process before replacement* at Service process for updating PSB fuse state.

  - Ensure that the processor fuse status is expected without unexpected XCC event logs after replacement. See *Service process after replacing a processor board and a firmware and RoT security module together* at Service process for updating PSB fuse state.

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

CAUTION:

The heat sinks and processors might be very hot. Turn off the server and wait several minutes to let the server cool before removing the server cover.

The following illustration shows the layout of the system board assembly which contains the firmware and RoT security module, system I/O board, and processor board.
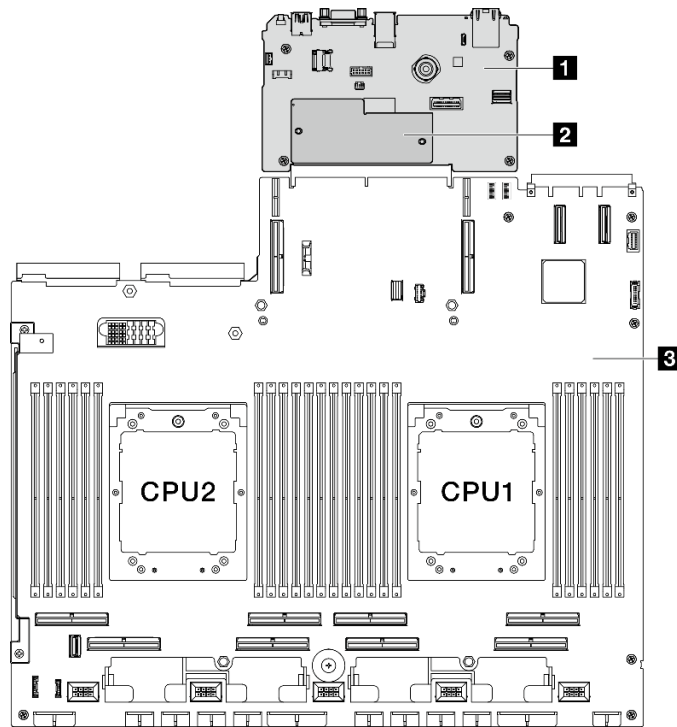
Figure 116. System-board-assembly layout

1 System I/O board	**2** Firmware and RoT security module	**3** Processor board

Remove the firmware and RoT security module

Follow instructions in this section to remove the ThinkSystem V3 Firmware and Root of Trust Security Module (firmware and RoT security module).

About this task

Important: This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install it without proper training and qualification.

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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.

- After replacing the firmware and RoT security module, update the firmware to the specific version supported by the server. Make sure that you have the required firmware or a copy of the pre-existing firmware before you proceed.

Procedure

Step 1.   Make preparation for this task.

a. Perform OneCLI commands to back up the UEFI settings. See https://pubs.lenovo.com/lxce-onecli/onecli_r_save_command.

b. Perform both OneCLI commands and XCC actions to back up the XCC settings. See https://pubs.lenovo.com/lxce-onecli/onecli_r_save_command and https://pubs.lenovo.com/xcc2/NN1ia_c_backupthexcc.html.

c. Remove the top cover. See "Remove the top cover" on page 179.

d. Remove the PCIe riser 2 if necessary. See "Remove a PCIe riser" on page 132.

Step 2. Remove the firmware and RoT security module.

a. ❶ Loosen the two screws on the firmware and RoT security module.

b. ❷ Lift the firmware and RoT security module out of the system I/O board.
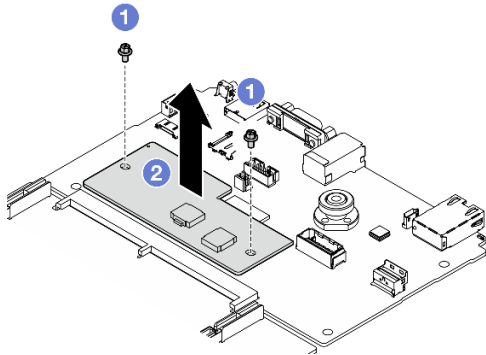
Figure 117. Firmware and RoT security module removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Install the firmware and RoT security module

Follow instructions in this section to install the ThinkSystem V3 Firmware and Root of Trust Security Module (firmware and RoT security module).

About this task

Important:

- This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install it without proper training and qualification.

- (Lenovo trained technicians only) After replacing the Firmware and RoT Security Module, update the UEFI, XCC and LXPM firmware to the specific version supported by the server. For detailed information on how to update the firmware, see https://glosse4lenovo.lenovo.com/wiki/glosse4lenovo/view/How%20To/System%20related/How%20to%20do%20RoT%20Module%20FW%20update%20on%20ThinkSystem%20V3%20machines/.

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. Touch the static-protective package that contains the new part to any unpainted surface on the outside of the server. Then, take the new part out of the package and place it on a static-protective surface.

Step 2. Install the firmware and RoT security module.

    a. ❶ Lower the firmware and RoT security module onto the system I/O board and ensure that the connector on the module is correctly inserted into the slot on the system I/O board.

    b. ❷ Tighten the two screws to secure the firmware and RoT security module in place.
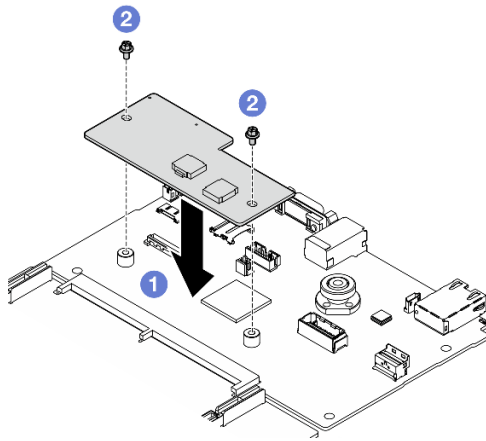
Figure 118. Firmware and RoT security module installation

After you finish

1. Reinstall the PCIe riser 2 if necessary. See "Install a PCIe riser" on page 136.
2. Complete the parts replacement. See "Complete the parts replacement" on page 341.
3. Update the UEFI, XCC and LXPM firmware to the specific version supported by the server. See https://glosse4lenovo.lenovo.com/wiki/glosse4lenovo/view/How%20To/System%20related/How%20to%20do%20RoT%20Module%20FW%20update%20on%20ThinkSystem%20V3%20machines/.
4. Perform OneCLI commands to restore the UEFI settings. See https://pubs.lenovo.com/lxce-onecli/onecli_r_restore_command.

5. Perform both OneCLI commands and XCC actions to restore the XCC settings. See https://pubs.lenovo.com/lxce-onecli/onecli_r_restore_command and https://pubs.lenovo.com/xcc2/NN1ia_c_restorethexcc.html.

6. If there is a software (SW) key, for example, XCC FoD key, installed in the system, inject the key again to ensure that the key functions properly. See https://lenovopress.lenovo.com/redp4895.pdf.

   Note: If you need to replace the processor board together with the firmware and RoT security module, update the VPD before injecting the key. See Update the Vital Product Data (VPD).

7. Optionally, do the following if needed:

   - Hide TPM. See "Hide/observe TPM" on page 177.
   - Update the TPM firmware. See "Update the TPM firmware" on page 178.
   - Enable UEFI Secure Boot. See "Enable UEFI Secure Boot" on page 179.

Demo video

Watch the procedure on YouTube

Remove the system I/O board or processor board

Follow instructions in this section to remove the system I/O board or processor board.

About this task

Important:

- This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install it without proper training and qualification.

- When removing the memory modules, label the slot number on each memory module, remove all the memory modules from the system board assembly, and set them aside on a static-protective surface for reinstallation.

- **When disconnecting cables, make a list of each cable and record the connectors the cable is connected to, and use the record as a cabling checklist after installing the new system board assembly.**

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

Notes: Make sure you have the required tools listed below available to properly replace the component:

- Phillips #1 head screwdriver
- Phillips #2 head screwdriver
- SR675 V3 Misc kit

Procedure

Step 1. Make preparation for this task.

a. Record all system configuration information, such as Lenovo XClarity Controller IP addresses, vital product data, and the machine type, model number, serial number, Universally Unique Identifier, and asset tag of the server.

b. Save the system configuration to an external device with Lenovo XClarity Essentials.

c. Save the system event log to external media.

Step 2. Remove the following components.

a. Remove the top cover. See "Remove the top cover" on page 179.

b. Remove the air baffle. See "Remove the air baffle" on page 79.

c. Remove the fans and the fan cage. See "Remove a fan" on page 88 and "Remove the fan cage" on page 90.

d. Remove the processors and the heat sinks. See "Remove a processor" on page 151 and "Remove a heat sink" on page 149.

e. Make sure to label the slot number on each memory module, remove all the memory modules from the system board assembly, and set them aside on a static-protective surface for reinstallation. See "Remove a memory module" on page 114.

   Important: It is advised to print out the layout of memory module slots for reference.

f. Remove the intrusion switch. See "Remove the intrusion switch" on page 105.

g. If applicable, remove the PCIe riser(s). See "Remove a PCIe riser" on page 132.

h. If applicable, remove the OCP module. See "Remove the OCP module" on page 126.

i. Remove the power supply units. See "Remove a power supply unit" on page 144.

j. **(SXM5 GPU Model only)** Remove the SXM5 GPU power distribution board. See "Remove the SXM5 GPU power distribution board" on page 329.

k. Remove the power distribution board. See "Remove the power distribution board" on page 142.

Step 3. Disconnect all the cables from the system board assembly. As you disconnect the cables, make a list of each cable and record the connectors the cables are connected to, and use the record as a cabling checklist after installing the new system board assembly.

Step 4. Disengage the system board assembly.

a. ❶ Pull up the rear lifting handle to release the system board assembly.

b. ❷ Grasp both lifting handles and slide the system board assembly toward the front of the chassis.

   Note: The two lifting handles only serve the purpose of removing system board assembly. Do not attempt to lift the whole server with them.
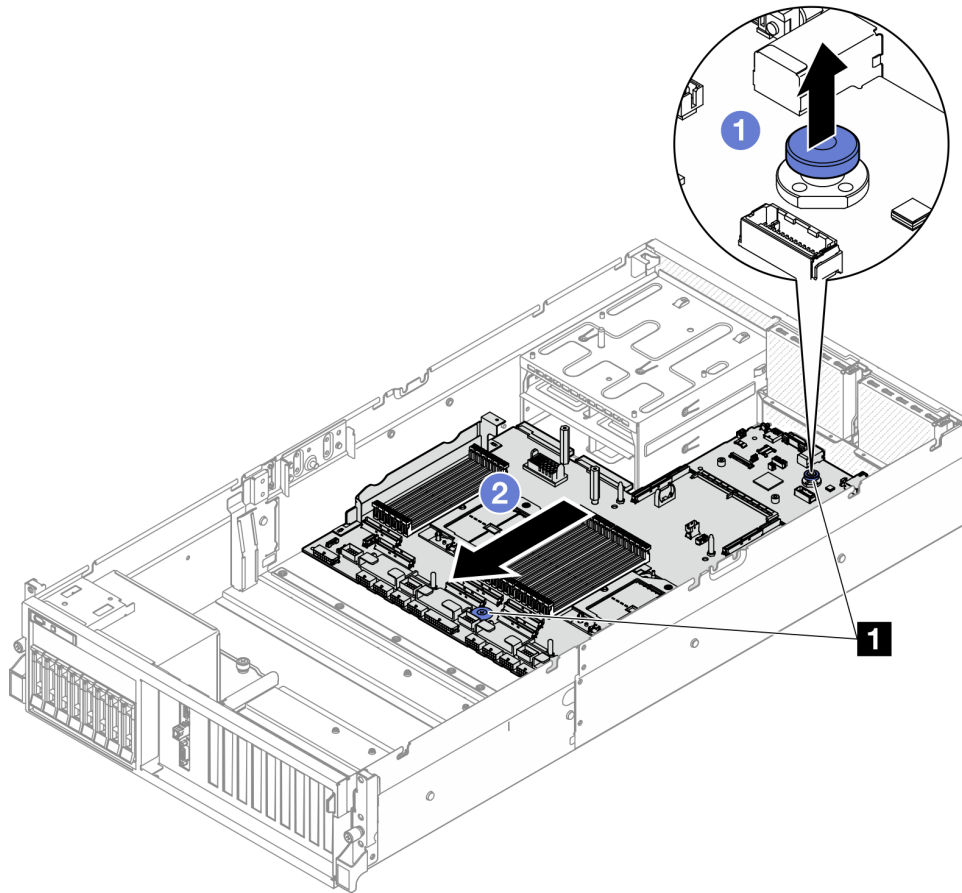
Figure 119. System board assembly disengagement

1 Lifting handles

Step 5. Remove the system board assembly.

a. ❶ Tilt the system board assembly so that its rear end is up.

b. ❷ Hold both lifting handles, and lift the system board assembly out of the chassis.
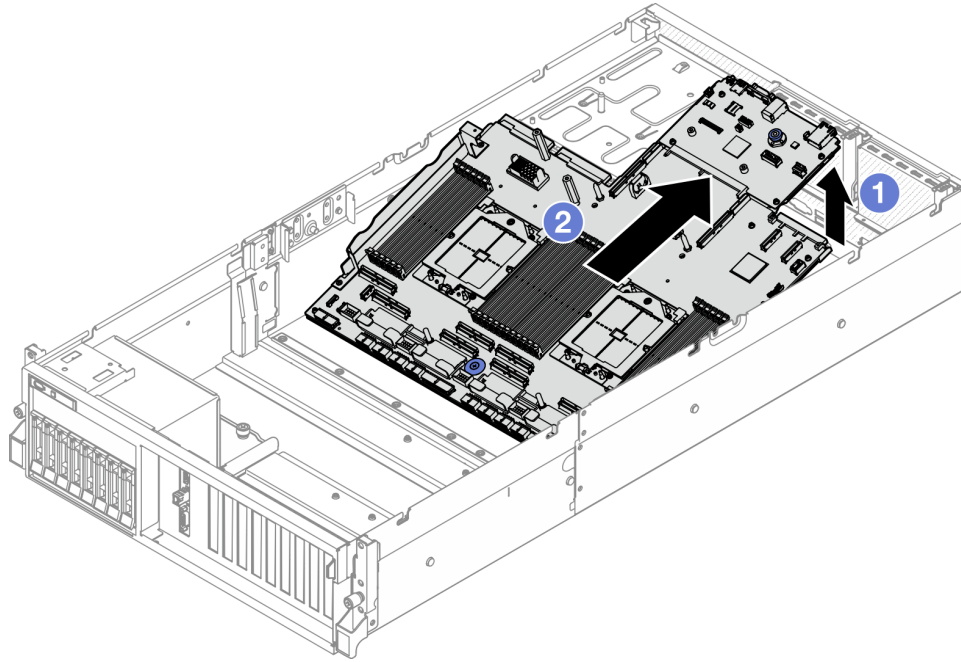
Figure 120. System board assembly removal

Step 6.   (Optional) If you are going to replace the system I/O board, remove the firmware and RoT security module from the system I/O board. See "Remove the firmware and RoT security module" on page 159. If you are going to replace the processor board, go to next step directly.

Step 7.   Remove the system I/O board from the processor board.

    a.   Separate the system board assembly from the supporting sheet metal.

        1.   Remove the following components from the processor board as illustrated:

- Use a 8 mm hex socket with a screwdriver to remove the two spacers.
- Use a Phillips #2 screwdriver to remove the two screws and one cable wall bracket.
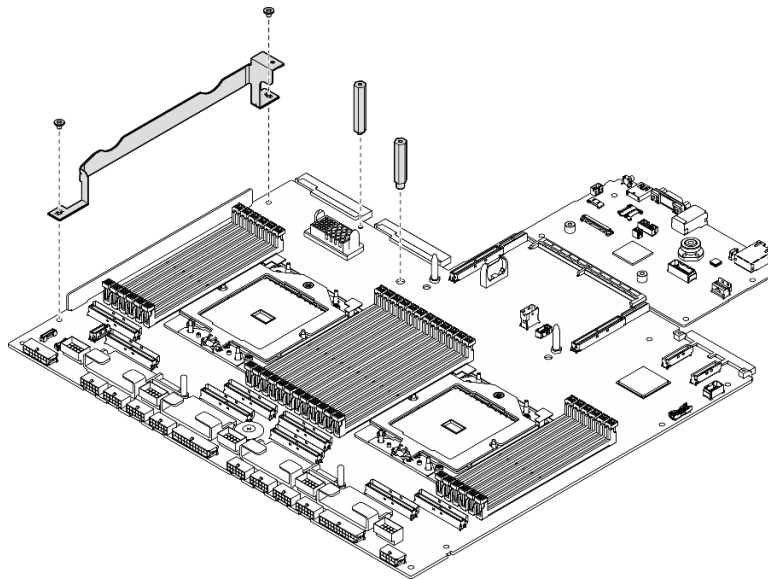
Figure 121. Component removal

2. Hold the two lifting handles, and carefully turn the system board assembly over.
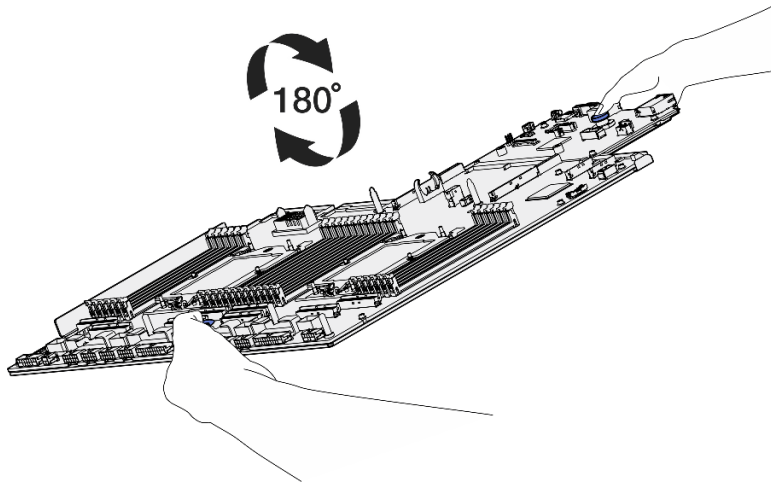
Figure 122. Turning the system board assembly over

3. Use a Phillips #1 screwdriver to remove the two screws from the bottom of the supporting sheet metal.
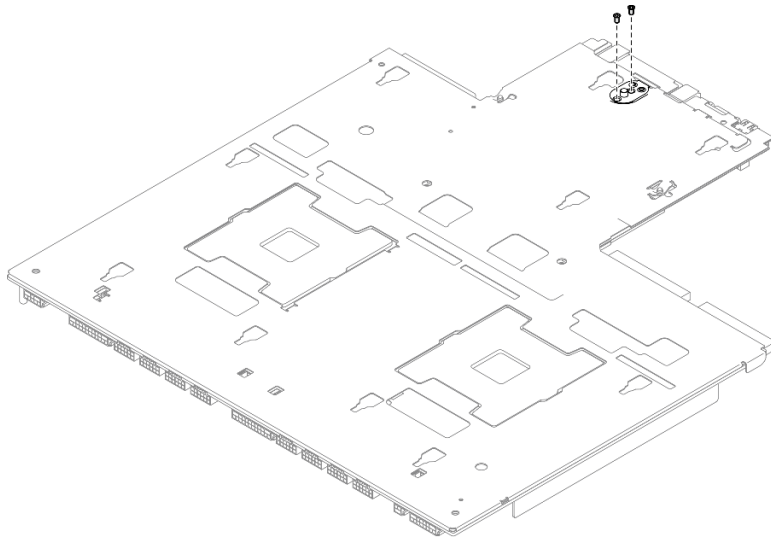
Figure 123. Screw removal

4. Hold the two lifting handles, and carefully turn the system board assembly over.
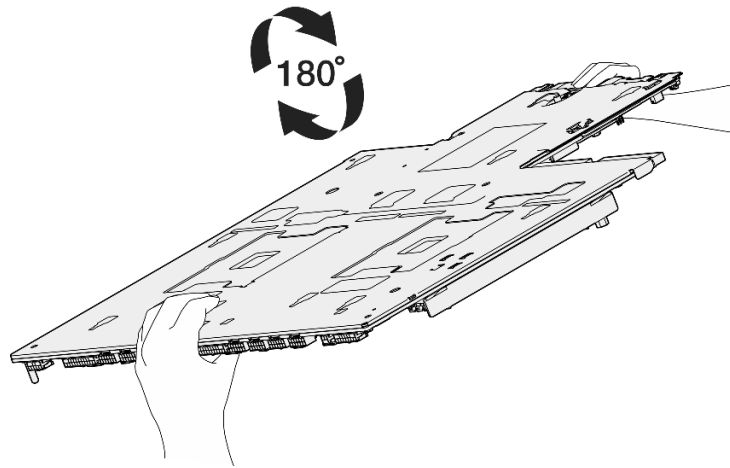
Figure 124. Turning the system board assembly over

5. Remove the following components from the system board assembly as illustrated:

   • Use a 5 mm hex socket with a screwdriver to remove the two hex nuts.

   • Use a 7 mm hex socket with a screwdriver to remove the five guide pins.

   • Use a Phillips #2 screwdriver to remove the lifting handle.

   • Use a Phillips #1 screwdriver to remove the nine screws.
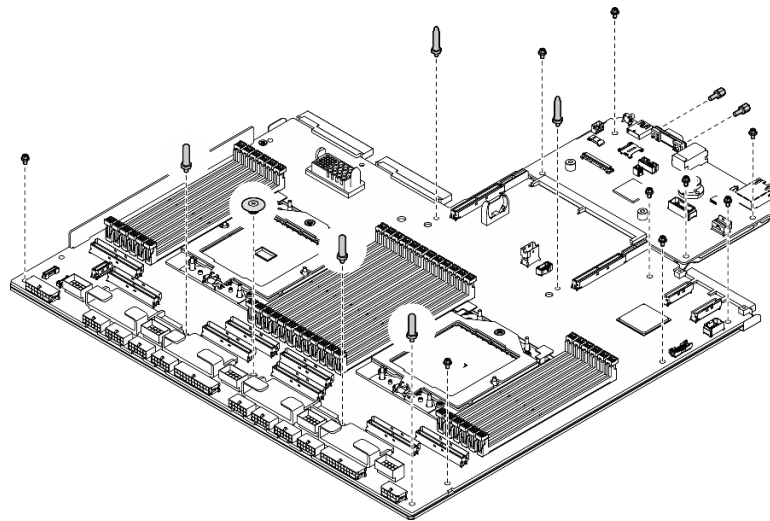
Figure 125. Component removal

6. Separate the system board assembly from the supporting sheet metal.
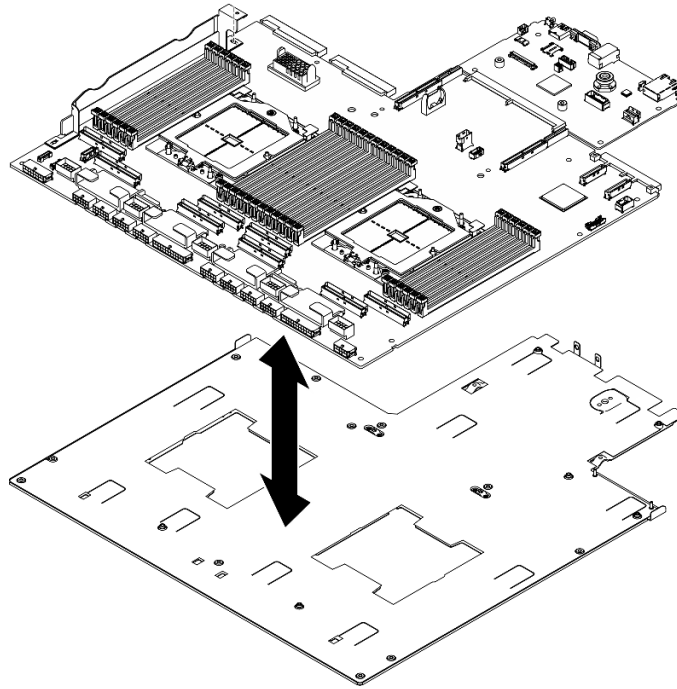
Figure 126. System board assembly disassembly

b.   Grasp the system I/O board by its edges, and carefully pull it out of the processor board.
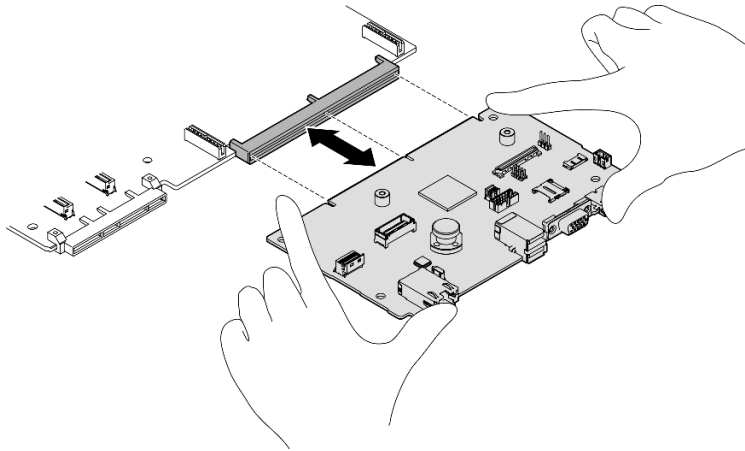
Figure 127. System I/O board removal

After you finish

1. 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.

    Important: Before you return the processor board, make sure that you install the processor socket covers from the new processor board. To replace a processor socket cover:

    a. Take a socket cover from the processor socket assembly on the new processor board and orient it correctly above the processor socket assembly on the removed processor board.

b. Gently press down the socket cover legs to the processor socket assembly, pressing on the edges to avoid damage to the socket pins. You might hear a click on the socket cover when it is securely attached.

c. **Make sure** that the socket cover is securely attached to the processor socket assembly.

2. If you plan to recycle the component, see "Disassemble the system board assembly for recycle" on page 471.

Demo video

Watch the procedure on YouTube

Install the system I/O board or processor board

Follow instructions in this section to install the system I/O board or processor board.

About this task

Important: Removing and installing this component requires trained technicians. **Do not** attempt to remove or install it without proper training.

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.

Notes: Make sure you have the required tools listed below available to properly replace the component:

- Phillips #1 head screwdriver
- Phillips #2 head screwdriver
- SR675 V3 Misc kit

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. Depending on the needs, do one of the following:

- If you are going to replace the system I/O board and reuse the processor board, install a new system I/O board onto the processor board.
- If you are going to replace the processor board and reuse the system I/O board, install the existing system I/O board onto a new processor board.

a. Install the system I/O board onto the processor board.

1. Align the system I/O board with the connector on the processor board, and use both hands to push the system I/O board and slightly insert it into the connector.

Note: To prevent the contact of the system I/O board from damage, ensure that the system I/O board is aligned correctly with the connector on the processor board, and remains as horizontal as possible during the insertion.
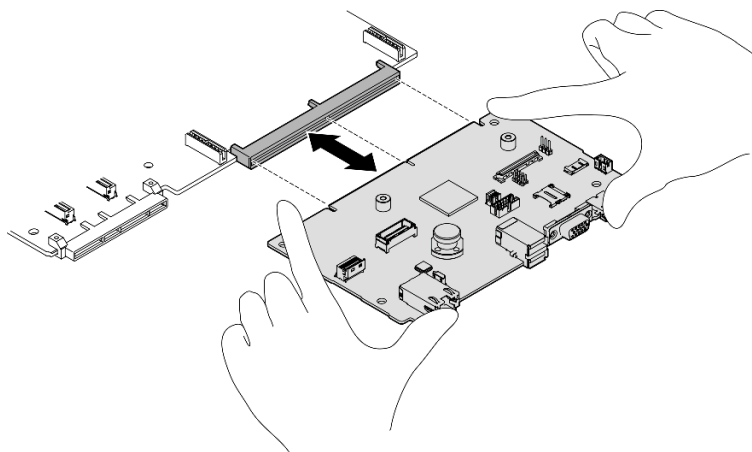
Figure 128. System I/O board installation

b. Install the system board assembly to the supporting sheet metal.

1. Lower the system board assembly into the supporting sheet metal.
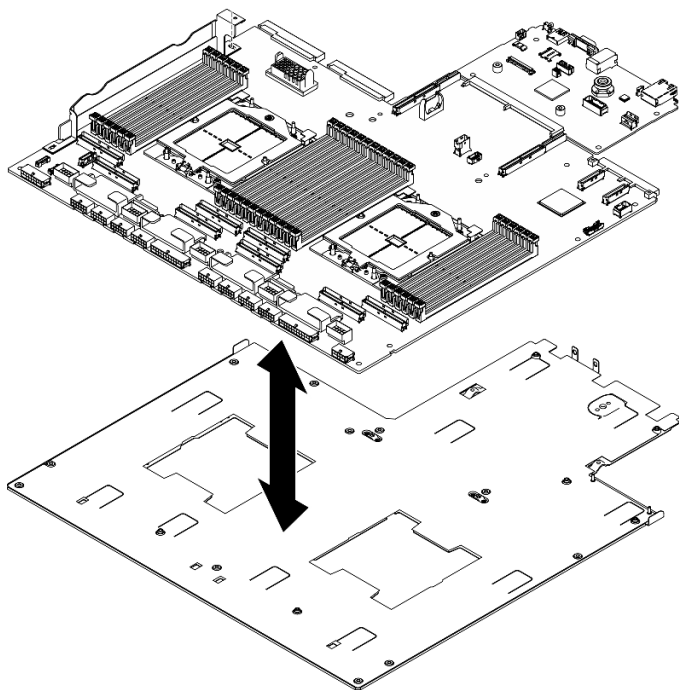
Figure 129. System board assembly installation

2. Install the following components to the system board assembly as illustrated:

*   Use a 5 mm hex socket with a screwdriver to install the two hex nuts.
*   Use a 7 mm hex socket with a screwdriver to install the five guide pins.
*   Use a Phillips #2 screwdriver to install the lifting handle.
*   Use a Phillips #1 screwdriver to install the nine screws.
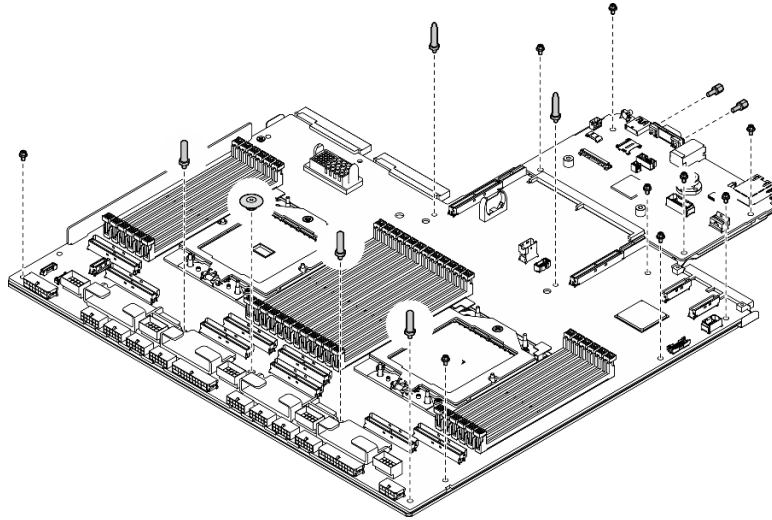
Figure 130. Component installation

3. Hold the two lifting handles, and carefully turn the system board assembly over.
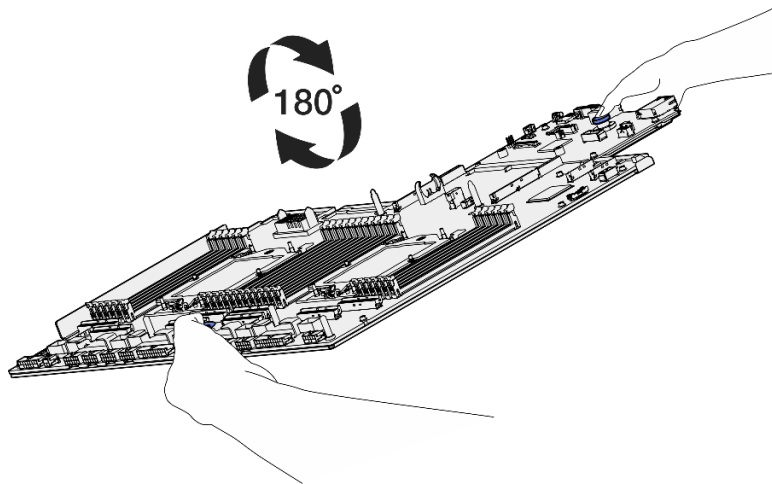
Figure 131. Turning the system board assembly over

4. Use a Phillips #1 screwdriver to fasten the two screws on the bottom of the supporting sheet metal.
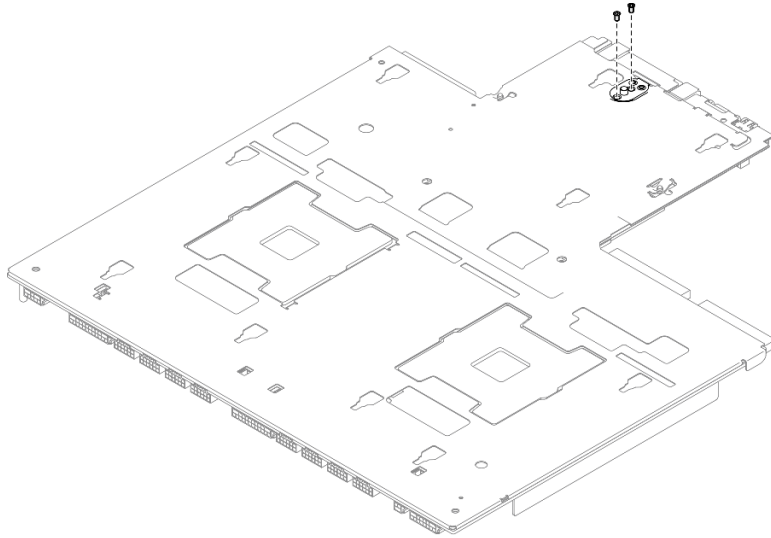
Figure 132. Screw installation

5. Hold the two lifting handles, and carefully turn the system board assembly over.
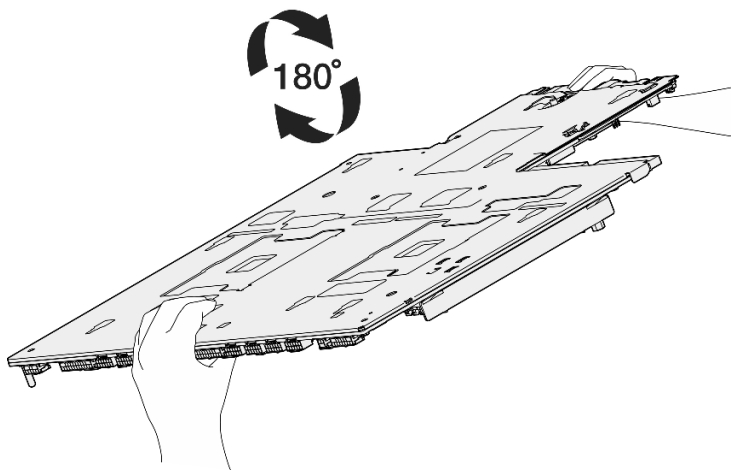
Figure 133. Turning the system board assembly over

6. Install the following components to the processor board as illustrated:

   • Use a 8 mm hex socket with a screwdriver to install the two spacers.

   Note: Make sure that the hex spacer with round step is installed into the hole located near the center of the processor board.

   • Use a Phillips #2 screwdriver to install the two screws and one cable wall bracket.
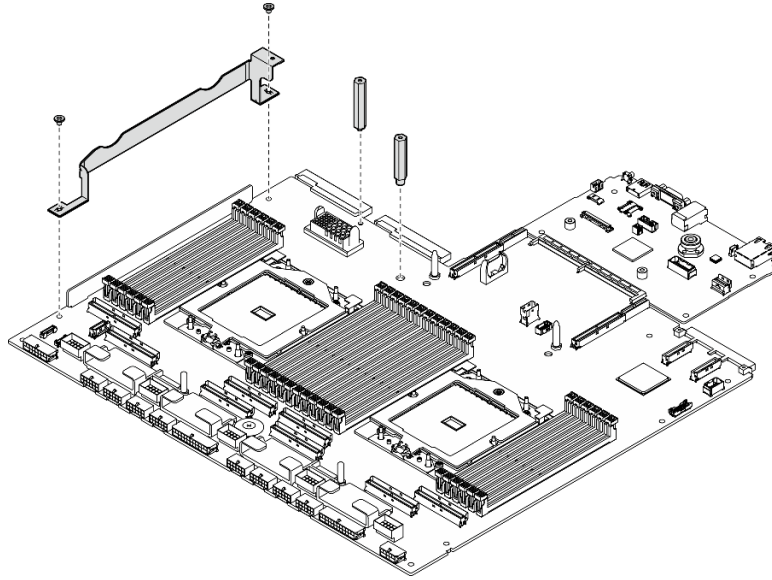
Figure 134. Component installation

Step 2. (Optional) If you are going to replace the system I/O board, install the firmware and RoT security module that is removed from the old system I/O board onto the new system I/O board. See "Install the firmware and RoT security module" on page 160.

Step 3. Place the system board assembly inside the chassis.

    a. ❶ Grasp the two lifting handles on the system board assembly, and tilt the system board assembly so that its rear end is up.

    b. ❷ Lower the system board assembly into the chassis.
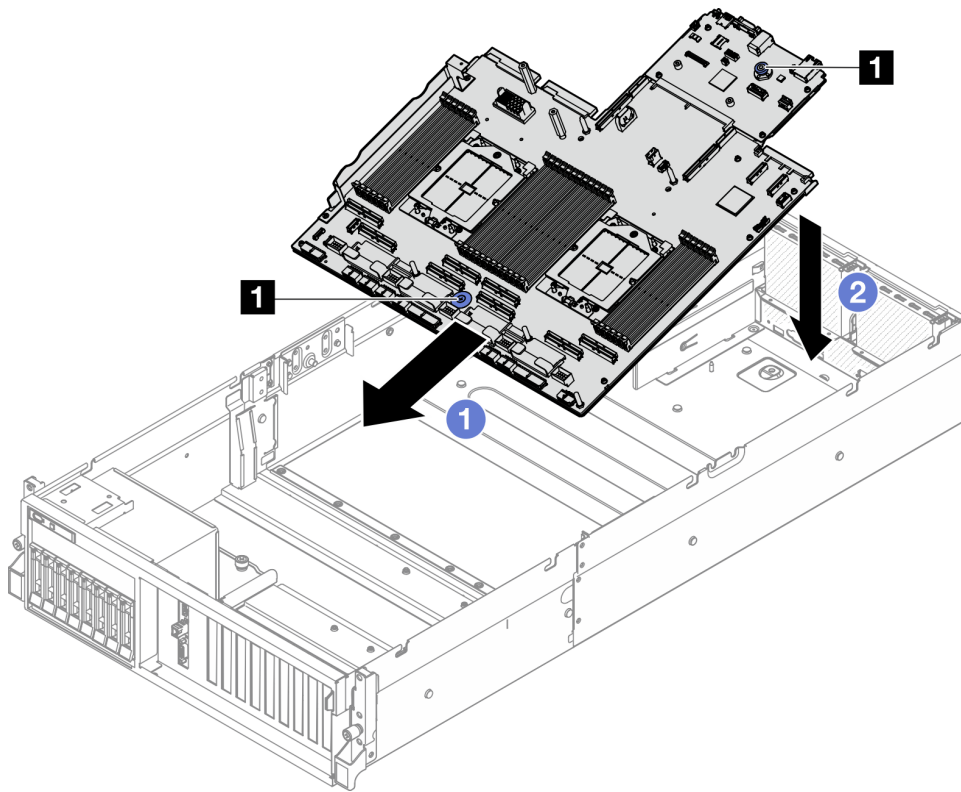
Figure 135. System board assembly installation

1 Lifting handles

Step 4. Grasp the two lifting handles, and slide the system board assembly toward the rear of the chassis until it clicks into place. Make sure that the rear connectors on the new system board assembly are inserted into the corresponding holes in the rear panel.
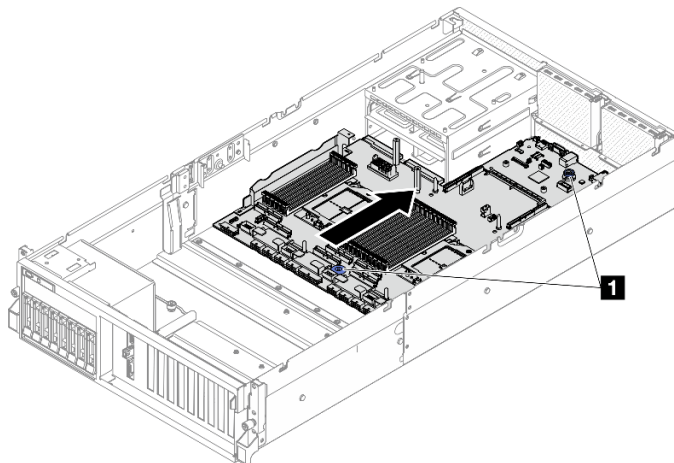
Figure 136. System board assembly installation

1 Lifting handles

After you finish

1. Reinstall the following components.

   a. Reinstall the power distribution board. See "Install the power distribution board" on page 143.

   b. **(SXM5 GPU Model only)** Reinstall the SXM5 GPU power distribution board. See "Install the SXM5 GPU power distribution board" on page 332.

   c. Reinstall the power supply units. See "Install a power supply unit" on page 145.

   d. If applicable, reinstall the OCP module. See "Install the OCP module" on page 127.

   e. Reinstall the intrusion switch. See "Install the intrusion switch" on page 107.

   f. If applicable, reinstall the PCIe riser(s). See "Install a PCIe riser" on page 136.

   g. Reinstall each memory module to the same slot on the new system board assembly as on the defective system board assembly until all the memory modules are installed. See "Install a memory module" on page 117.

   h. Reinstall the processors and the heat sinks. See "Install a processor" on page 152 and "Install a heat sink" on page 153.

   i. Reinstall the air baffle. See "Install the air baffle" on page 80.

2. Reconnect all the required cables to the same connectors on the system board assembly as the defective system board assembly.

3. Reinstall the fan cage and the fans. See "Install the fan cage" on page 91 and "Install a fan" on page 89.

4. Ensure that all components have been reassembled correctly and that no tools or loose screws are left inside the server.

5. Reinstall the top cover. See "Install the top cover" on page 181.

6. If the sever was installed in a rack, reinstall the server into the rack. See "Install the server to rack" on page 71.

7. Reconnect the power cords and any cables that you removed.

8. Power on the server and any peripheral devices. See "Power on the server" on page 67.

9. Update the vital product data (VPD). See "Update the Vital Product Data (VPD)" on page 175. Machine type number and serial number can be found on the ID label, see "Identify the server and access the Lenovo XClarity Controller" on page 55.

10. Optionally, enable UEFI Secure Boot. See "Enable UEFI Secure Boot" on page 179.

Demo video

Watch the procedure on YouTube

Update the Vital Product Data (VPD)

Use this topic to update the Vital Product Data (VPD).

- **(Required)** Machine type
- **(Required)** Serial number
- **(Required)** System model
- (Optional) Asset tag
- (Optional) UUID

Recommended tools:

- Lenovo XClarity Provisioning Manager
- Lenovo XClarity Essentials OneCLI commands

Using Lenovo XClarity Provisioning Manager

Steps:

1. Start the server and press the key according to the on-screen instructions. The Lenovo XClarity Provisioning Manager interface is displayed by default.

2. Click ✿ on the top right corner of the Lenovo XClarity Provisioning Manager main interface.

3. Click **Update VPD**; then, follow on-screen instructions to update the VPD.

Using Lenovo XClarity Essentials OneCLI commands

- Updating **machine type**
  `onecli config set SYSTEM_PROD_DATA.SysInfoProdName` *<m/t_model>* *[access_method]*

- Updating **serial number**
  `onecli config set SYSTEM_PROD_DATA.SysInfoSerialNum` *<s/n>* *[access_method]*

- Updating **system model**
  `onecli config set SYSTEM_PROD_DATA.SysInfoProdIdentifier` *<system model>* `[access_method]`
  `onecli config set SYSTEM_PROD_DATA.SysInfoProdIdentifierEx` *<system model>* `--override` `[access_method]`

- Updating **asset tag**
  `onecli config set SYSTEM_PROD_DATA.SysEncloseAssetTag` *<asset_tag>* *[access_method]*

- Updating **UUID**
  `onecli config createuuid SYSTEM_PROD_DATA.SysInfoUUID` *[access_method]*

Variable	Description
<m/t_model>	The server machine type and model number. Type `xxxxyyy`, where `xxxx` is the machine type and `yyy` is the server model number.
<s/n>	The serial number on the server. Type `zzzzzzz`, where `zzzzzzz` is the serial number.
<system model>	The system model on the server. Type `system yyyyyyyy`, where *yyyyyyyy* is the product identifier.

<asset_tag>	The server asset tag number. Type `aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa`, where `aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa` is the asset tag number.
[access_method]	The access method that you select to access the target server. • Online KCS (unauthenticated and user restricted): You can directly delete *[access_method]* from the command. • Online authenticated LAN: In this case, specify below LAN account information at the end of the OneCLI command: `--bmc-username` *<user_id>* `--bmc-password` *<password>* • Remote WAN/LAN: In this case, specify below XCC account information and IP address at the end of the OneCLI command: `--bmc` *<bmc_user_id>*:*<bmc_password>*@*<bmc_external_IP>* **Notes:** – *<bmc_user_id>* The BMC account name (1 of 12 accounts). The default value is USERID. – *<bmc_password>* The BMC account password (1 of 12 accounts).

Hide/observe TPM

TPM is enabled by default to encrypt data transfer for system operation. Optionally, you can disable TPM using Lenovo XClarity Essentials OneCLI.

To disable TPM, do the following:

1. Download and install Lenovo XClarity Essentials OneCLI.

   To download Lenovo XClarity Essentials OneCLI, go to the following site:

   https://datacentersupport.lenovo.com/solutions/HT116433

2. Run the following command:
   ```
   OneCli.exe config set TrustedComputingGroup.HideTPMfromOS "Yes" --imm <userid>:<password>@<ip_address>
   --override
   ```

   where:

   • *<userid>:<password>* are the credentials used to access the BMC (Lenovo XClarity Controller interface) of your server. The default user ID is USERID, and the default password is PASSW0RD (zero, not an uppercase o)

   • *<ip_address>* is the IP address of the BMC.

   Example:

```
D:\onecli>OneCli.exe config set TrustedComputingGroup.HideTPMfromOS "Yes" --imm USERID:PASSW0RD=1@10.245.39.79 --override

Lenovo XClarity Essentials OneCLI 1xce_onecli01p-2.3.0
Licensed Materials - Property of Lenovo
(C) Copyright Lenovo Corp. 2013-2018 All Rights Reserved
If the parameters you input includes password, please Note that:
* The password must consist of a sequence of characters from `0-9a-zA-Z_-+.$%@!^&*()=` set
* Use "" to quote when password parameters include special characters
* Do not use reserved characters in path name when parameter contains path
Invoking SET command ...
Connected to BMC at IP address 10.245.39.79 by IPMI
TrustedComputingGroup.HideTPMfromOS=Yes
Success.
```

3. Reboot the system.

If you want to enable TPM again, run the following command and reboot the system:
`OneCli.exe config set TrustedComputingGroup.HideTPMfromOS "No" --imm <userid>:<password>@<ip_address> --override`

Example:

```
D:\onecli3>OneCli.exe config set TrustedComputingGroup.HideTPMfromOS "No" --imm USERID:PASSWORD=11@10.245.39.79 --override

Lenovo XClarity Essentials OneCLI 1xce_onecli01h-3.0.1
(C) Lenovo 2013-2020 All Rights Reserved

OneCLI License Agreement and OneCLI Legal Information can be found at the following location:
    "D:\onecli3\Lic"

[1s]Certificate check finished [100%][=================================================================

Invoking SET command ...
Connected to BMC at IP address 10.245.39.79 by IPMI
TrustedComputingGroup.HideTPMfromOS=No
Configure successfully, please reboot system.
Succeed.
```

Update the TPM firmware

Optionally, you can update the TPM firmware using Lenovo XClarity Essentials OneCLI.

Note: TPM firmware update is irreversible. After update, the TPM firmware cannot be downgraded to earlier versions.

TPM firmware version

Follow the procedure below to see the TPM firmware version:

From Lenovo XClarity Provisioning Manager

1. Start the server and 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/.)

2. If the power-on Administrator password is required, enter the password.

3. From the UEFI Setup page, click **System Settings ➙ Security ➙ Trusted Platform Module ➙ TPM 2.0 ➙ TPM Firmware Version**.

Update the TPM firmware

To update the TPM firmware, do the following:

1. Download and install Lenovo XClarity Essentials OneCLI.

   To download Lenovo XClarity Essentials OneCLI, go to the following site:

   https://datacentersupport.lenovo.com/solutions/HT116433

2. Run the following command:
   `OneCli.exe config set TrustedComputingGroup.DeviceOperation "Update to TPM 2.0 firmware version <x.x.x.x>" --bmc <userid>:<password>@<ip_address>`

   where:

   - *<x.x.x.x>* is the target TPM version.

     e.g. TPM 2.0 (7.2.1.0) -> TPM 2.0 (7.2.2.0):

     `OneCli.exe config set TrustedComputingGroup.DeviceOperation "Update to TPM 2.0 firmware version 7.2.2.0" --bmc <userid>:<password>@<ip_address>`

- *<userid>:<password>* are the credentials used to access the BMC (Lenovo XClarity Controller interface) of your server. The default user ID is USERID, and the default password is PASSW0RD (zero, not an uppercase o).
- *<ip_address>* is the IP address of the BMC.

Enable UEFI Secure Boot

Optionally, you can enable UEFI Secure Boot.

There are two methods available to enable UEFI Secure Boot:

- From Lenovo XClarity Provisioning Manager

  To enable UEFI Secure Boot from Lenovo XClarity Provisioning Manager:

  1. Start the server and 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/.)
  2. If the power-on Administrator password is required, enter the password.
  3. From the UEFI Setup page, click **System Settings** ➙ **Security** ➙ **Secure Boot**.
  4. Enable Secure Boot and save the settings.

  Note: If disabling UEFI secure boot is needed, select Disable in step 4.

- From Lenovo XClarity Essentials OneCLI

  To enable UEFI Secure Boot from Lenovo XClarity Essentials OneCLI:

  1. Download and install Lenovo XClarity Essentials OneCLI.

     To download Lenovo XClarity Essentials OneCLI, go to the following site:

     https://datacentersupport.lenovo.com/solutions/HT116433

  2. Run the following command to enable Secure Boot:
     ```
     OneCli.exe config set SecureBootConfiguration.SecureBootSetting Enabled --bmc <userid>:<password>@<ip_address>
     ```

     where:

     - *<userid>:<password>* are the credentials used to access the BMC (Lenovo XClarity Controller interface) of your server. The default user ID is USERID, and the default password is PASSW0RD (zero, not an uppercase o)
     - *<ip_address>* is the IP address of the BMC.

     For more information about the Lenovo XClarity Essentials OneCLI `set` command, see:

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

  Note: If disabling UEFI secure boot is needed, run the following command:
  ```
  OneCli.exe config set SecureBootConfiguration.SecureBootSetting Disabled --bmc <userid>:<password>@<ip_address>
  ```

Top cover replacement

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

Remove the top cover

Follow instructions in this section to remove the 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 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Procedure

Step 1. ❶ Press the release button on the top cover latch.

Step 2. ❷ Rotate the latch until the latch is fully open and the top cover is disengaged from the chassis.

Step 3. ❸ Slide the top cover to the rear until it is disengaged from the server. Then, lift the top cover off the server and place it on a flat clean surface.

Attention: Service label is located on the inside of the top cover.
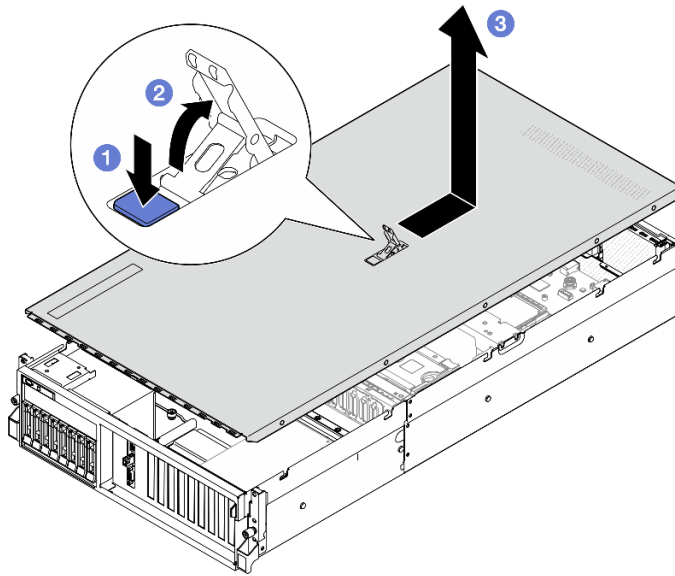
Figure 137. Top cover removal

After you finish

Attention: 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. See "Install the top cover" on page 181 for more details.

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.

Demo video

Watch the procedure on YouTube

Install the top cover

Follow instructions in this section to install the top cover.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- Make sure that all cables, adapters, and other components are installed and seated correctly and that you have not left loose tools or parts inside the server.
- Make sure that all internal cables are correctly routed. See Chapter 6 "Internal cable routing" on page 343.

Note: If you are installing a new top cover, attach the service label to the inside of the new top cover first if necessary.

Procedure

Step 1. **1** Ensure that the cover latch is in the open position. Lower the top cover onto the chassis until both sides of the top cover engage the guides on both sides of the chassis. Then, slide the top cover to the front of the chassis until the top cover snaps into position.

Step 2. ② Press down the cover latch to lock the top cover in place.
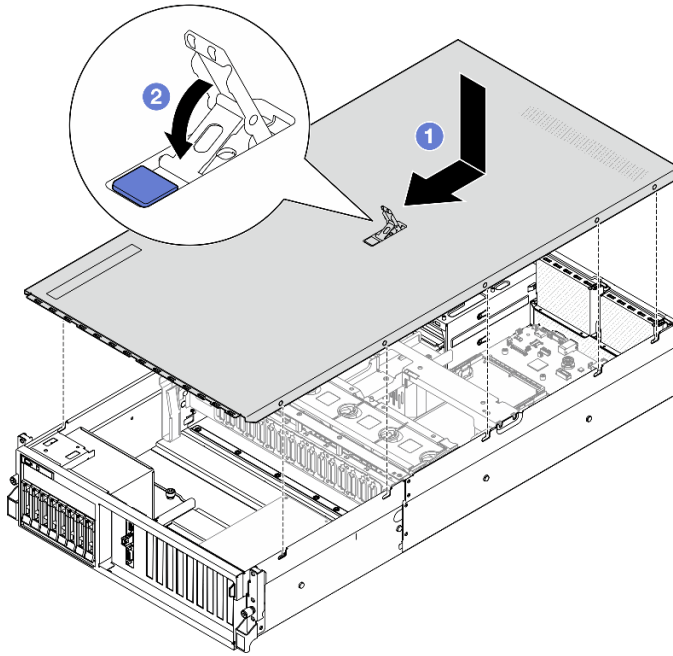
Figure 138. Top cover installation

After you finish

Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

4-DW GPU Model/8-DW GPU Model components

Follow instructions in this section to remove and install the 4-DW GPU Model and 8-DW GPU Model components.

2.5-inch hot-swap drive replacement

Follow instructions in this section to remove and install a 2.5-inch hot-swap drive.

Remove a 2.5-inch hot-swap drive

Follow instructions in this section to remove a 2.5-inch hot-swap drive.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- To make sure that there is adequate system cooling, do not operate the server for more than two minutes without either a drive or a filler installed in each bay.

- If one or more NVMe solid-state drives are to be removed, it is recommended to disable them beforehand via the operating system.

- Before you remove or make changes to drives, drive controllers (including controllers that are integrated on the system board assembly), drive backplanes or drive cables, back up all important data that is stored on drives.

- Before you remove any component of a RAID array (drive, RAID card, etc.), back up all RAID configuration information.

Note: Make sure you have the drive bay fillers available if some drive bays will be left empty after the removal.

Procedure

Step 1. ❶ Slide the release latch to unlock the drive handle.

Step 2. ❷ Rotate the drive handle to the open position.

Step 3. ❸ Grasp the handle and slide the drive out of the drive bay.

Figure 139. 2.5-inch hot-swap drive removal

After you finish

Note: Install a drive bay filler or replacement drive as soon as possible. See "Install a 2.5-inch hot-swap drive" on page 183.

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.

Demo video

Watch the procedure on YouTube

Install a 2.5-inch hot-swap drive
Follow instructions in this section to install a 2.5-inch hot-swap drive.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- 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.

- Make sure you save the data on your drive, especially if it is part of a RAID array, before you remove it from the server.

- To avoid damage to the drive connectors, make sure that the server top cover is in place and fully closed whenever you install or remove a drive.

- To make sure that there is adequate system cooling, do not operate the server for more than two minutes without either a drive or a drive bay filler installed in each bay.

- Before you make changes to drives, drive controllers (including controllers that are integrated on the system board assembly), drive backplanes, or drive cables, back up all important data that is stored on drives.

- Before you remove any component of a RAID array (drive, RAID card, etc.), back up all RAID configuration information.

The following notes describe the type of drives that the server supports and other information that you must consider when you install a drive. For a list of supported drives, see https://serverproven.lenovo.com.

- Locate the documentation that comes with the drive and follow those instructions in addition to the instructions in this chapter.

- The electromagnetic interference (EMI) integrity and cooling of the solution are protected by having all bays and PCI and PCIe slots covered or occupied. When you install a drive or PCIe adapter, save the EMC shield and filler panel from the bay or PCIe adapter slot cover in the event that you later remove the device.

- For a complete list of supported optional devices for the server, see https://serverproven.lenovo.com.

- The 4-DW GPU Model supports up to eight 2.5-inch hot-swap SAS/SATA/NVMe drives with the following corresponding drive bay numbers.

Figure 140. 2.5-inch drive bay numbering in 4-DW GPU Model

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.

- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1.   If the drive bay contains a filler, pull the release lever on the filler and slide it out of the bay.

Step 2.   Install the 2.5-inch hot-swap drive.

a. ❶ Make sure that the drive handle is in the open position. Then, align the drive with the guide rails in the bay, and gently slide the drive into the bay until it stops.

b. ❷ Rotate the drive handle to the fully closed position until the handle latch clicks.

Figure 141. 2.5-inch hot-swap drive installation

After you finish

1. Check the drive status LED to verify that the drive is operating correctly.

   - If the yellow drive status LED of a drive is lit continuously, that drive is faulty and must be replaced.

   - If the green drive activity LED is flashing, the drive is being accessed.

2. If the server is configured for RAID operation through a ThinkSystem RAID adapter, you might have to reconfigure your disk arrays after you install drives. See the ThinkSystem RAID adapter documentation for additional information about RAID operation and complete instructions for using ThinkSystem RAID adapter.

3. If you have installed 2.5-inch drive backplane with U.3 NVMe drives for Trimode. Enable U.3 x1 mode for the selected drive slots on the backplane through the XCC web GUI. See "U.3 NVMe drive can be detected in NVMe connection, but cannot be detected in Tri-mode" on page 469.

Demo video

Watch the procedure on YouTube

2.5-inch drive backplane replacement

Follow instructions in this section to remove and install the 2.5-inch drive backplane.

Remove the 2.5-inch drive backplane

Follow instructions in this section to remove the 2.5-inch drive backplane.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.
- When removing drives, record the drive bay the drive is removed from, and use the record as a checklist when installing the drives.

Procedure

Step 1. Make preparation for this task.

   a. Remove the top cover. See "Remove the top cover" on page 179.

   b. Remove all of the 2.5-inch hot-swap drives and the drive bay fillers (if any) from the drive bays. See "Remove a 2.5-inch hot-swap drive" on page 182. Place the drives on a static protective surface.

   c. Disconnect the power and signal cables from the 2.5-inch drive backplane.

   d. Remove the 2.5-inch drive cage assembly. See "Remove the 2.5-inch drive cage assembly" on page 188.

Step 2. Remove the 2.5-inch drive backplane.

   a. ❶ Lift and hold the two retention latches on the top of the 2.5-inch drive cage.

   b. ❷ Rotate the backplane from the top to disengage it from the retention latches.

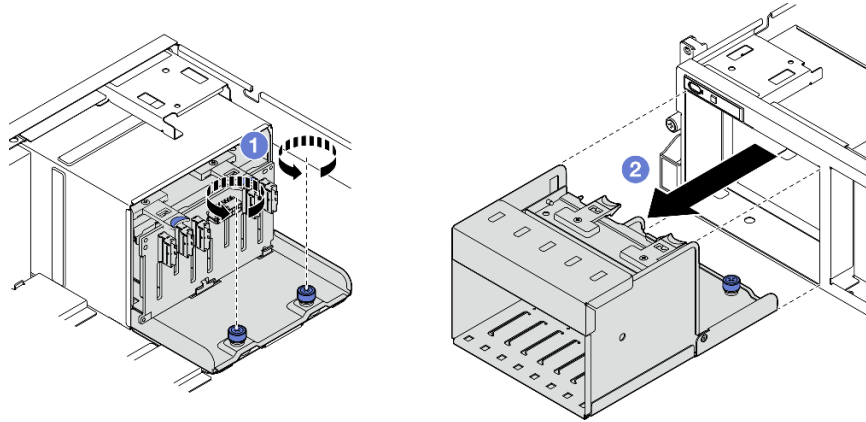   c. ❸ Carefully lift the backplane out of the server.
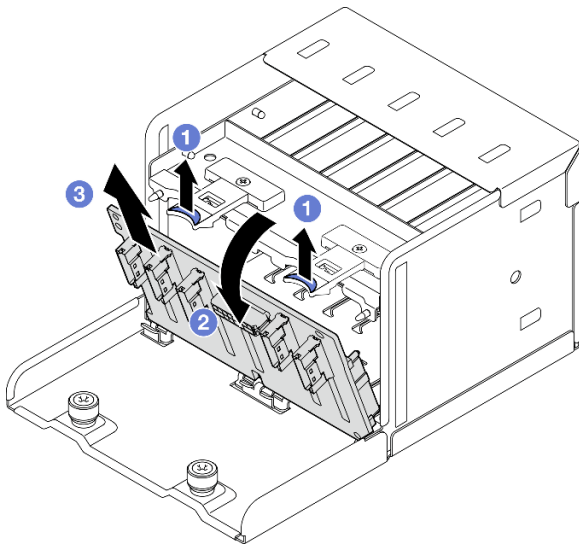
Figure 142. 2.5-inch drive backplane removal

After you finish

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.

Demo video

Install the 2.5-inch drive backplane

Follow instructions in this section to install the 2.5-inch drive backplane.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. ❶ Align the tabs on the bottom of the 2.5-inch drive backplane with the slots on the drive cage, and insert the tabs into the slots.

Step 2. ❷ Push the top of the backplane toward the drive cage until it clicks into place.
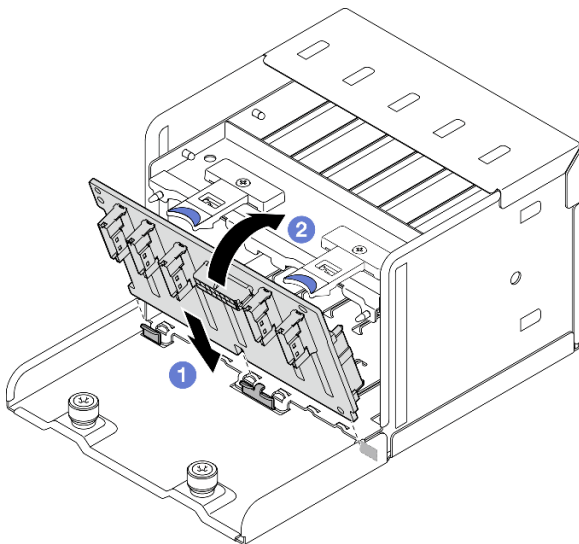
Figure 143. 2.5-inch drive backplane installation

After you finish

1. Reinstall the 2.5-inch drive cage assembly. See "Install the 2.5-inch drive cage assembly" on page 189.

2. Reconnect the power and signal cables to the 2.5-inch drive backplane. See "2.5-inch drive backplane cable routing" on page 353 for more information.

3. Reinstall the 2.5-inch hot-swap drives or drive bay fillers (if any) into the drive bays. See "Install a 2.5-inch hot-swap drive" on page 183.

4. Complete the parts replacement. See "Complete the parts replacement" on page 341.

5. If you have installed 2.5-inch drive backplane with U.3 NVMe drives for Trimode. Enable U.3 x1 mode for the selected drive slots on the backplane through the XCC web GUI. See "U.3 NVMe drive can be detected in NVMe connection, but cannot be detected in Tri-mode" on page 469.

Demo video

Watch the procedure on YouTube

2.5-inch drive cage assembly replacement

Follow instructions in this section to remove and install the 2.5-inch drive cage assembly.

Remove the 2.5-inch drive cage assembly

Follow instructions in this section to remove the 2.5-inch drive cage assembly.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

- When removing drives, record the drive bay the drive is removed from, and use the record as a checklist when installing the drives.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Remove all of the 2.5-inch hot-swap drives and the drive bay fillers (if any) from the drive bays. See "Remove a 2.5-inch hot-swap drive" on page 182. Place the drives on a static protective surface.

    c. Disconnect the power and signal cables from the 2.5-inch drive backplane.

Step 2. Remove the 2.5-inch drive cage assembly.

    a. ❶ Loosen the two thumbscrews that secure the drive cage assembly to the chassis.

    b. ❷ Slide the drive cage assembly out of the chassis.

Figure 144. 2.5-inch drive cage assembly removal

After you finish

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.

Demo video

[Watch the procedure on YouTube](#)

Install the 2.5-inch drive cage assembly

Follow instructions in this section to install the 2.5-inch drive cage assembly.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.   ❶ Align the 2.5-inch drive cage assembly with the opening on the front of the server; then, slide the drive cage assembly into the chassis until it is seated in place.

Step 2.   ❷ Fasten the two thumbscrews to secure the drive cage assembly to the chassis.
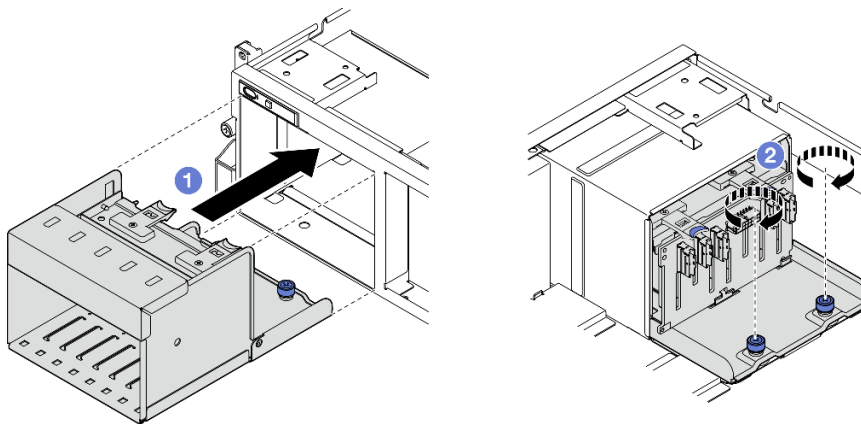
Figure 145. 2.5-inch drive cage assembly installation

After you finish

1. Reconnect the power and signal cables to the 2.5-inch drive backplane. See "2.5-inch drive backplane cable routing" on page 353 for more information.

2. Reinstall the 2.5-inch hot-swap drives or drive bay fillers (if any) into the drive bays. See "Install a 2.5-inch hot-swap drive" on page 183.

3. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

E1.S/E3.S hot-swap drive replacement

Follow instructions in this section to remove and install an E1.S or E3.S hot-swap drive.

Remove an E1.S/E3.S hot-swap drive

Follow instructions in this section to remove an E1.S or E3.S hot-swap drive.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- To make sure that there is adequate system cooling, do not operate the server for more than two minutes without either a drive or a filler installed in each bay.

- If one or more EDSFF drives are to be removed, it is recommended to disable them beforehand via the operating system.

- Before you remove or make changes to drives, drive controllers (including controllers that are integrated on the system board assembly), drive backplanes or drive cables, back up all important data that is stored on drives.

Note: Make sure you have the drive bay fillers available if some drive bays will be left empty after the removal.

Procedure

Step 1. Hold the handle of the EDSFF drive cage cover and pull it out of the server.

Figure 146. EDSFF drive cage cover removal

Step 2. Remove the E1.S or E3.S hot-swap drive.

a. ❶ Slide the release latch to unlock the drive handle.

b. ❷ Rotate the drive handle to the open position.

c. ❸ Grasp the handle and slide the drive out of the drive bay.
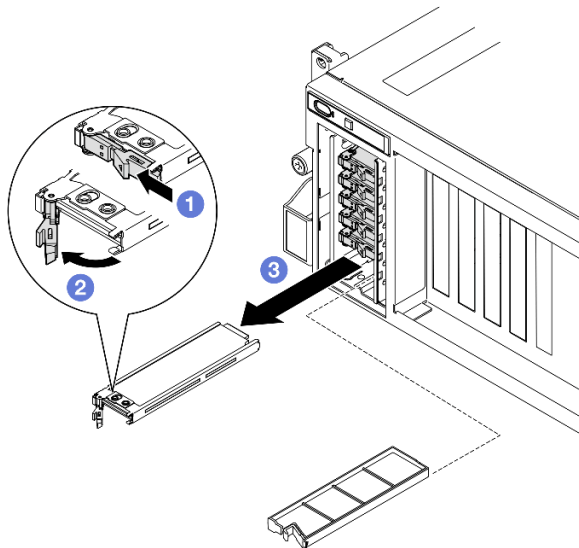
Figure 147. E1.S hot-swap drive removal

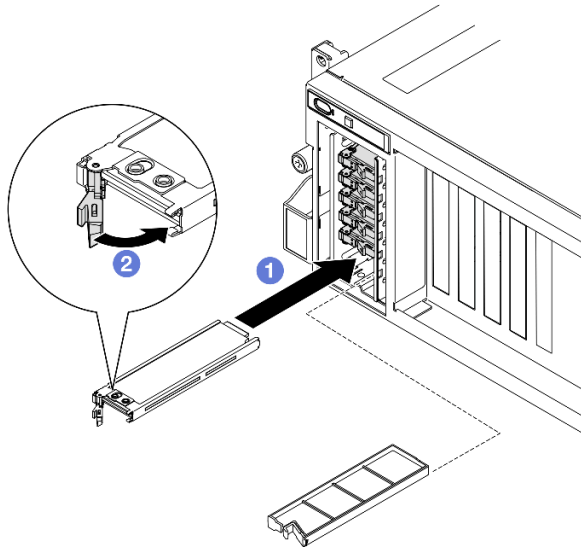**Note:** An E3.S drive in bay 2 or 3 is used as an example in the illustration. The orientation of E3.S drives in bay 0 and 1 is upside down, but the removal method is the same.
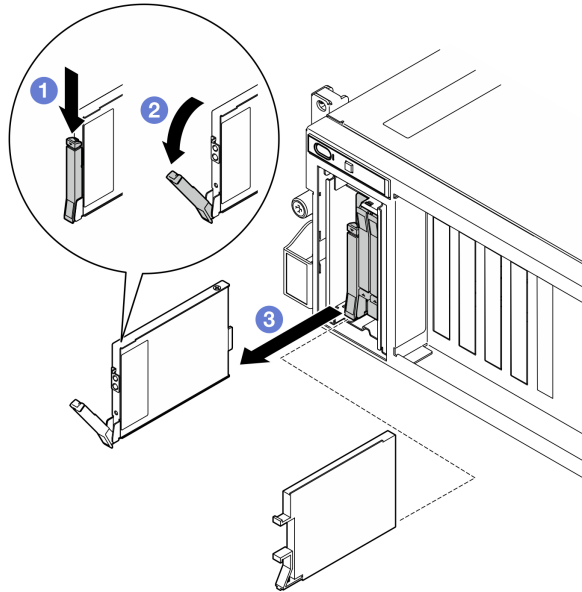
Figure 148. E3.S hot-swap drive removal

Step 3. Install a drive bay filler or replacement drive as soon as possible. See "Install an E1.S/E3.S hot-swap drive" on page 193.

Step 4. Reinstall the EDSFF drive cage cover back to the server.
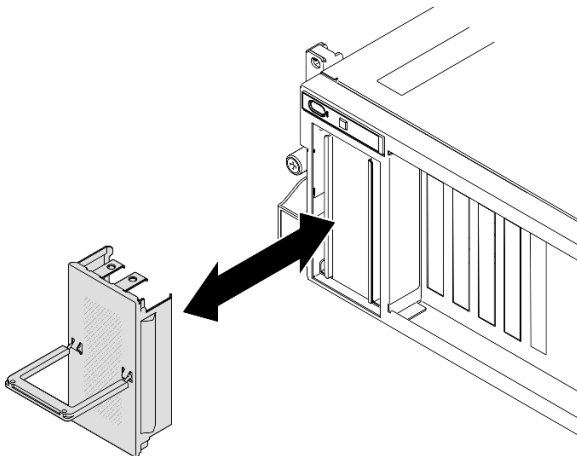
Figure 149. EDSFF drive cage cover installation

After you finish

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.

Demo video

E1.S hot-swap drive removal: Watch the procedure on YouTube

E3.S hot-swap drive removal: Watch the procedure on YouTube

Install an E1.S/E3.S hot-swap drive

Follow instructions in this section to install an E1.S or E3.S hot-swap drive.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- 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.

- Make sure you save the data on your drive, especially if it is part of a RAID array, before you remove it from the server.

- To avoid damage to the drive connectors, make sure that the server top cover is in place and fully closed whenever you install or remove a drive.

- To make sure that there is adequate system cooling, do not operate the server for more than two minutes without either a drive or a drive bay filler installed in each bay.

- Before you make changes to drives, drive controllers (including controllers that are integrated on the system board assembly), drive backplanes, or drive cables, back up all important data that is stored on drives.

The following notes describe the type of drives that the server supports and other information that you must consider when you install a drive. For a list of supported drives, see https://serverproven.lenovo.com.

- Locate the documentation that comes with the drive and follow those instructions in addition to the instructions in this chapter.

- The electromagnetic interference (EMI) integrity and cooling of the solution are protected by having all bays and PCI and PCIe slots covered or occupied. When you install a drive or PCIe adapter, save the EMC shield and filler panel from the bay or PCIe adapter slot cover in the event that you later remove the device.

- For a complete list of supported optional devices for the server, see https://serverproven.lenovo.com.

- Depending on the server configuration for 8-DW GPU Model, the following drive types can be installed into each drive cage with their corresponding drive bay numbers:

  - Up to six E1.S hot-swap drives
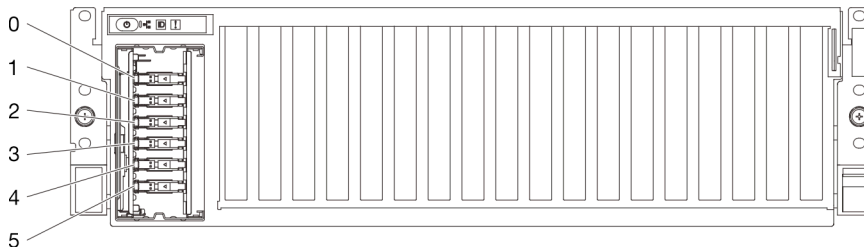
Figure 150. E1.S hot-swap drive bay numbering in 8-DW GPU Model

  - Up to four E3.S hot-swap drives
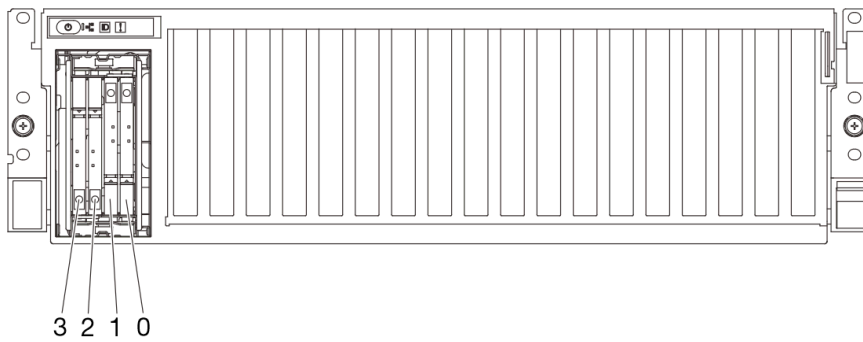
Figure 151. E3.S hot-swap drive bay numbering in 8-DW GPU Model

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1.   Hold the handle of the EDSFF drive cage cover and pull it out of the server.
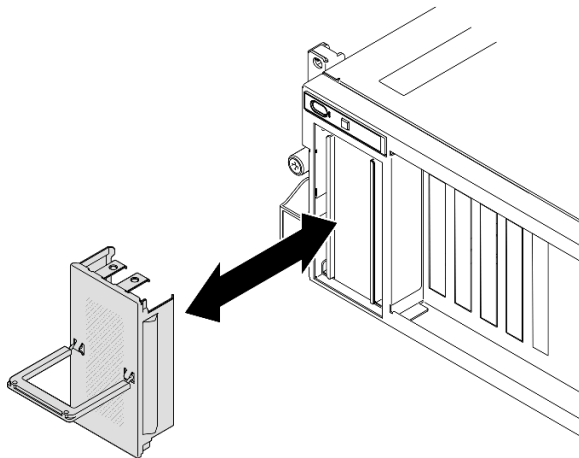
Figure 152. EDSFF drive cage cover removal

Step 2.   If the drive bay contains a filler, pull the release lever on the filler and slide it out of the bay.

Step 3.   Install the E1.S or E3.S hot-swap drive.

    a.   ❶ Make sure that the drive handle is in the open position. Then, align the drive with the guide rails in the bay and gently slide the drive into the bay until it stops.

    b.   ❷ Rotate the drive handle to the fully closed position until the handle latch clicks.

Figure 153. E1.S hot-swap drive installation

Note: An E3.S drive in bay 2 or 3 is used as an example in the illustration. The orientation of E3.S drives in bay 0 and 1 is upside down, but the installation method is the same.
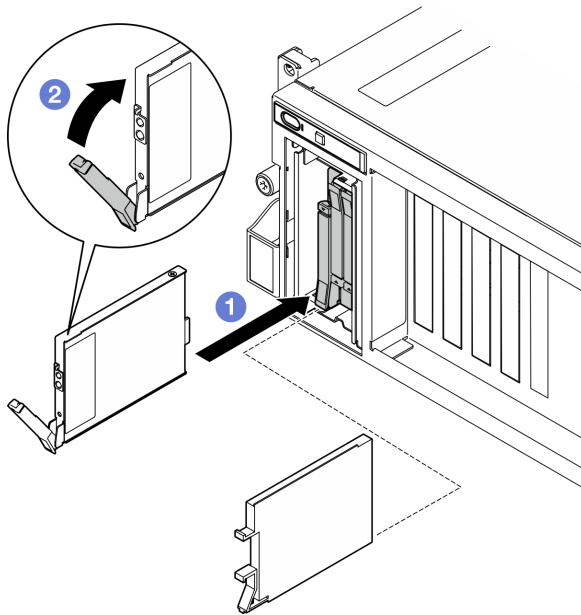
Figure 154. E3.S hot-swap drive installation

Step 4.   If you have additional drives to install, do so now; if any of the drive bays is left empty, fill it with a drive bay filler.

Step 5.   Check the drive status LED to verify that the drive is operating correctly.

- If the yellow drive status LED is lit continuously, the drive is malfunctioning and must be replaced.

- If the green drive activity LED is flashing, the drive is functioning.

Step 6.   Reinstall the EDSFF drive cage cover back to the server.
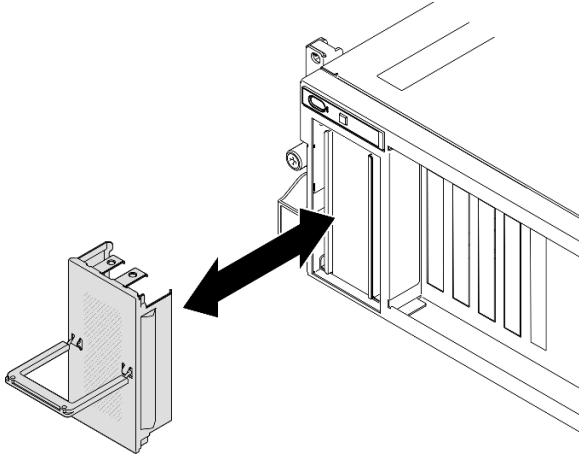
Figure 155. EDSFF drive cage cover installation

After you finish

Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

E1.S hot-swap drive installation: Watch the procedure on YouTube

E3.S hot-swap drive installation: Watch the procedure on YouTube

E1.S drive backplane replacement

Follow instructions in this section to remove and install the E1.S drive backplane.

Remove the E1.S drive backplane

Follow instructions in this section to remove the E1.S drive backplane.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.
- When removing drives, record the drive bay the drive is removed from, and use the record as a checklist when installing the drives.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

b. Remove all of the E1.S hot-swap drives and the drive bay fillers (if any) from the drive bays. See "Remove an E1.S/E3.S hot-swap drive" on page 190. Place the drives on a static protective surface.

c. Disconnect the power and signal cables from the E1.S drive backplane.

d. Remove the E1.S drive cage assembly. See "Remove the E1.S/E3.S drive cage assembly" on page 202.

Step 2. Unfasten the two screws to remove the E1.S drive backplane from the drive cage.
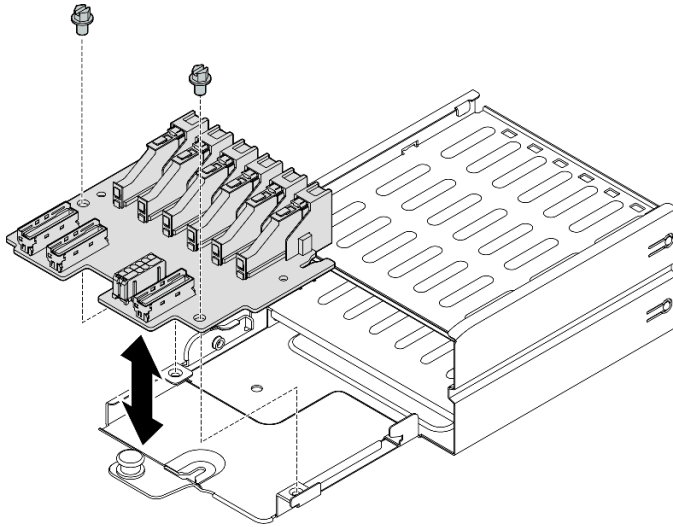
Figure 156. E1.S drive backplane removal

After you finish

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.
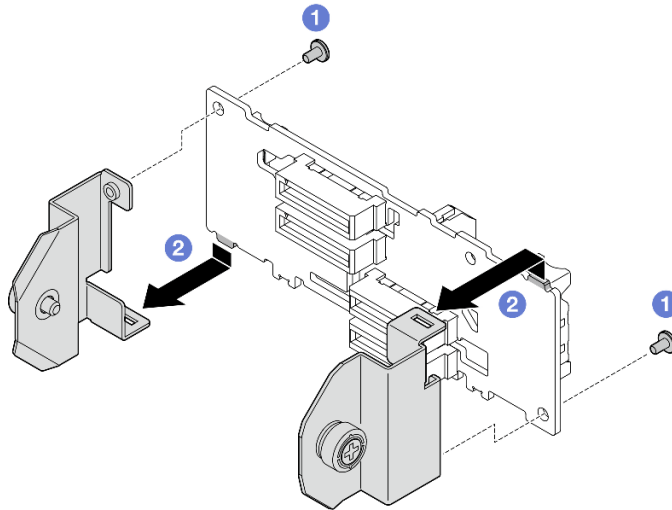
Demo video

Watch the procedure on YouTube

Install the E1.S drive backplane

Follow instructions in this section to install the E1.S drive backplane.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- 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.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.

- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1.   Fasten the two screws to secure the E1.S drive backplane to the drive cage.
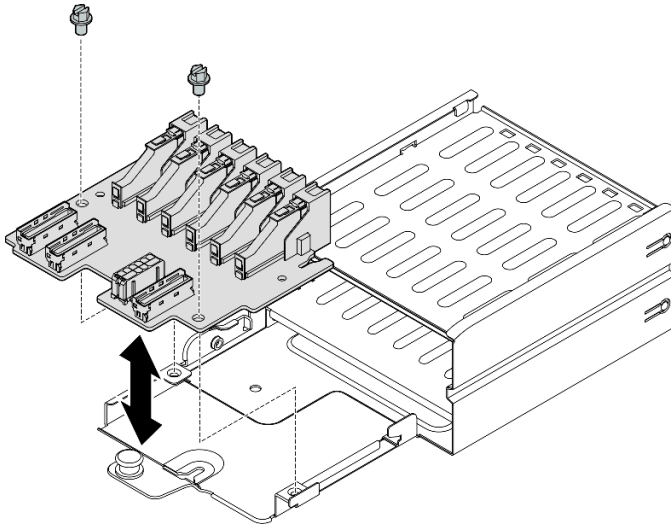
Figure 157. E1.S drive backplane installation

After you finish

1. Reinstall the E1.S drive cage assembly. See "Install the E1.S/E3.S drive cage assembly" on page 204.
2. Reconnect the power and signal cables to the E1.S drive backplane. See "E1.S drive backplane cable routing" on page 371 for more information.
3. Reinstall the E1.S hot-swap drives or drive bay fillers (if any) into the drive bays. See "Install an E1.S/E3.S hot-swap drive" on page 193.
4. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

E3.S drive backplane module replacement

Follow instructions in this section to remove and install the E3.S drive backplane module.

Remove the E3.S drive backplane module

Follow instructions in this section to remove the E3.S drive backplane module.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

- When removing drives, record the drive bay the drive is removed from, and use the record as a checklist when installing the drives.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Remove all of the E3.S hot-swap drives and the drive bay fillers (if any) from the drive bays. See "Remove an E1.S/E3.S hot-swap drive" on page 190. Place the drives on a static protective surface.

    c. Disconnect the power and signal cables from the E3.S drive backplane.

    d. Remove the E3.S drive cage assembly. See "Remove the E1.S/E3.S drive cage assembly" on page 202.

Step 2. Remove the E3.S drive backplane module.

    a. **1** Loosen the two thumbscrews that secure the backplane module to the drive cage.

    b. **2** Lift and hold the two retention latches on the top of the backplane module.

    c. **3** Rotate the backplane module from the top to disengage it from the retention latches; then, carefully lift the backplane module out of the drive cage.
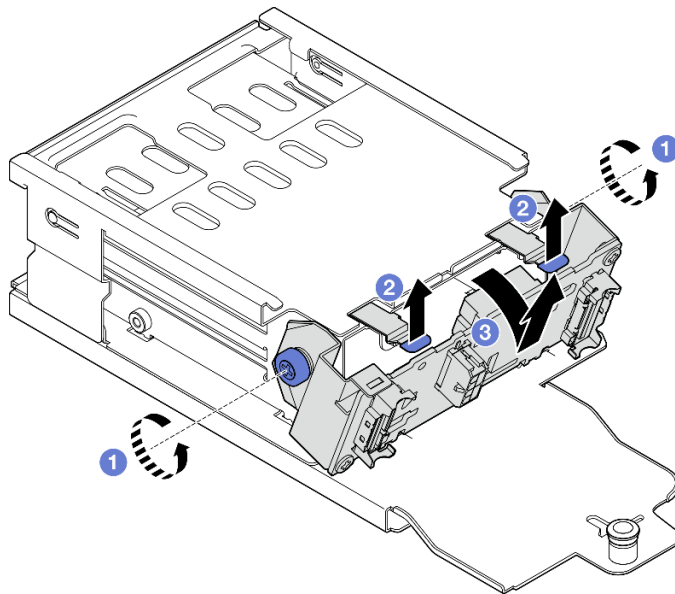
Figure 158. E3.S drive backplane module removal

Step 3. If necessary, remove the two E3.S drive backplane brackets.

    a. **1** Remove the two screws from the backplane.

    b. **2** Slightly slide the two backplane brackets backward to disengage them from the backplane.
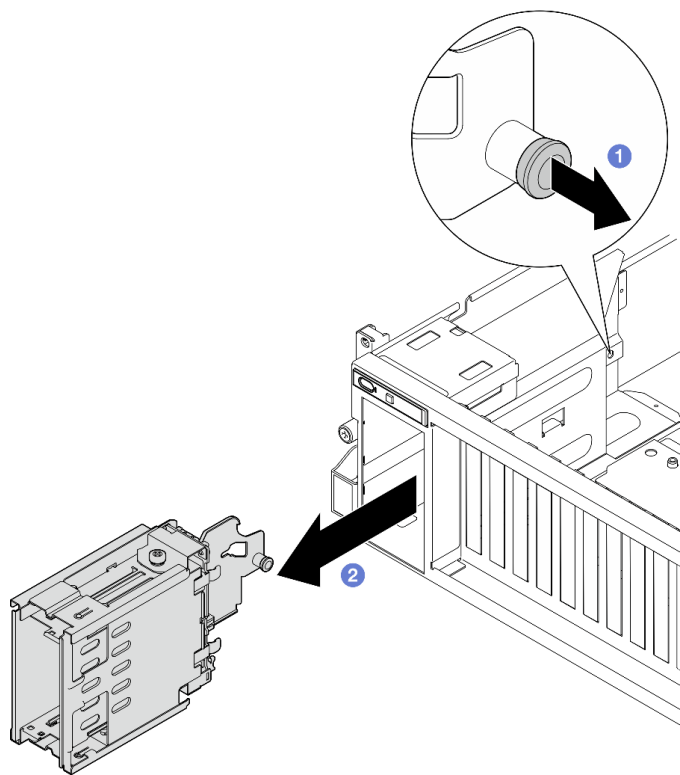
Figure 159. E3.S drive backplane bracket removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Install the E3.S drive backplane module

Follow instructions in this section to install the E3.S drive backplane module.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. If necessary, install the two backplane brackets to the E3.S drive backplane.

 a. ❶ Align the two tabs on the bottom of the backplane with the slots on the backplane brackets, and insert them into the slots.

 b. ❷ Fasten the two screws to secure the two backplane brackets to the backplane.

Figure 160. E3.S drive backplane bracket installation

Step 2.   Install the E3.S drive backplane module.

a.   ❶ Orient the backplane module with the guide hole aligning with the guide pin under the retention latch; then, align the tabs on the bottom of the backplane module with the slots on the drive cage, and insert them into the slots.

b.   ❷ Push the top of the backplane module toward the drive cage until it clicks into place.

c.   ❸ Fasten the two thumbscrews to secure the backplane module to the drive cage.
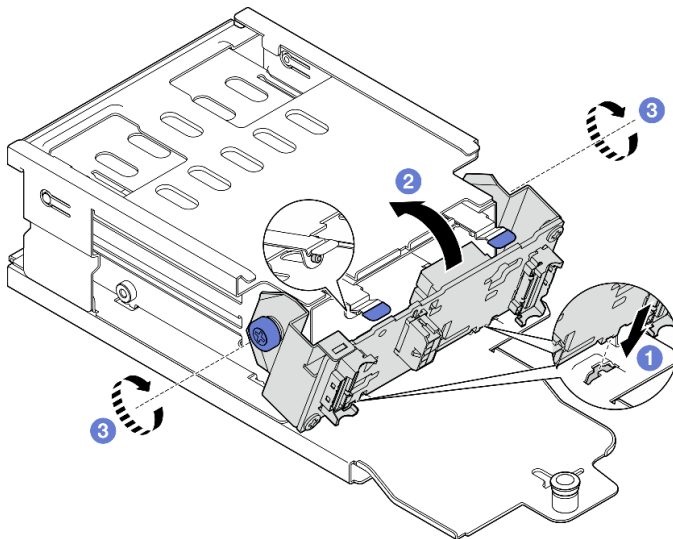
Figure 161. E3.S drive backplane module installation

After you finish

1. Reinstall the E3.S drive cage assembly. See "Install the E1.S/E3.S drive cage assembly" on page 204.

2. Reconnect the power and signal cables to the E3.S drive backplane. See "E3.S drive backplane cable routing" on page 373 for more information.

3. Reinstall the E3.S hot-swap drives or drive bay fillers (if any) into the drive bays. See "Install an E1.S/E3.S hot-swap drive" on page 193.

4. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

E1.S/E3.S drive cage assembly replacement

Follow instructions in this section to remove and install the E1.S or E3.S drive cage assembly.

Remove the E1.S/E3.S drive cage assembly

Follow instructions in this section to remove the E1.S or E3.S drive cage assembly.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

- To make sure that there is adequate system cooling, do not operate the solution for more than two minutes without either a drive or a filler installed in each bay.

- If one or more EDSFF drives are to be removed, it is recommended to disable them beforehand via the operating system.

- Before you remove or make changes to drives, drive controllers (including controllers that are integrated on the system board assembly), drive backplanes or drive cables, back up all important data that is stored on drives.

- When removing drives, record the drive bay the drive is removed from, and use the record as a checklist when installing the drives.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Remove all of the E1.S or E3.S hot-swap drives and the drive bay fillers (if any) from the drive bays. See "Remove an E1.S/E3.S hot-swap drive" on page 190. Place the drives on a static protective surface.

    c. Disconnect the power and signal cables from the E1.S or E3.S drive backplane.

Step 2. Remove the E1.S or E3.S drive cage assembly.

    a. ❶ Pull out the plunger on the drive cage assembly.

    b. ❷ Slide the drive cage assembly out of the chassis.
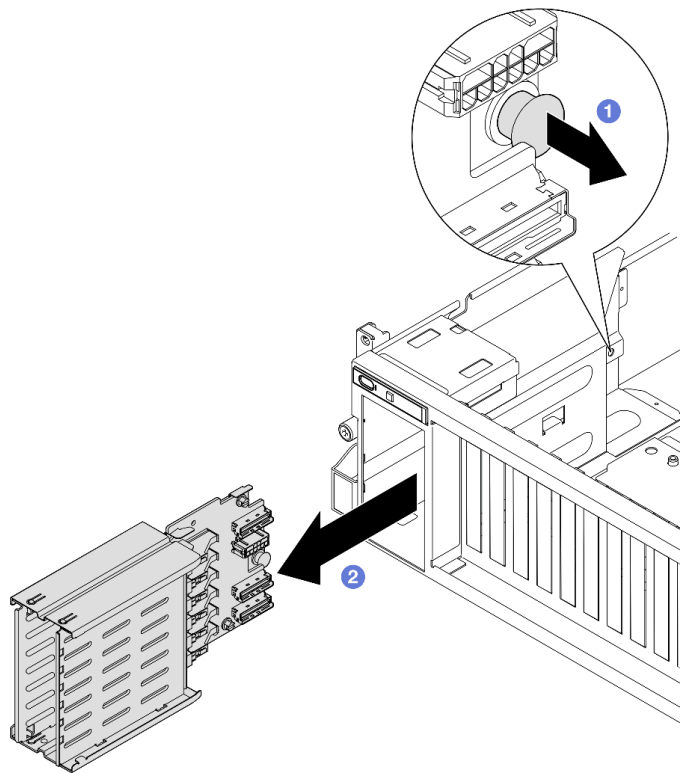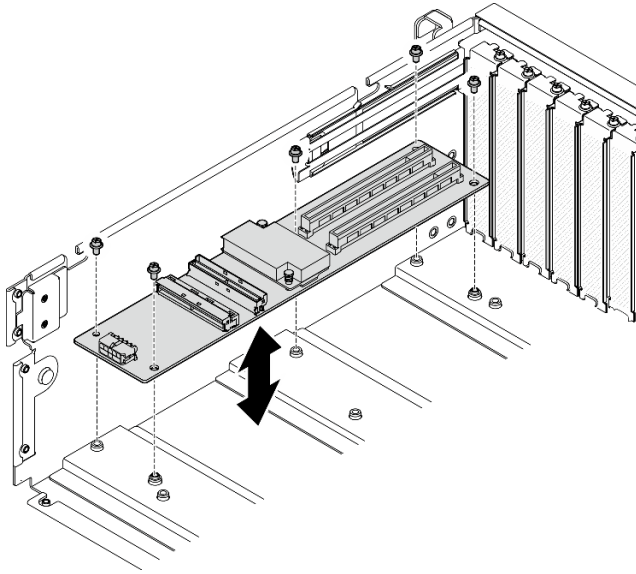
Figure 162. E1.S drive cage assembly removal

Figure 163. E3.S drive cage assembly removal

After you finish

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.

Demo video

E1.S drive cage assembly removal: Watch the procedure on YouTube

E3.S drive cage assembly removal: Watch the procedure on YouTube

Install the E1.S/E3.S drive cage assembly

Follow instructions in this section to install the E1.S or E3.S drive cage assembly.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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. Insert the E1.S or E3.S drive cage assembly into the drive cage slot until the plunger clicks into place.
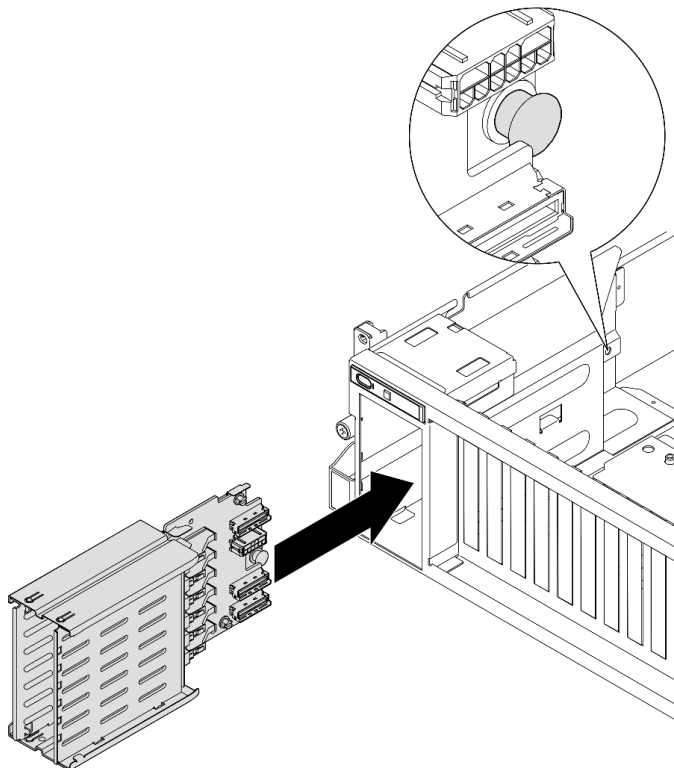
Figure 164. E1.S drive cage assembly installation
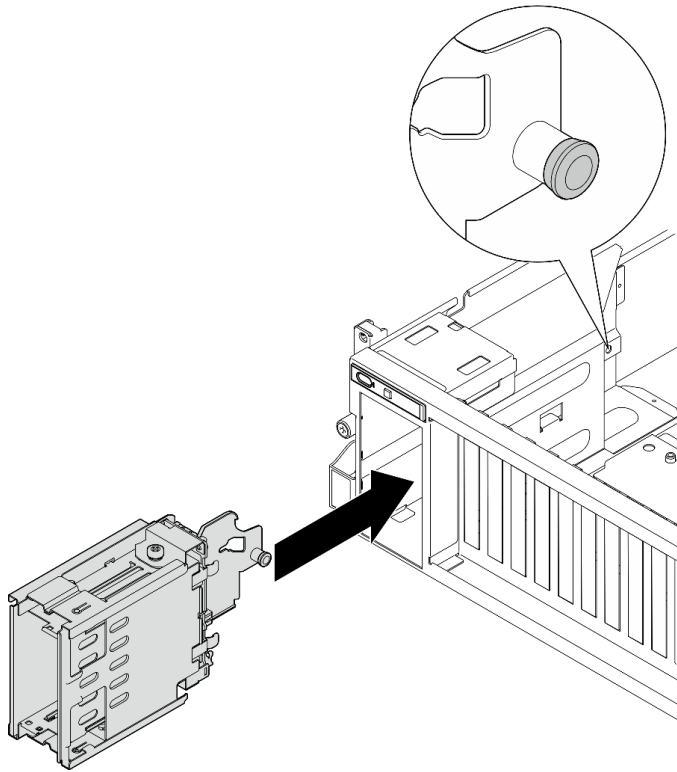
Figure 165. E3.S drive cage assembly installation

After you finish

1. Depending on the configuration, reconnect the power and signal cables to the E1.S or the E3.S drive backplane. See "E1.S drive backplane cable routing" on page 371 or "E3.S drive backplane cable routing" on page 373 for more information.

2. Depending on the configuration, reinstall the E1.S or E3.S hot-swap drives or drive bay fillers (if any) into the drive bays. See "Install an E1.S/E3.S hot-swap drive" on page 193.

3. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

E1.S drive cage assembly installation: Watch the procedure on YouTube

E3.S drive cage assembly installation: Watch the procedure on YouTube

Front I/O expansion board replacement

Follow instructions in this section to remove and install the front I/O expansion board.

Remove the front I/O expansion board

Follow instructions in this section to remove the front I/O expansion board.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Note: The front I/O expansion board might look different from the illustrations in this section.

Procedure

Step 1. Make preparation for this task.

   a. Remove the top cover. See "Remove the top cover" on page 179.

   b. Remove the front PCIe adapter(s). See "Remove a PCIe adapter" on page 128.

Step 2. Disconnect the cables that are connected to the front I/O expansion board.

Step 3. If applicable, unfasten the screw that secures the front I/O expansion board heat sink to the chassis.
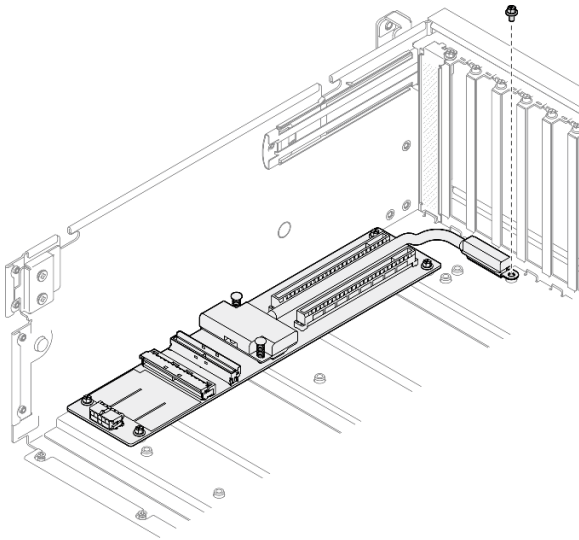
Figure 166. Screw removal

Step 4. Unfasten the five screws from the front I/O expansion board, and remove it from the chassis.
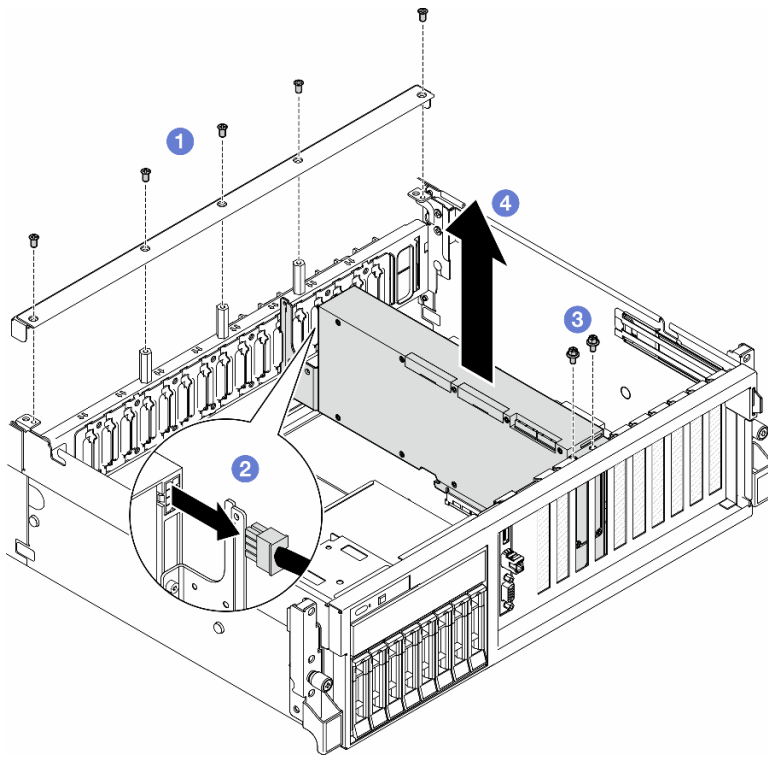
Figure 167. Front I/O expansion board removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Install the front I/O expansion board

Follow instructions in this section to install the front I/O expansion board.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.

Note: The front I/O expansion board might look different from the illustrations in this section.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. Align the front I/O expansion board with the five screw holes on the chassis; then, lower the front I/O expansion board into the chassis.

Step 2. Fasten the five screws to secure it to the chassis.
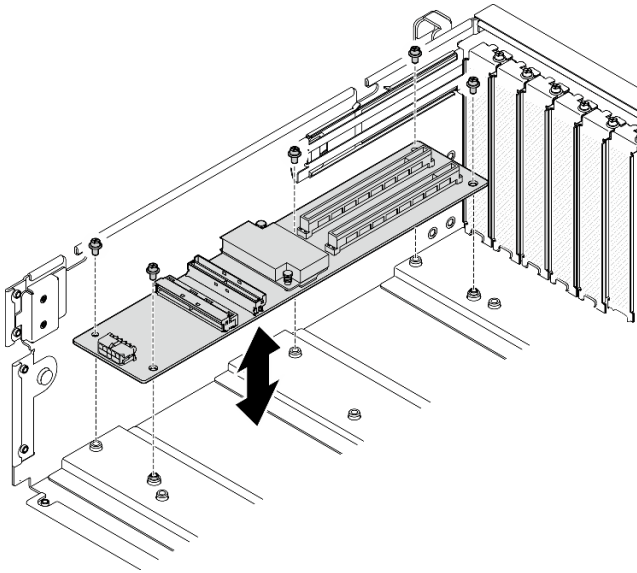
Figure 168. Front I/O expansion board installation

Step 3. If applicable, fasten the screw to secure the front I/O expansion board heat sink to the chassis.
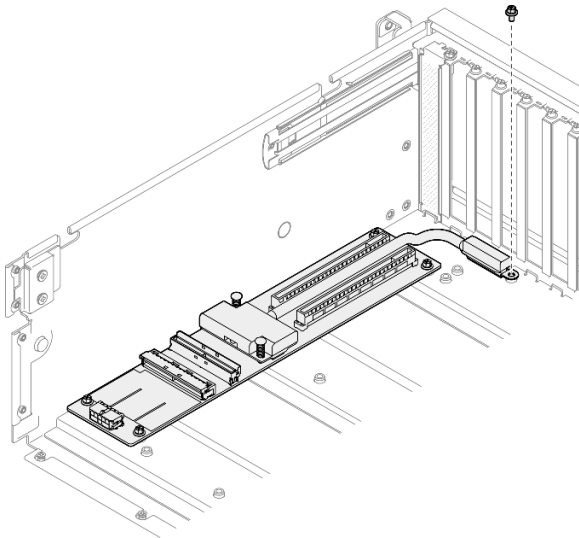
Figure 169. Screw installation

Step 4. Connect the power and signal cables to the front I/O expansion board. Depending on the server model, see below for more details:

- 4-DW GPU Model: "Front I/O expansion board cable routing" on page 358
- 8-DW GPU Model: "Front I/O expansion board cable routing" on page 375

After you finish

1. Reinstall the front PCIe adapter(s). See "Install a PCIe adapter" on page 130.
2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

GPU adapter replacement

Follow instructions in this section to remove and install a GPU adapter.

Remove a GPU adapter

Follow instructions in this section to remove a GPU adapter.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.
- Depending on the specific type, the GPU adapter might look slightly different from the illustrations in this section.
- Follow the additional instructions in any documentation that comes with your GPU adapter.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Remove the GPU adapter link bridge(s) if installed. See "Remove a GPU adapter link bridge" on page 220.

Step 2. Remove the GPU adapter.

    a. ❶ Remove the five screws from the top of the cross bar.

    b. ❷ Locate the GPU adapter to be removed, and disconnect the power cable from the GPU adapter.

    c. ❸ Remove the two screws that secure the GPU adapter to the chassis.

    d. ❹ Grasp the GPU adapter by its edges and carefully pull it out of the PCIe slot.

Figure 170. GPU adapter removal

After you finish

1. 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.

2. If the GPU adapter link bridges were removed, reinstall the link connector covers back to the GPU adapter. If you do not have the original link connector covers on hand, use the one on the new GPU adapter.
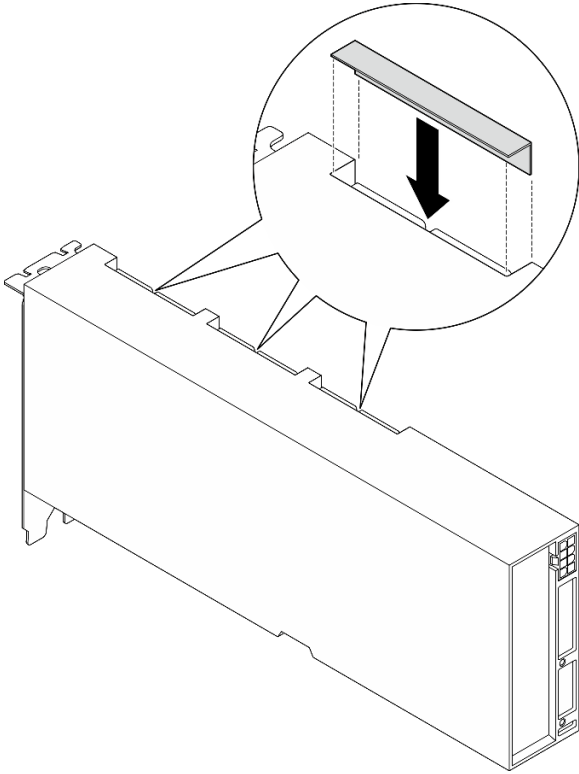
Figure 171. link connector cover installation

Demo video

[Watch the procedure on YouTube](#)

Install a GPU adapter

Follow instructions in this section to install a GPU adapter.

About this task

Attention:

- Read ["Installation Guidelines" on page 59](#) and ["Safety inspection checklist" on page 60](#) to ensure that you work safely.

- 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.

- Depending on the specific type, the GPU adapter might look slightly different from the illustrations in this section.

- Follow the additional instructions in any documentation that comes with your GPU adapter.

Procedure

Step 1. Locate the PCIe slot based on the front view of the configuration. Refer to the following sections for the PCIe slot numbering and supported GPU configurations:

- ["The 4-DW GPU Model front view" on page 15](#)
- ["The 8-DW GPU Model front view" on page 16](#)

Step 2.   (Optional) If the GPU adapter link bridges are to be installed, remove the link connector cover from the GPU adapter. Keep the link connector cover in case it is needed in the future.

> **Note:** Depending on the configuration, there may be one or three GPU adapter link bridges on the GPU adapters. When linking a GPU pair, all link connectors on the GPU adapters must be linked.
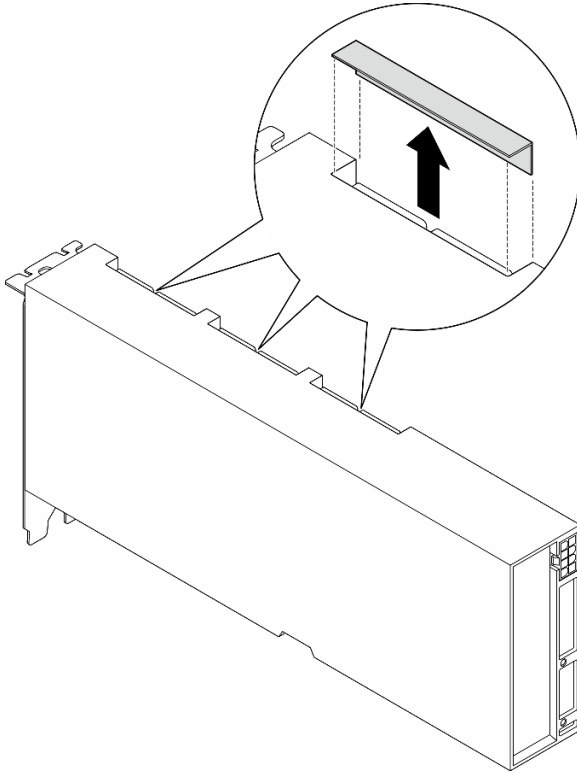
Figure 172. Link connector cover removal

Step 3.   Install the GPU adapter.

> **Note:** If the PCIe slot is covered with a slot bracket, remove the bracket from the chassis first.

a.   ❶ Align the GPU adapter with the PCIe slot on the chassis. Then, carefully press both ends of the GPU adapter straight into the slot until it is securely seated.

b.   ❷ Connect the power cable to the GPU adapter.

c.   ❸ Fasten the two screws that secure the GPU adapter to the chassis.

d.   ❹ Fasten the five screws on the top of the cross bar.
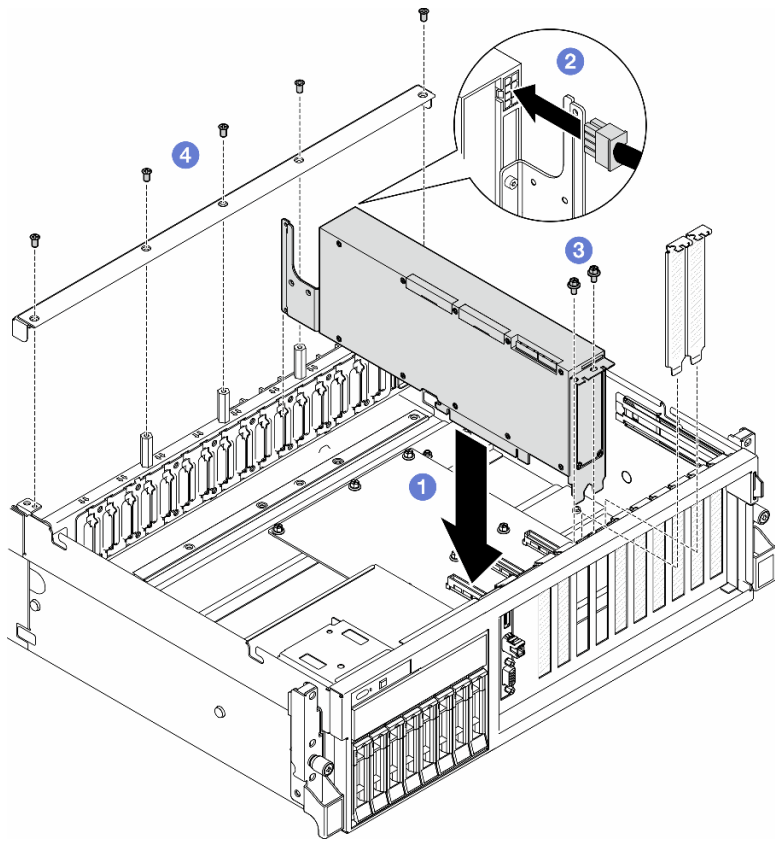
Figure 173. GPU adapter installation

Note: Make sure to route the GPU power cable through the cable guide that is located behind the cross bar.
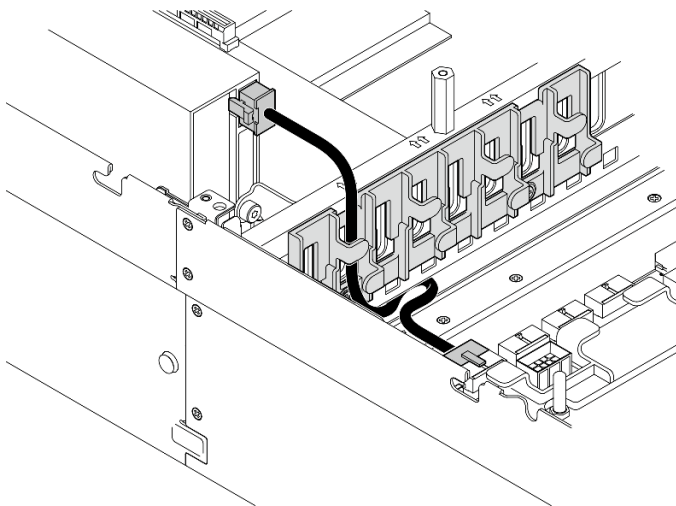
After you finish

1. To install the GPU adapter link bridge, see "Install a GPU adapter link bridge" on page 221.

2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

GPU distribution board replacement (trained technician only)

Follow instructions in this section to remove and install a GPU distribution board.

Important: This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install the part without proper training and qualification.

Remove a GPU distribution board

Follow instructions in this section to remove a GPU distribution board. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Note: The GPU distribution board might look different from the illustrations in this section.

Procedure

Step 1. Make preparation for this task.

a. Remove the top cover. See "Remove the top cover" on page 179.

b. Remove all of the GPU adapters. See "Remove a GPU adapter" on page 209.

Step 2. Disconnect the power and signal cables from the GPU distribution board.

Step 3. If applicable, unfasten the screw that secures the GPU distribution board heat sink to the chassis.
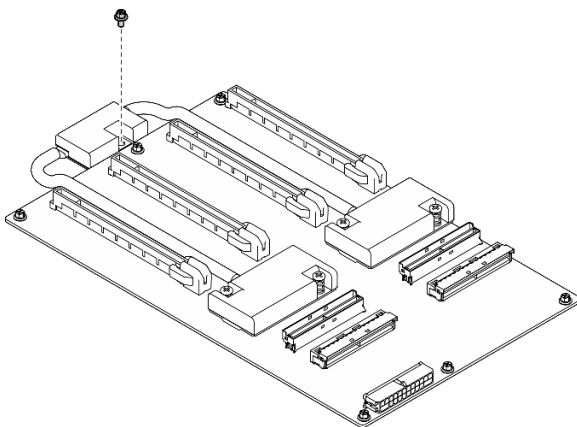
Figure 174. Screw removal

Step 4. Remove the GPU distribution board.

a. ❶ Remove the nine screws that secure the GPU distribution board to the chassis.

b. ❷ Grasp the GPU distribution board by its edges, and carefully lift it out of the chassis.
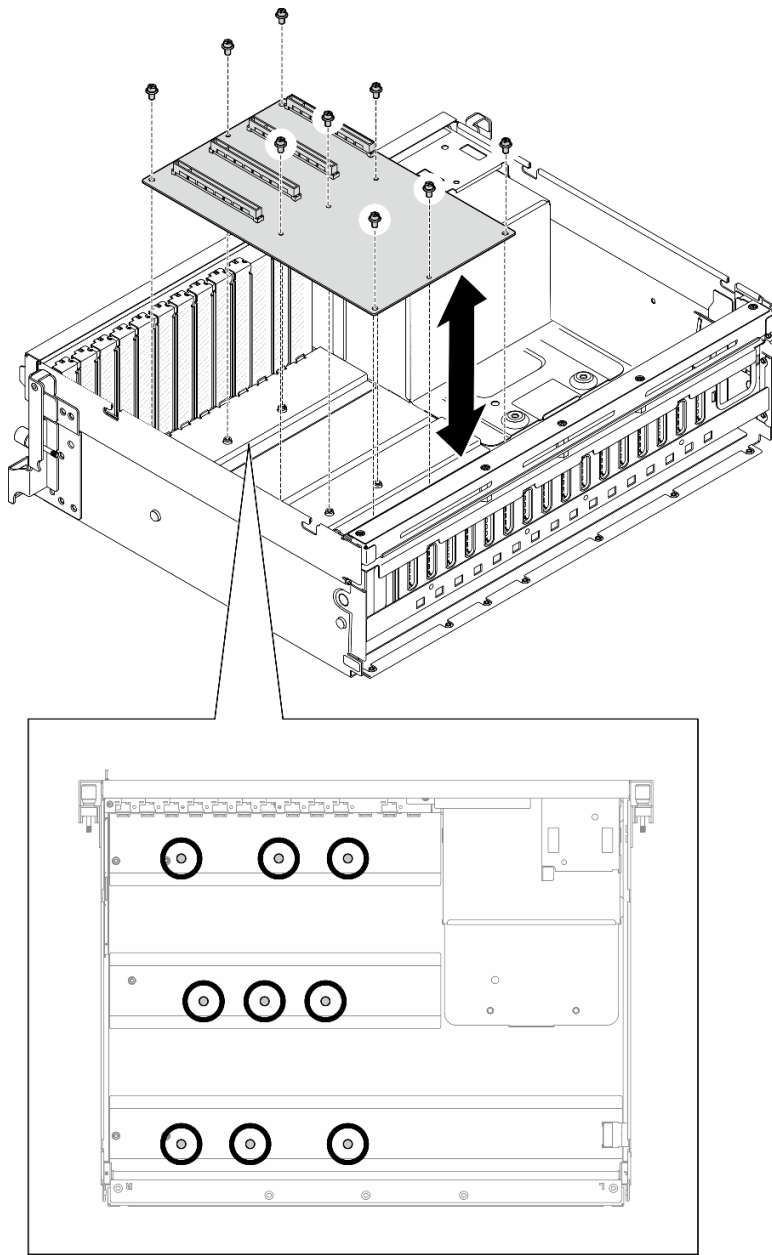
Figure 175. GPU distribution board removal — 4-DW GPU Model
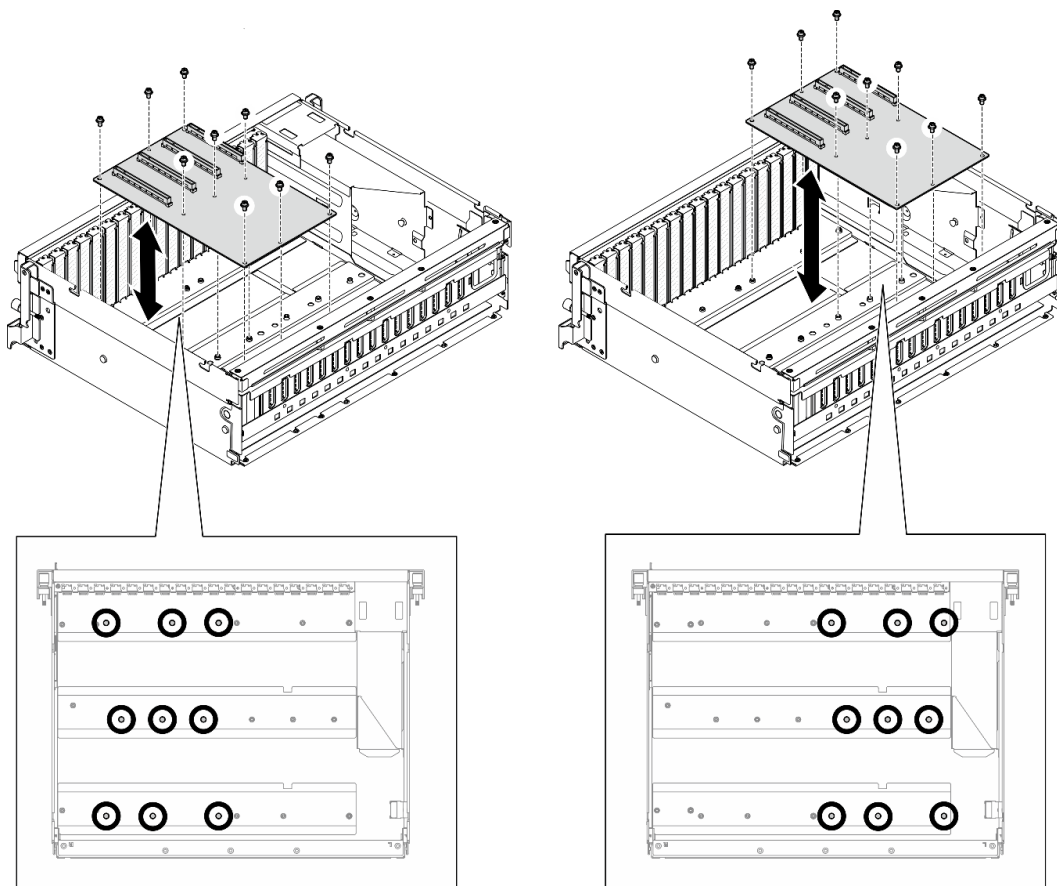
Figure 176. GPU distribution board removal — 8-DW GPU Model

After you finish

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.

Demo video

Watch the procedure on YouTube

Install a GPU distribution board

Follow instructions in this section to install a GPU distribution board. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.
- Depending on the configuration, the following GPU distribution boards are supported in the 4-DW GPU Model and the 8-DW GPU Model:

- – The 4-DW GPU Model supports one of the followings:

   - – 1 x Direct GPU distribution board

   - – 1 x Switched GPU distribution board

- – The 8-DW GPU Model supports one of the followings:

   - – 2 x Direct GPU distribution board

   - – 2 x Switched GPU distribution board

Note: The GPU distribution board might look different from the illustrations in this section.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/ driver-list/ to see the latest firmware and driver updates for your server.

- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1.   Align the nine screw holes on the GPU distribution board with the standoffs on the chassis.

Step 2.   Fasten the nine screws to secure the GPU distribution board to the chassis.
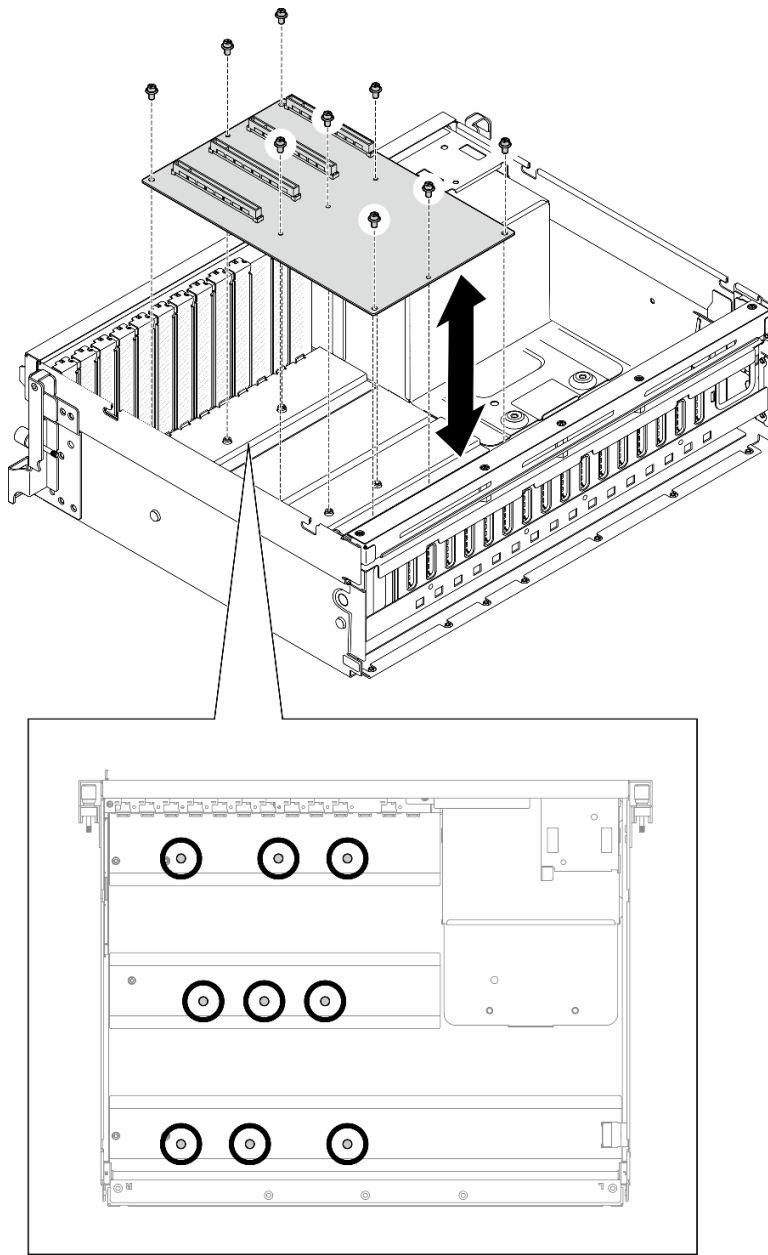
Figure 177. GPU distribution board installation — 4-DW GPU Model
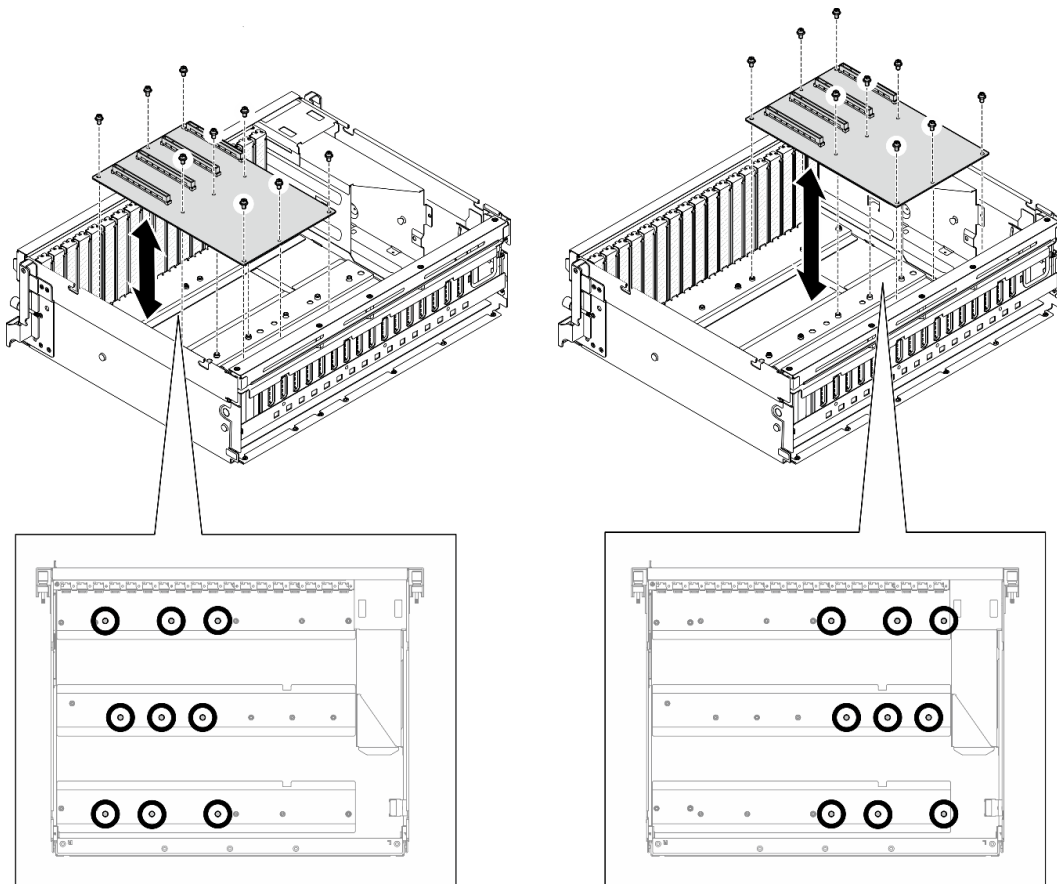
Figure 178. GPU distribution board installation — 8-DW GPU Model

Step 3. If applicable, fasten the screw to secure the GPU distribution board heat sink to the chassis.
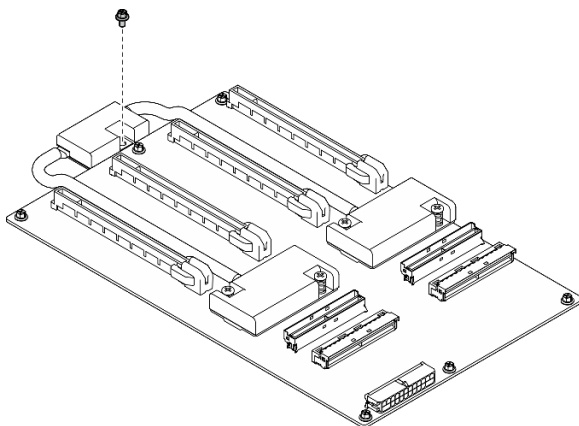
Figure 179. Screw installation

Step 4. Connect the power and signal cables to the GPU distribution board. Depending on the server model, see below for more details:

- 4-DW GPU Model: "GPU distribution board cable routing" on page 362
- 8-DW GPU Model: "GPU distribution board cable routing" on page 381

After you finish

1. Reinstall the GPU adapters. See "Install a GPU adapter" on page 211.

2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

GPU adapter link bridge replacement

Follow instructions in this section to remove and install a GPU adapter link bridge.

Remove a GPU adapter link bridge

Follow instructions in this section to remove a GPU adapter link bridge.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

- Depending on the specific type, the GPU adapter might look slightly different from the illustrations in this section.

- Follow the additional instructions in any documentation that comes with your GPU adapter.

Procedure

Step 1. Remove the top cover. See "Remove the top cover" on page 179.

Step 2. Remove the GPU adapter link bridge.

   a. ❶ Press the suction cup against the GPU adapter link bridge until it adheres to the GPU adapter link bridge.

       Note: Depending on the configuration, there may be one or three GPU adapter link bridges on the GPU adapters. Remove all GPU adapter link bridges from the GPU adapters.
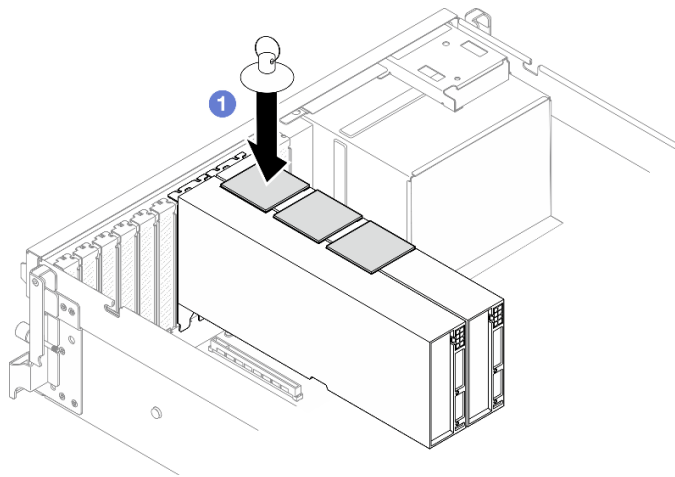
Figure 180. GPU adapter link bridge removal

b. ② Pull up the suction cup and remove the GPU adapter link bridge together with the suction cup from the GPUs.
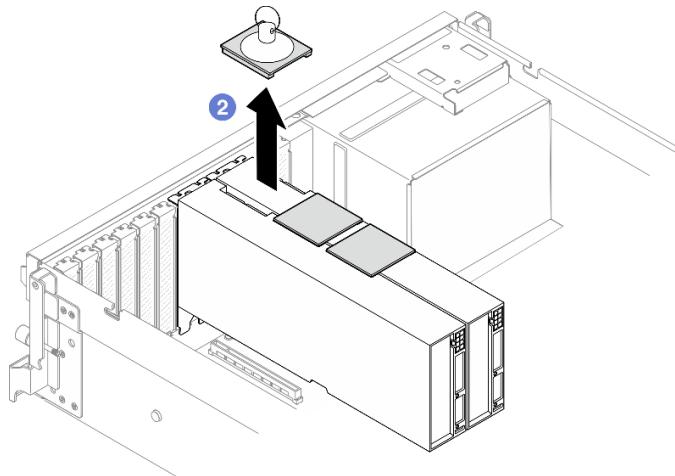
Figure 181. GPU adapter link bridge removal

After you finish

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.

Demo video

[Watch the procedure on YouTube](#)

Install a GPU adapter link bridge

Follow instructions in this section to install a GPU adapter link bridge.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- 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.

- Depending on the specific type, the GPU adapter might look slightly different from the illustrations in this section.

- Follow the additional instructions in any documentation that comes with your GPU adapter.

Procedure

Notes: Install the GPU adapter link bridge to connect the GPU pairs listed below:

- GPU 1 and GPU 2
- GPU 3 and GPU 4
- GPU 5 and GPU 6
- GPU 7 and GPU 8

Step 1. Remove the link connector cover from the GPU adapter.
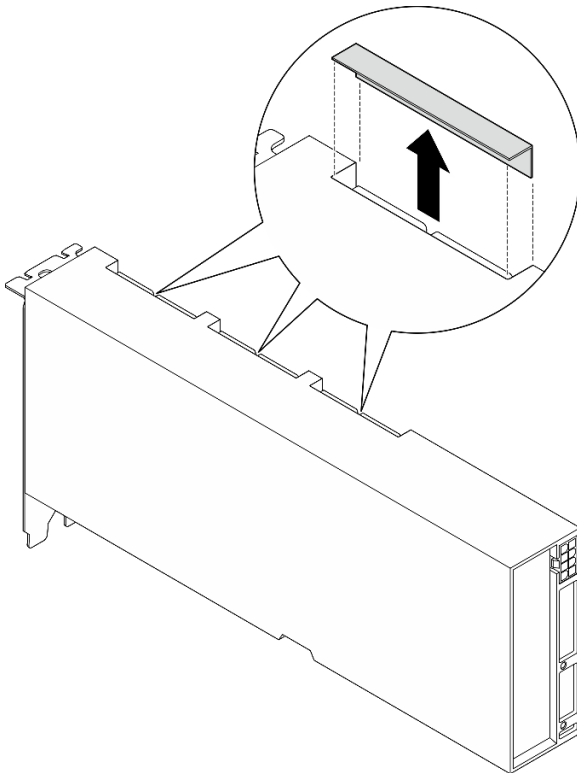
Figure 182. Link connector cover removal

Step 2. Align the GPU adapter link bridge to the link connectors on the GPU adapters; then, install the GPU adapter link bridge to the GPU adapters until it clicks into place.

Note: Depending on the configuration, there may be one or three GPU adapter link bridges on the GPU adapter. When linking a GPU pair, all link connectors on the GPU adapters must be linked.
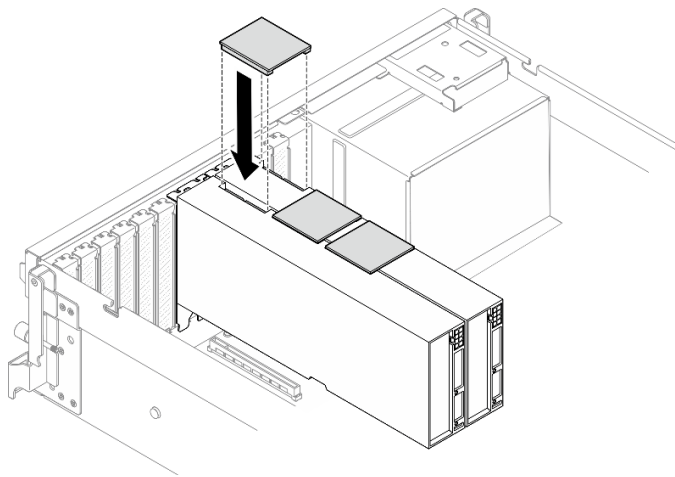
Figure 183. GPU adapter link bridge installation

After you finish

Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

PCIe slot reinforcement replacement (trained technician only)

Follow instructions in this section to remove and install the PCIe slot reinforcement.

Important: This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install the part without proper training and qualification.

Remove a PCIe slot reinforcement

Follow instructions in this section to remove a PCIe slot reinforcement. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Note: The GPU distribution board might look different from the illustrations in this section.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Remove all of the GPU adapters. See "Remove a GPU adapter" on page 209.

c.   Remove the GPU distribution board. See "Remove a GPU distribution board" on page 214.

Step 2.   Unfasten the screw to remove the PCIe slot reinforcement from the GPU distribution board.
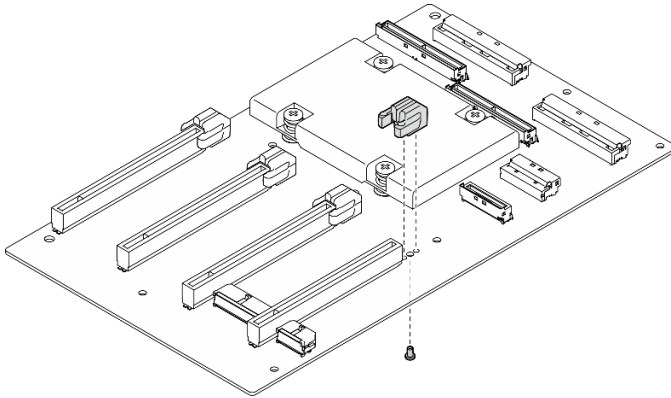
Figure 184. PCIe slot reinforcement removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Install a PCIe slot reinforcement

Follow instructions in this section to install a PCIe slot reinforcement. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.

Note: The GPU distribution board might look different from the illustrations in this section.

Procedure

Step 1.   Align the PCIe slot reinforcement with the screw hole on the GPU distribution board; then, fasten the screw to secure the PCIe slot reinforcement to the GPU distribution board.
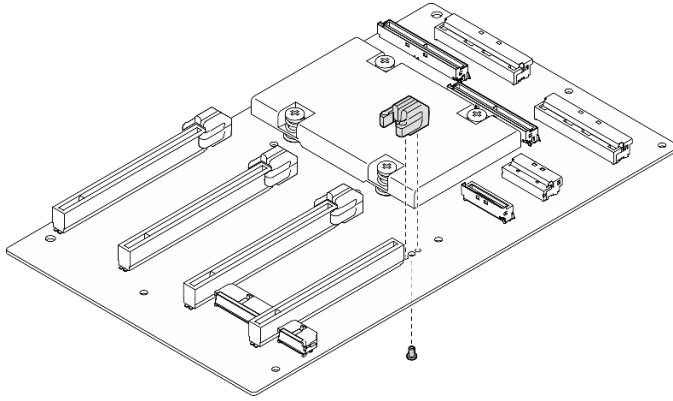
Figure 185. PCIe slot reinforcement installation

After you finish

1. Reinstall the GPU distribution board. See "Install a GPU distribution board" on page 216.

2. Reinstall the GPU adapters. See "Install a GPU adapter" on page 211.

3. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Thermal air flow rear baffle replacement

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

Remove the thermal air flow rear baffle

Follow instructions in this section to remove the thermal air flow rear baffle.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

Procedure

Step 1. Make preparation for this task.

    a.   Remove the top cover. See "Remove the top cover" on page 179.

    b.   If applicable, remove the PCIe riser 2. See "Remove a PCIe riser" on page 132.

Step 2. Remove the thermal air flow rear baffle.

    a.   ❶ Unfasten the two screws that secure the thermal air flow rear baffle to the chassis.

    b.   ❷ Use a pointed tool to disengage the thermal air flow rear baffle from the chassis.

c. ❸ Slightly rotate the thermal air flow rear baffle toward the power distribution board, and pull it away from the chassis.
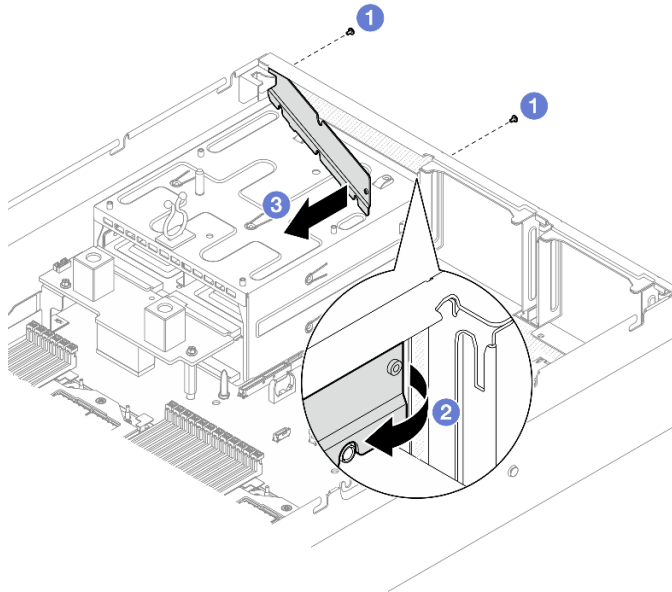
Figure 186. Thermal air flow rear baffle removal

After you finish

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.

Demo video

[Watch the procedure on YouTube](#)

Install the thermal air flow rear baffle
Follow instructions in this section to install the thermal air flow rear baffle.

About this task

Attention:

- Read ["Installation Guidelines" on page 59](#) and ["Safety inspection checklist" on page 60](#) to ensure that you work safely.
- 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. Peel off the liner from the double-sided tape on the thermal air flow rear baffle.

Step 2. Install the thermal air flow rear baffle.

    a. ❶ Insert the left end of the thermal air flow rear baffle into the chassis at an angle.

    b. ❷ Rotate the thermal air flow rear baffle toward the chassis, and press it until it is evenly attached to the chassis.

    c. ❸ Fasten the two screws to secure the thermal air flow rear baffle to the chassis.
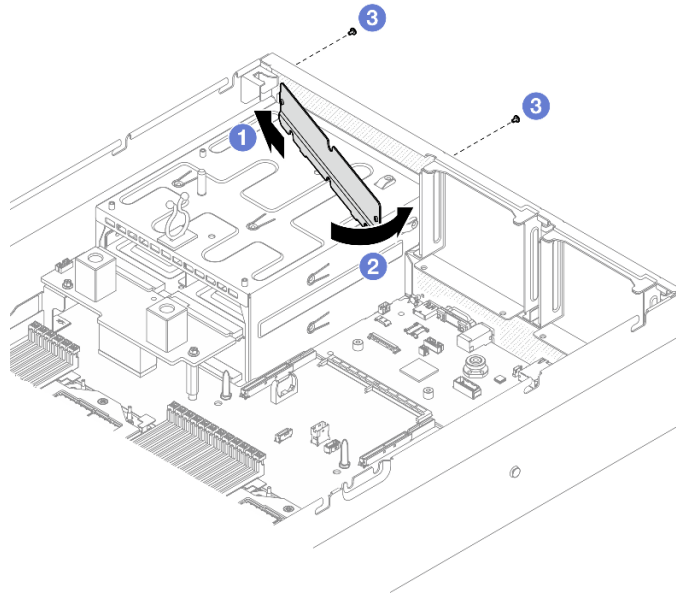
Figure 187. Thermal air flow rear baffle installation

After you finish

1. If applicable, reinstall the PCIe riser 2. See "Install a PCIe riser" on page 136.

2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

SXM5 GPU Model components

Follow instructions in this section to remove and install the SXM5 GPU Model components.

2.5-inch hot-swap drive replacement

Follow instructions in this section to remove and install a 2.5-inch hot-swap drive.

Remove a 2.5-inch hot-swap drive

Follow instructions in this section to remove a 2.5-inch hot-swap drive.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- To make sure that there is adequate system cooling, do not operate the server for more than two minutes without either a drive or a filler installed in each bay.

- If one or more NVMe solid-state drives are to be removed, it is recommended to disable them beforehand via the operating system.

- Before you remove or make changes to drives, drive controllers (including controllers that are integrated on the system board assembly), drive backplanes or drive cables, back up all important data that is stored on drives.

- Before you remove any component of a RAID array (drive, RAID card, etc.), back up all RAID configuration information.

Note: Make sure you have the drive bay fillers available if some drive bays will be left empty after the removal.

Procedure

Step 1. ❶ Slide the release latch to unlock the drive handle.

Step 2. ❷ Rotate the drive handle to the open position.

Step 3. ❸ Grasp the handle and slide the drive out of the drive bay.

Figure 188. 2.5-inch hot-swap drive removal

After you finish

Note: Install a drive bay filler or replacement drive as soon as possible. See "Install a 2.5-inch hot-swap drive" on page 228.

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.

Demo video

Watch the procedure on YouTube

Install a 2.5-inch hot-swap drive

Follow instructions in this section to install a 2.5-inch hot-swap drive.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.

- Make sure you save the data on your drive, especially if it is part of a RAID array, before you remove it from the server.
- To avoid damage to the drive connectors, make sure that the server top cover is in place and fully closed whenever you install or remove a drive.
- To make sure that there is adequate system cooling, do not operate the server for more than two minutes without either a drive or a drive bay filler installed in each bay.
- Before you make changes to drives, drive controllers (including controllers that are integrated on the system board assembly), drive backplanes, or drive cables, back up all important data that is stored on drives.
- Before you remove any component of a RAID array (drive, RAID card, etc.), back up all RAID configuration information.

The following notes describe the type of drives that the server supports and other information that you must consider when you install a drive. For a list of supported drives, see https://serverproven.lenovo.com.

- Locate the documentation that comes with the drive and follow those instructions in addition to the instructions in this chapter.
- The electromagnetic interference (EMI) integrity and cooling of the solution are protected by having all bays and PCI and PCIe slots covered or occupied. When you install a drive or PCIe adapter, save the EMC shield and filler panel from the bay or PCIe adapter slot cover in the event that you later remove the device.
- For a complete list of supported optional devices for the server, see https://serverproven.lenovo.com.
- The SXM5 GPU Model supports up to four 2.5-inch hot-swap NVMe drives with the following corresponding drive bay numbers.

Figure 189. 2.5-inch drive bay numbering in SXM5 GPU Model

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. If the drive bay contains a filler, pull the release lever on the filler and slide it out of the bay.

Step 2. Install the 2.5-inch hot-swap drive.

a. ❶ Make sure that the drive handle is in the open position. Then, align the drive with the guide rails in the bay, and gently slide the drive into the bay until it stops.

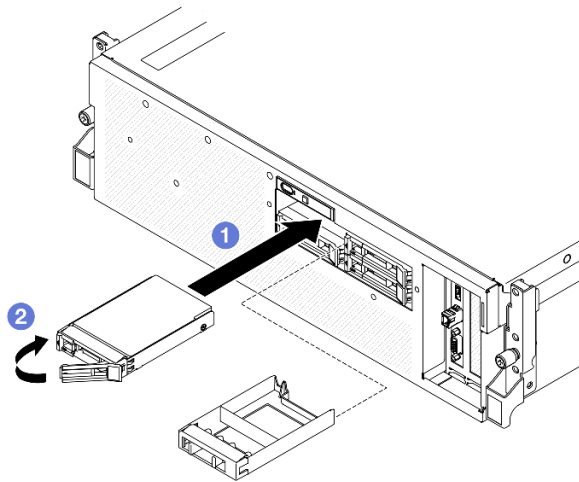b. ❷ Rotate the drive handle to the fully closed position until the handle latch clicks.

Figure 190. 2.5-inch hot-swap drive installation

After you finish

1. Check the drive status LED to verify that the drive is operating correctly.

   - If the yellow drive status LED of a drive is lit continuously, that drive is faulty and must be replaced.

   - If the green drive activity LED is flashing, the drive is being accessed.

2. If the server is configured for RAID operation through a ThinkSystem RAID adapter, you might have to reconfigure your disk arrays after you install drives. See the ThinkSystem RAID adapter documentation for additional information about RAID operation and complete instructions for using ThinkSystem RAID adapter.

3. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

2.5-inch drive backplane module replacement

Follow instructions in this section to remove and install the 2.5-inch drive backplane module.

Remove the 2.5-inch drive backplane module

Follow instructions in this section to remove the 2.5-inch drive backplane module.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

- When removing drives, record the drive bay the drive is removed from, and use the record as a checklist when installing the drives.

Procedure

Step 1.   Make preparation for this task.

 a.   Remove the top cover. See "Remove the top cover" on page 179.

 b.   Remove all of the 2.5-inch hot-swap drives and the drive bay fillers (if any) from the drive bays. See "Remove a 2.5-inch hot-swap drive" on page 227. Place the drives on a static protective surface.

 c.   Disconnect the power and signal cables from the 2.5-inch drive backplane.

Step 2.   Hold the two blue touch points on the top of the 2.5-inch drive backplane module, and lift it out of the drive cage.
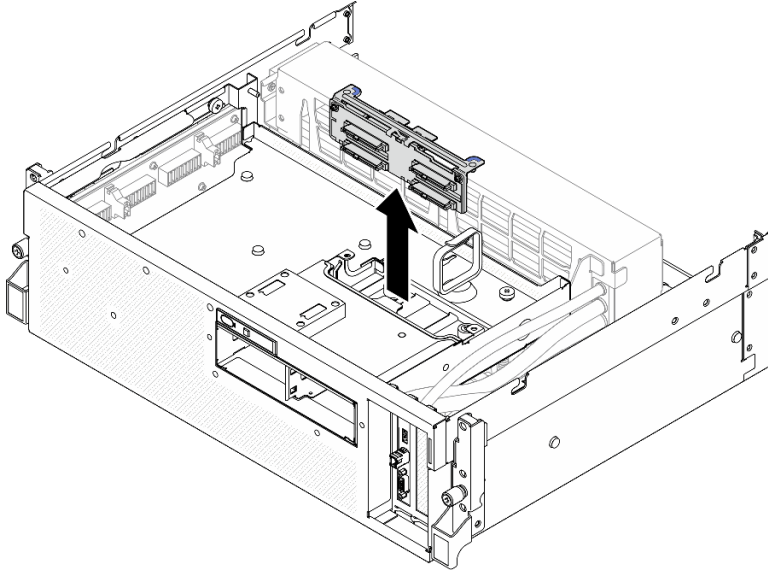
Figure 191. 2.5-inch drive backplane module removal

After you finish

1. 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.

2. If you plan to recycle the component:

 a.   Remove the two screws from the 2.5-inch drive backplane to disengage it from the backplane bracket.

 b.   Recycle the component in compliance with local regulations.
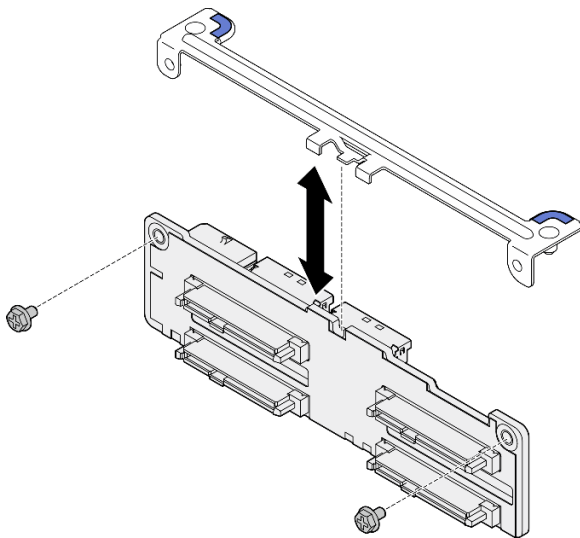
Figure 192. 2.5-inch drive backplane bracket removal

Demo video

[Watch the procedure on YouTube](#)

Install the 2.5-inch drive backplane module

Follow instructions in this section to install the 2.5-inch drive backplane module.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. Align the 2.5-inch drive backplane module with the guide holes on the drive cage; then, lower the backplane module into the drive cage until it clicks into place.
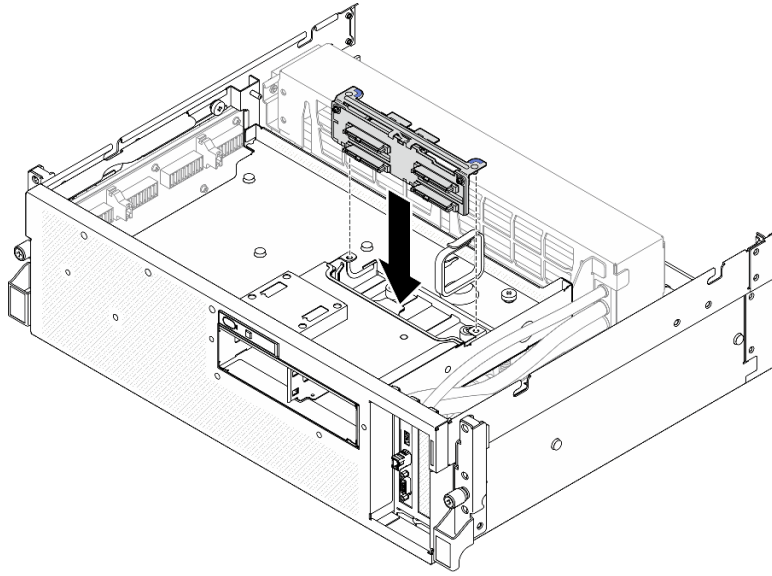
Figure 193. 2.5-inch drive backplane module installation

After you finish

1. Reconnect the power and signal cables to the 2.5-inch drive backplane. See "2.5-inch drive backplane cable routing" on page 393 for more information.

2. Reinstall the 2.5-inch hot-swap drives or drive bay fillers (if any) into the drive bays. See "Install a 2.5-inch hot-swap drive" on page 228.

3. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

2.5-inch drive cage replacement

Follow instructions in this section to remove and install the 2.5-inch drive cage.

Remove the 2.5-inch drive cage

Follow instructions in this section to remove the 2.5-inch drive cage.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

- When removing drives, record the drive bay the drive is removed from, and use the record as a checklist when installing the drives.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Remove all of the 2.5-inch hot-swap drives and the drive bay fillers (if any) from the drive bays. See "Remove a 2.5-inch hot-swap drive" on page 227. Place the drives on a static protective surface.

    c. Disconnect the power and signal cables from the 2.5-inch drive backplane.

    d. Remove the 2.5-inch drive backplane module. See "Remove the 2.5-inch drive backplane module" on page 230

Step 2. Remove the 2.5-inch drive cage.

    a. ❶ Loosen the two thumbscrews that secure the drive cage to the front drive tray.

    b. ❷ Slide the drive cage out of the chassis.
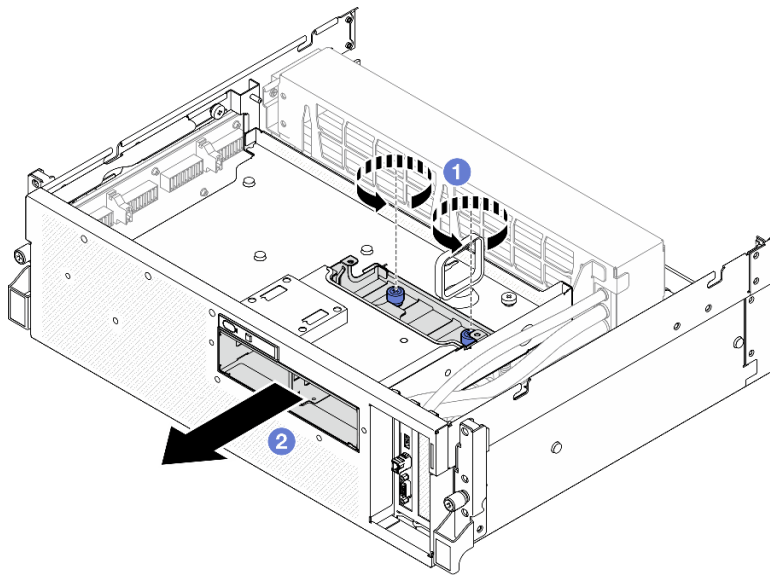
Figure 194. 2.5-inch drive cage removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Install the 2.5-inch drive cage

Follow instructions in this section to install the 2.5-inch drive cage.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- 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.   ❶ Align the 2.5-inch drive cage with the opening on the front of the server; then, slide the drive cage into the chassis until it is seated in place.

Step 2.   ❷ Fasten the two thumbscrews to secure the 2.5-inch drive cage to the front drive tray.
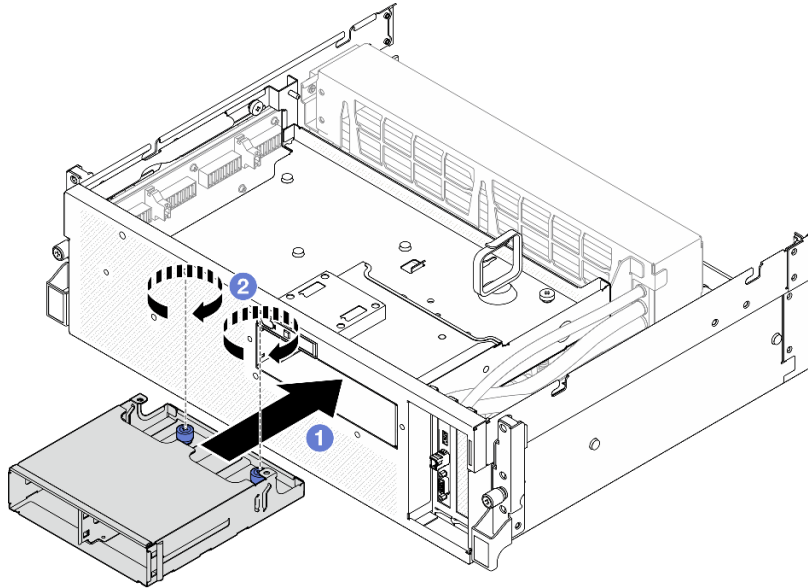
Figure 195. 2.5-inch drive cage installation

After you finish

1. Reinstall the 2.5-inch drive backplane module. See "Install the 2.5-inch drive backplane module" on page 232.

2. Reconnect the power and signal cables to the 2.5-inch drive backplane. See "2.5-inch drive backplane cable routing" on page 393 for more information.

3. Reinstall the 2.5-inch hot-swap drives or drive bay fillers (if any) into the drive bays. See "Install a 2.5-inch hot-swap drive" on page 228.

4. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

CX-7 assembly replacement (trained technician only)

Follow instructions in this section to remove and install the CX-7 assembly.

Important: This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install the part without proper training and qualification.

Remove the CX-7 assembly

Follow instructions in this section to remove the CX-7 assembly. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Procedure

Step 1. Make preparation for this task.

a. Remove the top cover. See "Remove the top cover" on page 179.

b. Disconnect the cables that are connected to the CX-7 carrier board and the CX-7 mezz board.

Note: There is a latch on the power cable connected to the **power connector 2** on the CX-7 carrier board. Slightly press and hold the cable latch; then, disconnect the cable from the CX-7 carrier board.

Figure 196. Power cable disconnection

Step 2. Remove the CX-7 assembly.

a. ❶ Loosen the thumbscrew that secures the CX-7 assembly to the front drive tray.

b. ❷ Rotate the CX-7 carrier board handle up.

c. ❸ Press down the rubber pad on the CX-7 carrier board handle so that the rubber pad is located underneath the front drive tray handle.

d. ❹ Push the CX-7 carrier board handle toward the interposer card to disconnect the CX-7 assembly from the interposer card.

Note: Make sure the two retention clips are in the slots on the interposer card before pushing the CX-7 carrier board handle.

e. ⑤ Release the two retention clips from the slots on the interposer card; then, rotate the CX-7 carrier board handle down so that the rubber pad is facing up.

f. ⑥ Slightly slide the CX-7 assembly backward; then, hold the CX-7 carrier board handle and the CX-7 carrier board tab, and lift CX-7 assembly out from the chassis.
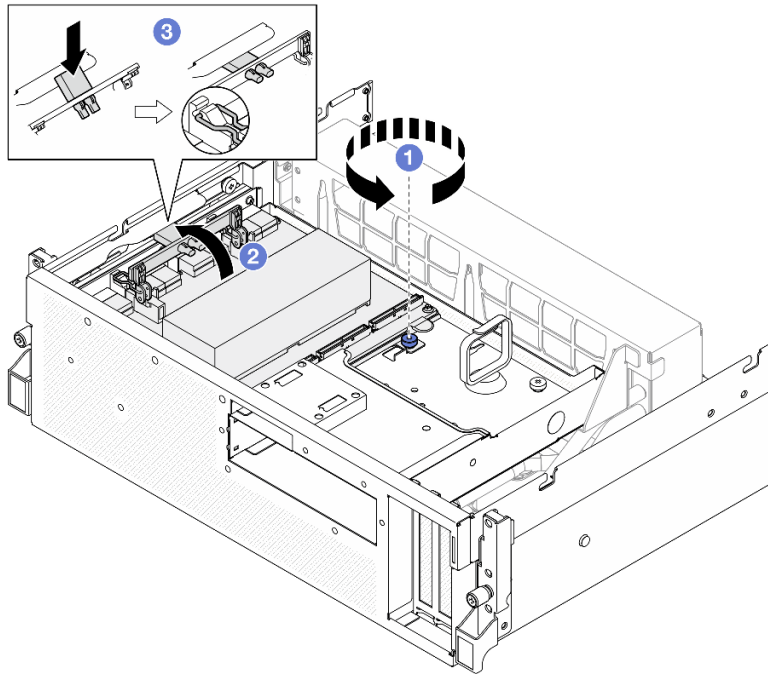
Figure 197. CX-7 assembly removal
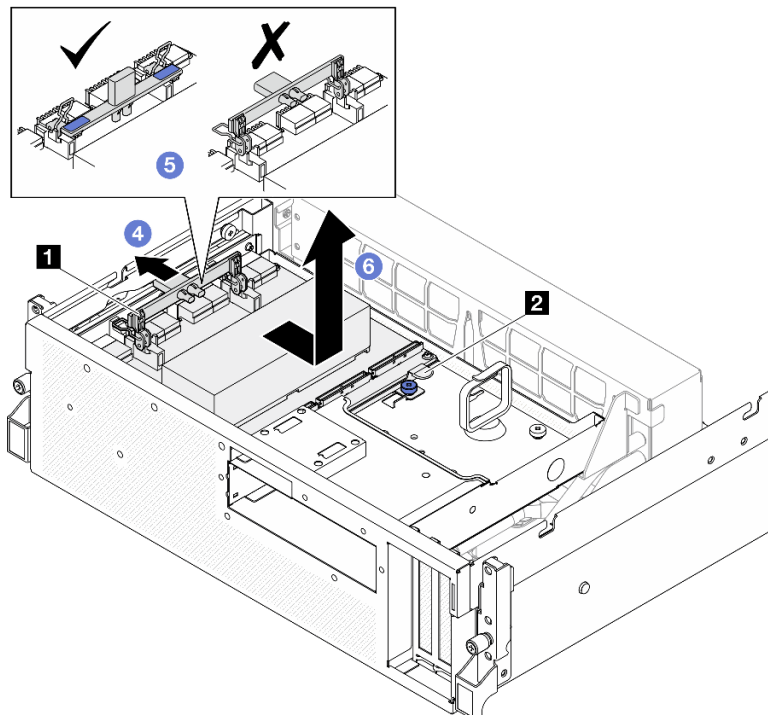
1 CX-7 carrier board handle	**2** CX-7 carrier board tab

After you finish

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.

Demo video

Watch the procedure on YouTube

Install the CX-7 assembly

Follow instructions in this section to install the CX-7 assembly. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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. **1** Hold the CX-7 carrier board handle and the CX-7 carrier board tab, and align the CX-7 assembly with the five guide pins on the front drive tray; then, lower it into the front drive tray.

Step 2. **2** Push the CX-7 assembly toward the interposer card to connect it to the interposer card.

Note: Make sure the two retention clips on the CX-7 carrier board handle are facing up before connecting the CX-7 assembly to the interposer card.

Step 3. **3** Press down the rubber pad on the CX-7 carrier board handle so that the rubber pad is located underneath the front drive tray handle.

Step 4. **4** Insert the two retention clips on the CX-7 carrier board handle into the slots on the interposer card.

Step 5. **5** Rotate the CX-7 carrier board handle down to lock the CX-7 assembly in place.

Step 6. **6** Fasten the thumbscrew to secure the CX-7 assembly to the front drive tray.
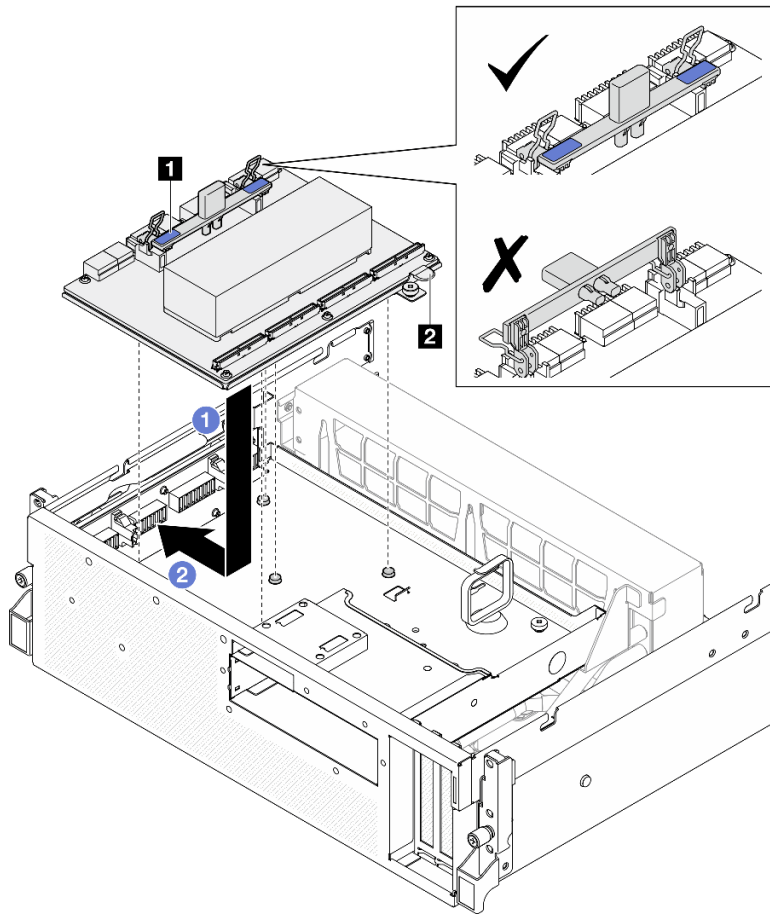
Figure 198. CX-7 assembly installation

1 CX-7 carrier board handle	**2** CX-7 carrier board tab
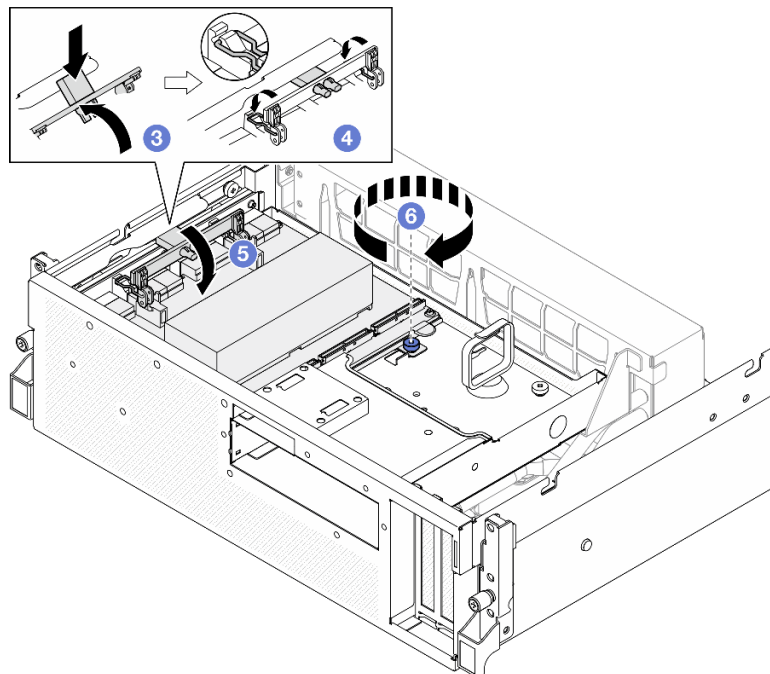
After you finish

1. Reconnect the cables to the CX-7 carrier board and the CX-7 mezz board. See "CX-7 carrier board cable routing" on page 402 and "OSFP port card cable routing" on page 418 for more information.

2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

CX-7 carrier board and CX-7 mezz board replacement (trained technician only)

Follow instructions in this section to remove and install the CX-7 carrier board and CX-7 mezz board.

Important: This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install the part without proper training and qualification.

Remove the CX-7 carrier board and CX-7 mezz board

Follow instructions in this section to remove the CX-7 carrier board and CX-7 mezz board. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

Notes: Make sure you have the required tools listed below available to properly replace the component:

- Torx T15 head screwdriver
- Alcohol cleaning pad
- SR675 V3 CX-7 heat sink putty pad kit

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Disconnect the cables that are connected to the CX-7 carrier board and the CX-7 mezz board.

       Note: There is a latch on the power cable connected to the **power connector 2** on the CX-7 carrier board. Slightly press and hold the cable latch; then, disconnect the cable from the CX-7 carrier board.

Figure 199. Power cable disconnection

    c.   Remove the CX-7 assembly. See "Remove the CX-7 assembly" on page 236.

    d.   Remove the CX-7 heat sinks. See "Remove a CX-7 heat sink" on page 244.

Step 2.   Unfasten the four Torx T15 screws on the CX-7 mezz board in the diagonal pattern; then, remove the CX-7 mezz board from the CX-7 carrier board.

        Note: Loosen or tighten the screws with a torque screwdriver set to the proper torque. For reference, the torque required for the screws to be fully loosen or tighten is 0.9 newton-meters, 7.96 inch-pounds.
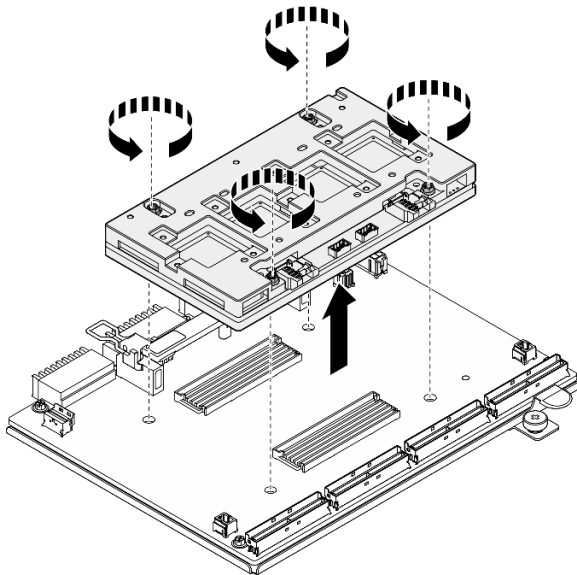

Figure 200. CX-7 mezz board removal

After you finish

1. 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.

2. If you plan to recycle the component:

    a. Remove the six screws from the CX-7 carrier board to separate it from the supporting sheet metal.
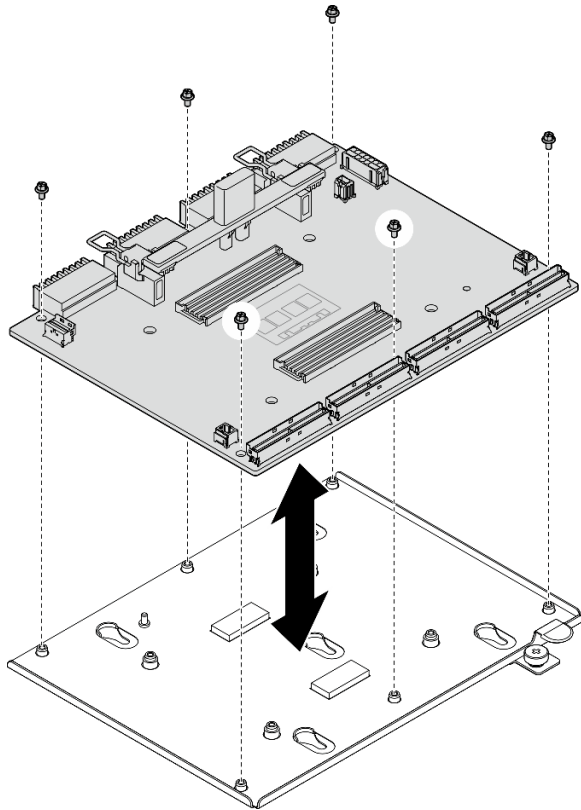
Figure 201. CX-7 carrier board disassembly

    b. Recycle the component in compliance with local regulations.

Demo video

Watch the procedure on YouTube

Install the CX-7 carrier board and CX-7 mezz board

Follow instructions in this section to install the CX-7 carrier board and CX-7 mezz board. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.

Notes: Make sure you have the required tools listed below available to properly replace the component:

- Torx T15 head screwdriver
- Alcohol cleaning pad

- SR675 V3 CX-7 heat sink putty pad kit

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. ❶ Hold the CX-7 mezz board in the correct orientation, and align it with the two guide holes on the CX-7 carrier board; then, gently place the CX-7 mezz board onto the CX-7 carrier board.

Step 2. ❷❸❹❺ Follow the sequence shown in the illustration below to fasten the four Torx T15 screws to secure the CX-7 mezz board to the CX-7 carrier board.

Note: Loosen or tighten the screws with a torque screwdriver set to the proper torque. For reference, the torque required for the screws to be fully loosen or tighten is 0.9 newton-meters, 7.96 inch-pounds.
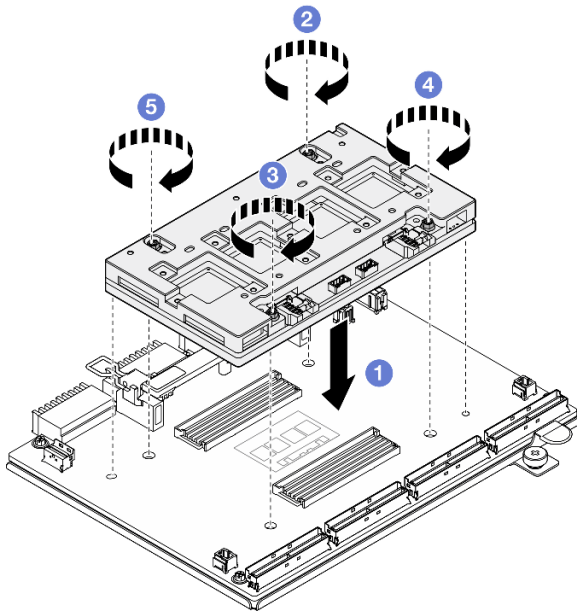
Figure 202. CX-7 mezz board installation

After you finish

1. Reinstall the CX-7 heat sinks. See "Install a CX-7 heat sink" on page 246.
2. Reinstall the CX-7 assembly. See "Install the CX-7 assembly" on page 238.
3. Reconnect the cables to the CX-7 carrier board and the CX-7 mezz board. See "CX-7 carrier board cable routing" on page 402 and "OSFP port card cable routing" on page 418 for more information.
4. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

CX-7 heat sink replacement (trained technician only)

Follow instructions in this section to remove and install a CX-7 heat sink.

Important: This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install the part without proper training and qualification.

Remove a CX-7 heat sink

Follow instructions in this section to remove a CX-7 heat sink. The procedure must be executed by a trained technician.

About this task

<u>S002</u>

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 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.
- 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.

Notes: Make sure you have the required tools listed below available to properly replace the component:

- Torx T15 head screwdriver
- Alcohol cleaning pad
- SR675 V3 CX-7 heat sink putty pad kit

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Disconnect the cables that are connected to the CX-7 carrier board and the CX-7 mezz board.

        Note: There is a latch on the power cable connected to the **power connector 2** on the CX-7 carrier board. Slightly press and hold the cable latch; then, disconnect the cable from the CX-7 carrier board.
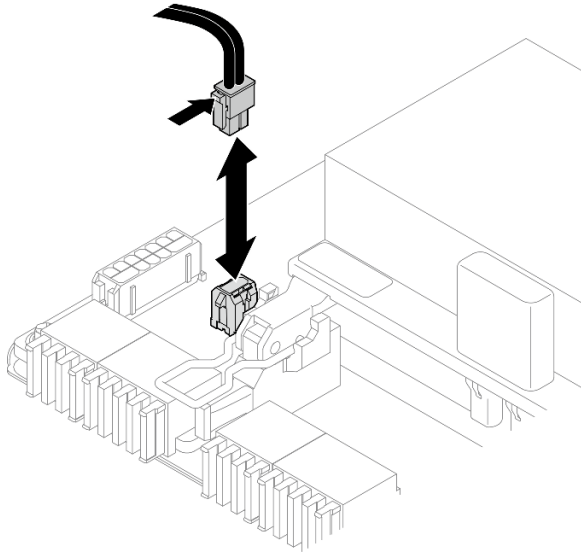
Figure 203. Power cable disconnection

    c.   Remove the CX-7 assembly. See "Remove the CX-7 assembly" on page 236.

Step 2.   Remove the CX-7 heat sink.

    a.   ❶ Unfasten the four Torx T15 screws on the CX-7 heat sink *in the removal sequence shown* on the CX-7 heat sink label.

        Note: Loosen or tighten the screws with a torque screwdriver set to the proper torque. For reference, the torque required for the screws to be fully loosen or tighten is 0.5±0.1 newton-meters, 4.5±0.5 inch-pounds.

    b.   ❷ Carefully lift the CX-7 heat sink from the CX-7 mezz board.
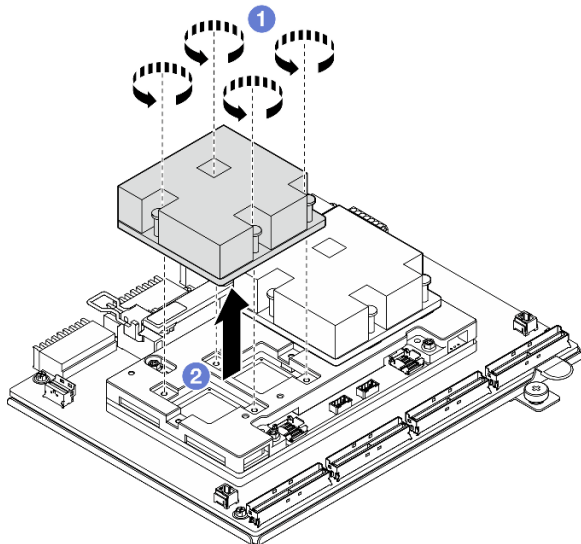
Figure 204. CX-7 heat sink removal

Step 3.   With alcohol cleaning pads, wipe off any putty pads from the following components:

- Bottom of the CX-7 heat sink

- ASICs on the top of the CX-7 mezz board

  Notes: Depending on the quantity of the CX-7 heat sink that is removed, do one of the following:

  – One CX-7 heat sink: two ASICs on the left or on the right
  – Two CX-7 heat sinks: four ASICs
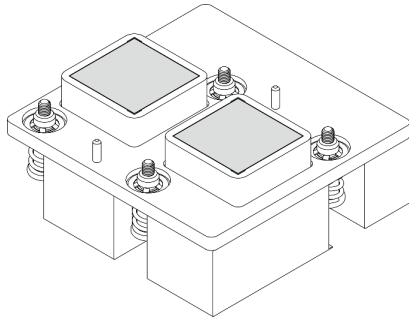
Figure 205. Wiping putty pads off from the CX-7 heat sink
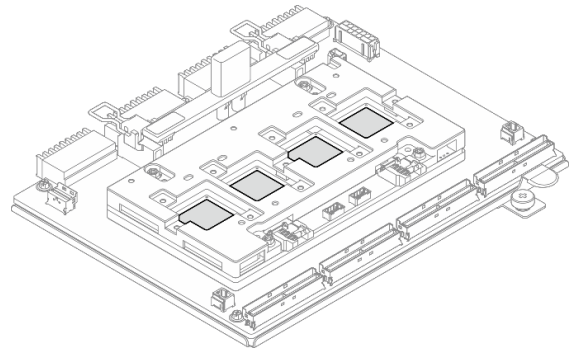
Figure 206. Wiping putty pads off from the ASICs

After you finish

1. If you are replacing a CX-7 heat sink, install a new CX-7 heat sink. See "Install a CX-7 heat sink" on page 246.

2. If you are replacing the CX-7 carrier board or CX-7 mezz board, see "Remove the CX-7 carrier board and CX-7 mezz board" on page 240.

3. 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.

Demo video

Watch the procedure on YouTube

Install a CX-7 heat sink

Follow the instructions in this section to install a CX-7 heat sink. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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.

Important: Putty pad/phase change material (PCM) replacement guidelines

- Before replacing the putty pad/PCM, gently clean the hardware surface with an alcohol cleaning pad.

- Hold the putty pad/PCM carefully to avoid deformation. Make sure no screw hole or opening is blocked by the putty pad/PCM.
- Do not use expired putty pad/PCM. Check the expiry date on putty pad/PCM package. If the putty pads/PCM are expired, acquire new ones to properly replace them.

Notes: Make sure you have the required tools listed below available to properly replace the component:

- Torx T15 head screwdriver
- Alcohol cleaning pad
- SR675 V3 CX-7 heat sink putty pad kit

Procedure

Step 1. Align the two putty pads with the markings on the bottom of the CX-7 heat sink, and attach them to the CX-7 heat sink.
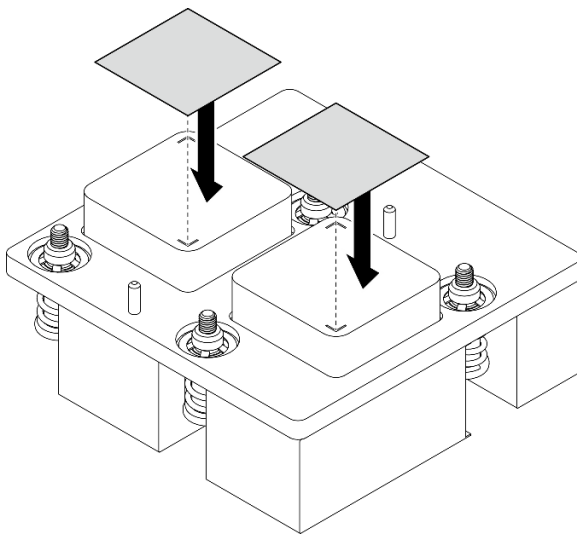
Figure 207. Putty pad application

Step 2. Install the CX-7 heat sink.

a. ❶ Orient the CX-7 heat sink so that the arrow symbol on the CX-7 heat sink label faces toward the cable connectors on the CX-7 mezz board; then, gently place the CX-7 heat sink onto the CX-7 mezz board.

b. ❷ Fasten the four Torx T15 screws *in the installation sequence shown* on the CX-7 heat sink label.

Note: Loosen or tighten the screws with a torque screwdriver set to the proper torque. For reference, the torque required for the screws to be fully loosen or tighten is 0.5±0.1 newton-meters, 4.5±0.5 inch-pounds.
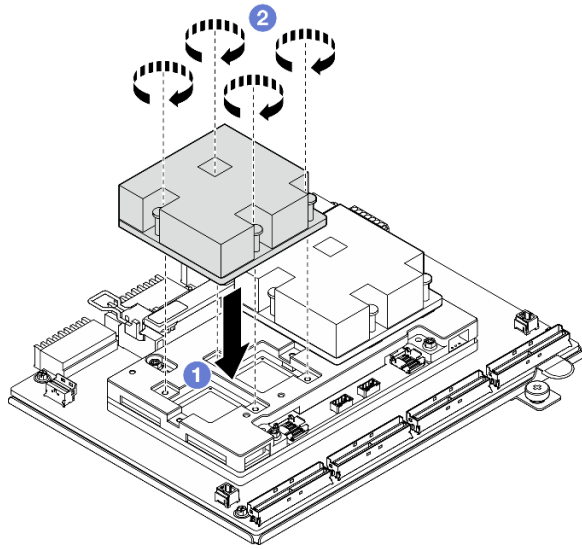
Figure 208. CX-7 heat sink installation

After you finish

1. Reinstall the CX-7 assembly. See "Install the CX-7 assembly" on page 238.

2. Reconnect the cables to the CX-7 carrier board and the CX-7 mezz board. See "CX-7 carrier board cable routing" on page 402 and "OSFP port card cable routing" on page 418 for more information.

3. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

E3.S hot-swap drive replacement

Follow instructions in this section to remove and install an E3.S hot-swap drive.

Remove an E3.S hot-swap drive

Follow instructions in this section to remove an E3.S hot-swap drive.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- To make sure that there is adequate system cooling, do not operate the server for more than two minutes without either a drive or a filler installed in each bay.

- If one or more EDSFF drives are to be removed, it is recommended to disable them beforehand via the operating system.

- Before you remove or make changes to drives, drive controllers (including controllers that are integrated on the system board assembly), drive backplanes or drive cables, back up all important data that is stored on drives.

Note: Make sure you have the drive bay fillers available if some drive bays will be left empty after the removal.

Procedure

Step 1.   Remove the E3.S drive cage cover.

    a.   ❶ Pinch both sides of the drive cage cover.

    b.   ❷ Pull the drive cage cover out of the server.

Step 2.   Remove the E3.S hot-swap drive.

    a.   ❶ Slide the release latch to unlock the drive handle.

    b.   ❷ Rotate the drive handle to the open position.

    c.   ❸ Grasp the handle and slide the drive out of the drive bay.

    Note: An E3.S drive in bay 0 or 1 is used as an example in the illustration. The orientation of E3.S drives in bay 2 and 3 is reverse, but the removal method is the same.
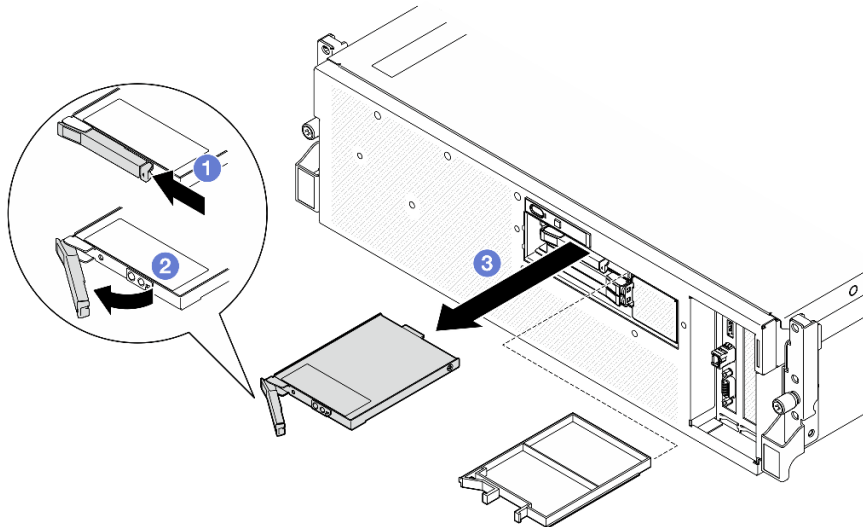
Figure 209. E3.S hot-swap drive removal

Step 3.   Install a drive bay filler or replacement drive as soon as possible. See "Install an E3.S hot-swap drive" on page 250.

Step 4.   Reinstall the E3.S drive cage cover back to the server.
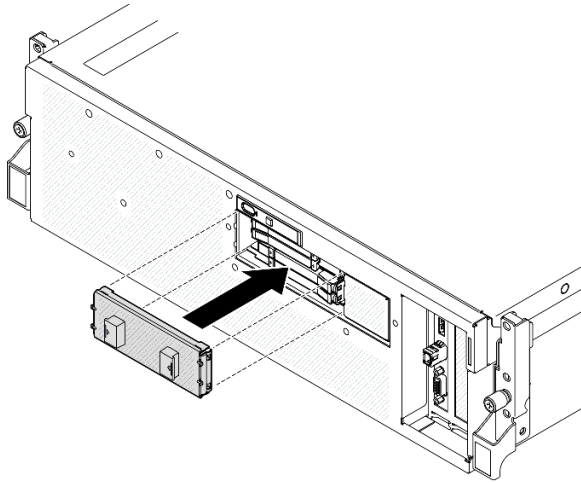
Figure 210. E3.S drive cage cover installation

After you finish

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.

Demo video

Watch the procedure on YouTube

Install an E3.S hot-swap drive
Follow instructions in this section to install an E3.S hot-swap drive.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.
- Make sure you save the data on your drive, especially if it is part of a RAID array, before you remove it from the server.
- To avoid damage to the drive connectors, make sure that the server top cover is in place and fully closed whenever you install or remove a drive.
- To make sure that there is adequate system cooling, do not operate the server for more than two minutes without either a drive or a drive bay filler installed in each bay.
- Before you make changes to drives, drive controllers (including controllers that are integrated on the system board assembly), drive backplanes, or drive cables, back up all important data that is stored on drives.

The following notes describe the type of drives that the server supports and other information that you must consider when you install a drive. For a list of supported drives, see https://serverproven.lenovo.com.

- Locate the documentation that comes with the drive and follow those instructions in addition to the instructions in this chapter.

- The electromagnetic interference (EMI) integrity and cooling of the solution are protected by having all bays and PCI and PCIe slots covered or occupied. When you install a drive or PCIe adapter, save the EMC shield and filler panel from the bay or PCIe adapter slot cover in the event that you later remove the device.
- For a complete list of supported optional devices for the server, see https://serverproven.lenovo.com.
- The SXM5 GPU Model supports up to four E3.S hot-swap NVMe drives with the following corresponding drive bay numbers.
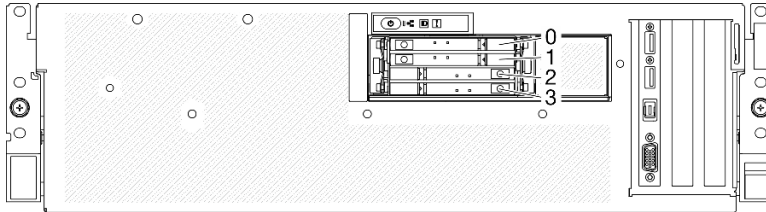
Figure 211. E3.S hot-swap drive bay numbering in SXM5 GPU Model

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. Remove the E3.S drive cage cover.

    a. ❶ Pinch both sides of the drive cage cover.

    b. ❷ Pull the drive cage cover out of the server.

Step 2. If the drive bay contains a filler, pull the release lever on the filler and slide it out of the bay.

Step 3. Install the E3.S hot-swap drive.

    a. ❶ Make sure that the drive handle is in the open position. Then, align the drive with the guide rails in the bay and gently slide the drive into the bay until it stops.

    b. ❷ Rotate the drive handle to the fully closed position until the handle latch clicks.

Note: An E3.S drive in bay 0 or 1 is used as an example in the illustration. The orientation of E3.S drives in bay 2 and 3 is reverse, but the installation method is the same.
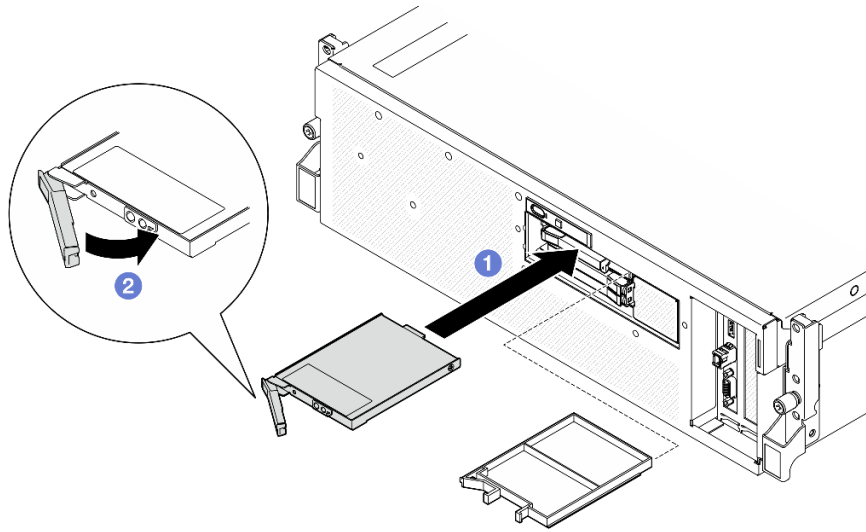

Figure 212. E3.S hot-swap drive installation

Step 4.   If you have additional drives to install, do so now; if any of the drive bays is left empty, fill it with a drive bay filler.

Step 5.   Check the drive status LED to verify that the drive is operating correctly.

- If the yellow drive status LED is lit continuously, the drive is malfunctioning and must be replaced.

- If the green drive activity LED is flashing, the drive is functioning.

Step 6.   Reinstall the E3.S drive cage cover back to the server.
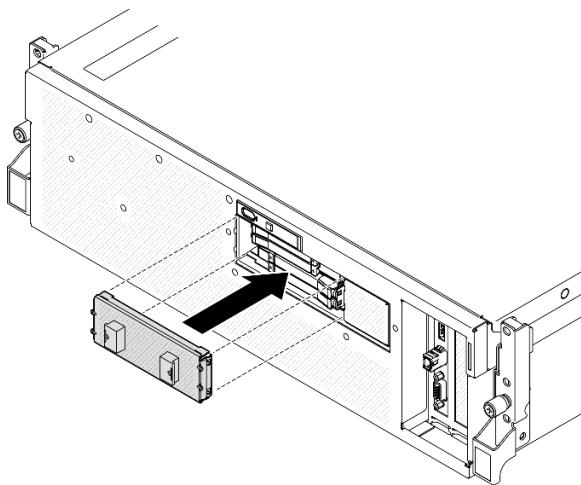
Figure 213. E3.S drive cage cover installation

After you finish

Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

E3.S drive backplane module replacement

Follow instructions in this section to remove and install the E3.S drive backplane module.

Remove the E3.S drive backplane module

Follow instructions in this section to remove the E3.S drive backplane module.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.
- When removing drives, record the drive bay the drive is removed from, and use the record as a checklist when installing the drives.

Procedure

Step 1.   Make preparation for this task.

   a.   Remove the top cover. See "Remove the top cover" on page 179.

   b.   Remove all of the E3.S hot-swap drives and the drive bay fillers (if any) from the drive bays. See "Remove an E3.S hot-swap drive" on page 248. Place the drives on a static protective surface.

   c.   Disconnect the power and signal cables from the E3.S dive backplane.

   d.   Remove the E3.S drive cage assembly. See "Remove the E3.S drive cage assembly" on page 256.

Step 2.   Remove the E3.S drive backplane module.

   a.   ❶ Loosen the two thumbscrews that secure the backplane module to the drive cage.

   b.   ❷ Lift and hold the two retention latches on the top of the backplane module.

   c.   ❸ Rotate the backplane module from the top to disengage it from the retention latches; then, carefully lift the backplane module out of the drive cage.
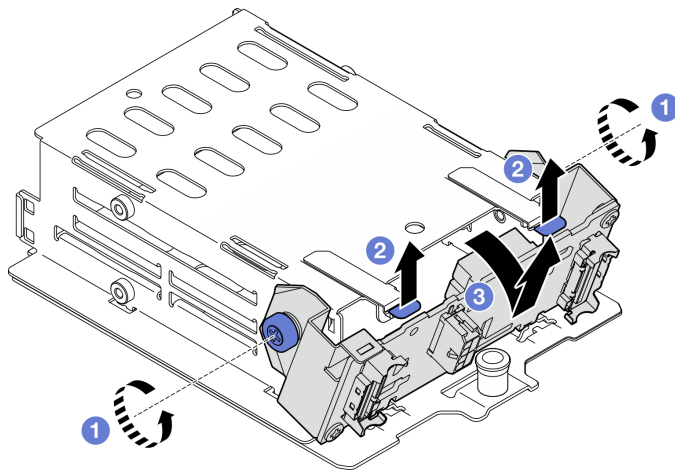
Figure 214. E3.S drive backplane module removal

Step 3.   If necessary, remove the two E3.S drive backplane brackets.

a.   ❶ Remove the two screws from the backplane.

b.   ❷ Slightly slide the two backplane brackets backward to disengage them from the backplane.
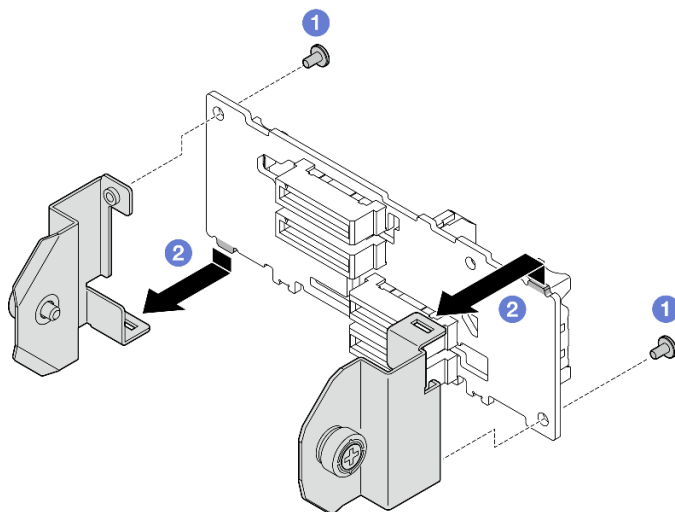

Figure 215. E3.S drive backplane bracket removal

After you finish

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.

Demo video

[Watch the procedure on YouTube](#)

Install the E3.S drive backplane module

Follow instructions in this section to install the E3.S drive backplane module.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. If necessary, install the two backplane brackets to the E3.S drive backplane.

    a. ❶ Align the two tabs on the bottom of the backplane with the slots on the backplane brackets, and insert them into the slots.

    b. ❷ Fasten the two screws to secure the two backplane brackets to the backplane.

Figure 216. E3.S drive backplane bracket installation

Step 2. Install the E3.S drive backplane module.

    a. ❶ Orient the backplane module with the guide hole aligning with the guide pin under the retention latch; then, align the tabs on the bottom of the backplane module with the slots on the drive cage, and insert them into the slots.

    b. ❷ Push the top of the backplane module toward the drive cage until it clicks into place.

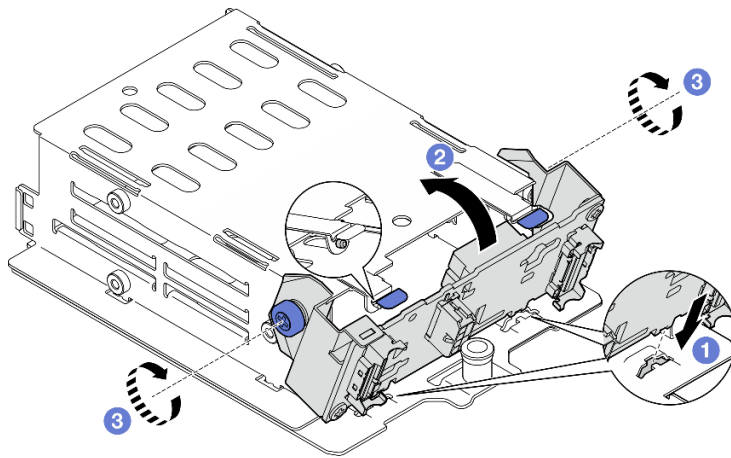   c. ❸ Fasten the two thumbscrews to secure the backplane module to the drive cage.

Figure 217. E3.S drive backplane module installation

After you finish

1. Reinstall the E3.S drive cage assembly. See "Install the E3.S drive cage assembly" on page 257.

2. Reconnect the power and signal cables to the E3.S drive backplane. See "E3.S drive backplane cable routing" on page 405 for more information.

3. Reinstall the E3.S hot-swap drives or drive bay fillers (if any) into the drive bays. See "Install an E3.S hot-swap drive" on page 250.

4. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

E3.S drive cage assembly replacement

Follow instructions in this section to remove and install the E3.S drive cage assembly.

Remove the E3.S drive cage assembly

Follow instructions in this section to remove the E3.S drive cage assembly.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

- To make sure that there is adequate system cooling, do not operate the solution for more than two minutes without either a drive or a filler installed in each bay.

- If one or more EDSFF drives are to be removed, it is recommended to disable them beforehand via the operating system.

- Before you remove or make changes to drives, drive controllers (including controllers that are integrated on the system board assembly), drive backplanes or drive cables, back up all important data that is stored on drives.
- When removing drives, record the drive bay the drive is removed from, and use the record as a checklist when installing the drives.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Remove all of the E3.S hot-swap drives and the drive bay fillers (if any) from the drive bays. See "Remove an E3.S hot-swap drive" on page 248. Place the drives on a static protective surface.

    c. Disconnect the power and signal cables from the E3.S dive backplane.

Step 2. Remove the E3.S drive cage assembly.

    a. ❶ Pull out the plunger on the drive cage assembly.

    b. ❷ Slide the drive cage assembly out of the chassis.

Figure 218. E3.S drive cage assembly removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Install the E3.S drive cage assembly

Follow instructions in this section to install the E3.S drive cage assembly.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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 E3.S drive cage assembly with the opening on the front of the server; then, insert the E3.S drive cage assembly into the drive cage slot until the plunger clicks into place.
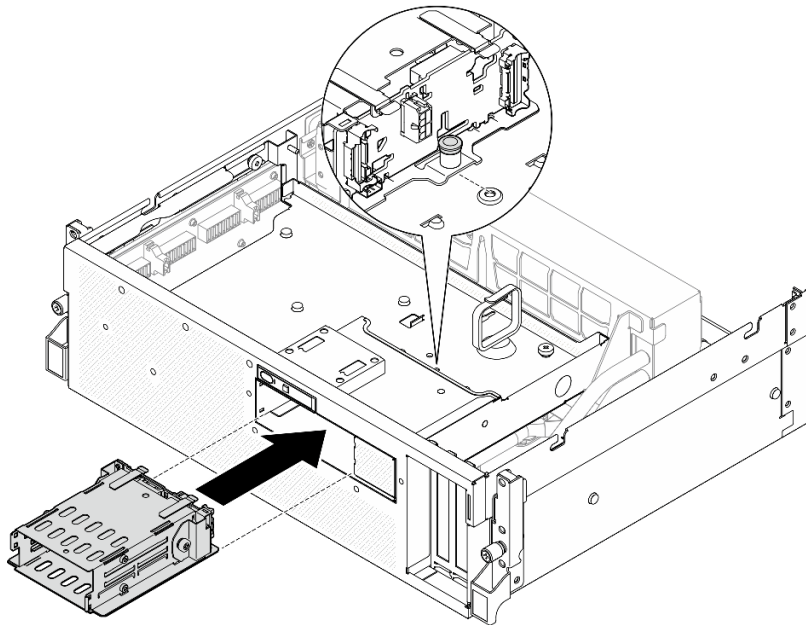
Figure 219. E3.S drive cage assembly installation

After you finish

1. Reconnect the power and signal cables to the E3.S drive backplane. See "E3.S drive backplane cable routing" on page 405 for more information.
2. Reinstall the E3.S hot-swap drives or drive bay fillers (if any) into the drive bays. See "Install an E3.S hot-swap drive" on page 250.
3. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

E3.S drive cage filler replacement

Follow instructions in this section to remove and install the E3.S drive cage filler.

Remove the E3.S drive cage filler
Follow instructions in this section to remove the E3.S drive cage filler.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.
- To make sure that there is adequate system cooling, do not operate the solution for more than two minutes without either a drive or a filler installed in each bay.
- If one or more EDSFF drives are to be removed, it is recommended to disable them beforehand via the operating system.
- Before you remove or make changes to drives, drive controllers (including controllers that are integrated on the system board assembly), drive backplanes or drive cables, back up all important data that is stored on drives.
- When removing drives, record the drive bay the drive is removed from, and use the record as a checklist when installing the drives.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Remove all of the fans. See "Remove a fan" on page 88.

    c. Remove the fan cage. See "Remove the fan cage" on page 90.

    d. Unfasten the two cable ties on the front drive tray to release the cables.

Figure 220. Unfastening the cable ties

    e. Disconnect the following cables from the system board assembly:

      - Front I/O module cables
      - Front operator panel cable

    f. Remove all of the E3.S hot-swap drives and the drive bay fillers (if any) from the drive bays. See "Remove an E3.S hot-swap drive" on page 248. Place the drives on a static protective surface.

    g. Disconnect the power and signal cables from the E3.S dive backplane.

    h. Remove the E3.S drive cage assembly. See "Remove the E3.S drive cage assembly" on page 256.

    i. Depending on the configuration, remove the CX-7 assembly or the SXM5 PCIe switch board. See "Remove the CX-7 assembly" on page 236 or "Remove the SXM5 PCIe switch board" on page 335.

j.   Remove the front drive tray. See "Remove the front drive tray" on page 262.

Step 2.   Remove the E3.S drive cage filler.

    a.   ❶ Unfasten the two screws that secure the E3.S drive cage filler to the front drive tray.

    b.   ❷ Slide the E3.S drive cage filler toward the left side of the front drive tray to disengage it from the front drive tray; then, slide the E3.S drive cage filler out of the front drive tray.
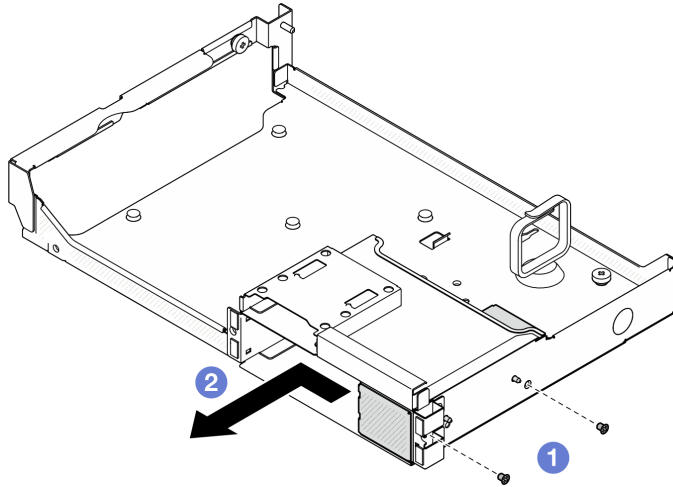

Figure 221. E3.S drive cage filler removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Install the E3.S drive cage filler

Follow instructions in this section to install the E3.S drive cage filler.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.   ❶ Align the E3.S drive cage filler with the two guide holes on the front drive tray and slide it into the drive cage slot; then, insert the two guide pins on the E3.S drive cage filler into the guide holes.

Step 2.   ❷ Fasten the two screws to secure the E3.S drive cage filler to the front drive tray.
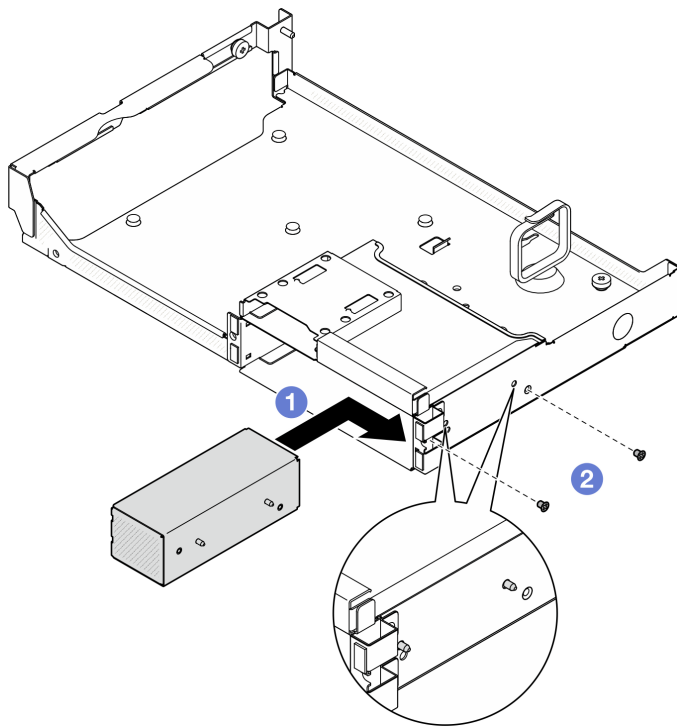
Figure 222. E3.S drive cage filler installation

After you finish

1. Reinstall the front drive tray. See "Install the front drive tray" on page 264.

2. Depending on the configuration, reinstall the CX-7 assembly or the SXM5 PCIe switch board. See "Install the CX-7 assembly" on page 238 or "Install the SXM5 PCIe switch board" on page 339.

3. Reinstall the E3.S drive cage assembly. See "Install the E3.S drive cage assembly" on page 257.

4. Reconnect the power and signal cables to the E3.S drive backplane. See "E3.S drive backplane cable routing" on page 405 for more information.

5. Reinstall the E3.S hot-swap drives or drive bay fillers (if any) into the drive bays. See "Install an E3.S hot-swap drive" on page 250.

6. Reconnect the following cables to the system board assembly.

   - Front I/O module cables
   - Front operator panel cable

7. Equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.
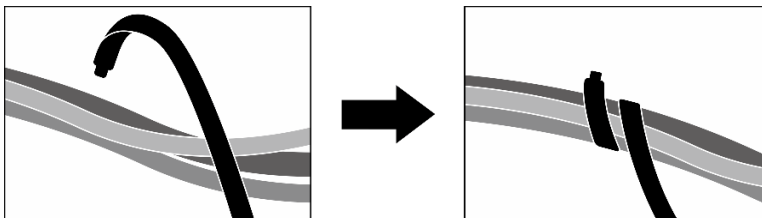
Figure 223. Securing cables with cable ties

8. Reinstall the fan cage. See "Install the fan cage" on page 91.

9. Reinstall the fans. See "Install a fan" on page 89.

10. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Front drive tray replacement

Follow instructions in this section to remove or install the front drive tray.

Remove the front drive tray

Follow instructions in this section to remove the front drive tray.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

- When removing drives, record the drive bay the drive is removed from, and use the record as a checklist when installing the drives.

Procedure

Step 1. Make preparation for this task.

   a. Remove the top cover. See "Remove the top cover" on page 179.

   b. Remove all of the fans. See "Remove a fan" on page 88.

   c. Remove the fan cage. See "Remove the fan cage" on page 90.

   d. Unfasten the two cable ties on the front drive tray to release the cables.

Figure 224. Unfastening the cable ties

   e. Disconnect the following cables from the system board assembly:

   - Front I/O module cables

   - Front operator panel cable

   f. Depending on the configuration, remove all of the 2.5-inch hot-swap drives and the drive bay fillers (if any) or all of the E3.S hot-swap drives and the drive bay fillers (if any). See "Remove a

2.5-inch hot-swap drive" on page 227 or "Remove an E3.S hot-swap drive" on page 248. Place the drives on a static protective surface.

g. Depending on the configuration, disconnect the power and signal cables from the 2.5-inch drive backplane or the E3.S dive backplane.

h. Depending on the configuration, remove the 2.5-inch drive cage or the E3.S drive cage assembly. See "Remove the 2.5-inch drive cage" on page 233 or "Remove the E3.S drive cage assembly" on page 256.

i. Depending on the configuration, remove the CX-7 assembly or the SXM5 PCIe switch board. See "Remove the CX-7 assembly" on page 236 or "Remove the SXM5 PCIe switch board" on page 335.

Step 2. Remove the front drive tray.

a. ❶ Loosen the thumbscrew that secures the front drive tray to the chassis.

b. ❷ Loosen the thumbscrew that secure the front drive tray to the radiator bracket.

c. ❸ Slide the front drive tray toward the rear of the server.

d. ❹ Tilt the front drive tray at an angle.

e. ❺ Lift the front drive tray out of the chassis.
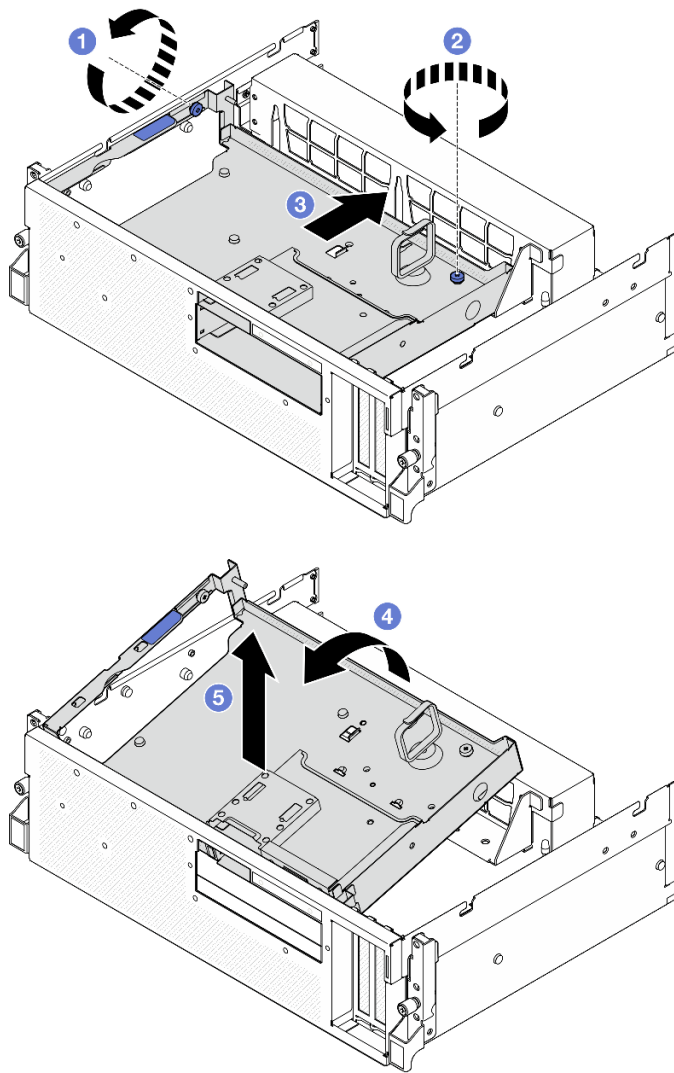
Figure 225. Front drive tray removal

After you finish

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.

Demo video

[Watch the procedure on YouTube](#)

Install the front drive tray

Follow instructions in this section to install the front drive tray.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- 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.   ❶ Align the front drive tray with the two guide pins on the chassis; then, insert the front end of the front drive tray at an angle into the chassis.

   Attention: Make sure not to damage the connectors on the interposer card while installing the front drive tray.

Step 2.   ❷ Lower the rear end of the front drive tray into the chassis.

Step 3.   ❸ Slide the front drive tray toward the front of the server until the seven guide pins on the chassis are locked in place.

Step 4.   ❹ Tighten the thumbscrew to secure the front drive tray to the radiator bracket.

Step 5.   ❺ Tighten the thumbscrew to secure the front drive tray to the chassis.
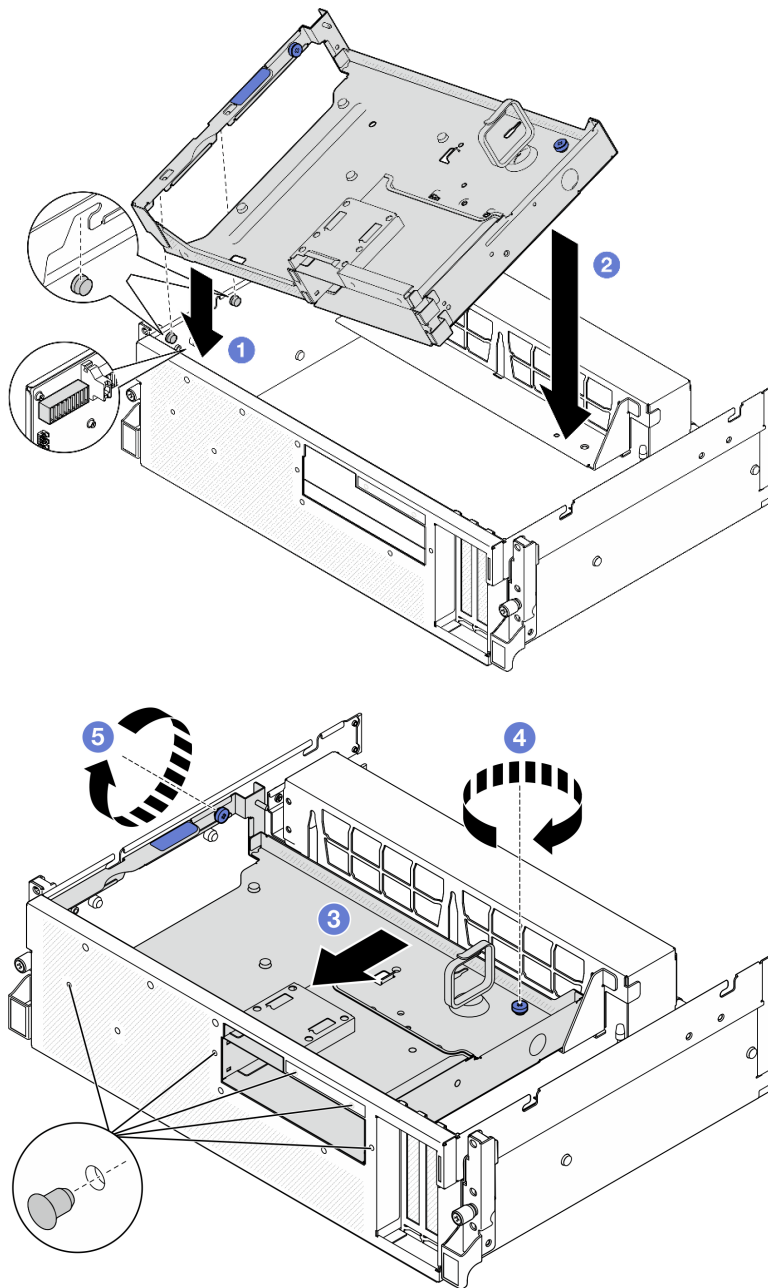
Figure 226. Front drive tray installation

After you finish

1. Depending on the configuration, reinstall the CX-7 assembly or the SXM5 PCIe switch board. See "Install the CX-7 assembly" on page 238 or "Install the SXM5 PCIe switch board" on page 339.

2. Depending on the configuration, reinstall the 2.5-inch drive cage or the E3.S drive cage assembly. See "Install the 2.5-inch drive cage" on page 234 or "Install the E3.S drive cage assembly" on page 257.

3. Depending on the configuration, reconnect the power and signal cables to the 2.5-inch drive backplane or the E3.S dive backplane. See "2.5-inch drive backplane cable routing" on page 393 or "E3.S drive backplane cable routing" on page 405 for more information.

4. Depending on the configuration, reinstall the 2.5-inch hot-swap drives and the drive bay fillers (if any) or E3.S hot-swap drives and the drive bay fillers (if any). See "Install a 2.5-inch hot-swap drive" on page 228 or "Install an E3.S hot-swap drive" on page 250

5. Reconnect the following cables to the system board assembly.

   • Front I/O module cables

   • Front operator panel cable

6. Equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.
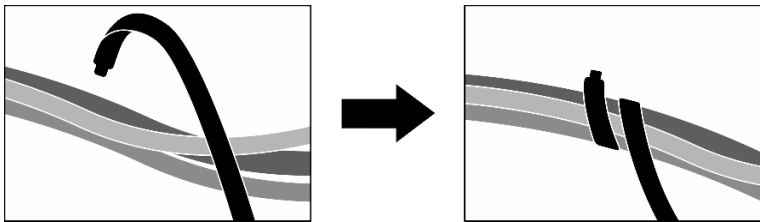
Figure 227. Securing cables with cable ties

7. Reinstall the fan cage. See "Install the fan cage" on page 91.

8. Reinstall the fans. See "Install a fan" on page 89.

9. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Front I/O expansion board module replacement

Follow instructions in this section to remove and install the front I/O expansion board module.

Remove the front I/O expansion board module

Follow instructions in this section to remove the front I/O expansion board module.

About this task

Attention:

• Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

• 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 the server from rack" on page 68.

Procedure

Step 1. Make preparation for this task.

   a. Remove the top cover. See "Remove the top cover" on page 179.

   b. Remove all of the fans. See "Remove a fan" on page 88.

   c. Remove the fan cage. See "Remove the fan cage" on page 90.

   d. Unfasten the two cable ties on the front drive tray to release the cables.
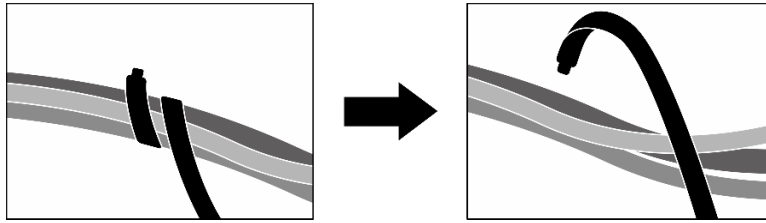
Figure 228. Unfastening the cable ties

 e. Remove the front PCIe adapter(s). See "Remove a PCIe adapter" on page 128.

 f. Disconnect the following cables from the system board assembly:

- Front I/O module cables
- Front operator panel cable

 g. Depending on the configuration, remove all of the 2.5-inch hot-swap drives and the drive bay fillers (if any) or all of the E3.S hot-swap drives and the drive bay fillers (if any). See "Remove a 2.5-inch hot-swap drive" on page 227 or "Remove an E3.S hot-swap drive" on page 248. Place the drives on a static protective surface.

 h. Depending on the configuration, disconnect the power and signal cables from the 2.5-inch drive backplane or the E3.S dive backplane.

 i. Depending on the configuration, remove the 2.5-inch drive cage or the E3.S drive cage assembly. See "Remove the 2.5-inch drive cage" on page 233 or "Remove the E3.S drive cage assembly" on page 256.

 j. Remove the SXM5 PCIe switch board. See "Remove the SXM5 PCIe switch board" on page 335.

 k. Remove the front drive tray. See "Remove the front drive tray" on page 262.

Step 2. Disconnect the cables that are connected to the front I/O expansion board.

Step 3. Remove the radiator bracket.

 a. ❶ Unfasten the four screws that secure the radiator bracket to the chassis.

 b. ❷ Lift the radiator bracket out of the chassis.

Figure 229. Radiator bracket removal

Step 4.   Remove the front I/O expansion board module.

   a.   ① Loosen the thumbscrew that secures the front I/O expansion board module to the chassis.

   b.   ② Lift the plunger and slide the front I/O expansion board module toward the rear of the server to disengage the module from the guide pins; then, remove the module out of the chassis.
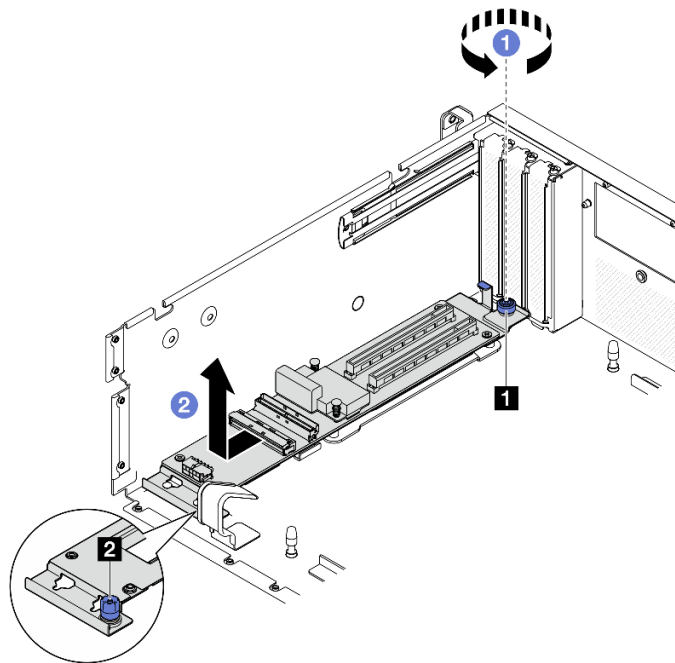

Figure 230. Front I/O expansion board module removal

1 Thumbscrew	**2** Plunger

Step 5.   If necessary, remove the five screws from the front I/O expansion board to separate it from the carrier.
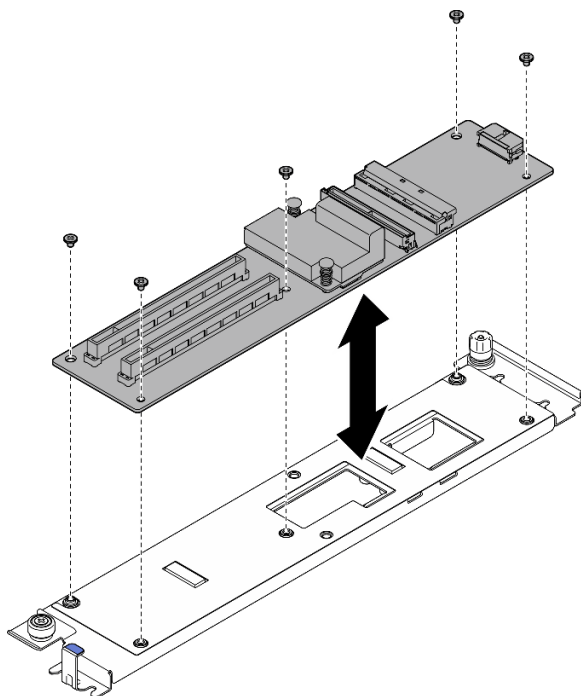
Figure 231. Front I/O expansion board removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Install the front I/O expansion board module

Follow instructions in this section to install the front I/O expansion board module.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. If necessary, align the front I/O expansion board with the screw holes on the carrier; then, fasten the five screws to secure the front I/O expansion board to the carrier.
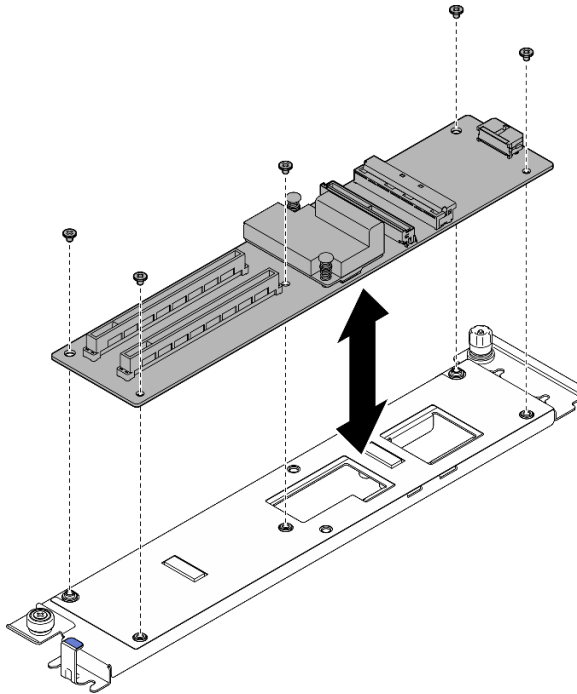
Figure 232. Front I/O expansion board installation

Step 2. Install the front I/O expansion board module.

a. ❶ Align the front I/O expansion board module with the four guide pins on the chassis and lower the module into the chassis; then, slide the module toward the front of the server until the guide pins are fully seated in the guide holes on the module.

b. ❷ Fasten the thumbscrew to secure the front I/O expansion board module to the chassis.
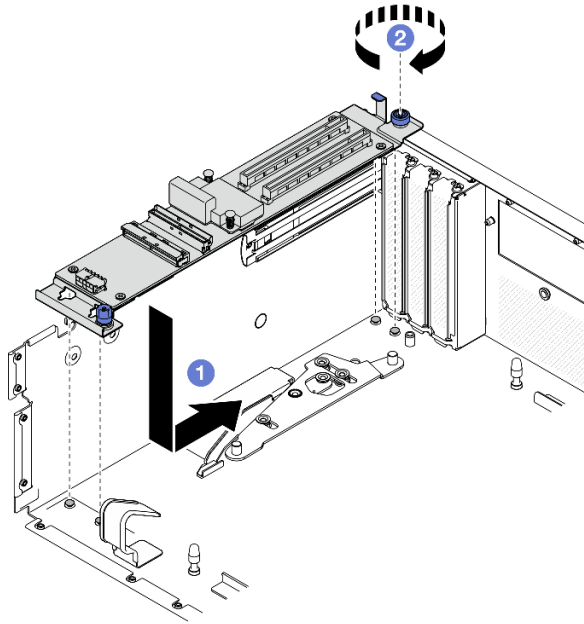
Figure 233. Front I/O expansion board module installation

Step 3. Install the radiator bracket.

    a. ❶ Gently place the radiator bracket onto the radiator.

    b. ❷ Fasten the four screws to secure the radiator bracket to the chassis.
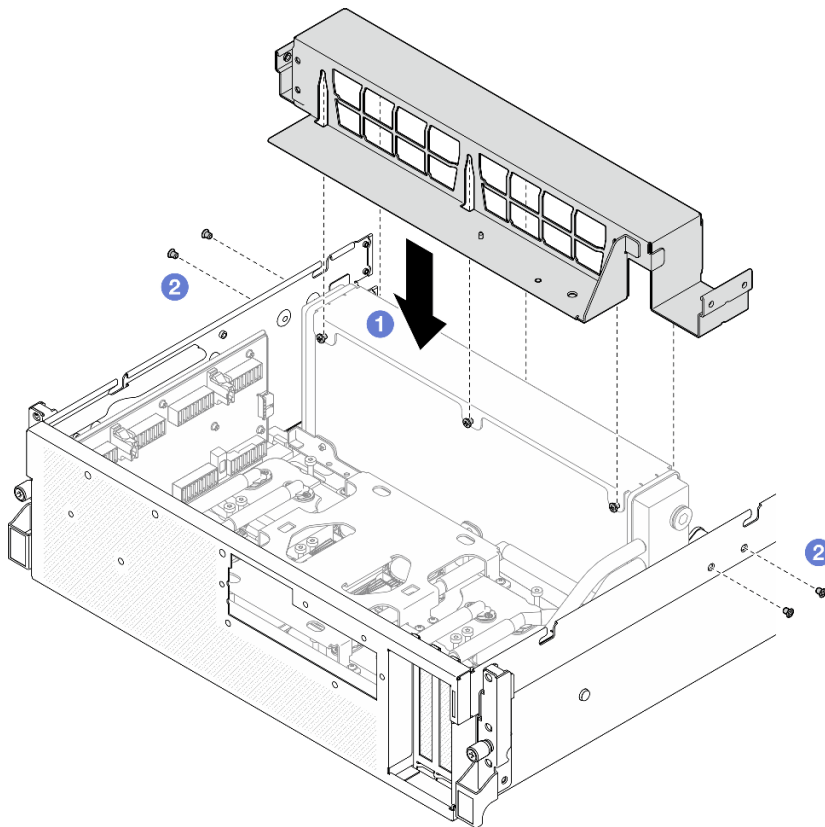
Figure 234. Radiator bracket installation

After you finish

1. Reinstall the front drive tray. See "Install the front drive tray" on page 264.

2. Reinstall the SXM5 PCIe switch board. See "Install the SXM5 PCIe switch board" on page 339.

3. Reconnect the cables to the front I/O expansion board. See "Front I/O expansion board cable routing" on page 411.

4. Depending on the configuration, reinstall the 2.5-inch drive cage or the E3.S drive cage assembly. See "Install the 2.5-inch drive cage" on page 234 or "Install the E3.S drive cage assembly" on page 257.

5. Depending on the configuration, reconnect the power and signal cables to the 2.5-inch drive backplane or the E3.S dive backplane. See "2.5-inch drive backplane cable routing" on page 393 or "E3.S drive backplane cable routing" on page 405 for more information.

6. Depending on the configuration, reinstall the 2.5-inch hot-swap drives and the drive bay fillers (if any) or E3.S hot-swap drives and the drive bay fillers (if any). See "Install a 2.5-inch hot-swap drive" on page 228 or "Install an E3.S hot-swap drive" on page 250

7. Reconnect the following cables to the system board assembly.

   • Front I/O module cables

   • Front operator panel cable

8. Reinstall the front PCIe adapter(s). See "Install a PCIe adapter" on page 130.

9. Equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.
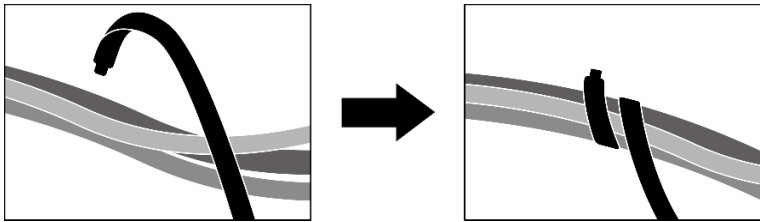

Figure 235. Securing cables with cable ties

10. Reinstall the fan cage. See "Install the fan cage" on page 91.

11. Reinstall the fans. See "Install a fan" on page 89.

12. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Front I/O expansion board carrier replacement

Follow instructions in this section to remove and install the front I/O expansion board carrier.

Remove the front I/O expansion board carrier

Follow instructions in this section to remove the front I/O expansion board carrier.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Remove all of the fans. See "Remove a fan" on page 88.

    c. Remove the fan cage. See "Remove the fan cage" on page 90.

    d. Unfasten the two cable ties on the front drive tray to release the cables.

Figure 236. Unfastening the cable ties

    e. Remove the OSFP port card. See "Remove the OSFP port card" on page 313.

    f. Disconnect the following cables from the system board assembly:

       - Front I/O module cables
       - Front operator panel cable

    g. Depending on the configuration, remove all of the 2.5-inch hot-swap drives and the drive bay fillers (if any) or all of the E3.S hot-swap drives and the drive bay fillers (if any). See "Remove a 2.5-inch hot-swap drive" on page 227 or "Remove an E3.S hot-swap drive" on page 248. Place the drives on a static protective surface.

    h. Depending on the configuration, disconnect the power and signal cables from the 2.5-inch drive backplane or the E3.S dive backplane.

    i. Depending on the configuration, remove the 2.5-inch drive cage or the E3.S drive cage assembly. See "Remove the 2.5-inch drive cage" on page 233 or "Remove the E3.S drive cage assembly" on page 256.

    j. Remove the CX-7 assembly. See "Remove the CX-7 assembly" on page 236.

    k. Remove the front drive tray. See "Remove the front drive tray" on page 262.

Step 2. Remove the radiator bracket.

    a. ❶ Unfasten the four screws that secure the radiator bracket to the chassis.

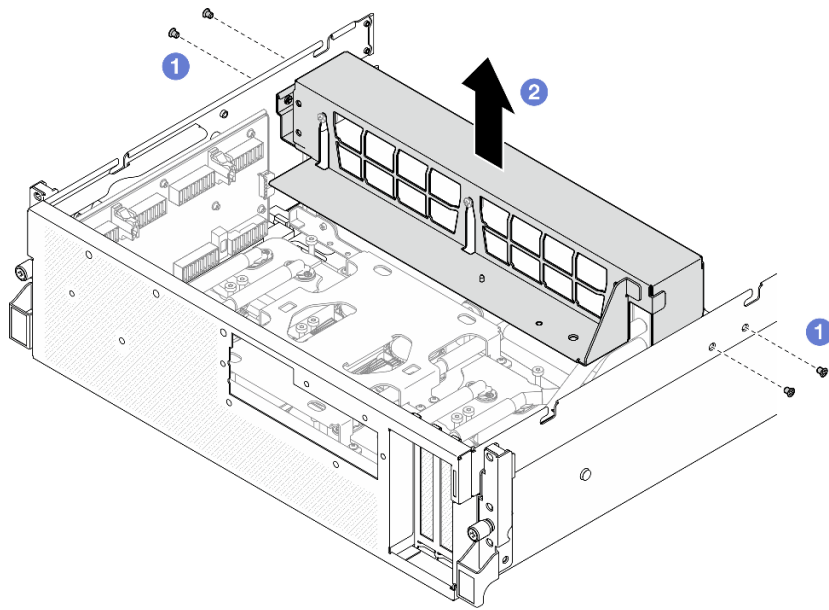   b. ❷ Lift the radiator bracket out of the chassis.

Figure 237. Radiator bracket removal

Step 3. Remove the front I/O expansion board carrier.

a. ❶ Loosen the thumbscrew that secures the front I/O expansion board carrier to the chassis.

b. ❷ Lift the plunger and slide the front I/O expansion board carrier toward the rear of the server to disengage the carrier from the guide pins; then, remove the carrier out of the chassis.
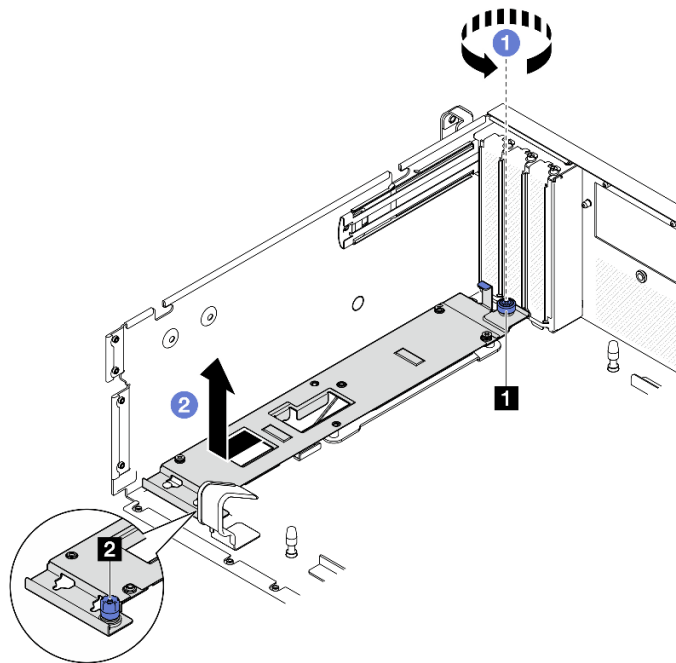

Figure 238. Front I/O expansion board carrier removal

1 Thumbscrew	**2** Plunger

After you finish

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.

Demo video

Install the front I/O expansion board carrier

Follow instructions in this section to install the front I/O expansion board carrier.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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. ❶ Align the front I/O expansion board carrier with the four guide pins on the chassis and lower the carrier into the chassis; then, slide the carrier toward the front of the server until the guide pins are fully seated in the guide holes on the carrier.

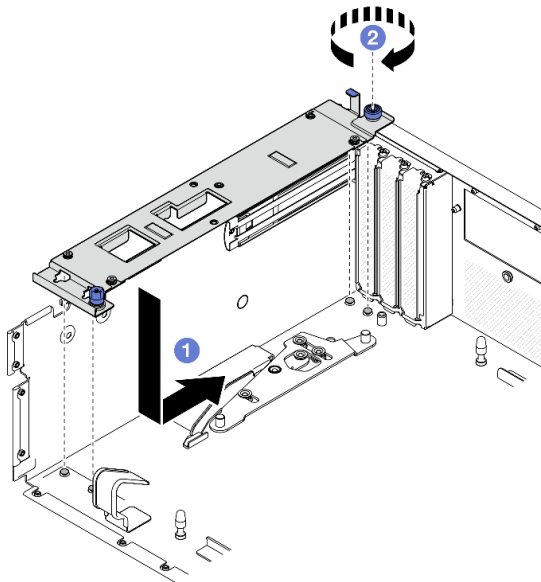Step 2. ❷ Fasten the thumbscrew to secure the front I/O expansion board carrier to the chassis.

Figure 239. Front I/O expansion board carrier installation

Step 3. Install the radiator bracket.

    a. ❶ Gently place the radiator bracket onto the radiator.

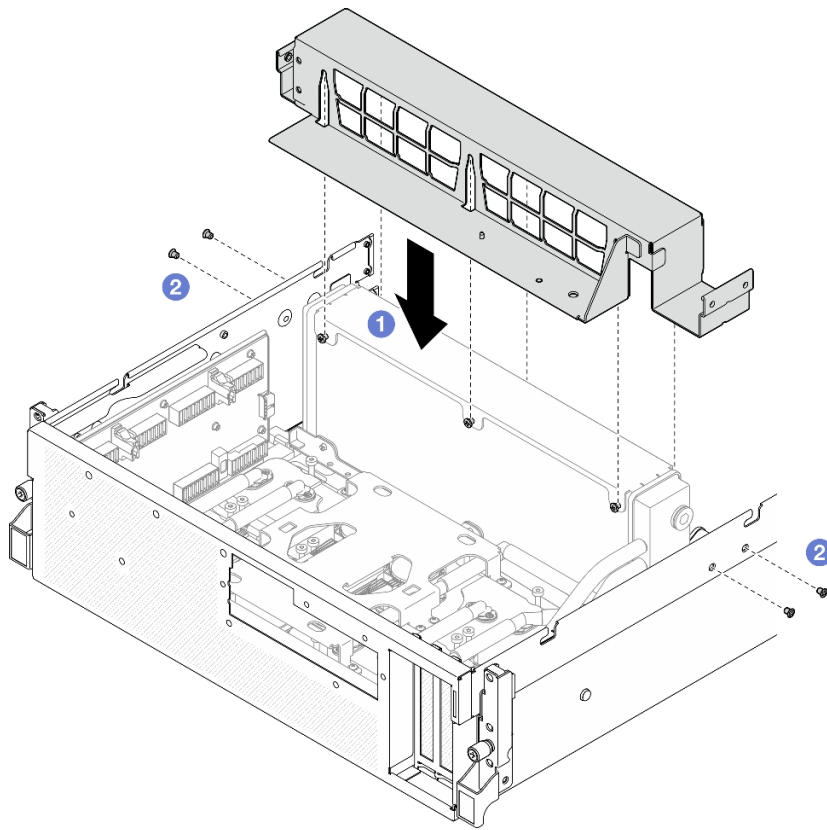   b. ❷ Fasten the four screws to secure the radiator bracket to the chassis.

Figure 240. Radiator bracket installation

After you finish

1. Reinstall the front drive tray. See "Install the front drive tray" on page 264.

2. Reinstall the CX-7 assembly. See "Install the CX-7 assembly" on page 238.

3. Depending on the configuration, reinstall the 2.5-inch drive cage or the E3.S drive cage assembly. See "Install the 2.5-inch drive cage" on page 234 or "Install the E3.S drive cage assembly" on page 257.

4. Depending on the configuration, reconnect the power and signal cables to the 2.5-inch drive backplane or the E3.S dive backplane. See "2.5-inch drive backplane cable routing" on page 393 or "E3.S drive backplane cable routing" on page 405 for more information.

5. Depending on the configuration, reinstall the 2.5-inch hot-swap drives and the drive bay fillers (if any) or E3.S hot-swap drives and the drive bay fillers (if any). See "Install a 2.5-inch hot-swap drive" on page 228 or "Install an E3.S hot-swap drive" on page 250

6. Reconnect the following cables to the system board assembly.

   - Front I/O module cables

   - Front operator panel cable

7. Reinstall the OSFP port card. See "Install the OSFP port card" on page 315.

8. Equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.
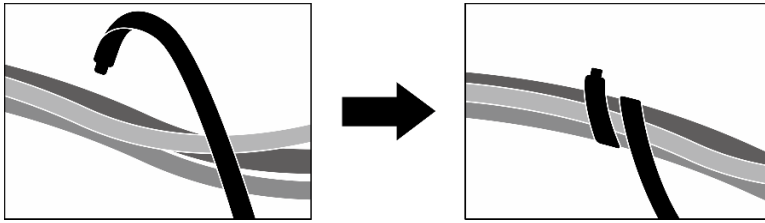
Figure 241. Securing cables with cable ties

9. Reinstall the fan cage. See "Install the fan cage" on page 91.

10. Reinstall the fans. See "Install a fan" on page 89.

11. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Interposer card replacement (trained technician only)

Follow instructions in this section to remove and install the interposer card.

Important: This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install the part without proper training and qualification.

Remove the interposer card

Follow instructions in this section to remove the interposer card. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Remove all of the fans. See "Remove a fan" on page 88.

    c. Remove the fan cage. See "Remove the fan cage" on page 90.

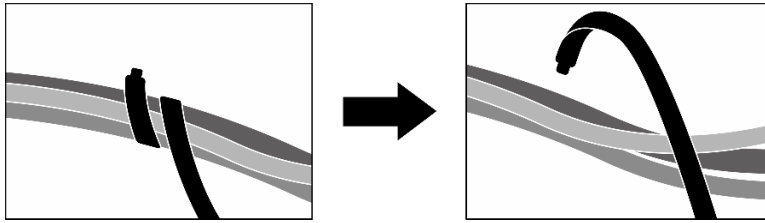   d. Unfasten the two cable ties on the front drive tray to release the cables.

Figure 242. Unfastening the cable ties

    e. Depending on the configuration, remove the front PCIe adapter(s) or the OSFP port card. See "Remove a PCIe adapter" on page 128 or "Remove the OSFP port card" on page 313.

    f. Disconnect the following cables from the system board assembly:

- Front I/O module cables
- Front operator panel cable

    g. Depending on the configuration, remove all of the 2.5-inch hot-swap drives and the drive bay fillers (if any) or all of the E3.S hot-swap drives and the drive bay fillers (if any). See "Remove a 2.5-inch hot-swap drive" on page 227 or "Remove an E3.S hot-swap drive" on page 248. Place the drives on a static protective surface.

    h. Depending on the configuration, disconnect the power and signal cables from the 2.5-inch drive backplane or the E3.S dive backplane.

    i. Depending on the configuration, remove the 2.5-inch drive cage or the E3.S drive cage assembly. See "Remove the 2.5-inch drive cage" on page 233 or "Remove the E3.S drive cage assembly" on page 256.

    j. Depending on the configuration, remove the CX-7 assembly or the SXM5 PCIe switch board. See "Remove the CX-7 assembly" on page 236 or "Remove the SXM5 PCIe switch board" on page 335.

    k. Remove the front drive tray. See "Remove the front drive tray" on page 262.

    l. Depending on the configuration, remove the front I/O expansion board carrier or the front I/O expansion board module. See "Remove the front I/O expansion board carrier" on page 273 or "Remove the front I/O expansion board module" on page 267.

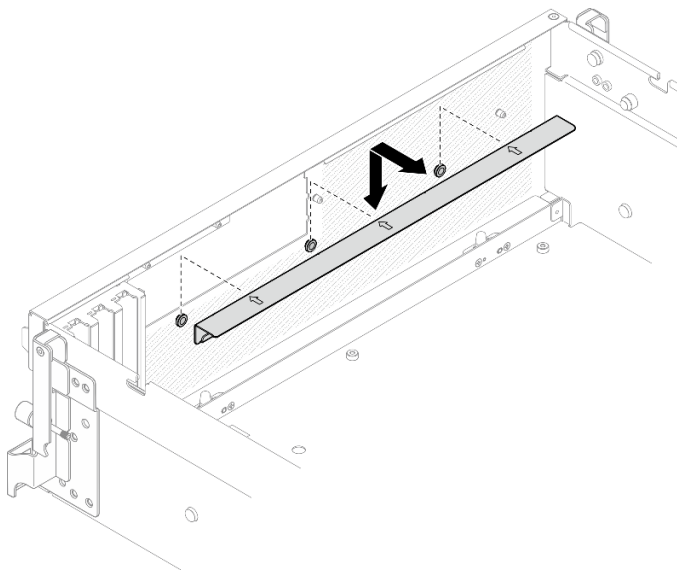Step 2.   Lift the front drive tray support bracket, and remove it out of the chassis.

Figure 243. Front drive tray support bracket removal

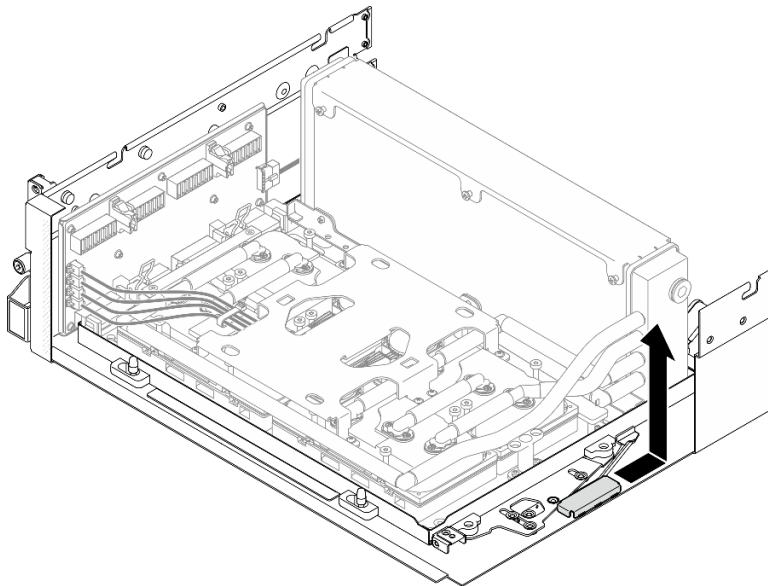Step 3.   Slide the SXM5 GPU board assembly retention bracket backward, and lift it out of the chassis.

Figure 244. SXM5 GPU board assembly retention bracket removal

Step 4.   Pull out the SXM5 GPU board assembly latch outward until it stops; then, rotate down the SXM5 GPU board assembly handle so that the two retention clips are facing up.
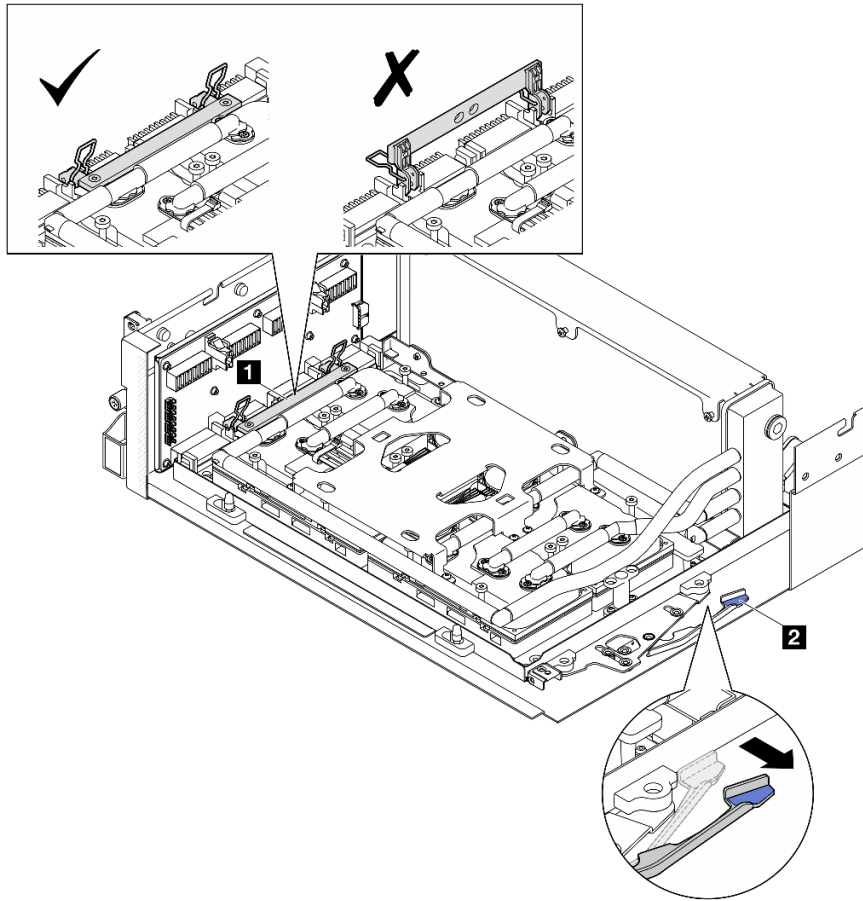
Figure 245. GPU-L2A assembly adjustment

1 SXM5 GPU board assembly handle	**2** SXM5 GPU board assembly latch

Step 5. Slightly slide up the interposer card to disengage it from the chassis.
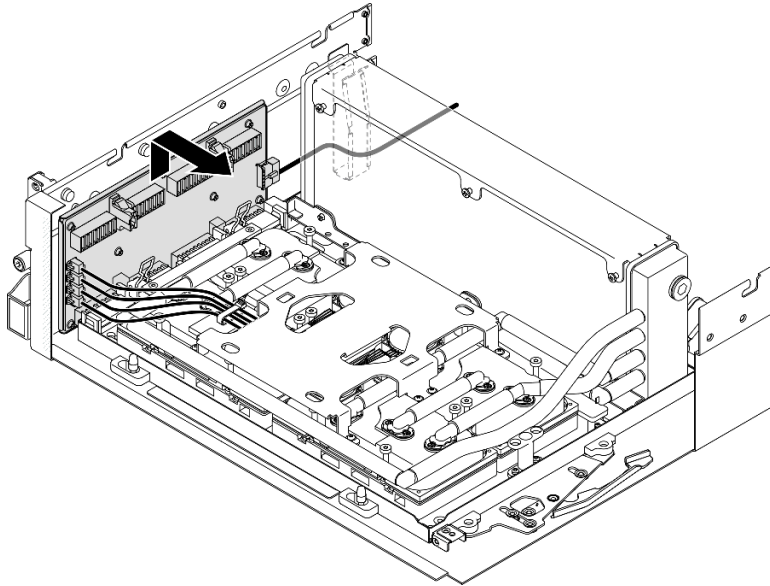
Figure 246. Interposer card disengagement

Step 6.   Slightly press and hold the cable latch; then, disconnect the four cold plate assembly pump cables from the interposer card.
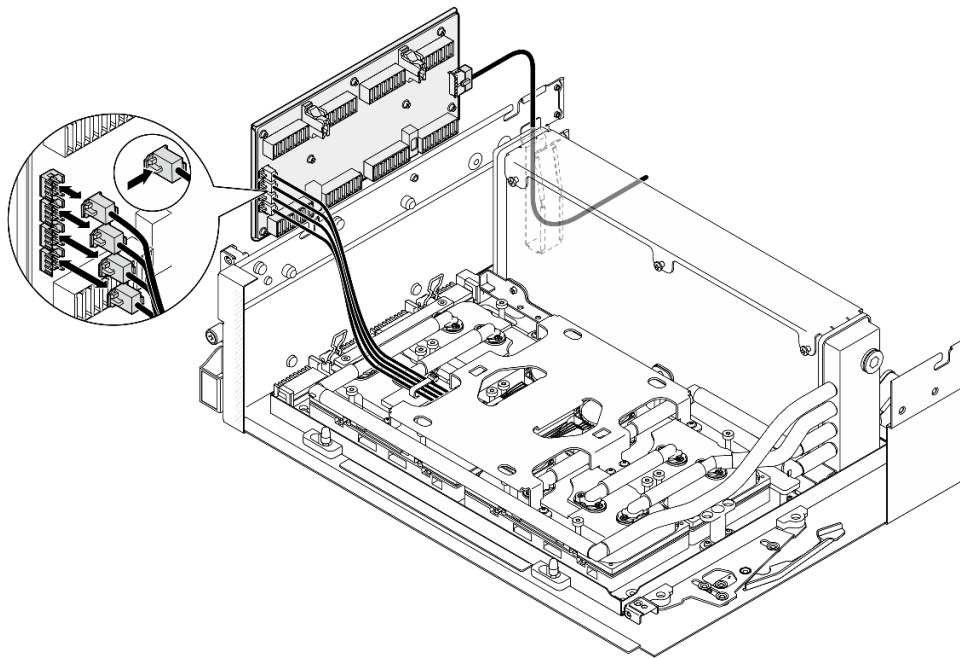

Figure 247. Cold plate assembly pump cable disconnection

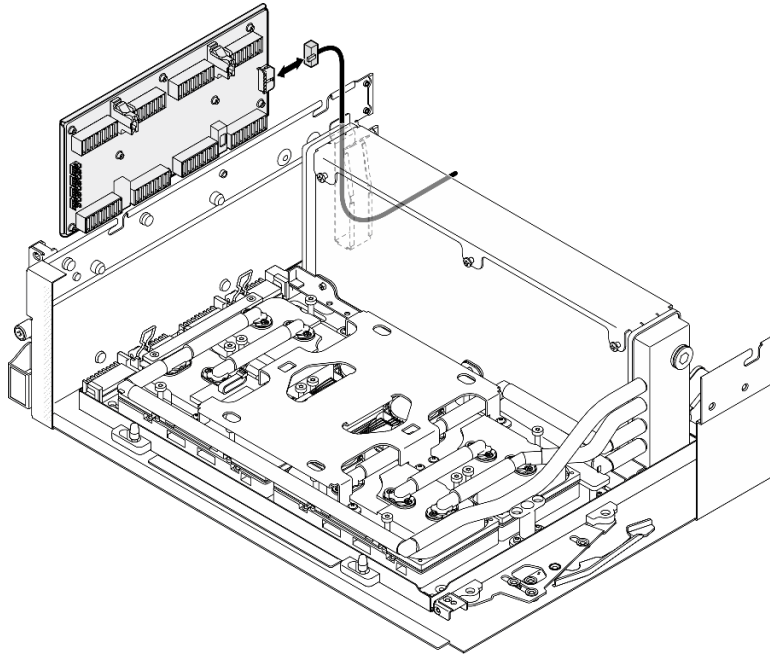Step 7.   Disconnect the power cable from the interposer card.

Figure 248. Interposer card power cable disconnection

Step 8. Grasp and lift the interposer card out of the server.

After you finish

1. 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.

2. If you plan to recycle the component:

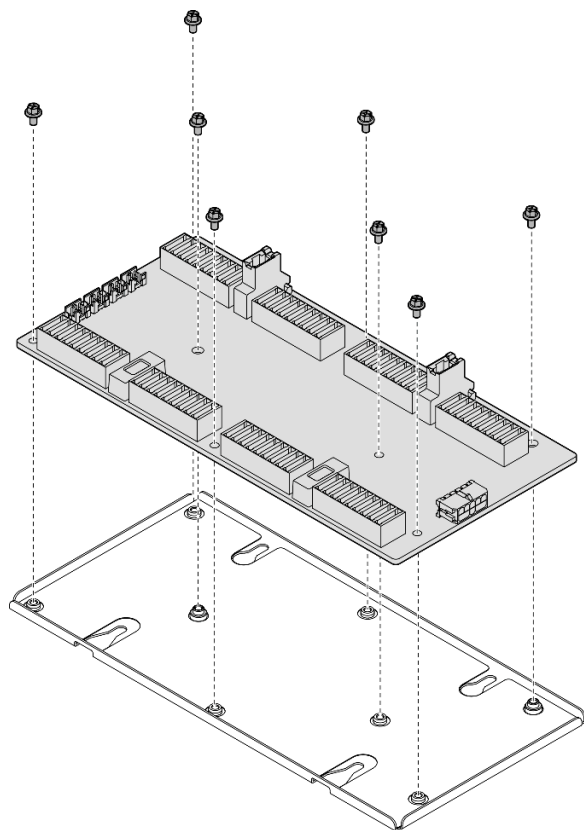   a. Remove the eight screws from the interposer card to separate it from the supporting sheet metal.

Figure 249. Interposer card disassembly

    b. Recycle the component in compliance with local regulations.

Demo video

[Watch the procedure on YouTube](#)

Install the interposer card

Follow instructions in this section to install the interposer card. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. Make sure the following components are installed in the chassis:

- SXM5 GPU board assembly, see "Install the SXM5 GPU board assembly" on page 325.
- Lenovo Neptune™ liquid-to-air (L2A) hybrid cooling module, see "Install the Lenovo Neptune (TM) liquid-to-air (L2A) hybrid cooling module" on page 301.

Step 2. Pull out the SXM5 GPU board assembly latch outward until it stops; then, rotate down the SXM5 GPU board assembly handle so that the two retention clips are facing up.
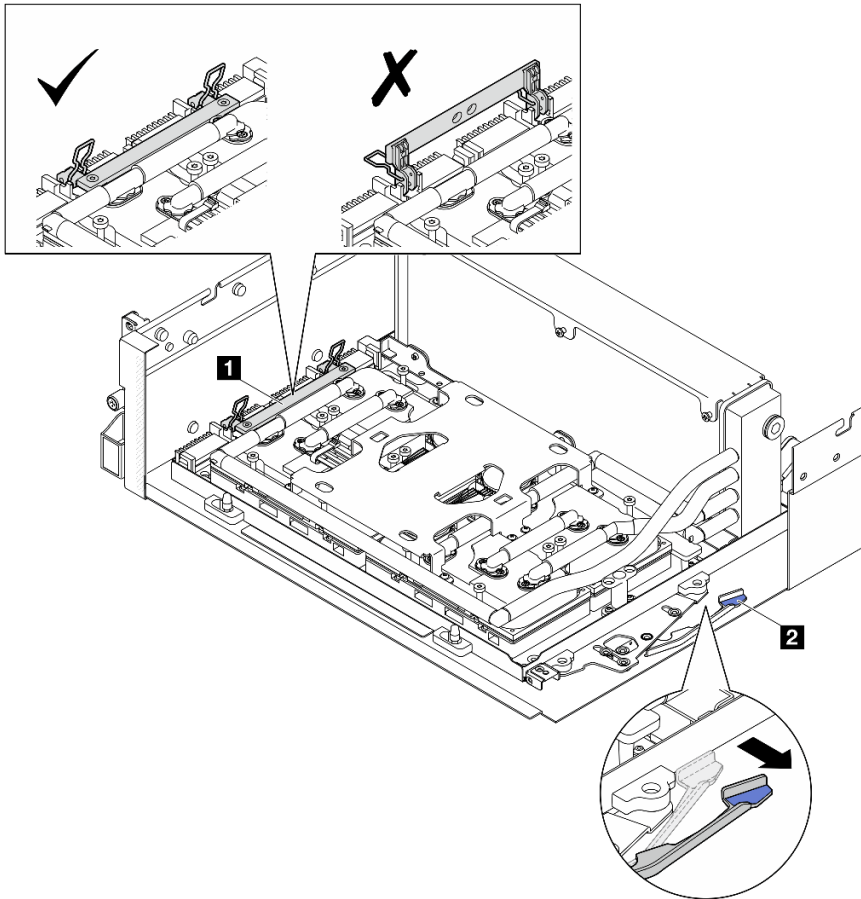

Figure 250. GPU-L2A assembly adjustment

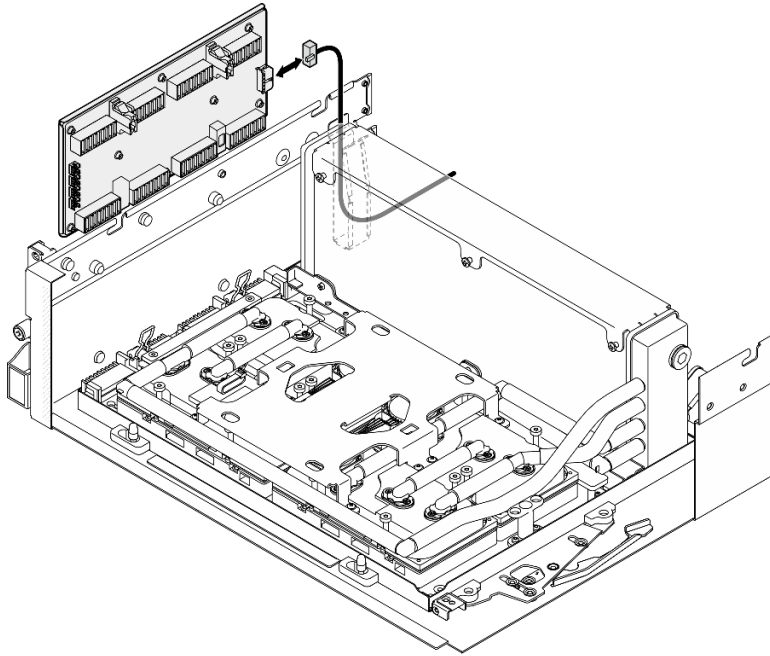| **1** SXM5 GPU board assembly handle	**2** SXM5 GPU board assembly latch

Step 3. Connect the power cable to the interposer card.

Figure 251. Interposer card power cable connection

Step 4. Slightly press and hold the cable latch; then, connect the four cold plate assembly pump cables to the interposer card.
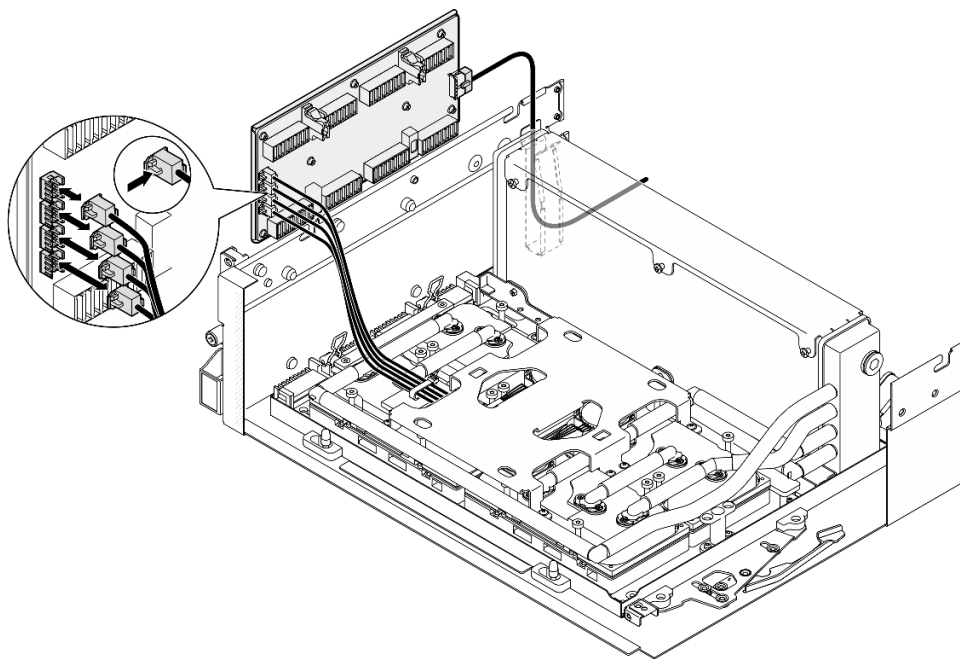

Figure 252. Cold plate assembly pump cable connection

Step 5. Align the interposer card with the four guide pins on the chassis; then, attach the interposer card to the chassis, and slide it down to secure it in place.
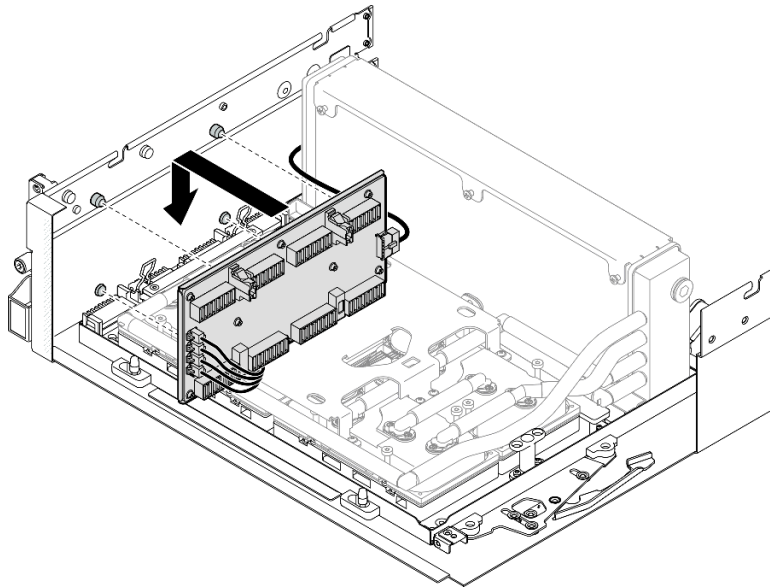
Figure 253. Interposer card installation

Step 6. Pull the SXM5 GPU board assembly latch inward to connect the SXM5 GPU board assembly to the interposer card.

Note: Make sure the two retention clips on the SXM5 GPU board assembly handle are facing up before connecting the SXM5 GPU board assembly to the interposer card.
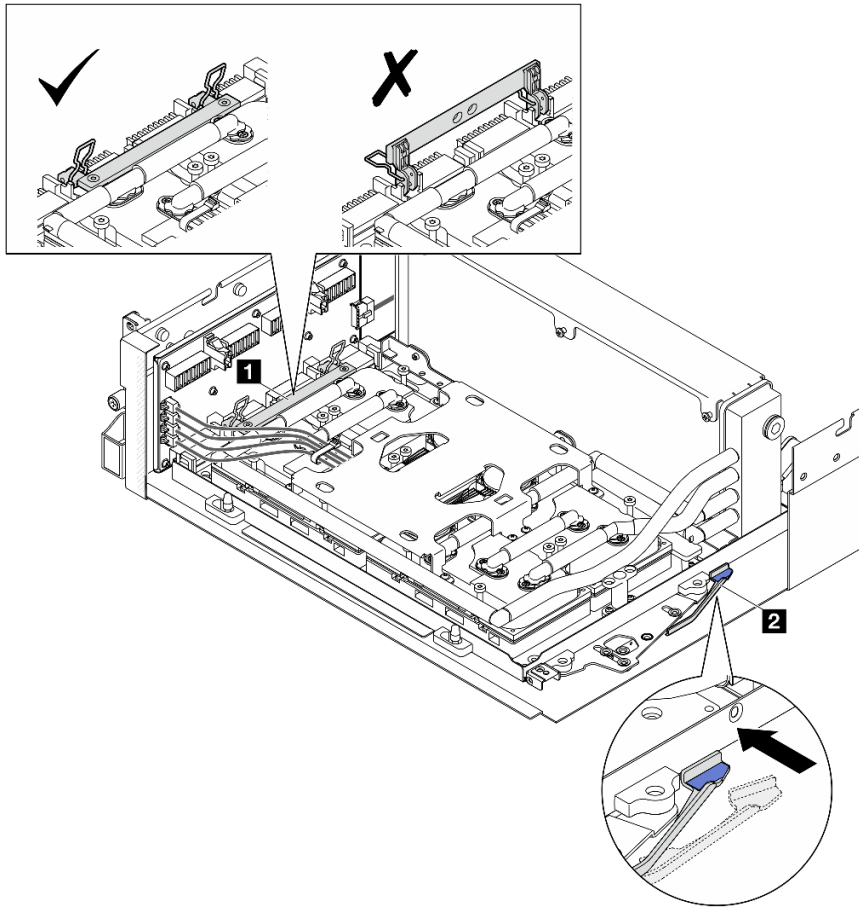
Figure 254. GPU-L2A assembly adjustment

1 SXM5 GPU board assembly handle	**2** SXM5 GPU board assembly latch

Step 7.   Lower the SXM5 GPU board assembly retention bracket into the chassis; then, slide the retention bracket forward until it is aligned with the alignment mark on the chassis.
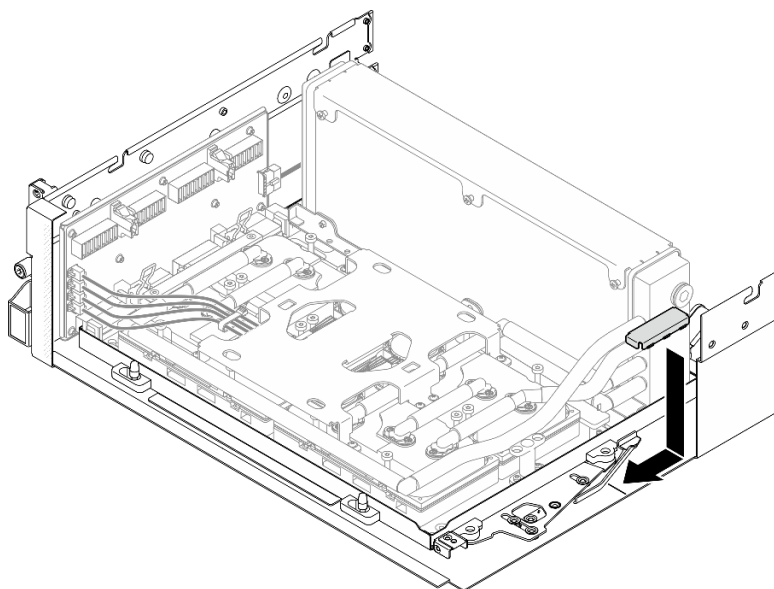
Figure 255. SXM5 GPU board assembly retention bracket installation

Step 8. Install the front drive tray support bracket.

a. Align the front drive tray support bracket with the three guide pins on the chassis; then, press the front drive tray support bracket until it clicks into place.

Note: Make sure the stamp "Remove First" always faces toward the center of the server when installing the front drive tray support bracket.
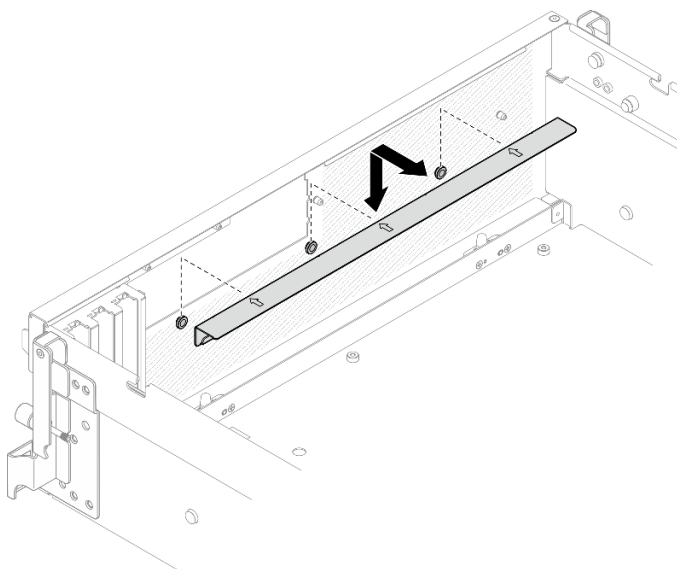

Figure 256. Front drive tray support bracket installation

b. Carefully fold the four cold plate assembly pump cables, and place them under the front drive tray support bracket.

After you finish

1. Depending on the configuration, reinstall the front I/O expansion board carrier or the front I/O expansion board module. See "Install the front I/O expansion board carrier" on page 276 or "Install the front I/O expansion board module" on page 270.

2. Reinstall the front drive tray. See "Install the front drive tray" on page 264.

3. Depending on the configuration, reinstall the CX-7 assembly or the SXM5 PCIe switch board. See "Install the CX-7 assembly" on page 238 or "Install the SXM5 PCIe switch board" on page 339.

4. Depending on the configuration, reinstall the 2.5-inch drive cage or the E3.S drive cage assembly. See "Install the 2.5-inch drive cage" on page 234 or "Install the E3.S drive cage assembly" on page 257.

5. Depending on the configuration, reconnect the power and signal cables to the 2.5-inch drive backplane or the E3.S dive backplane. See "2.5-inch drive backplane cable routing" on page 393 or "E3.S drive backplane cable routing" on page 405 for more information.

6. Depending on the configuration, reinstall the 2.5-inch hot-swap drives and the drive bay fillers (if any) or E3.S hot-swap drives and the drive bay fillers (if any). See "Install a 2.5-inch hot-swap drive" on page 228 or "Install an E3.S hot-swap drive" on page 250

7. Reconnect the following cables to the system board assembly.

   - Front I/O module cables
   - Front operator panel cable

8. Depending on the configuration, reinstall the front PCIe adapter(s) or the OSFP port card. See "Install a PCIe adapter" on page 130 or "Install the OSFP port card" on page 315.

9. Equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.
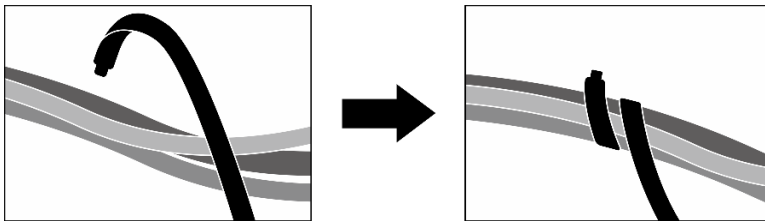

Figure 257. Securing cables with cable ties

10. Reinstall the fan cage. See "Install the fan cage" on page 91.

11. Reinstall the fans. See "Install a fan" on page 89.

12. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

Lenovo Neptune(TM) liquid-to-air (L2A) hybrid cooling module replacement (trained technician only)

Follow instructions in this section to remove and install the Lenovo Neptune™ liquid-to-air (L2A) hybrid cooling module.

Important: This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install the part without proper training and qualification.

Remove the Lenovo Neptune(TM) liquid-to-air (L2A) hybrid cooling module

Follow instructions in this section to remove the Lenovo Neptune™ liquid-to-air (L2A) hybrid cooling module. The procedure must be executed by a trained technician.
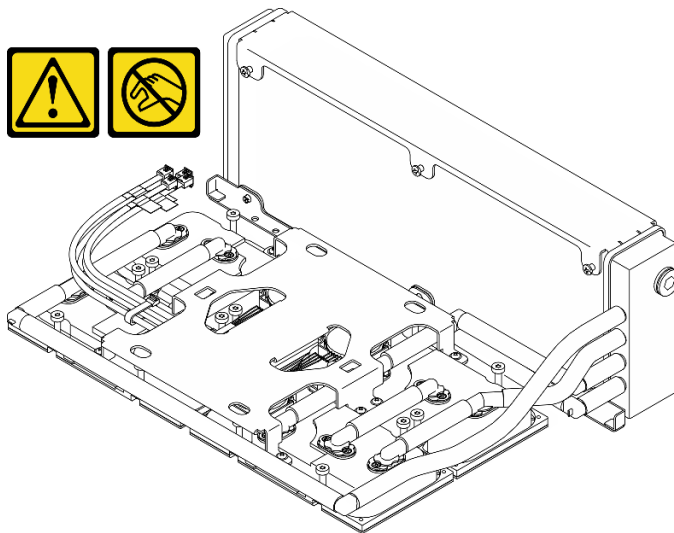
About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

CAUTION:
Do not touch the radiator fins. Touching the radiator fins might damage the L2A.

Notes: Make sure you have the required tools listed below available to properly replace the component:

- Phillips #1 head screwdriver
- Torx T15 head screwdriver
- Alcohol cleaning pad
- SXM5 PCM Kit
- SR675 V3 water loop putty pad kit
- SR675 V3 water loop service kit

Important: Putty pad/phase change material (PCM) replacement guidelines

- Before replacing the putty pad/PCM, gently clean the hardware surface with an alcohol cleaning pad.

- Hold the putty pad/PCM carefully to avoid deformation. Make sure no screw hole or opening is blocked by the putty pad/PCM.

- Do not use expired putty pad/PCM. Check the expiry date on putty pad/PCM package. If the putty pads/PCM are expired, acquire new ones to properly replace them.

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Remove all of the fans. See "Remove a fan" on page 88.

    c. Remove the fan cage. See "Remove the fan cage" on page 90.

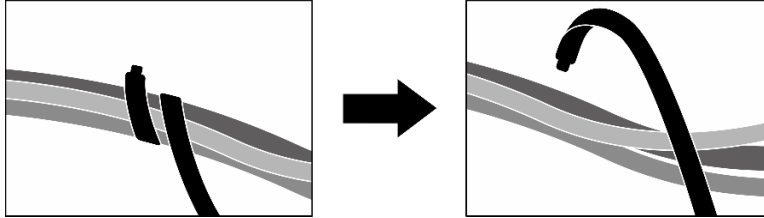   d. Unfasten the two cable ties on the front drive tray to release the cables.

Figure 258. Unfastening the cable ties

    e. Depending on the configuration, remove the front PCIe adapter(s) or the OSFP port card. See "Remove a PCIe adapter" on page 128 or "Remove the OSFP port card" on page 313.

    f. Disconnect the following cables from the system board assembly:

      • Front I/O module cables

      • Front operator panel cable

    g. Depending on the configuration, remove all of the 2.5-inch hot-swap drives and the drive bay fillers (if any) or all of the E3.S hot-swap drives and the drive bay fillers (if any). See "Remove a 2.5-inch hot-swap drive" on page 227 or "Remove an E3.S hot-swap drive" on page 248. Place the drives on a static protective surface.

    h. Depending on the configuration, disconnect the power and signal cables from the 2.5-inch drive backplane or the E3.S dive backplane.

    i. Depending on the configuration, remove the 2.5-inch drive cage or the E3.S drive cage assembly. See "Remove the 2.5-inch drive cage" on page 233 or "Remove the E3.S drive cage assembly" on page 256.

    j. Depending on the configuration, remove the CX-7 assembly or the SXM5 PCIe switch board. See "Remove the CX-7 assembly" on page 236 or "Remove the SXM5 PCIe switch board" on page 335.

    k. Remove the front drive tray. See "Remove the front drive tray" on page 262.

    l. Depending on the configuration, remove the front I/O expansion board carrier or the front I/O expansion board module. See "Remove the front I/O expansion board carrier" on page 273 or "Remove the front I/O expansion board module" on page 267.

    m. Remove the interposer card. See "Remove the interposer card" on page 278.

Step 2. Hold the strap on the SXM5 GPU board assembly power cable, and disconnect it from the SXM5 GPU board assembly and the SXM5 GPU power distribution board.

Figure 259. SXM5 GPU board assembly power cable disconnection
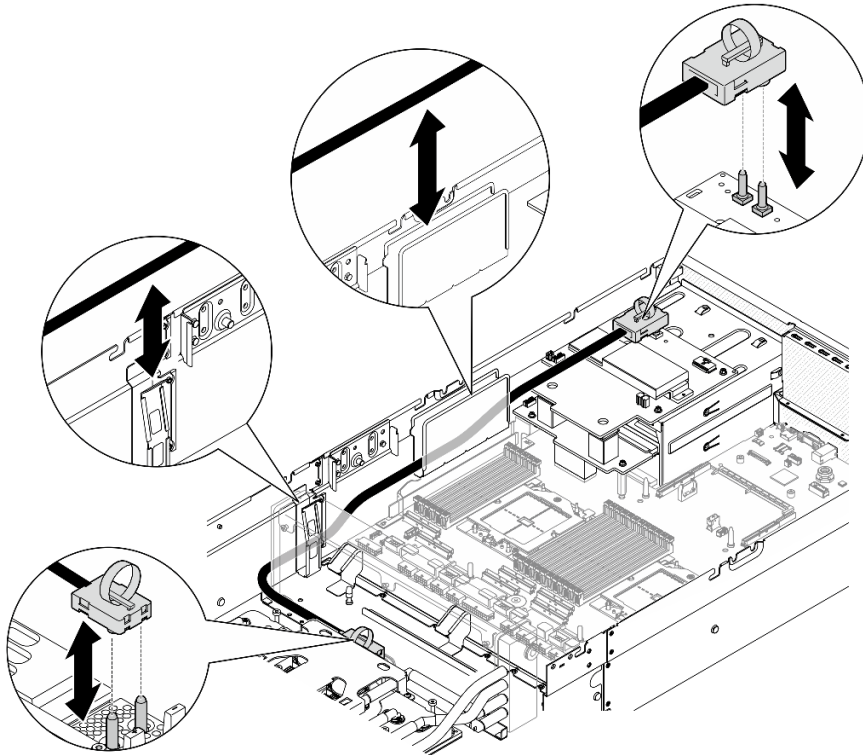
Step 3. Hold the radiator by its upper edge and hold the cold plate assembly by its lifting handle; then, lift the GPU-L2A assembly out of the chassis.
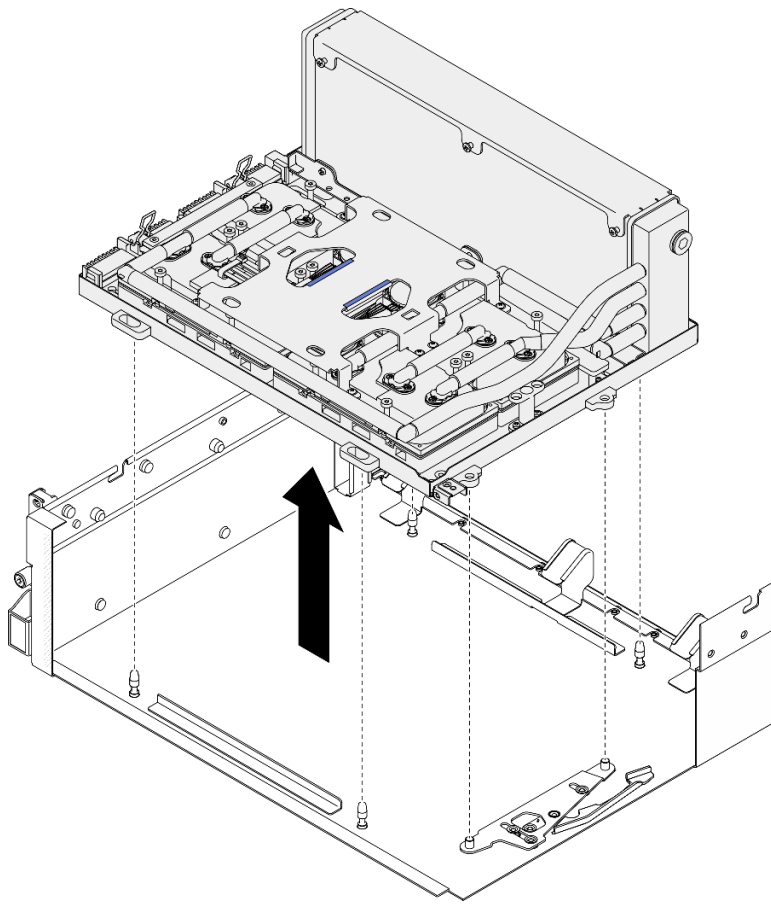
Figure 260. GPU-L2A assembly removal

Step 4. Remove the six Phillips #1 screws (M3 x 5 mm) that secure the radiator to the GPU tray.

Note: Loosen or tighten the screws with a torque screwdriver set to the proper torque. For reference, the torque required for the screws to be fully loosen or tighten is 0.3±0.03 newton-meter, 2.7±0.27 pound-inch

Figure 261. Phillips #1 screw removal

1 Radiator	**2** Cold plate assembly

Step 5. Remove the sixteen Torx T15 screws that secure the cold plates to the SXM5 GPU board assembly *in the removal sequence shown* on the cold plate label.

   Note: Loosen or tighten the screws with a torque screwdriver set to the proper torque. For reference, the torque required for the screws to be fully loosen or tighten is 0.4±0.05 newton-meter, 3.5±0.5 pound-inch.
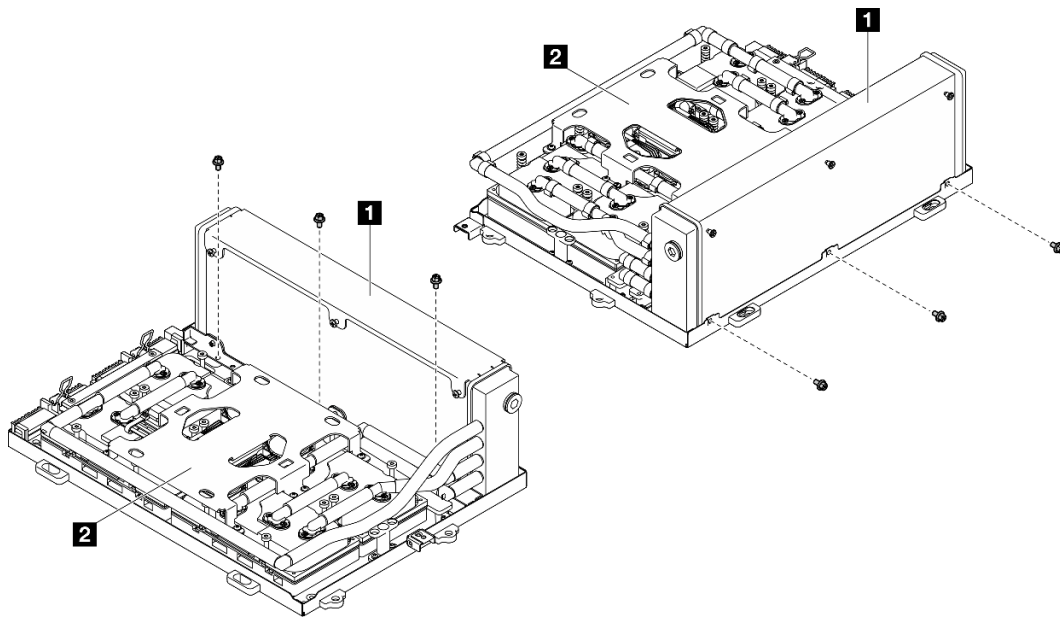
   Attention: To prevent damage to components, make sure to follow the indicated screw unfastening sequence shown on the cold plate label.

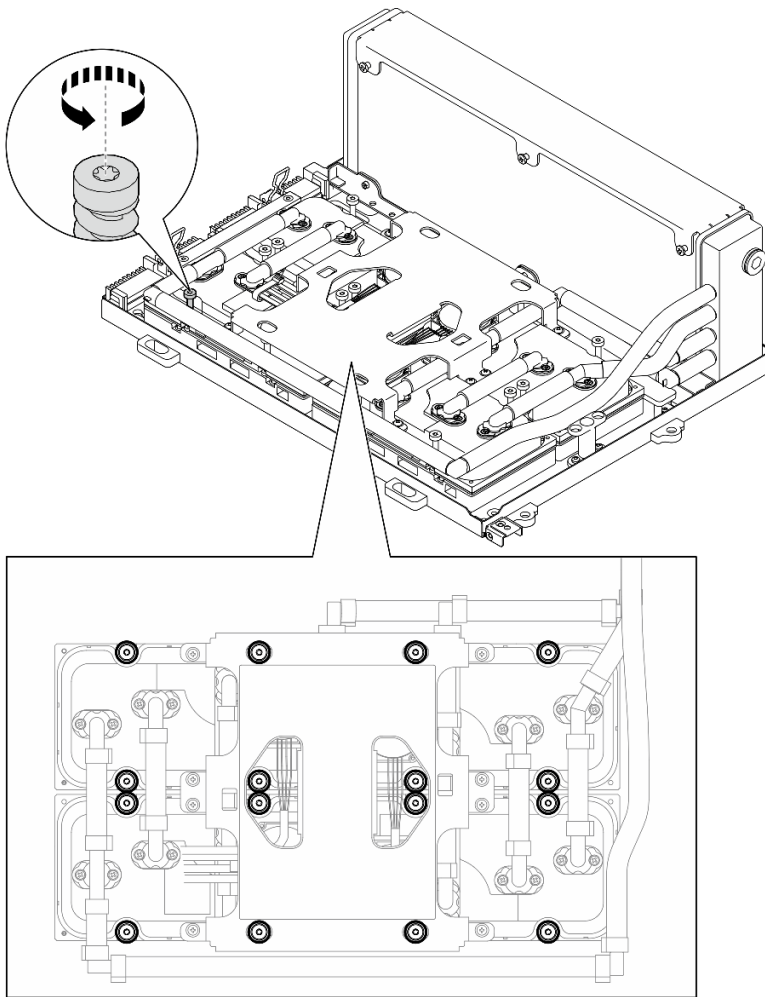*Figure 262. Torx T15 screw removal*

Step 6.   With a flat tool, carefully disengage the four cold plates from the SXM5 GPUs.

Attention: Make sure not to damage the SXM5 GPUs while disengaging the cold plates.
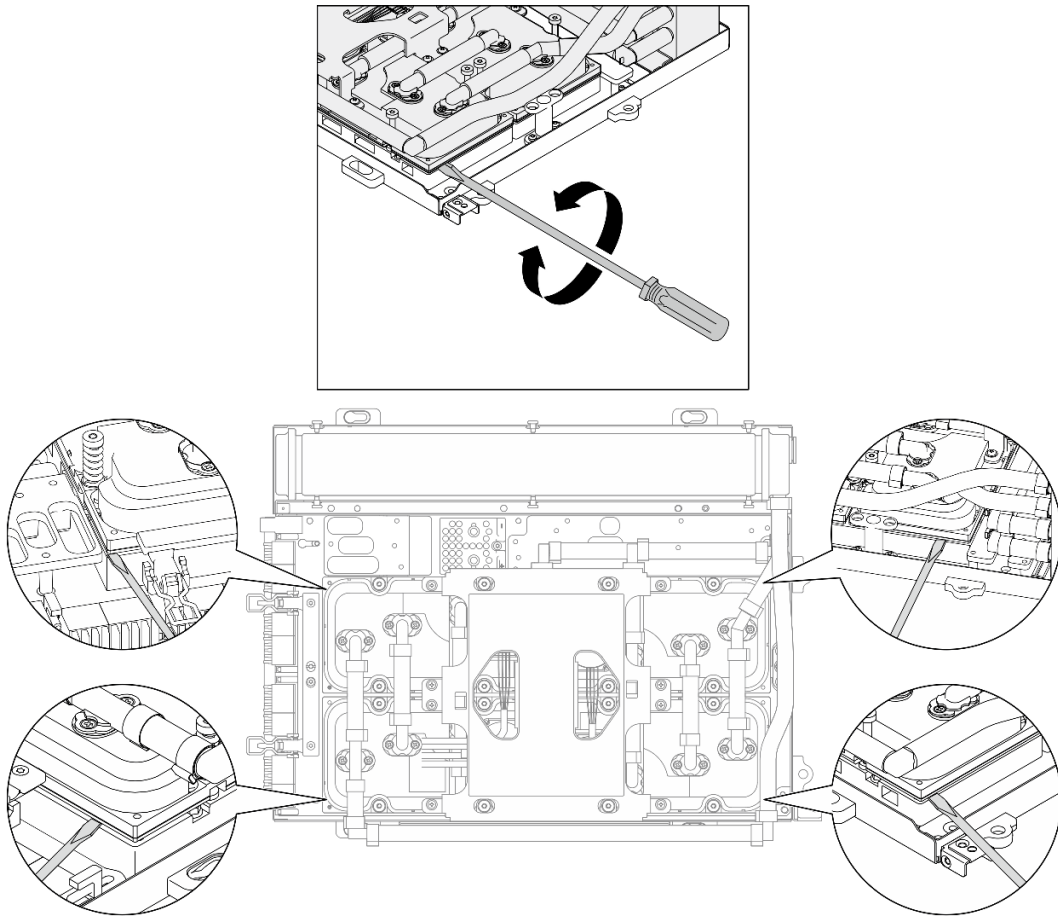
Figure 263. Cold plate disengagement

Step 7. Hold the radiator by its upper edge and hold the cold plate assembly by its lifting handle; then, lift the L2A from the SXM5 GPU board assembly.
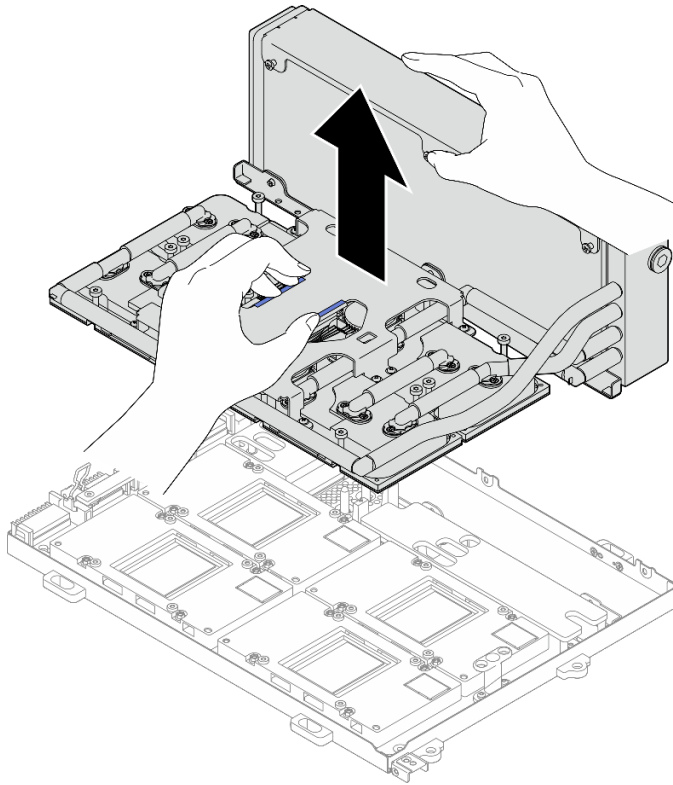
Figure 264. L2A removal

Step 8. Turn the L2A upside down.

a. ❶ Hold the radiator by its upper edge and hold the cold plate assembly by its lifting handle; then, put the L2A into the shipping box.

b. ❷ Place the top cover of the shipping box on top of the L2A and ensure it is firmly seated.

c. ❸ Hold the shipping box and carefully turn it upside down.

d. ❹ Remove the bottom cover of the shipping box.

e. ❺ Remove the plastic tray and the bottom of the cold plate assembly is facing up.
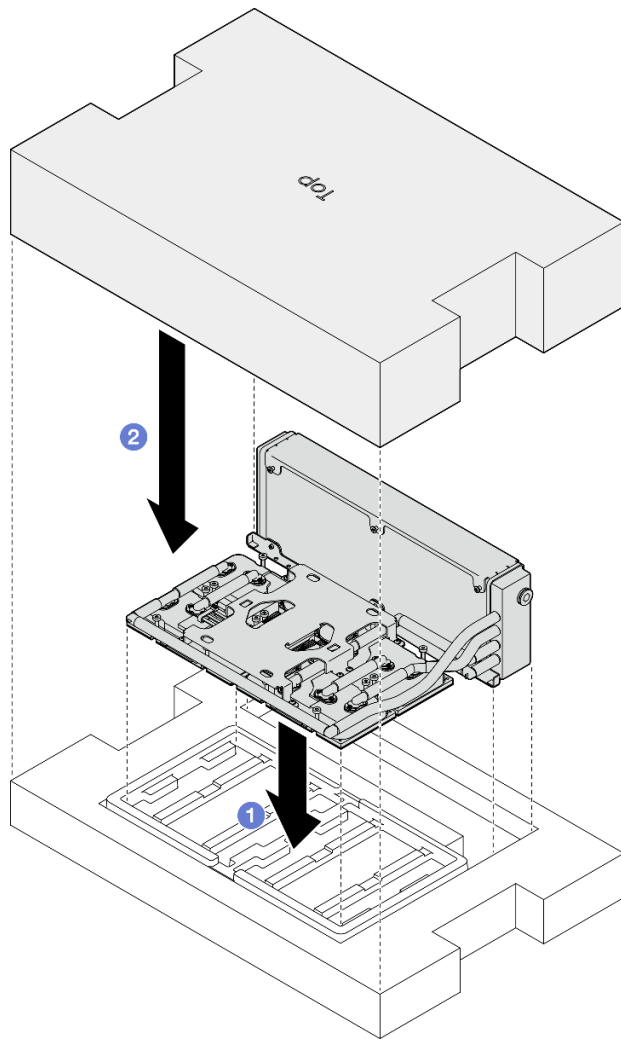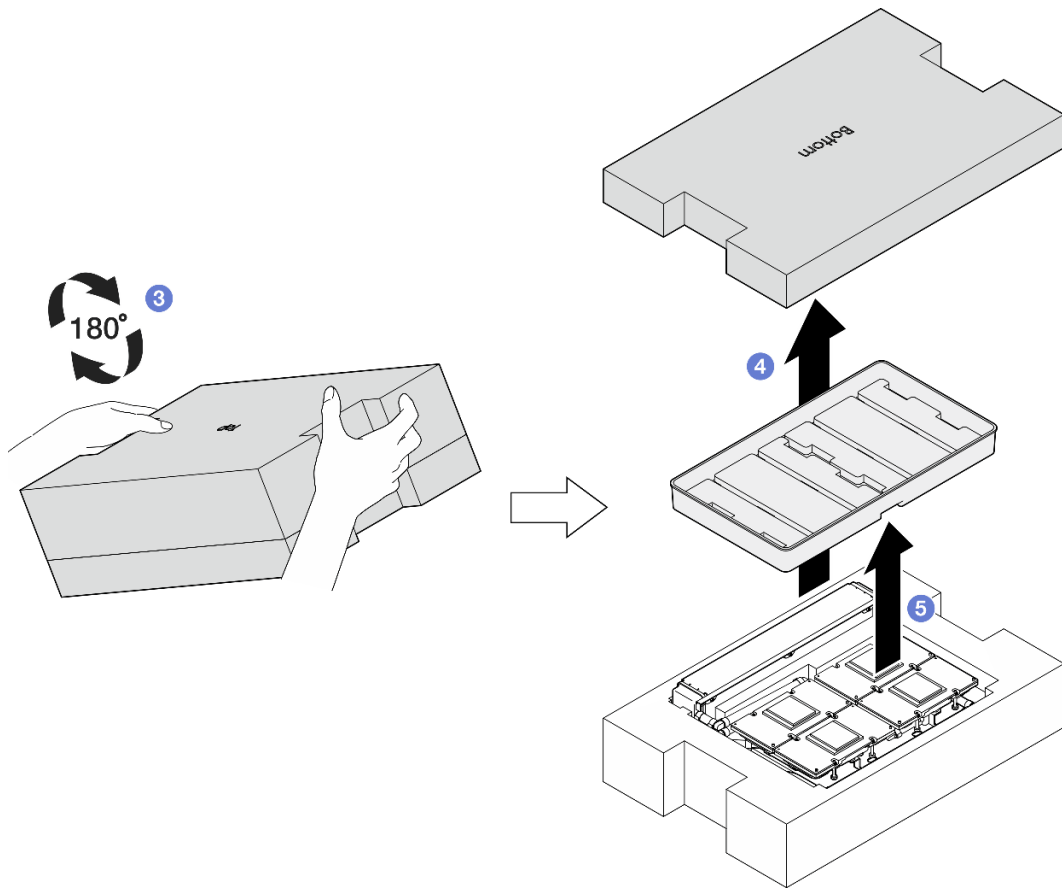
Figure 265. Turning the L2A upside down

Step 9. Wipe any remaining PCM and putty pads off from all the cold plates with alcohol cleaning pads.
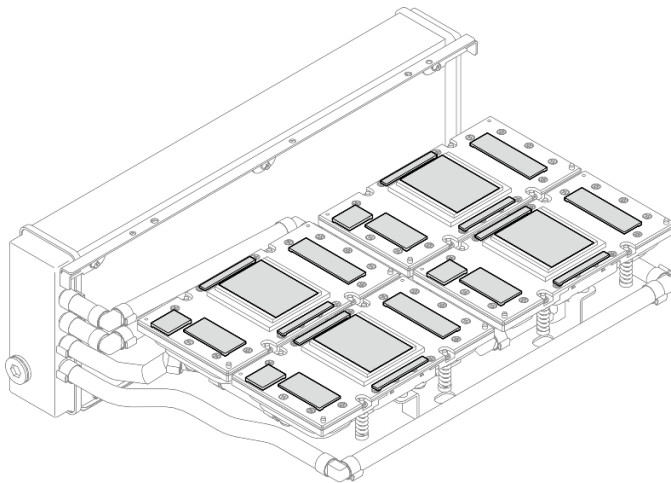
Figure 266. Wiping PCM and putty pads off from the cold plates

Step 10. **Gently** wipe any remaining PCM and putty pads off from all the SXM5 GPUs with alcohol cleaning pads to avoid SXM5 GPU damages.

Attention: The electrical components around the die on the SXM5 GPUs are extremely delicate. When cleaning the SXM5 GPU die, avoid touching the electrical components to prevent damages.
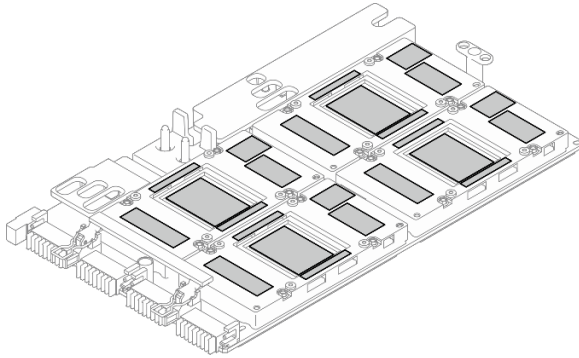
Figure 267. Wiping PCM and putty pads off from the SXM5 GPUs

After you finish

1. To replace the SXM5 GPU board, see "SXM5 GPU board assembly replacement (trained technician only)" on page 322.

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.

Demo video

Watch the procedure on YouTube

Install the Lenovo Neptune(TM) liquid-to-air (L2A) hybrid cooling module

Follow instructions in this section to install the Lenovo Neptune™ liquid-to-air (L2A) hybrid cooling module. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.

- 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:
Do not touch the radiator fins. Touching the radiator fins might damage the L2A.

Notes: Make sure you have the required tools listed below available to properly replace the component:

- Phillips #1 head screwdriver
- Torx T15 head screwdriver
- Alcohol cleaning pad
- SXM5 PCM Kit
- SR675 V3 water loop putty pad kit
- SR675 V3 water loop service kit

Important: Putty pad/phase change material (PCM) replacement guidelines

- Before replacing the putty pad/PCM, gently clean the hardware surface with an alcohol cleaning pad.
- Hold the putty pad/PCM carefully to avoid deformation. Make sure no screw hole or opening is blocked by the putty pad/PCM.
- Do not use expired putty pad/PCM. Check the expiry date on putty pad/PCM package. If the putty pads/PCM are expired, acquire new ones to properly replace them.

Procedure

Step 1. Make sure the SXM5 GPU board assembly is installed in the GPU tray. See "Install the SXM5 GPU board assembly" on page 325.

Step 2. Turn the L2A upside down.

Note: If the L2A is already in the shipping box, skip to step 2c.

a. ❶ Hold the radiator by its upper edge and hold the cold plate assembly by its lifting handle; then, put the L2A into the shipping box.

b. ❷ Place the top cover of the shipping box on top of the L2A and ensure it is firmly seated.

c. ❸ Hold the shipping box and carefully turn it upside down.

d. ❹ Remove the bottom cover of the shipping box.

e. ❺ Remove the plastic tray and the bottom of the cold plate assembly is facing up.
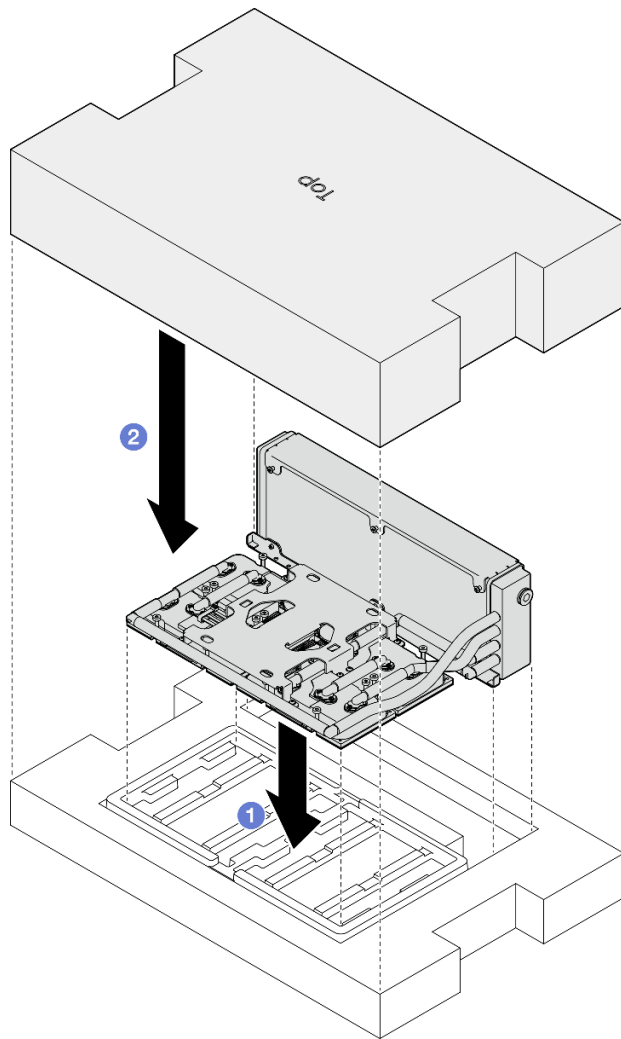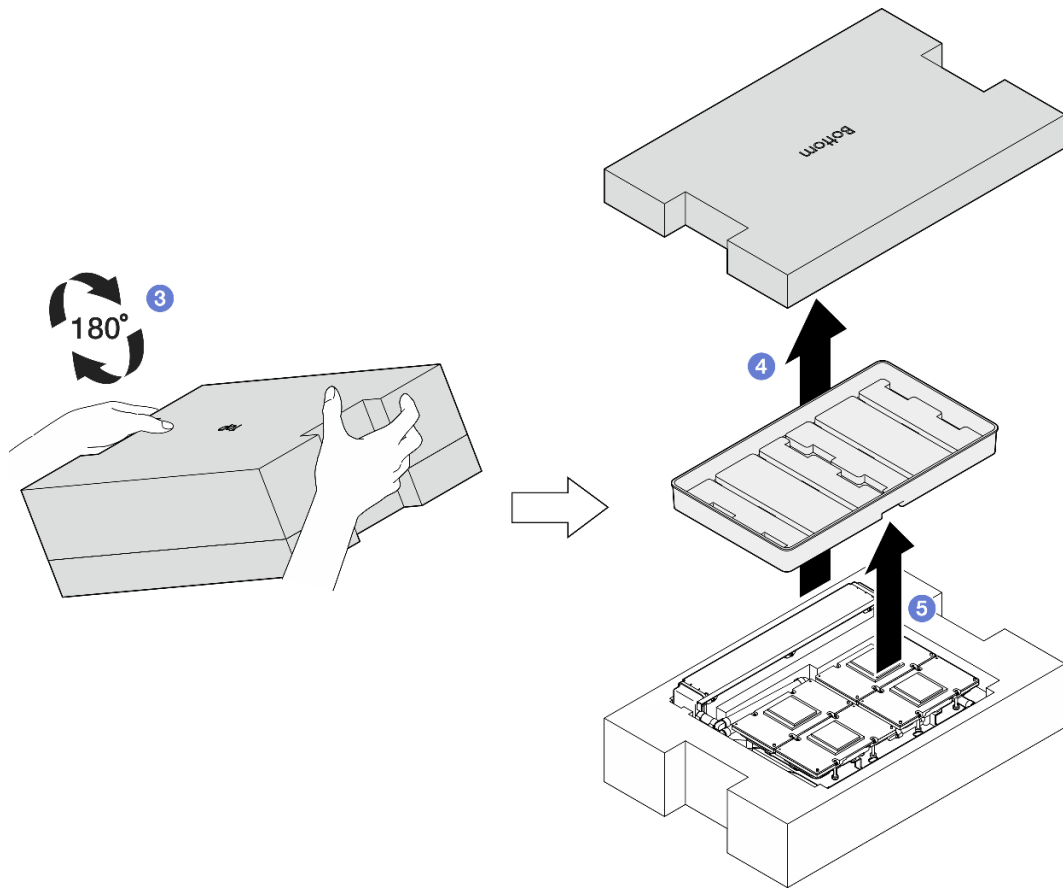
Figure 268. Turning the L2A upside down

Step 3. Replace the PCM to the cold plates.

    a. Align the PCM with the marking on the bottom of the cold plate, and place it onto the cold plate; then, apply pressure on the PCM and hold it for three to five seconds until it is firmly attached.

    b. Repeat to replace the PCM on the four cold plates.
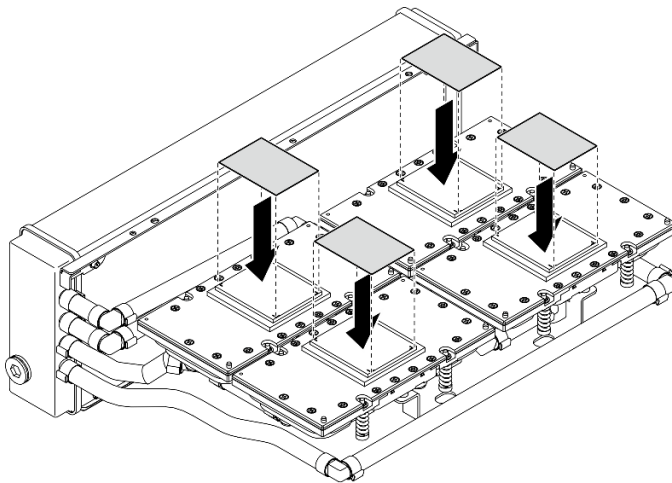
Figure 269. PCM application

Step 4. Replace the putty pads to the SXM5 GPUs.

    a. Align the five putty pads with the GPU VR (**1**) and the markings on the GPU, and attach them to the GPU.

    b. Repeat to replace all putty pads on the four GPUs.
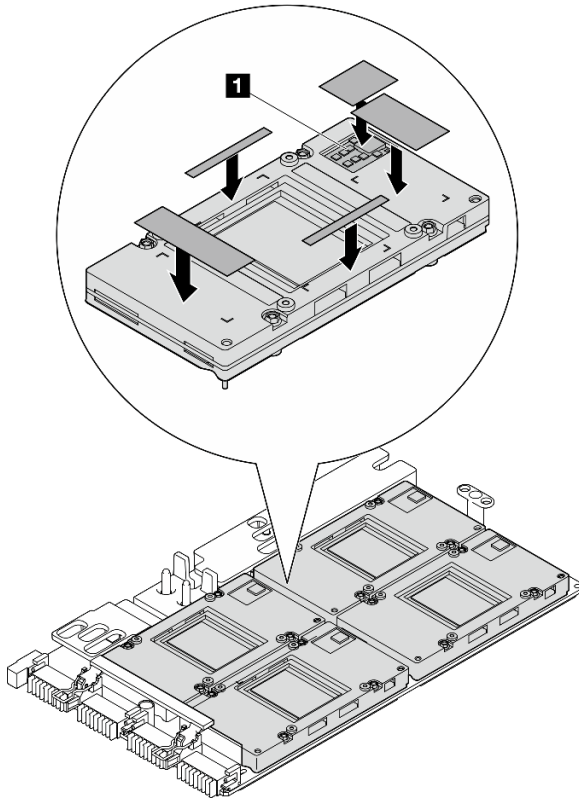
Figure 270. Putty pad application

1 GPU VR (Cover the GPU VR with putty pad)

Step 5. Turn the L2A right-side up.

    a. ❶ Place the plastic tray on top of the L2A to secure the L2A in place.

    b. ❷ Place the bottom cover of the shipping box on top of the plastic tray and ensure it is firmly seated.

    c. ❸ Hold the shipping box and carefully turn it right-side up.

    d. ❹ Remove the top cover of the shipping box and the cold plate assembly lifting handle is facing up.
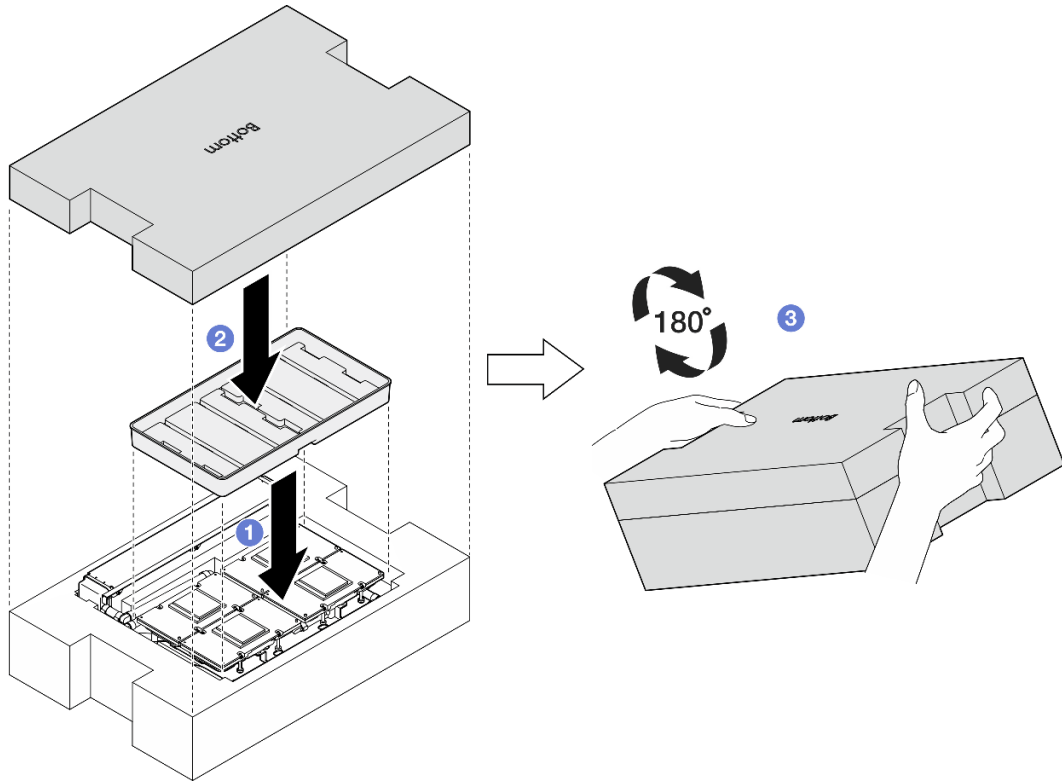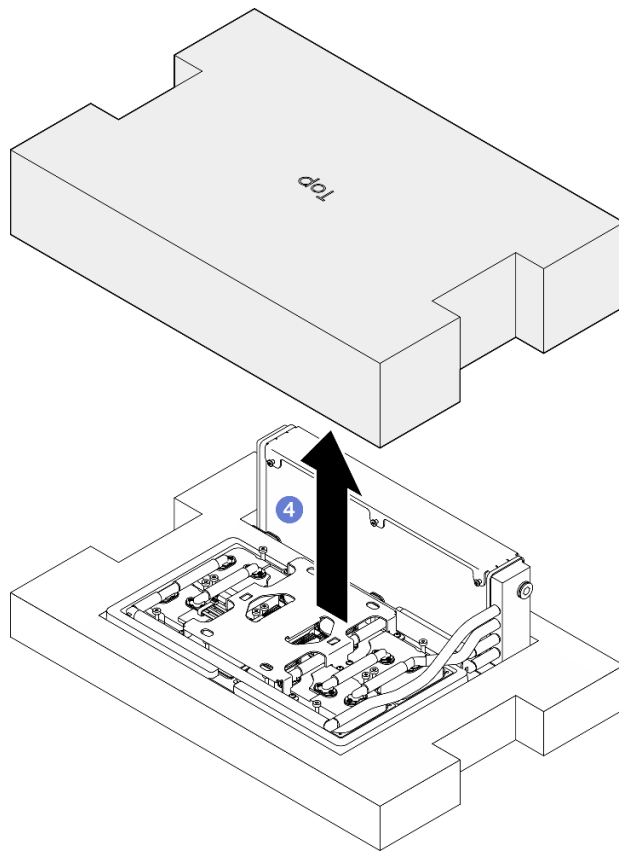
Figure 271. Turning the L2A right-side up

Step 6. Hold the radiator by its upper edge and hold the cold plate assembly by its lifting handle to remove the L2A out of the shipping box; then, align the L2A with the sixteen screw holes on the SXM5 GPU board assembly and the two guide pins on the GPU tray, and gently place the L2A onto the SXM5 GPU board assembly.
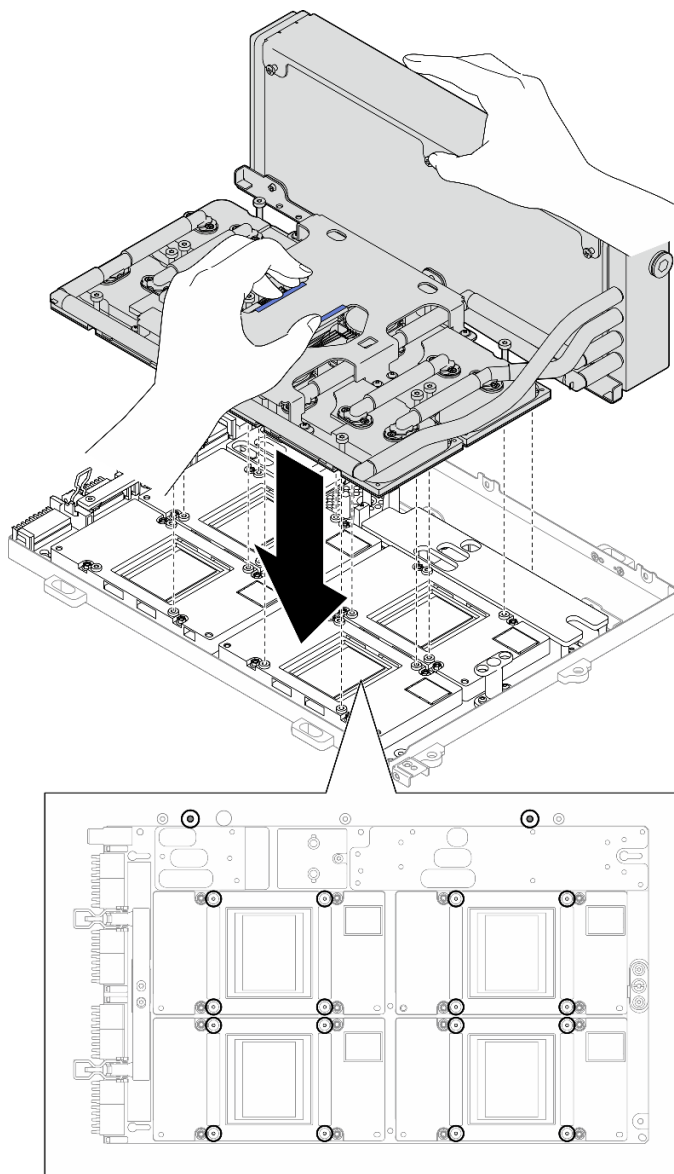
Figure 272. L2A installation

Step 7. Install the six Phillips #1 screws (M3 x 5 mm) to secure the radiator to the GPU tray.

Note: Loosen or tighten the screws with a torque screwdriver set to the proper torque. For reference, the torque required for the screws to be fully loosen or tighten is 0.3±0.03 newton-meter, 2.7±0.27 pound-inch
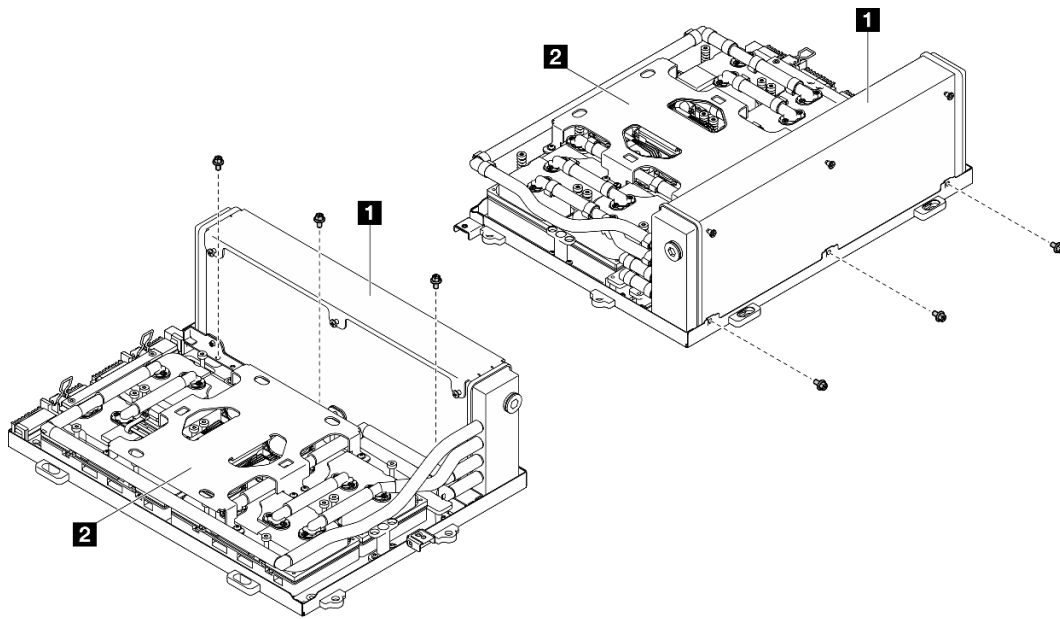
Figure 273. Phillips #1 screw installation

1 Radiator	**2** Cold plate assembly

Step 8. With a Torx T15 head screwdriver, follow the sequence (cold plate 1 → cold plate 2 → cold plate 3 → cold plate 4) to install the cold plate assembly.

Important: To prevent potential thermal issues, make sure to complete the following steps.

a. Follow the screw sequence specified on the cold plate label, and fasten the sixteen Torx T15 screws for 720 degrees.

Note: Make sure to follow screw installation sequence to prevent cold plate tilting.

b. Follow the screw sequence specified on the cold plate label, and repeat to fully tighten the sixteen Torx T15 screws.

Note: Loosen or tighten the screws with a torque screwdriver set to the proper torque. For reference, the torque required for the screws to be fully loosen or tighten is 0.4±0.05 newton-meter, 3.5±0.5 pound-inch.
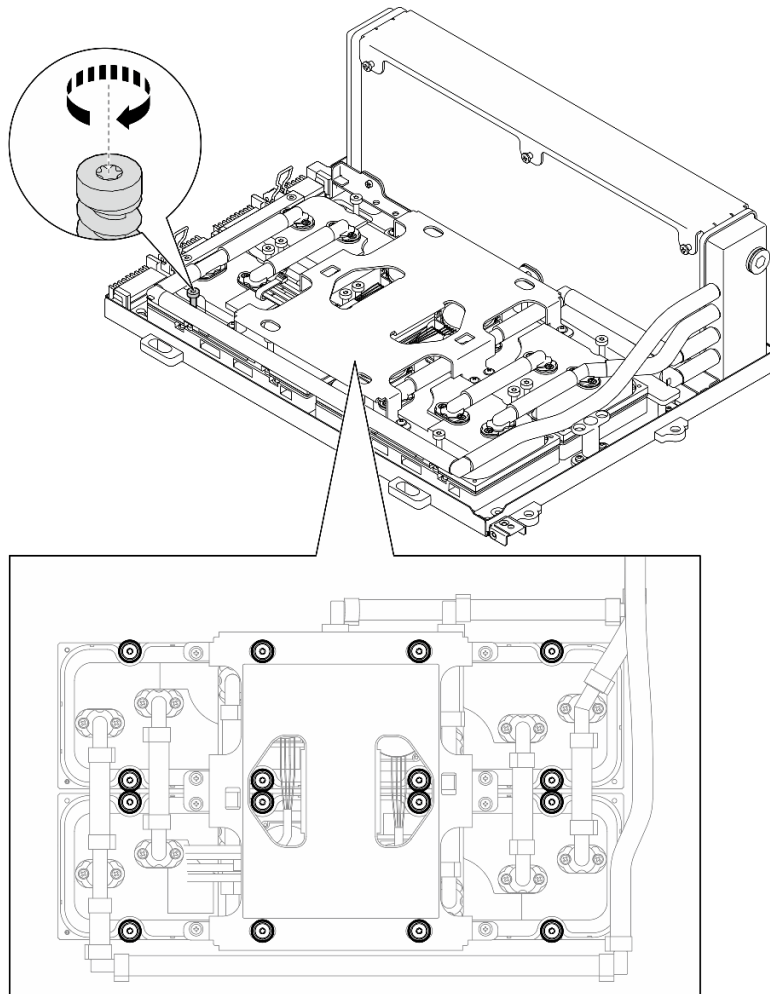
Figure 274. Torx T15 screw installation

Step 9. Remove the interposer card from the chassis. See "Remove the interposer card" on page 278.

Step 10. Install the GPU-L2A assembly.

a. ❶ Pull the SXM5 GPU board assembly latch outward until it stops.

b. **②** Hold the radiator by its upper edge and hold the cold plate assembly by its lifting handle; then, align the GPU-L2A assembly with the six guide pins on the chassis, and gently place the GPU-L2A assembly into the chassis.
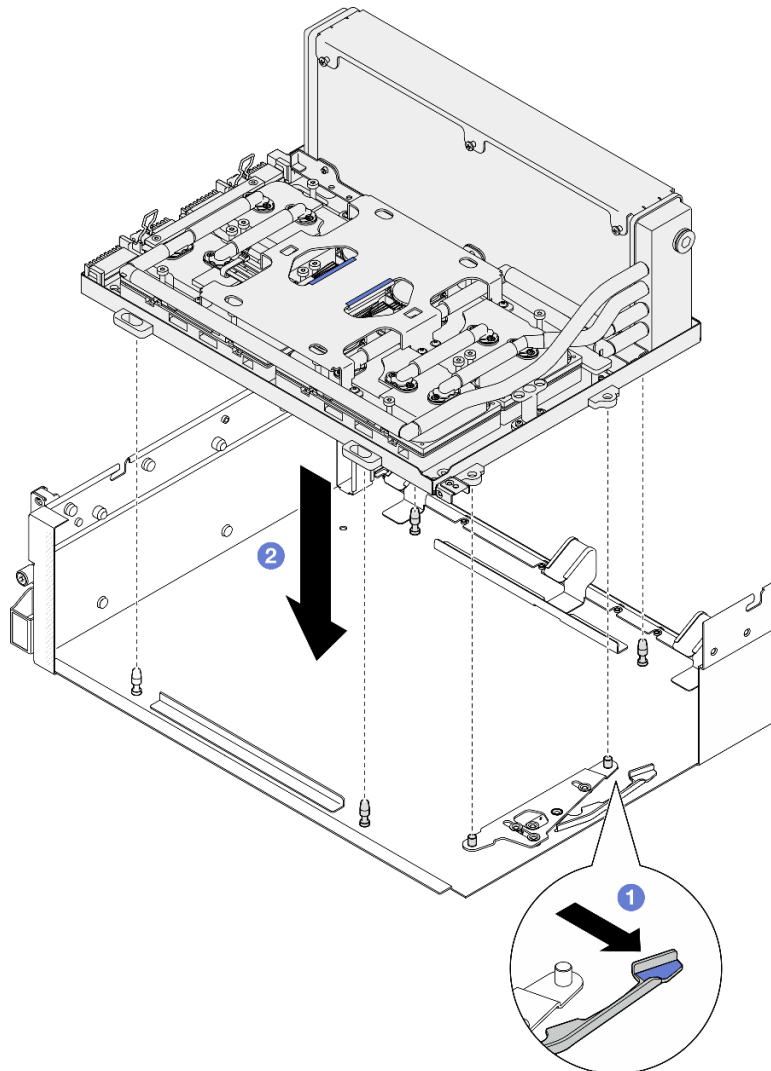
Figure 275. GPU-L2A assembly installation

Step 11. Route the SXM5 GPU board assembly power cable through the cable clip and cable guide, and connect it to the SXM5 GPU board assembly and the SXM5 GPU power distribution board in the rear of the chassis.

Figure 276. SXM5 GPU board assembly power cable connection
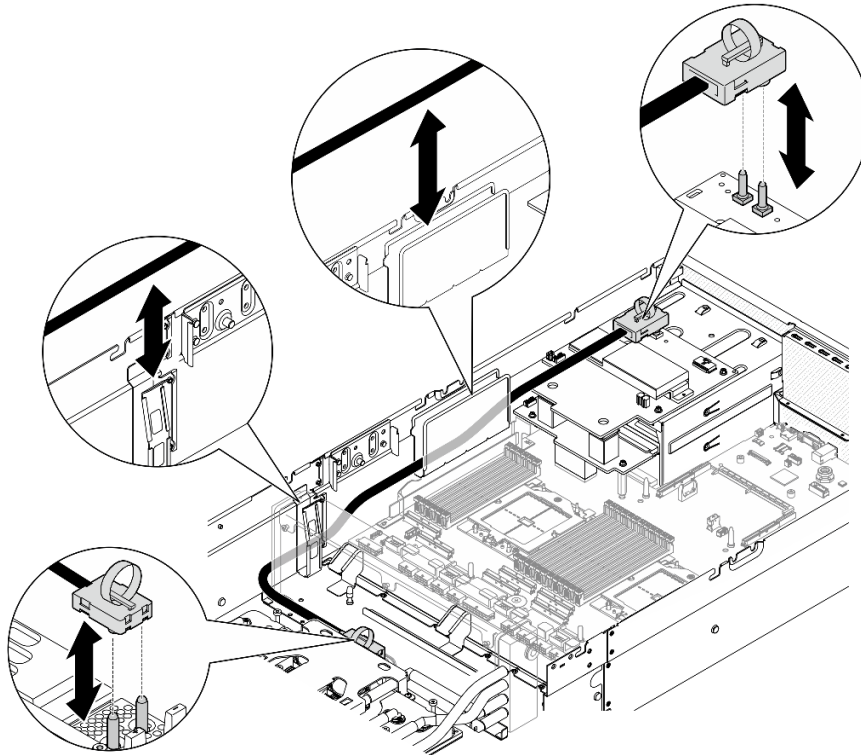
After you finish

1. Reinstall the interposer card. See "Install the interposer card" on page 284.

2. Depending on the configuration, reinstall the front I/O expansion board carrier or the front I/O expansion board module. See "Install the front I/O expansion board carrier" on page 276 or "Install the front I/O expansion board module" on page 270.

3. Reinstall the front drive tray. See "Install the front drive tray" on page 264.

4. Depending on the configuration, reinstall the CX-7 assembly or the SXM5 PCIe switch board. See "Install the CX-7 assembly" on page 238 or "Install the SXM5 PCIe switch board" on page 339.

5. Depending on the configuration, reinstall the 2.5-inch drive cage or the E3.S drive cage assembly. See "Install the 2.5-inch drive cage" on page 234 or "Install the E3.S drive cage assembly" on page 257.

6. Depending on the configuration, reconnect the power and signal cables to the 2.5-inch drive backplane or the E3.S dive backplane. See "2.5-inch drive backplane cable routing" on page 393 or "E3.S drive backplane cable routing" on page 405 for more information.

7. Depending on the configuration, reinstall the 2.5-inch hot-swap drives and the drive bay fillers (if any) or E3.S hot-swap drives and the drive bay fillers (if any). See "Install a 2.5-inch hot-swap drive" on page 228 or "Install an E3.S hot-swap drive" on page 250

8. Reconnect the following cables to the system board assembly.

   - Front I/O module cables
   - Front operator panel cable

9. Depending on the configuration, reinstall the front PCIe adapter(s) or the OSFP port card. See "Install a PCIe adapter" on page 130 or "Install the OSFP port card" on page 315.

10. Equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.

Figure 277. Securing cables with cable ties

11. Reinstall the fan cage. See "Install the fan cage" on page 91.

12. Reinstall the fans. See "Install a fan" on page 89.

13. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

OSFP port card replacement

Follow instructions in this section to remove or install the OSFP port card.

Remove the OSFP port card

Follow instructions in this section to remove the OSFP port card.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

Procedure

Step 1. Remove the top cover. See "Remove the top cover" on page 179.

Step 2. Unfasten the cable tie(s) to release the OSFP port card cables, and disconnect them from the CX-7 carrier board and the CX-7 mezz board.

> **Note:** The OSFP port card cables are bundled with one or two cable ties depending on the previous installation.
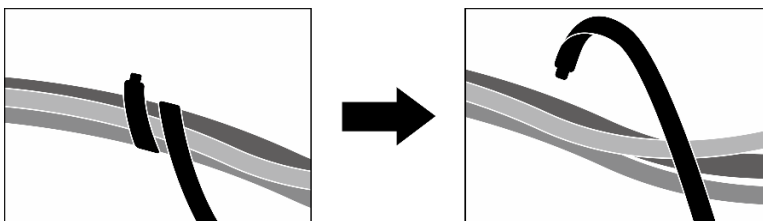
Figure 278. Unfastening the cable tie(s)

Step 3. Unfasten the screw that secures the OSFP port card to the chassis; then, lift OSFP port card out of the chassis.
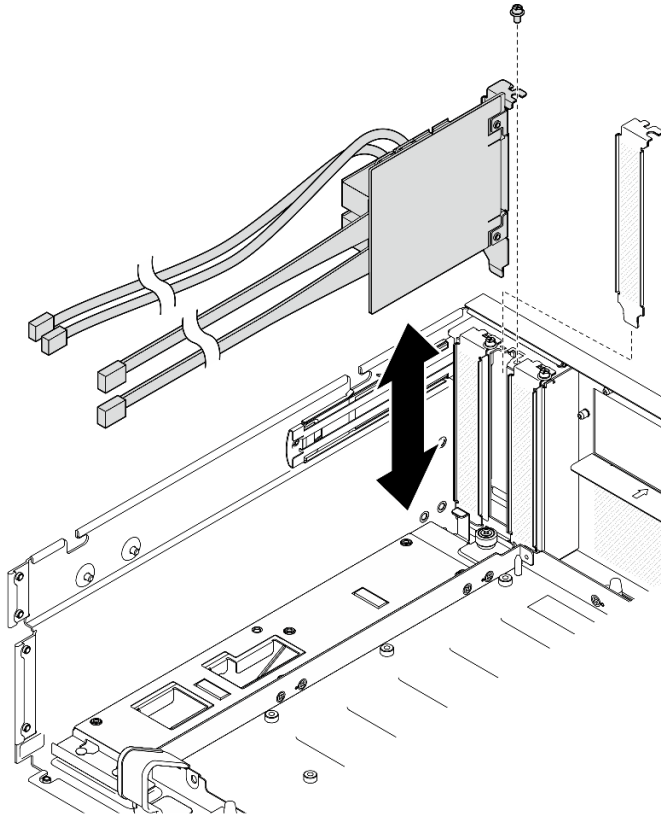
Figure 279. OSFP port card removal

After you finish

1. 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.

2. If you plan to recycle the component:

   a. Remove the Mylar film from the OSFP port card.

   b. Remove the two screws from the OSFP port card to separate it from the bracket.
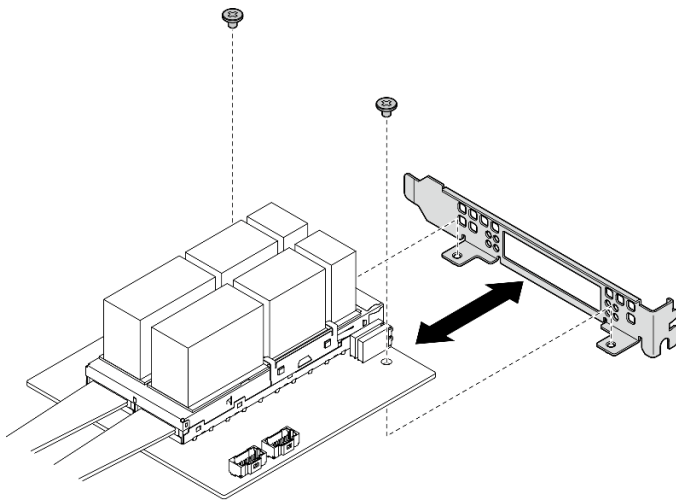
Figure 280. OSFP port card disassembly

c. Recycle the component in compliance with local regulations.

Demo video

[Watch the procedure on YdouTube](#)

Install the OSFP port card

Follow instructions in this section to install the OSFP port card.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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 OSFP port card with the chassis; then, press the OSFP port card into the slot on the chassis until it is fully seated.

Step 2.   Fasten the screw to secure the OSFP port card to the chassis.
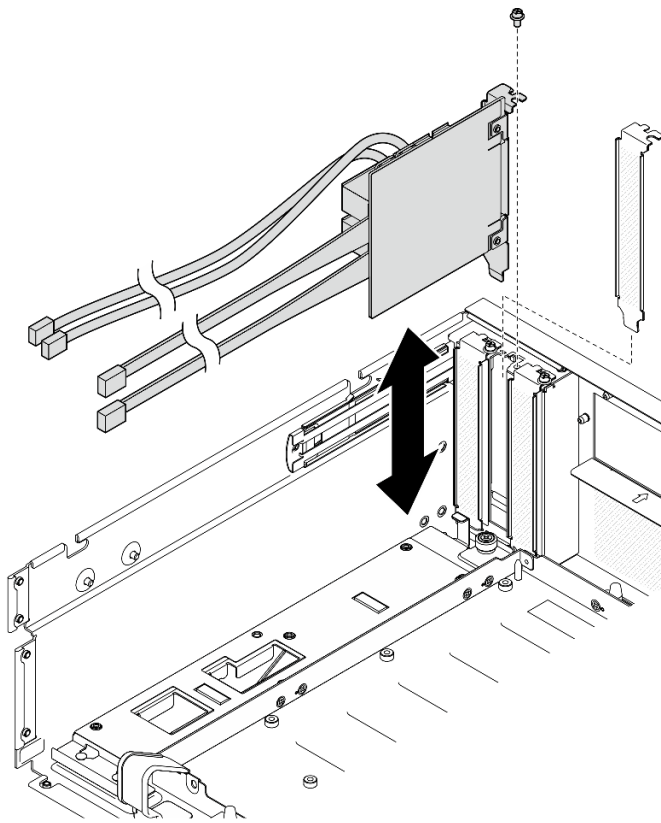
Figure 281. OSFP port card installation

After you finish

1. Reconnect the cables to the CX-7 carrier board and the CX-7 mezz board. See "OSFP port card cable routing" on page 418 for more information.

2. Equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.
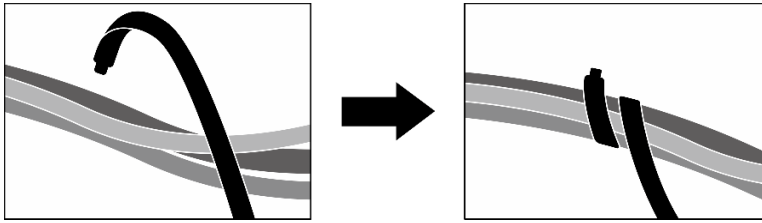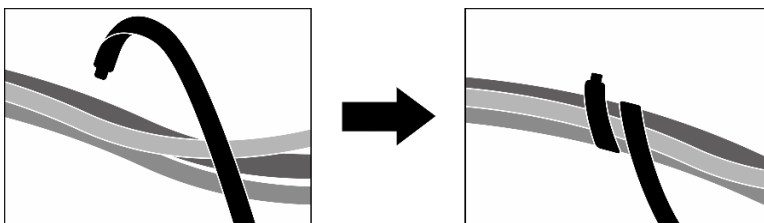

Figure 282. Securing cables with cable ties

3. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

SXM5 GPU replacement (trained technician only)

Follow instructions in this section to remove or install an SXM5 GPU.

Important: This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install the part without proper training and qualification.

Remove an SXM5 GPU

Follow instructions in this section to remove an SXM5 GPU. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

- A torque screwdriver is available for request if you do not have one at hand.

Notes: Make sure you have the required tools listed below available to properly replace the component:

- Torx T15 head screwdriver
- Alcohol cleaning pad
- SXM5 PCM Kit
- SR675 V3 water loop service kit

The following illustration shows the SXM5 GPU numbering.
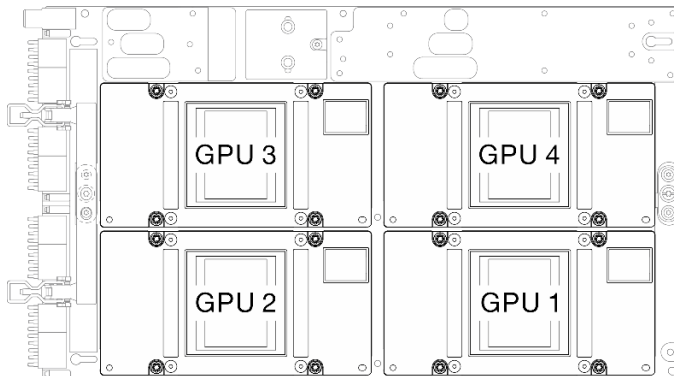
Figure 283. SXM5 GPU numbering

Procedure

Step 1. Make preparation for this task.

      a. Remove the top cover. See "Remove the top cover" on page 179.

      b. Remove all of the fans. See "Remove a fan" on page 88.

      c. Remove the fan cage. See "Remove the fan cage" on page 90.

      d. Unfasten the two cable ties on the front drive tray to release the cables.
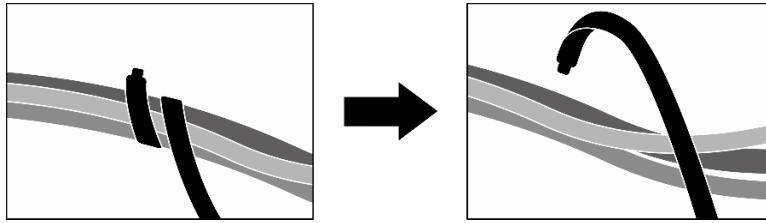
Figure 284. Unfastening the cable ties

e. Depending on the configuration, remove the front PCIe adapter(s) or the OSFP port card. See "Remove a PCIe adapter" on page 128 or "Remove the OSFP port card" on page 313.

f. Disconnect the following cables from the system board assembly:

  • Front I/O module cables

  • Front operator panel cable

g. Depending on the configuration, remove all of the 2.5-inch hot-swap drives and the drive bay fillers (if any) or all of the E3.S hot-swap drives and the drive bay fillers (if any). See "Remove a 2.5-inch hot-swap drive" on page 227 or "Remove an E3.S hot-swap drive" on page 248. Place the drives on a static protective surface.

h. Depending on the configuration, disconnect the power and signal cables from the 2.5-inch drive backplane or the E3.S dive backplane.

i. Depending on the configuration, remove the 2.5-inch drive cage or the E3.S drive cage assembly. See "Remove the 2.5-inch drive cage" on page 233 or "Remove the E3.S drive cage assembly" on page 256.

j. Depending on the configuration, remove the CX-7 assembly or the SXM5 PCIe switch board. See "Remove the CX-7 assembly" on page 236 or "Remove the SXM5 PCIe switch board" on page 335.

k. Remove the front drive tray. See "Remove the front drive tray" on page 262.

l. Depending on the configuration, remove the front I/O expansion board carrier or the front I/O expansion board module. See "Remove the front I/O expansion board carrier" on page 273 or "Remove the front I/O expansion board module" on page 267.

m. Remove the interposer card. See "Remove the interposer card" on page 278.

n. Remove the Lenovo Neptune™ liquid-to-air (L2A) hybrid cooling module. See "Remove the Lenovo Neptune(TM) liquid-to-air (L2A) hybrid cooling module" on page 291

o. Remove the SXM5 GPU board assembly. See "Remove the SXM5 GPU board assembly" on page 322.

Step 2. Locate the SXM5 GPU to be removed.

Step 3. Remove the SXM5 GPU.

  a. ❶❷❸❹ Unfasten the four Torx T15 screws in the sequence shown in the illustration below.

  Note: Loosen or tighten the screws with a torque screwdriver set to the proper torque. For reference, the torque required for the screws to be fully loosen or tighten is 0.45-0.56 newton-meters, 4.0-5.0 inch-pounds.

  b. ❺ Carefully remove the SXM5 GPU out of the SXM5 GPU board.
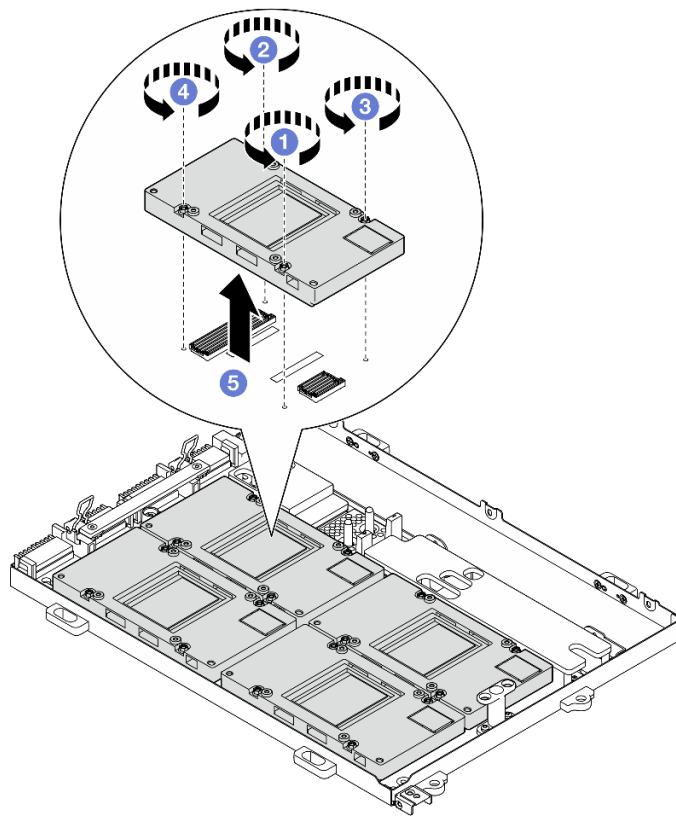
Figure 285. SXM5 GPU removal

After you finish

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.

Demo video

Watch the procedure on YouTube

Install an SXM5 GPU

Follow instructions in this section to install an SXM5 GPU. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.
- A torque screwdriver is available for request if you do not have one at hand.

Notes: Make sure you have the required tools listed below available to properly replace the component:

- Torx T15 head screwdriver

- Alcohol cleaning pad
- SXM5 PCM Kit
- SR675 V3 water loop service kit

**The following illustration shows the SXM5 GPU numbering.**
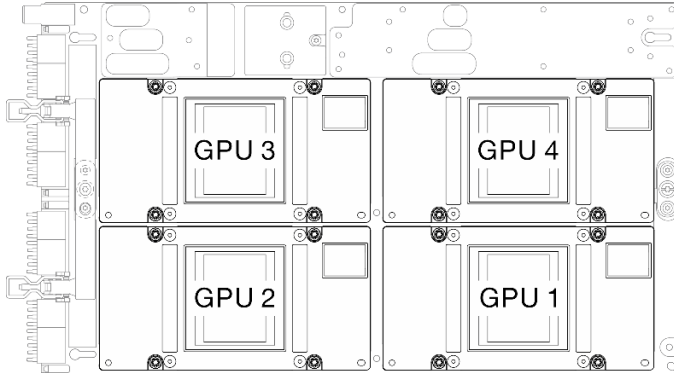
Figure 286. SXM5 GPU numbering

Procedure

Step 1. ❶ Gently place the SXM5 GPU down on the SXM5 GPU board.

Step 2. ❷❸❹❺ Follow the sequence shown in the illustration below to fasten the four Torx T15 screws to secure the SXM5 GPU to the SXM5 GPU board.

> **Note:** Loosen or tighten the screws with a torque screwdriver set to the proper torque. For reference, the torque required for the screws to be fully loosen or tighten is 0.45-0.56 newton-meters, 4.0-5.0 inch-pounds.
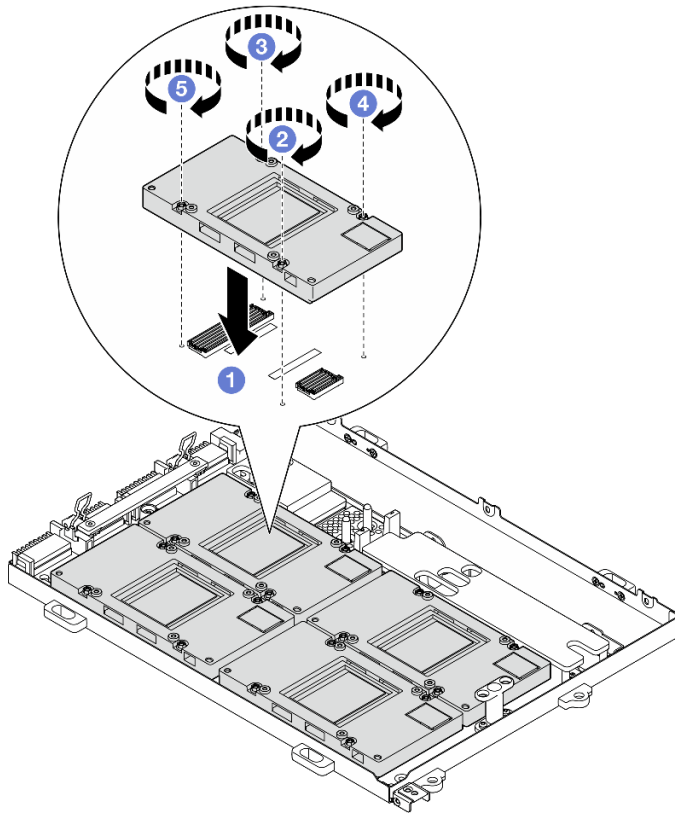
Figure 287. SXM5 GPU installation

After you finish

1. Reinstall the SXM5 GPU board assembly. See "Install the SXM5 GPU board assembly" on page 325.

2. Reinstall the Lenovo Neptune™ liquid-to-air (L2A) hybrid cooling module. See "Install the Lenovo Neptune(TM) liquid-to-air (L2A) hybrid cooling module" on page 301.

3. Reinstall the interposer card. See "Install the interposer card" on page 284.

4. Depending on the configuration, reinstall the front I/O expansion board carrier or the front I/O expansion board module. See "Install the front I/O expansion board carrier" on page 276 or "Install the front I/O expansion board module" on page 270.

5. Reinstall the front drive tray. See "Install the front drive tray" on page 264.

6. Depending on the configuration, reinstall the CX-7 assembly or the SXM5 PCIe switch board. See "Install the CX-7 assembly" on page 238 or "Install the SXM5 PCIe switch board" on page 339.

7. Depending on the configuration, reinstall the 2.5-inch drive cage or the E3.S drive cage assembly. See "Install the 2.5-inch drive cage" on page 234 or "Install the E3.S drive cage assembly" on page 257.

8. Depending on the configuration, reconnect the power and signal cables to the 2.5-inch drive backplane or the E3.S dive backplane. See "2.5-inch drive backplane cable routing" on page 393 or "E3.S drive backplane cable routing" on page 405 for more information.

9. Depending on the configuration, reinstall the 2.5-inch hot-swap drives and the drive bay fillers (if any) or E3.S hot-swap drives and the drive bay fillers (if any). See "Install a 2.5-inch hot-swap drive" on page 228 or "Install an E3.S hot-swap drive" on page 250

10. Reconnect the following cables to the system board assembly.

    - Front I/O module cables
    - Front operator panel cable

11. Depending on the configuration, reinstall the front PCIe adapter(s) or the OSFP port card. See "Install a PCIe adapter" on page 130 or "Install the OSFP port card" on page 315.

12. Equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.
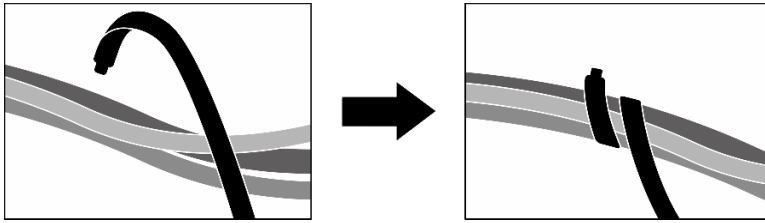
Figure 288. Securing cables with cable ties

13. Reinstall the fan cage. See "Install the fan cage" on page 91.

14. Reinstall the fans. See "Install a fan" on page 89.

15. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

SXM5 GPU board assembly replacement (trained technician only)

Follow instructions in this section to remove or install the SXM5 GPU board assembly.

Important: This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install the part without proper training and qualification.

Remove the SXM5 GPU board assembly

Follow instructions in this section to remove the SXM5 GPU board assembly. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Notes: Make sure you have the required tools listed below available to properly replace the component:

- Phillips #1 head screwdriver
- Torx T15 head screwdriver
- Alcohol cleaning pad
- SR675 V3 water loop service kit

Procedure

Step 1. Make preparation for this task.

    a. Remove the top cover. See "Remove the top cover" on page 179.

    b. Remove all of the fans. See "Remove a fan" on page 88.

    c. Remove the fan cage. See "Remove the fan cage" on page 90.

    d. Unfasten the two cable ties on the front drive tray to release the cables.

Figure 289. Unfastening the cable ties

    e. Depending on the configuration, remove the front PCIe adapter(s) or the OSFP port card. See "Remove a PCIe adapter" on page 128 or "Remove the OSFP port card" on page 313.

    f. Disconnect the following cables from the system board assembly:

       • Front I/O module cables

       • Front operator panel cable

    g. Depending on the configuration, remove all of the 2.5-inch hot-swap drives and the drive bay fillers (if any) or all of the E3.S hot-swap drives and the drive bay fillers (if any). See "Remove a 2.5-inch hot-swap drive" on page 227 or "Remove an E3.S hot-swap drive" on page 248. Place the drives on a static protective surface.

    h. Depending on the configuration, disconnect the power and signal cables from the 2.5-inch drive backplane or the E3.S dive backplane.

    i. Depending on the configuration, remove the 2.5-inch drive cage or the E3.S drive cage assembly. See "Remove the 2.5-inch drive cage" on page 233 or "Remove the E3.S drive cage assembly" on page 256.

    j. Depending on the configuration, remove the CX-7 assembly or the SXM5 PCIe switch board. See "Remove the CX-7 assembly" on page 236 or "Remove the SXM5 PCIe switch board" on page 335.

    k. Remove the front drive tray. See "Remove the front drive tray" on page 262.

    l. Depending on the configuration, remove the front I/O expansion board carrier or the front I/O expansion board module. See "Remove the front I/O expansion board carrier" on page 273 or "Remove the front I/O expansion board module" on page 267.

    m. Remove the interposer card. See "Remove the interposer card" on page 278.

    n. Remove the Lenovo Neptune™ liquid-to-air (L2A) hybrid cooling module. See "Remove the Lenovo Neptune(TM) liquid-to-air (L2A) hybrid cooling module" on page 291

Step 2. Remove the seven Phillips #1 screws (M3 x 6 mm) from the SXM5 GPU board assembly.
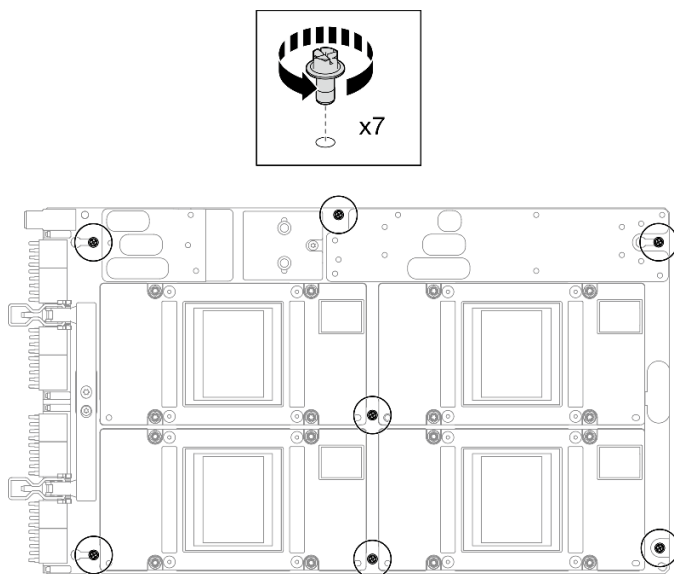
Figure 290. Phillips #1 screw removal

Step 3.   Remove the two T15 screws from the SXM5 GPU board assembly.
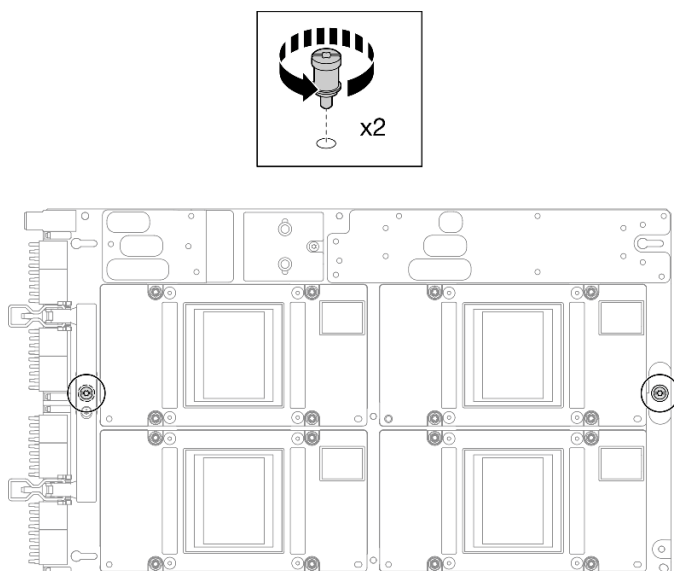
Figure 291. T15 screw removal

Step 4.   Hold the handles on both sides of the SXM5 GPU board assembly, and lift it out from the GPU tray.
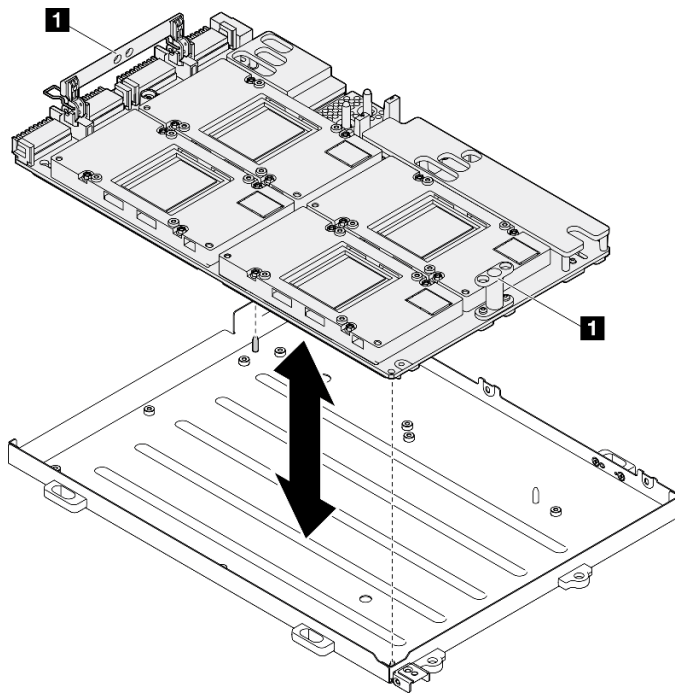
Figure 292. SXM5 GPU board assembly removal

1 SXM5 GPU board assembly handle

After you finish

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.

Demo video

Watch the procedure on YouTube

Install the SXM5 GPU board assembly

Follow instructions in this section to install the SXM5 GPU board assembly. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.
- Hold the long sides of the SXM5 GPU board assembly with two hands while removing the new SXM5 GPU board assembly from the package box.
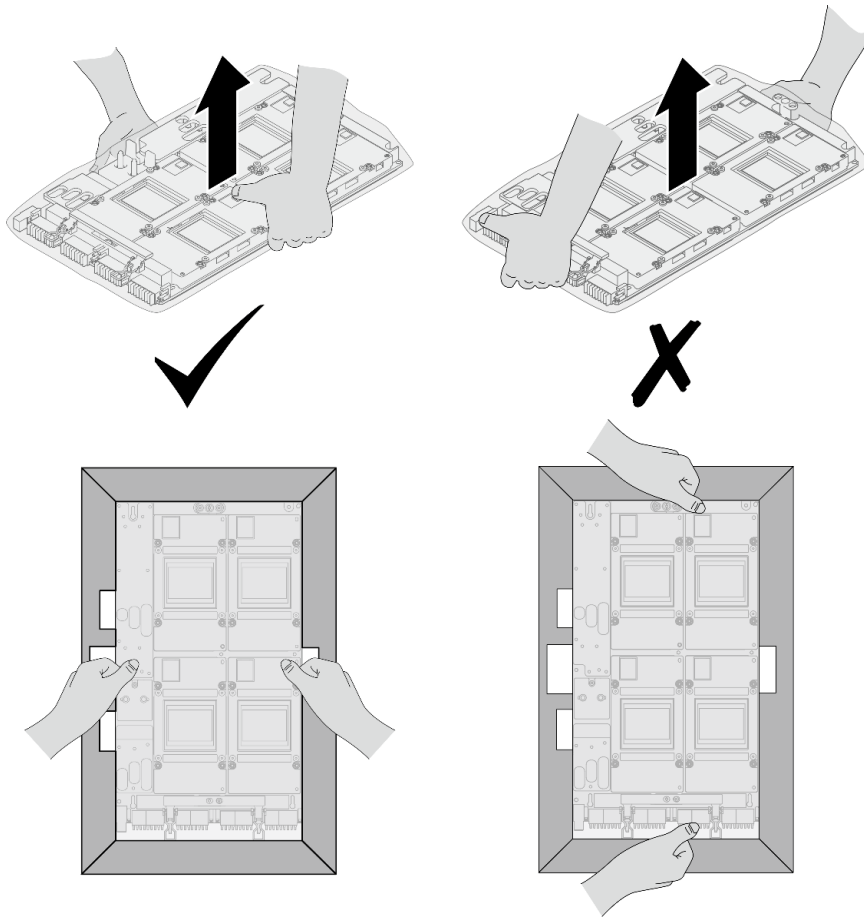
Figure 293. Removing SXM5 GPU board assembly from the package box

- Once the SXM5 GPU board assembly is removed from the plastic protective bag, hold two handles with both hands to move the SXM5 GPU board assembly.
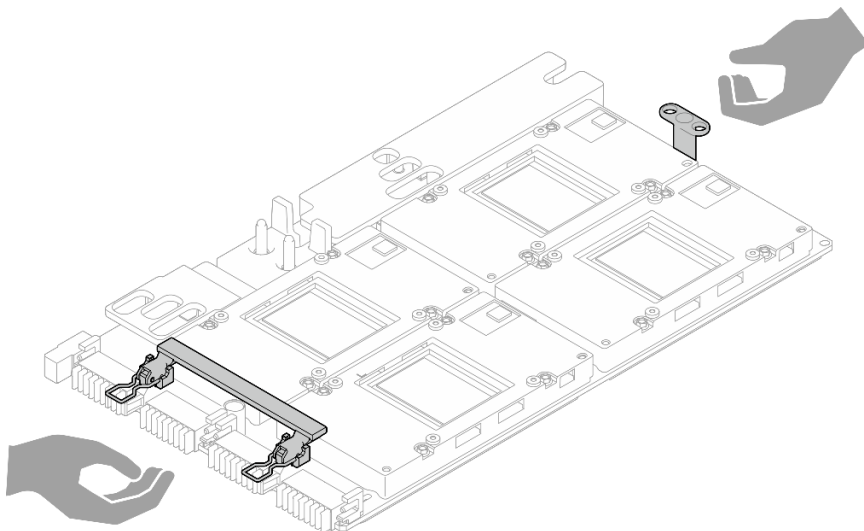
Figure 294. Removing SXM5 GPU board assembly from the package box

Notes: Make sure you have the required tools listed below available to properly replace the component:

- Phillips #1 head screwdriver
- Torx T15 head screwdriver
- Alcohol cleaning pad
- SR675 V3 water loop service kit

Procedure

Step 1. Hold the SXM5 GPU board assembly handles and align the SXM5 GPU board assembly with the two guide pins on the GPU tray; then, gently place the SXM5 GPU board assembly into the GPU tray.
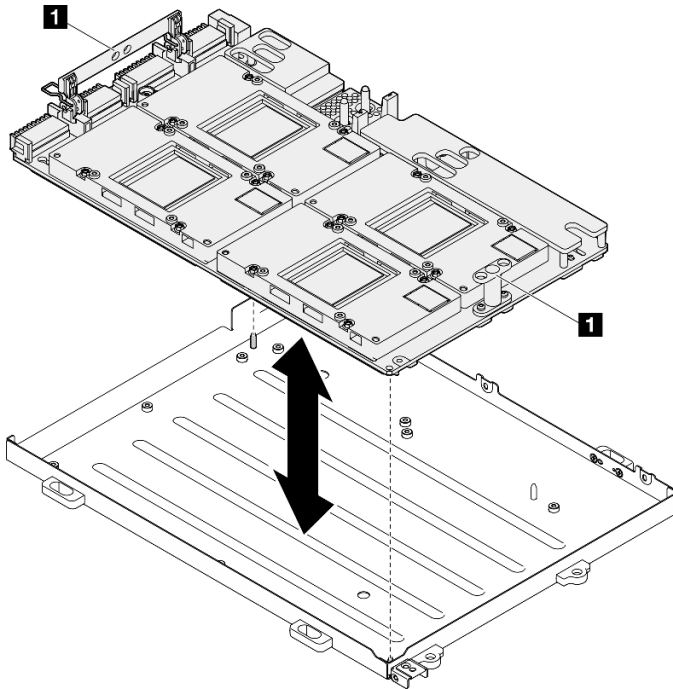
Figure 295. SXM5 GPU board assembly installation

1 SXM5 GPU board assembly handle

Step 2. Install the seven Phillips #1 screws (M3 x 6 mm) on the SXM5 GPU board assembly.
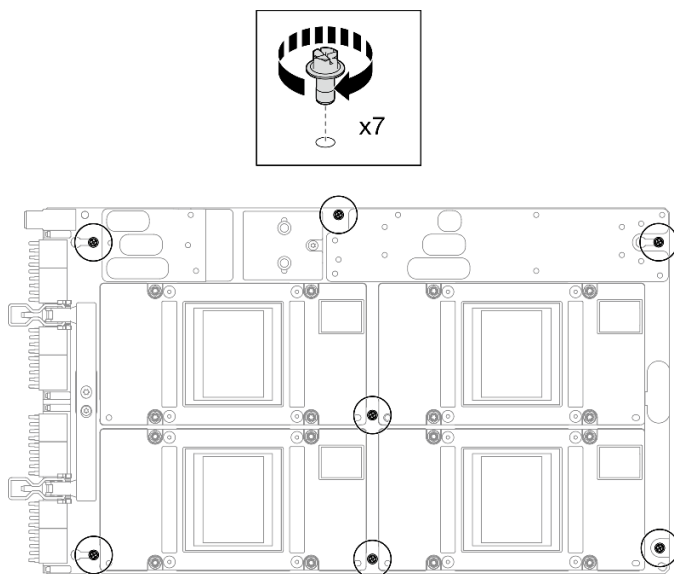
Figure 296. Phillips #1 screw installation

Step 3.   Install the two T15 screws on the SXM5 GPU board assembly.
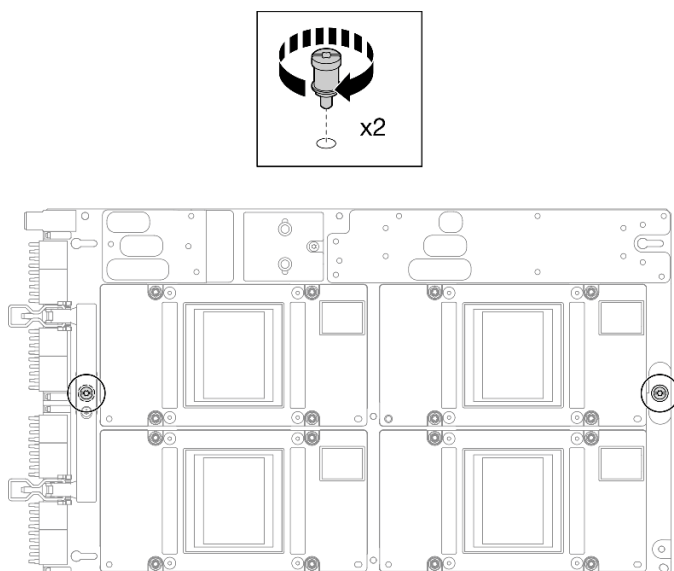
Figure 297. T15 screw installation

After you finish

1. Reinstall the Lenovo Neptune™ liquid-to-air (L2A) hybrid cooling module. See "Install the Lenovo Neptune(TM) liquid-to-air (L2A) hybrid cooling module" on page 301.

2. Reinstall the interposer card. See "Install the interposer card" on page 284.

3. Depending on the configuration, reinstall the front I/O expansion board carrier or the front I/O expansion board module. See "Install the front I/O expansion board carrier" on page 276 or "Install the front I/O expansion board module" on page 270.

4. Reinstall the front drive tray. See "Install the front drive tray" on page 264.

5. Depending on the configuration, reinstall the CX-7 assembly or the SXM5 PCIe switch board. See "Install the CX-7 assembly" on page 238 or "Install the SXM5 PCIe switch board" on page 339.

6. Depending on the configuration, reinstall the 2.5-inch drive cage or the E3.S drive cage assembly. See "Install the 2.5-inch drive cage" on page 234 or "Install the E3.S drive cage assembly" on page 257.

7. Depending on the configuration, reconnect the power and signal cables to the 2.5-inch drive backplane or the E3.S dive backplane. See "2.5-inch drive backplane cable routing" on page 393 or "E3.S drive backplane cable routing" on page 405 for more information.

8. Depending on the configuration, reinstall the 2.5-inch hot-swap drives and the drive bay fillers (if any) or E3.S hot-swap drives and the drive bay fillers (if any). See "Install a 2.5-inch hot-swap drive" on page 228 or "Install an E3.S hot-swap drive" on page 250

9. Reconnect the following cables to the system board assembly.

   • Front I/O module cables

   • Front operator panel cable

10. Depending on the configuration, reinstall the front PCIe adapter(s) or the OSFP port card. See "Install a PCIe adapter" on page 130 or "Install the OSFP port card" on page 315.

11. Equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.
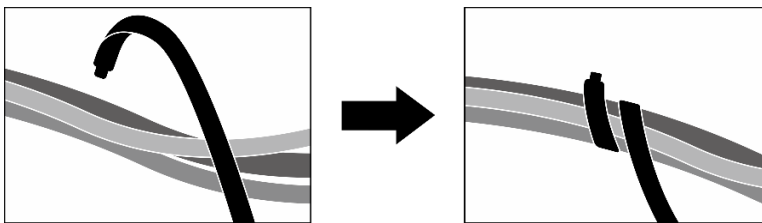
Figure 298. Securing cables with cable ties

12. Reinstall the fan cage. See "Install the fan cage" on page 91.

13. Reinstall the fans. See "Install a fan" on page 89.

14. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

SXM5 GPU power distribution board replacement (trained technician only)

Follow instructions in this section to remove and install the SXM5 GPU power distribution board.

Important: This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install the part without proper training and qualification.

Remove the SXM5 GPU power distribution board

Follow instructions in this section to remove the SXM5 GPU power distribution board. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.

- 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 the server from rack" on page 68.

Note: Make sure you have Phillips #1 head screwdriver available to properly replace the component.

Procedure

Step 1.   Remove the top cover. See "Remove the top cover" on page 179.

Step 2.   Hold the strap on the SXM5 GPU board assembly power cable, and disconnect it from the SXM5 GPU power distribution board.

Figure 299. SXM5 GPU board assembly power cable disconnection
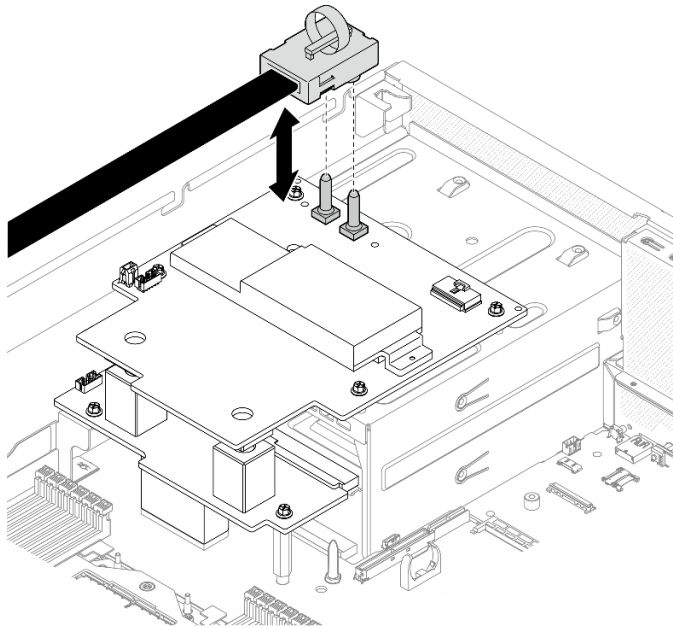
Step 3.   Disconnect the sideband cable from both power distribution boards.
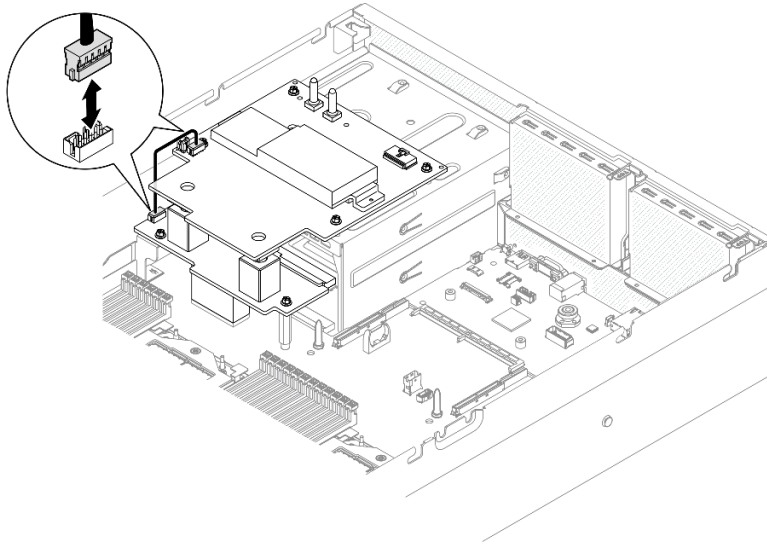
Figure 300. Sideband cable disconnection

Step 4. If applicable, slightly press and hold the cable latch; then, disconnect the CX-7 carrier board power cable from the SXM5 GPU power distribution board.
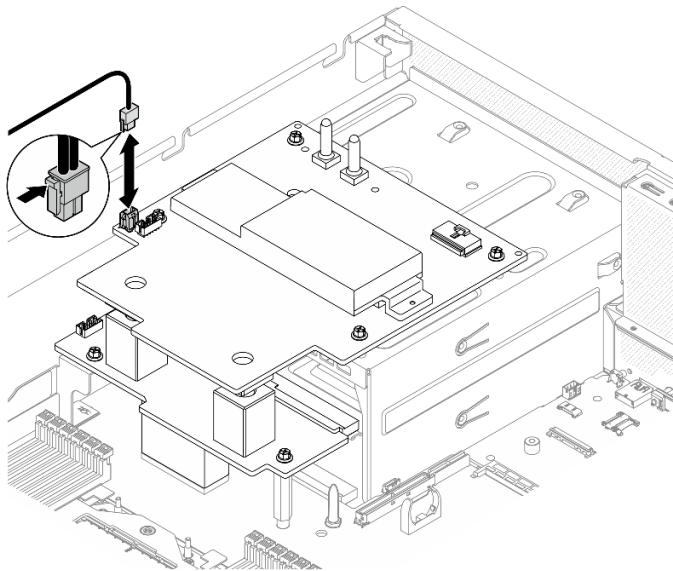
Figure 301. CX-7 carrier board power cable disconnection

Step 5. Remove the SXM5 GPU power distribution board.

a. ❶ Unfasten the four screws that secure the SXM5 GPU power distribution board to the power supply cage.

Note: Loosen or tighten the screws with a torque screwdriver set to the proper torque. For reference, the torque required for the screws to be fully loosen or tighten is 0.6±0.06 newton-meter, 5±0.5 pound-inch.

b. ❷ Lift the SXM5 GPU power distribution board out of the chassis.

Figure 302. SXM5 GPU power distribution board removal

After you finish

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.

Demo video

[Watch the procedure on YouTube](#)

Install the SXM5 GPU power distribution board

Follow instructions in this section to install the SXM5 GPU power distribution board. The procedure must be executed by a trained technician.

About this task

Attention:

- Read ["Installation Guidelines" on page 59](#) and ["Safety inspection checklist" on page 60](#) to ensure that you work safely.
- 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.

Note: Make sure you have Phillips #1 head screwdriver available to properly replace the component.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to ["Update the firmware" on page 427](#) for more information on firmware updating tools.

Procedure

Step 1. Make sure the power distribution board is installed in the chassis. See "Install the power distribution board" on page 143.

Step 2. Install the SXM5 GPU power distribution board.

    a. ❶ Align the SXM5 GPU power distribution board with guide slots in the two standoffs on the power distribution board; then, place the SXM5 GPU power distribution board on the power supply cage.

    b. ❷ Fasten the four screws to secure the SXM5 GPU power distribution board to the power supply cage.

    Note: Loosen or tighten the screws with a torque screwdriver set to the proper torque. For reference, the torque required for the screws to be fully loosen or tighten is 0.6±0.06 newton-meter, 5±0.5 pound-inch.

Figure 303. SXM5 GPU power distribution board installation
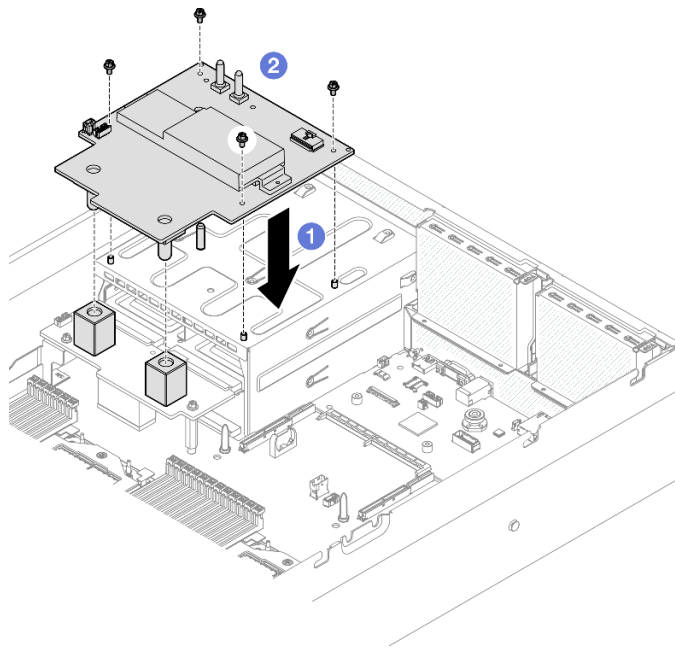
Step 3. Connect the sideband cable to the SXM5 GPU power distribution board and power distribution board.
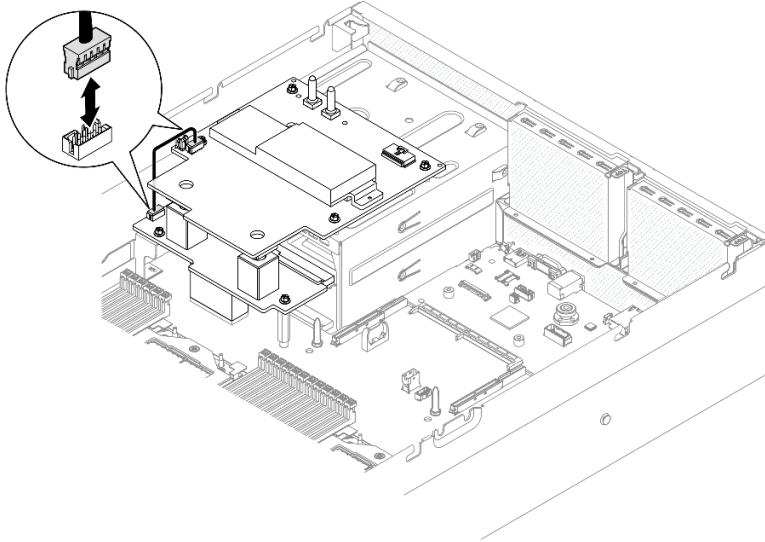
Figure 304. Sideband cable connection

Step 4. If applicable, connect the CX-7 carrier board power cable to the SXM5 GPU power distribution board..
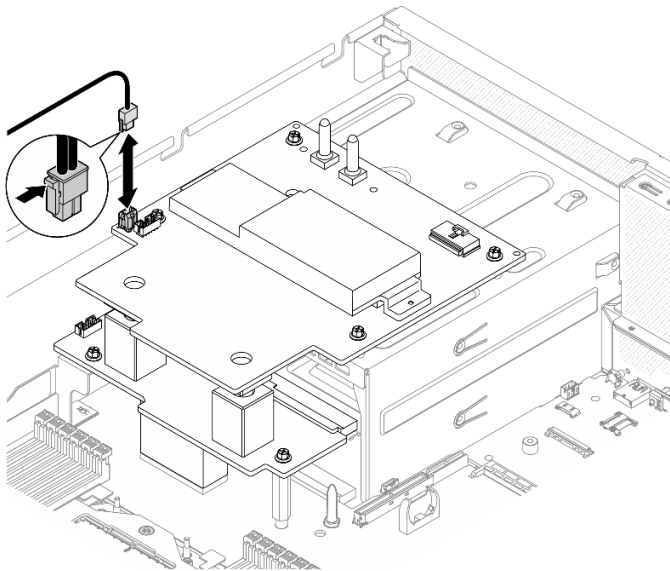
Figure 305. CX-7 carrier board power cable connection

Step 5. Connect the SXM5 GPU board assembly power cable to the SXM5 GPU power distribution board.

Figure 306. SXM5 GPU board assembly power cable connection
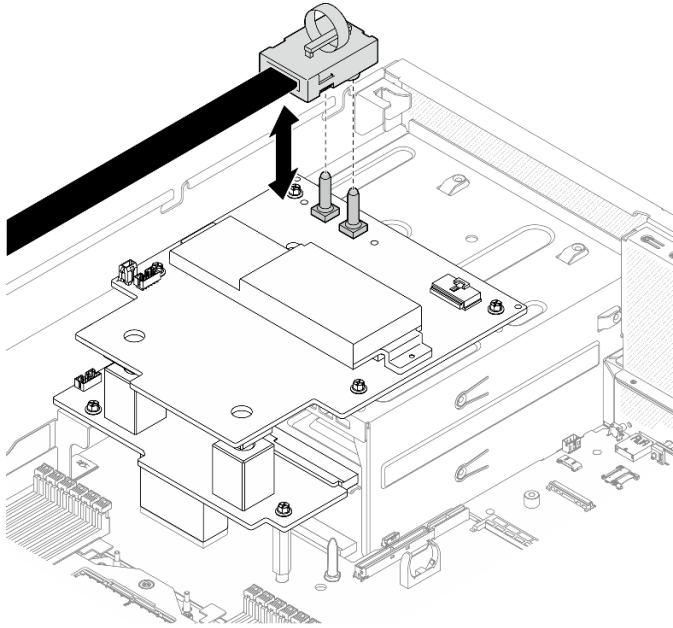
After you finish

Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

SXM5 PCIe switch board replacement (trained technician only)

Follow instructions in this section to remove or install the SXM5 PCIe switch board.

Important: This task must be operated by trained technicians that are certified by Lenovo Service. Do not attempt to remove or install the part without proper training and qualification.

Remove the SXM5 PCIe switch board

Follow instructions in this section to remove the SXM5 PCIe switch board. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 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 68.
- 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 the server from rack" on page 68.

Procedure

Step 1. Make preparation for this task.

   a.   Remove the top cover. See "Remove the top cover" on page 179.

b. Disconnect the cables that are connected to the SXM5 PCIe switch board.

Step 2. Remove the SXM5 PCIe switch board.

a. ❶ Loosen the thumbscrew that secures the SXM5 PCIe switch board to the front drive tray.

b. ❷ Rotate the SXM5 PCIe switch board handle up.

c. ❸ Press down the rubber pad on the SXM5 PCIe switch board handle so that the rubber pad is located underneath the front drive tray handle.

d. ❹ Push the SXM5 PCIe switch board handle toward the interposer card to disconnect the SXM5 PCIe switch board from the interposer card.

   Note: Make sure the two retention clips are in the slots on the interposer card before pushing the SXM5 PCIe switch board handle.

e. ❺ Release the two retention clips from the slots on the interposer card; then, rotate the SXM5 PCIe switch board handle down so that the rubber pad is facing up.

f. ❻ Slightly slide the SXM5 PCIe switch board backward; then, hold the SXM5 PCIe switch board handle and the SXM5 PCIe switch board tab, and lift the SXM5 PCIe switch board out from the chassis.
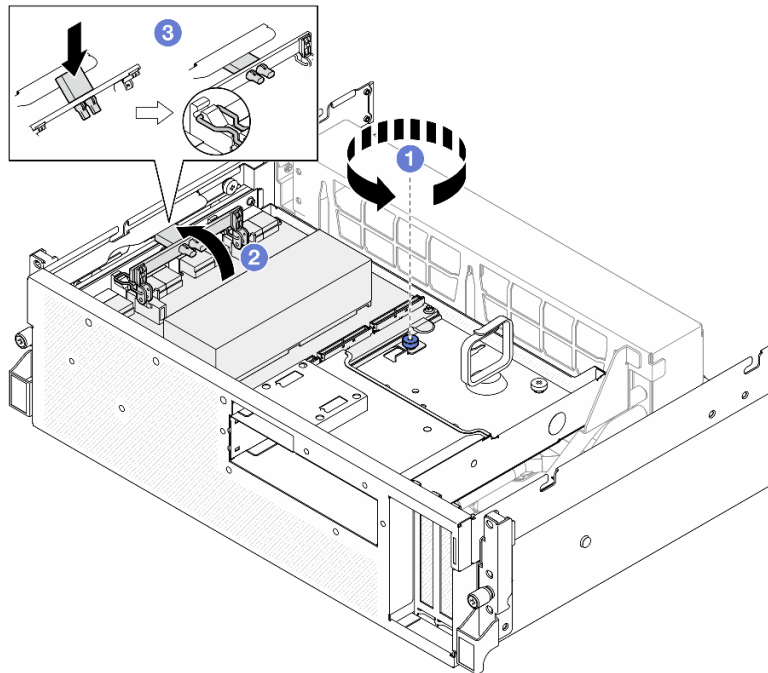
Figure 307. SXM5 PCIe switch board removal
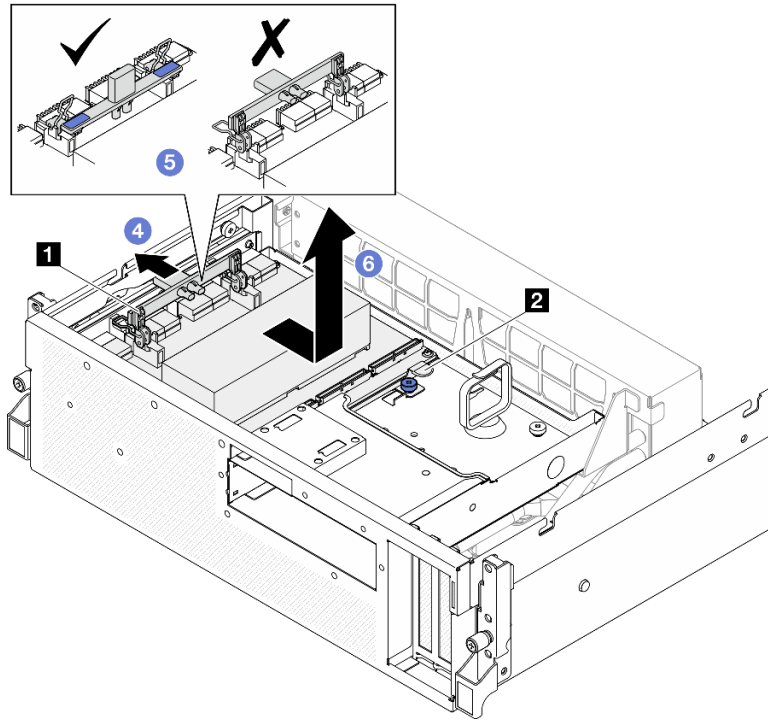
| **1** SXM5 PCIe switch board handle | **2** SXM5 PCIe switch board tab |

After you finish

1. 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.

2. If you plan to recycle the component:

   a. Remove the heat sink from the SXM5 PCIe switch board.

      1) **❶❷❸❹❺❻** Remove the six screws that secure the heat sink to the SXM5 PCIe switch board in the sequence shown in the illustration.

      2) **❼** Remove the heat sink from the SXM5 PCIe switch board.
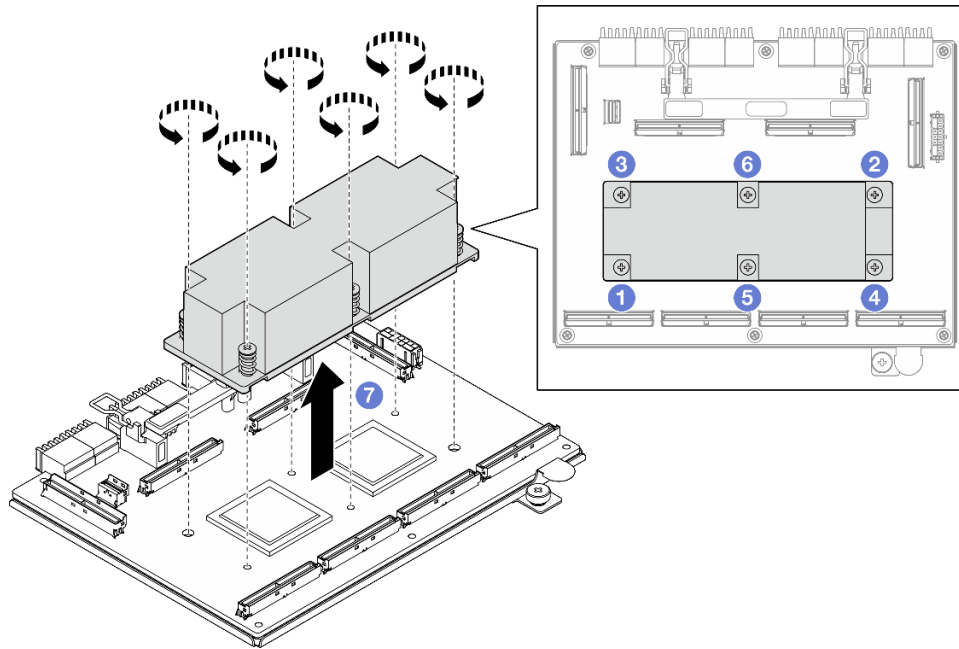
Figure 308. SXM5 PCIe switch board heat sink removal

b. Remove the six screws from the SXM5 PCIe switch board to separate it from the supporting sheet metal.
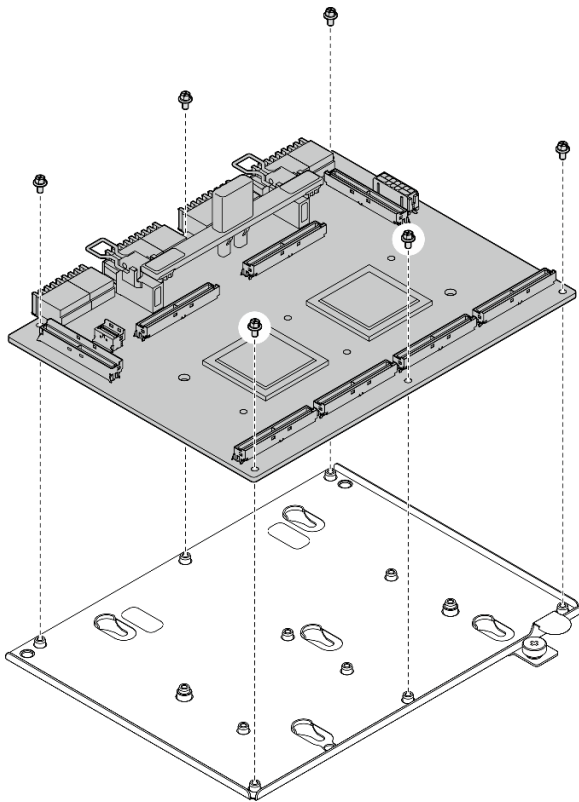
Figure 309. SXM5 PCIe switch board disassembly

c. Recycle the component in compliance with local regulations.

Demo video

Install the SXM5 PCIe switch board

Follow instructions in this section to install the SXM5 PCIe switch board. The procedure must be executed by a trained technician.

About this task

Attention:

- Read "Installation Guidelines" on page 59 and "Safety inspection checklist" on page 60 to ensure that you work safely.
- 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.

Firmware and driver download: You might need to update the firmware or driver after replacing a component.

- Go to https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/ to see the latest firmware and driver updates for your server.
- Go to "Update the firmware" on page 427 for more information on firmware updating tools.

Procedure

Step 1. ❶ Hold the SXM5 PCIe switch board handle and the SXM5 PCIe switch board tab, and align the SXM5 PCIe switch board with the five guide pins on the front drive tray; then, lower it into the front drive tray.

Step 2. ❷ Push the SXM5 PCIe switch board toward the interposer card to connect it to the interposer card.

        Note: Make sure the two retention clips on the SXM5 PCIe switch board handle are facing up before connecting the SXM5 PCIe switch board to the interposer card.

Step 3. ❸ Press down the rubber pad on the SXM5 PCIe switch board handle so that the rubber pad is located underneath the front drive tray handle.

Step 4. ❹ Insert the two retention clips on the SXM5 PCIe switch board handle into the slots on the interposer card.

Step 5. ❺ Rotate the SXM5 PCIe switch board handle down to lock the SXM5 PCIe switch board in place.

Step 6. ❻ Fasten the thumbscrew to secure the SXM5 PCIe switch board to the front drive tray.

Figure 310. SXM5 PCIe switch board installation

1 SXM5 PCIe switch board handle	**2** SXM5 PCIe switch board tab
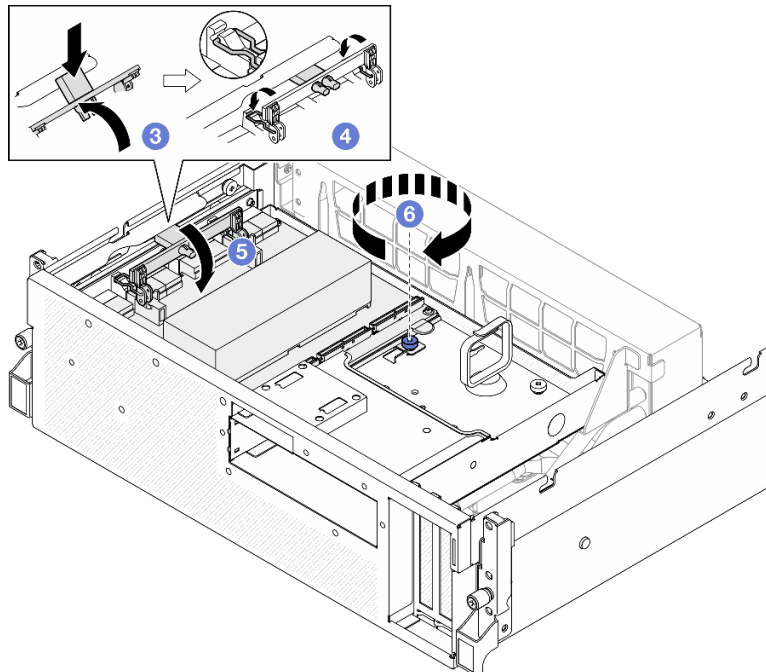
After you finish

1. Reconnect the cables to SXM5 PCIe switch board. See "SXM5 PCIe switch board cable routing" on page 421 for more information.

2. Complete the parts replacement. See "Complete the parts replacement" on page 341.

Demo video

Watch the procedure on YouTube

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 baffle. See "Install the air baffle" on page 80.

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

4. Reinstall the top cover. See "Install the top cover" on page 181.

5. If the sever was installed in a rack, reinstall the server into the rack. See "Install the server to rack" on page 71.

6. Reconnect the power cords and any cables that you removed.

7. Power on the server and any peripheral devices. See "Power on the server" on page 67.

8. 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 427.

   - Update the UEFI configuration. See https://pubs.lenovo.com/uefi-overview/.

   - Reconfigure the disk arrays if you have installed or removed a hot-swap drive or a RAID adapter. See https://pubs.lenovo.com/lxpm-overview/ for the LXPM documentation compatible with your server.

Chapter 6. Internal cable routing

See this section to do cable routing for specific components.

Note: Disengage all latches, release tabs, or locks on cable connectors when you disconnect cables from the system board assembly. Failing to release them before removing the cables will damage the cable sockets on the system board assembly, which are fragile. Any damage to the cable sockets might require replacing the system board assembly.
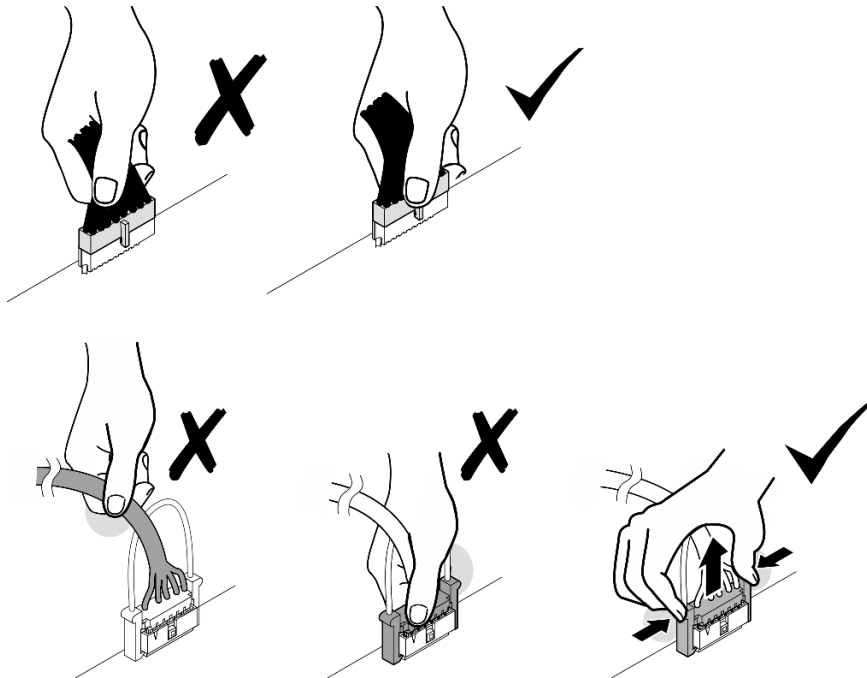
Identifying connectors

See this section to locate and identify the connectors on the electric boards.

CX-7 carrier board connectors

See this section to locate the connectors on the CX-7 carrier board.
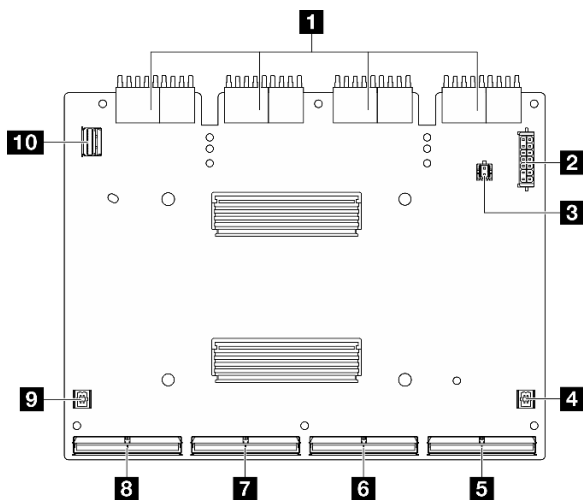
Figure 311. CX-7 carrier board connectors

1 Interposer card connectors	**6** MCIO connector B
2 Power connector 1	**7** MCIO connector C
3 Power connector 2	**8** MCIO connector D
4 P1 connector	**9** P0 connector
5 MCIO connector A	**10** GPU management connector

CX-7 mezz board connectors

See this section to locate the connectors on the CX-7 mezz board.
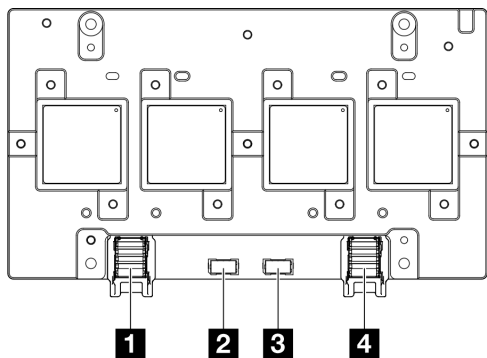
Figure 312. CX-7 mezz board connectors

1 Port 0	**3** OOB Port 1
2 OOB Port 0	**4** Port 1

Drive backplane connectors

See this section to locate the connectors on the drive backplanes.

Three types of drive backplanes are supported in this server:

The 4-DW GPU Model supports:

-

The 8-DW GPU Model supports:

-
-

The SXM5 GPU Model supports:

-
-

4x 2.5-inch NVMe backplane
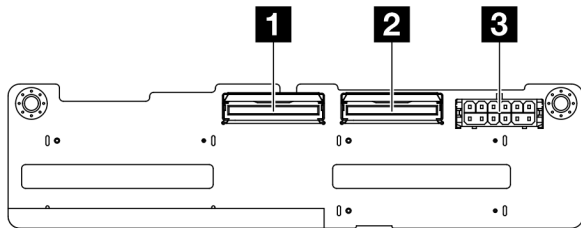
Figure 313. 4x 2.5-inch NVMe backplane connectors

1 NVMe 2-3	**3** Power connector
2 NVMe 0-1	

8x 2.5-inch SAS/SATA/NVMe backplane
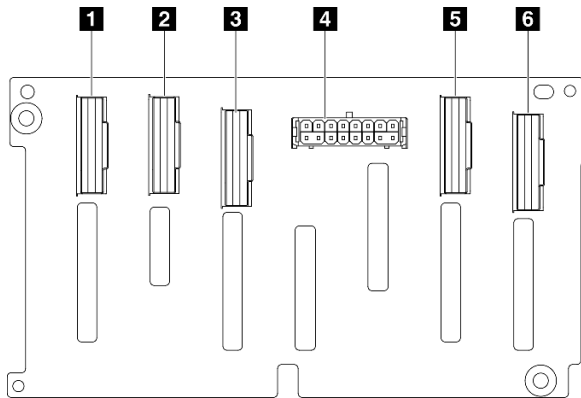
Figure 314. 8x 2.5-inch SAS/SATA/NVMe backplane connectors

1 NVMe 6-7	**4** Power connector
2 NVMe 4-5	**5** NVMe 2-3
3 SAS/SATA	**6** NVMe 0-1

6x E1.S NVMe backplane
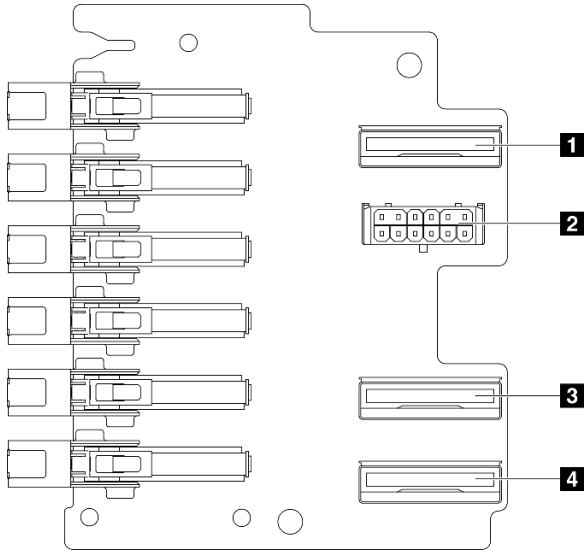
Figure 315. 6x E1.S NVMe backplane connectors

1 EDSFF 0-1	**3** EDSFF 2-3
2 Power connector	**4** EDSFF 4-5

4x E3.S NVMe backplane
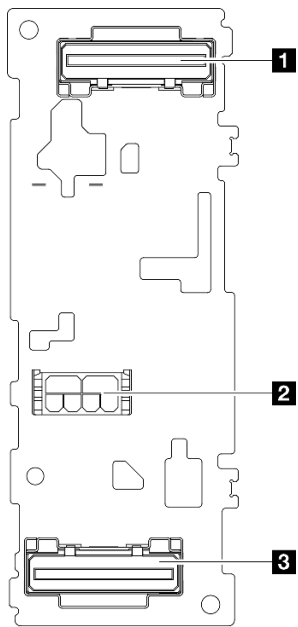
Figure 316. 4x E3.S NVMe backplane connectors

1 EDSFF 0-1	**3** EDSFF 2-3
2 Power connector	

GPU distribution board connectors

See this section to locate the connectors on the GPU distribution board.

Note: The GPU distribution board might look different from the illustration in this section.

Two types of GPU distribution board are supported in the 4-DW GPU Model and 8-DW GPU Model:

-
-

Direct GPU distribution board
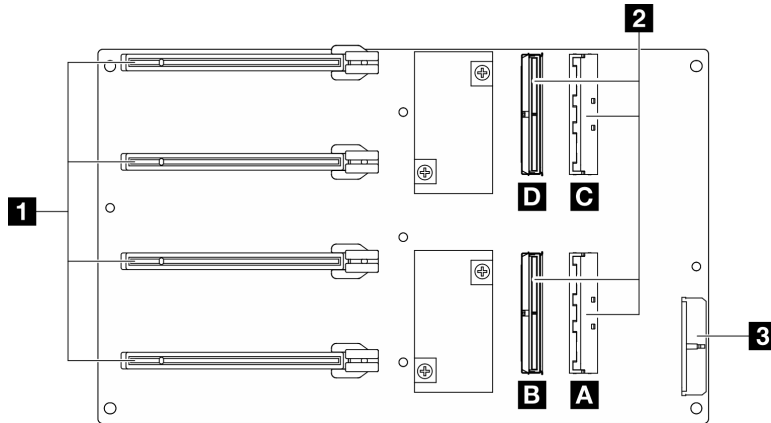
Figure 317. Direct GPU distribution board connectors

1 PCIe slots 1 to 4 for GPU adapters	**3** Power connector
2 MCIO connectors A to D	

Switched GPU distribution board
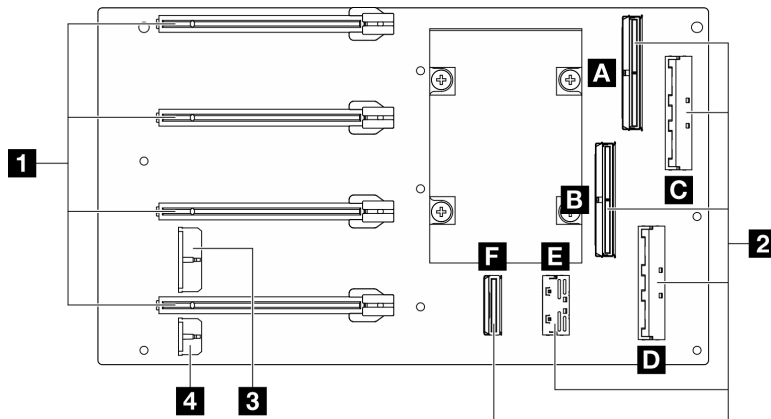
Figure 318. Switched GPU distribution board connectors

1 PCIe slots 1 to 4 for GPU adapters	**3** Power connector 1
2 MCIO connectors A to F	**4** Power connector 2

Front I/O expansion board connectors

See this section to locate the connectors on the front I/O expansion board.

Note: The front I/O expansion board might look different from the illustration in this section.
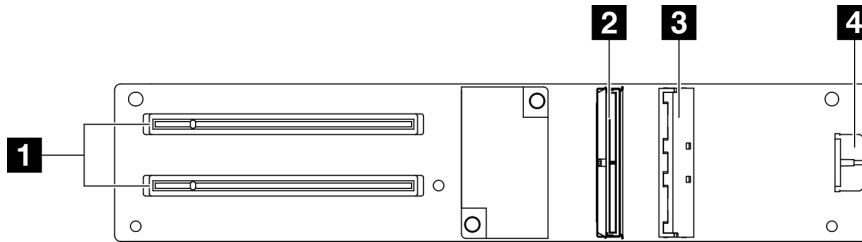
Figure 319. Front I/O expansion board connectors

1 PCIe slots 1 to 2	**3** MCIO connector A
2 MCIO connector B	**4** Power connector

Interposer card connectors

See this section to locate the connectors on the interposer card.
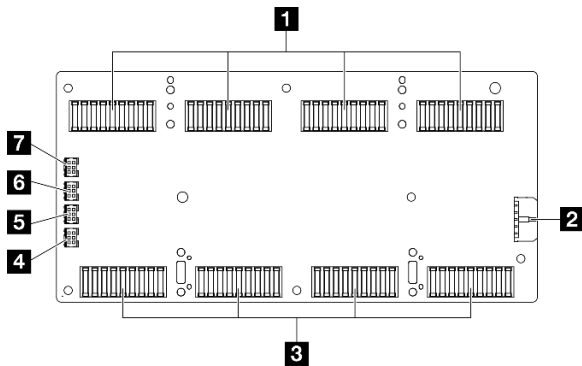
Figure 320. Interposer card connectors

1 SXM5 PCIe switch board or CX-7 carrier board connectors	**5** Cold plate assembly pump cable connector 3
2 Power connector	**6** Cold plate assembly pump cable connector 2
3 SXM5 GPU board assembly connectors	**7** Cold plate assembly pump cable connector 1
4 Cold plate assembly pump cable connector 4	

OSFP port card connectors

See this section to locate the connectors on the OSFP port card.
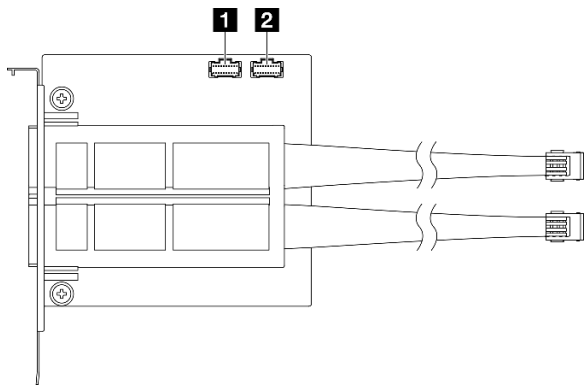
Figure 321. OSFP port card connectors

1 Power/OSFP control connector 1	**2** Power/OSFP control connector 2

PCIe riser card connectors

See this section to locate the connectors on the PCIe riser card.
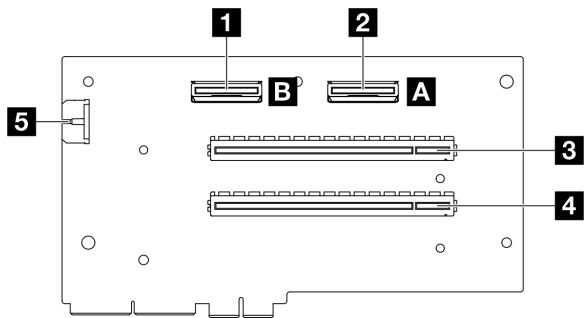
Figure 322. PCIe riser card connectors

1 MCIO connector B	**4** PCIe slot 1
2 MCIO connector A	**5** Power connector
3 PCIe slot 2	

SXM5 GPU power distribution board connectors

See this section to locate the connectors on the SXM5 GPU power distribution board.
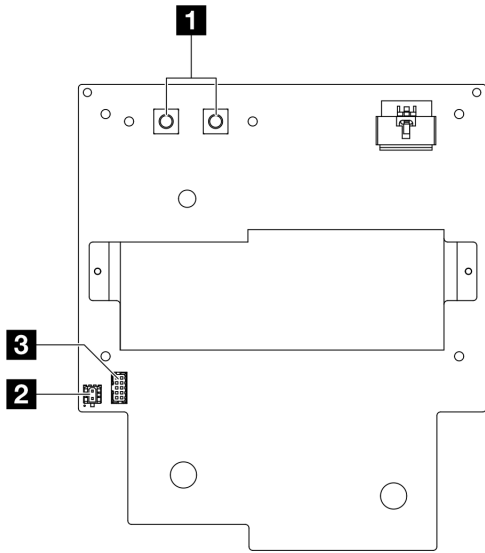
Figure 323. SXM5 GPU power distribution board connectors

1 SXM5 GPU board assembly power connector	**3** Sideband connector
2 Riser power connector	

SXM5 PCIe switch board connectors

See this section to locate the connectors on the SXM5 PCIe switch board.
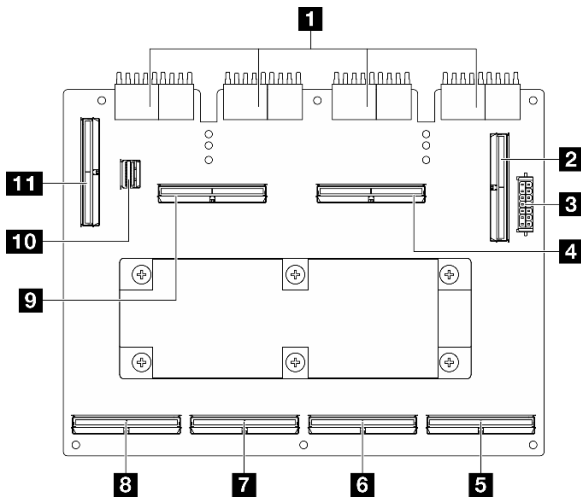
Figure 324. SXM5 PCIe switch board connectors

1 Interposer card connectors	**7** MCIO connector C
2 MCIO connector E	**8** MCIO connector D
3 Power connector	**9** MCIO connector G
4 MCIO connector F	**10** GPU management connector

5 MCIO connector A	**11** MCIO connector H
6 MCIO connector B	

System-board-assembly connectors for cable routing

The following illustrations show the internal connectors on the system board assembly that are used for internal cable routing.
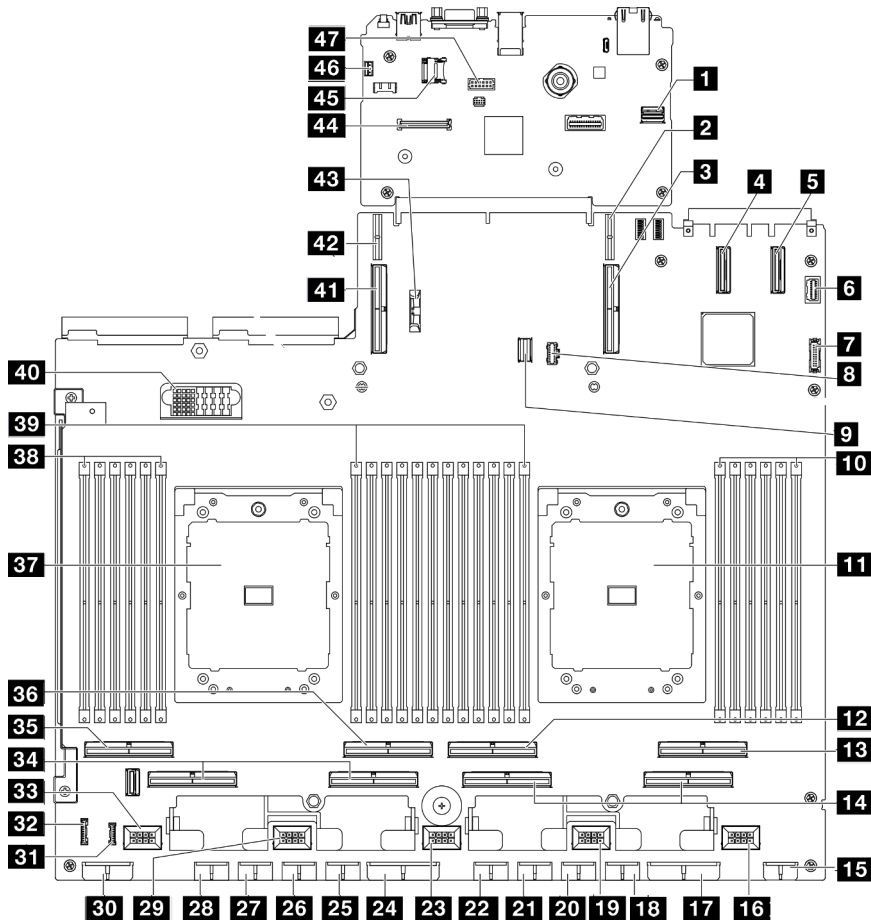
Figure 325. System-board-assembly connectors

Table 27. System-board-assembly connectors

1 Front SXM5 GPU management PCIe connector	**25** GPU 5 power connector
2 PCIe riser 1 power connector	**26** GPU 6 power connector
3 PCIe connector 9 / PCIe riser 1 connector	**27** GPU 7 power connector
4 PCIe connector 12	**28** GPU 8 power connector
5 PCIe connector 11	**29** Fan 4 connector
6 Front VGA connector	**30** Backplane power connector
7 Front USB connector	**31** LCD connector
8 M.2 power connector	**32** Front operator panel connector

Table 27. System-board-assembly connectors (continued)

9 M.2 signal connector	**33** Fan 5 connector
10 Memory module slot 1-6 (right to left)	**34** PCIe connector 5, 7 (right to left)
11 Processor 1	**35** PCIe 8 connector
12 PCIe connector 4	**36** PCIe 6 connector
13 PCIe connector 2	**37** Processor 2
14 PCIe connector 1, 3 (right to left)	**38** Memory module slot 19-24 (right to left)
15 Front riser power connector	**39** Memory module slot 7-18 (right to left)
16 Fan 1 connector	**40** Power distribution board connector
17 PCIe distribution board power connector	**41** PCIe connector 10 / PCIe riser 2 connector
18 GPU 1 power connector	**42** PCIe riser 2 power connector
19 Fan 2 connector	**43** 3V battery (CR2032)
20 GPU 2 power connector	**44** Firmware and RoT security module connector
21 GPU 3 power connector	**45** MicroSD socket
22 GPU 4 power connector	**46** Intrusion switch connector
23 Fan 3 connector	**47** Serial port connector
24 PCIe distribution board power connector	

4-DW GPU Model cable routing

Use the section to understand the cable routing for the 4-DW GPU Model.

Notes:

1. Go through the following sections in "Identifying connectors" on page 343 to acquire necessary information before starting cable routing.

2. Make sure to remove the top of the cross bar before routing the cables.

3. Make sure to route the cables through cable guide and cable clip as instructed in the cable routing guides. See the illustration below for the cable guide and cable clip locations.
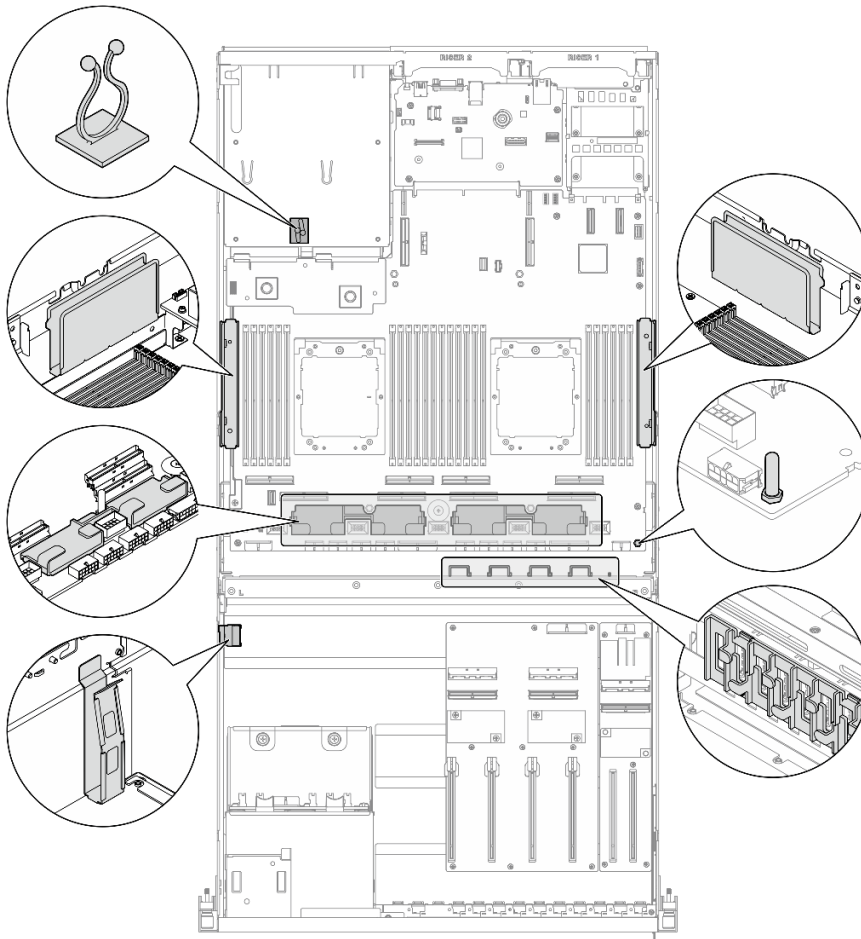
Figure 326. Cable guide and cable clip locations in the chassis

- "2.5-inch drive backplane cable routing" on page 353
- "DPU adapter power cable routing" on page 357
- "Front I/O expansion board cable routing" on page 358
- "GPU adapter power cable routing" on page 360
- "GPU distribution board cable routing" on page 362
- "M.2 backplane cable routing" on page 363
- "OCP module cable routing" on page 365
- "PCIe riser 1 cable routing" on page 367

2.5-inch drive backplane cable routing

Use the section to understand the cable routing for the 2.5-inch drive backplane.

Based on the configuration, select the corresponding routing plan:

- "Direct GPU distribution board configuration" on page 354
- "Switched GPU distribution board configuration" on page 355

Direct GPU distribution board configuration

Use the section to understand the 2.5-inch drive backplane cable routing for the server configuration with direct GPU distribution board.

Choose the routing plan depending on if the RAID/HBA adapter is installed in the system or not.

-
-

Without RAID/HBA adapter

Note: This configuration supports eight U.2/U.3 drives.
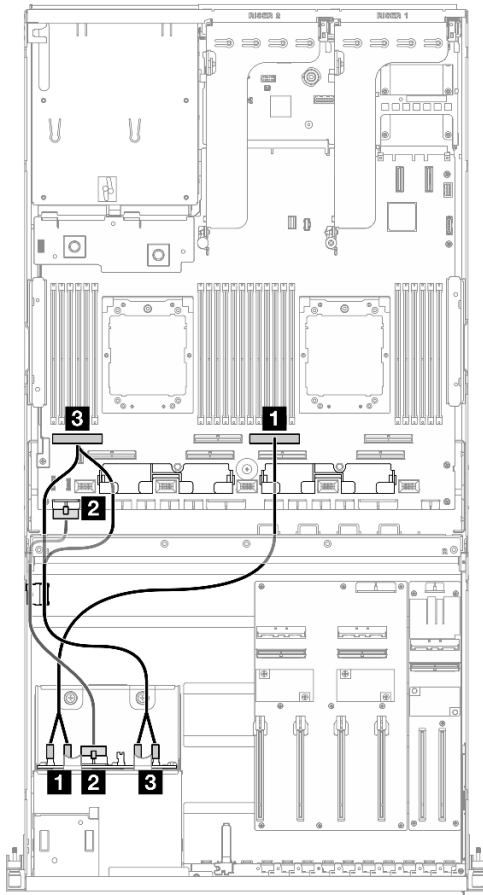
Figure 327. 2.5-inch drive backplane cable routing

Cable	From	To
1	Backplane: NVMe 0-1 and NVMe 2-3	System board assembly: PCIe connector 4
2	Backplane: Power connector	System board assembly: Backplane power connector
3	Backplane: NVMe 4-5 and NVMe 6-7	System board assembly: PCIe connector 8

With RAID/HBA adapter

Note: This configuration supports eight SAS/SATA/NVMe drives.
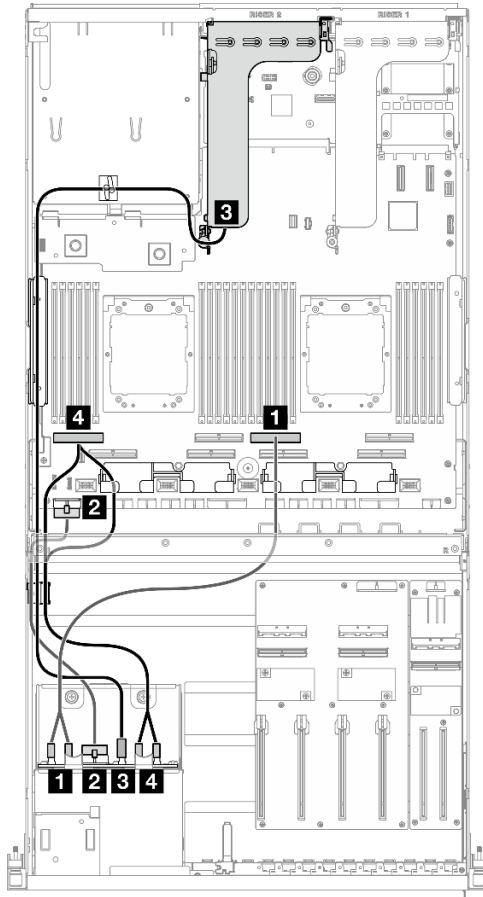
Figure 328. 2.5-inch drive backplane cable routing

Cable	From	To
1	Backplane: NVMe 0-1 and NVMe 2-3	System board assembly: PCIe connector 4
2	Backplane: Power connector	System board assembly: Backplane power connector
3	Backplane: SAS/SATA	8i RAID/HBA adapter installed on the PCIe riser 2: • Gen4 8i RAID/HBA adapter: C0 • Gen3 8i RAID/HBA adapter: C0, C1
4	Backplane: NVMe 4-5 and NVMe 6-7	System board assembly: PCIe connector 8

Switched GPU distribution board configuration

Use the section to understand the 2.5-inch drive backplane cable routing for the server configuration with switched GPU distribution board.

Choose the routing plan according to the type of the storage controller installed in the system.

- "RAID adapter (Tri-mode)" on page 355
- "RAID/HBA adapter" on page 356

RAID adapter (Tri-mode)

Note: This configuration supports eight SAS/SATA/U.3 drives.
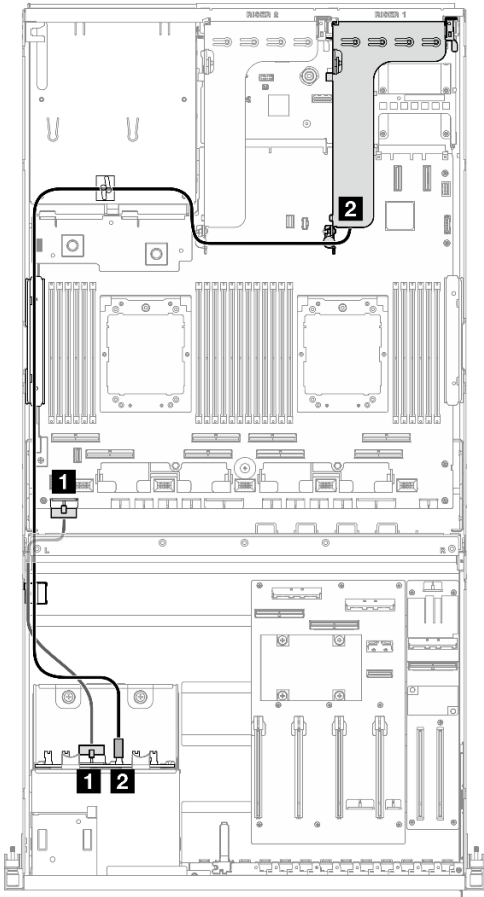
Figure 329. 2.5-inch drive backplane cable routing

Cable	From	To
1	Backplane: Power connector	System board assembly: Backplane power connector
2	Backplane: SAS/SATA	8i RAID adapter installed on the PCIe riser 1: C0

RAID/HBA adapter

Note: This configuration supports eight SAS/SATA drives or four NVMe drives.
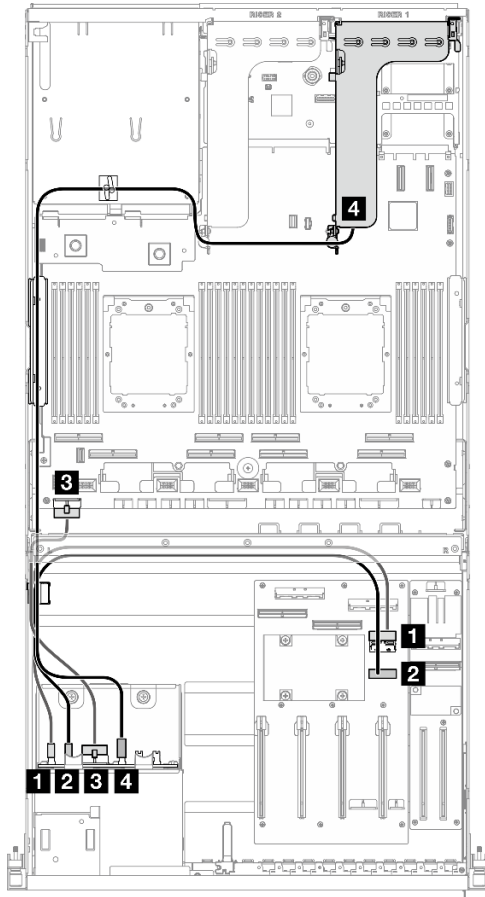
Figure 330. 2.5-inch drive backplane cable routing

Cable	From	To
1	Backplane: NVMe 0-1	GPU distribution board: MCIO connector E
2	Backplane: NVMe 2-3	GPU distribution board: MCIO connector F
3	Backplane: Power connector	System board assembly: Backplane power connector
4	Backplane: SAS/SATA	8i RAID/HBA adapter installed on the PCIe riser 1: • Gen4 8i RAID/HBA adapter: C0 • Gen3 8i RAID/HBA adapter: C0, C1

DPU adapter power cable routing

Use the section to understand the power cable routing for the DPU adapter.
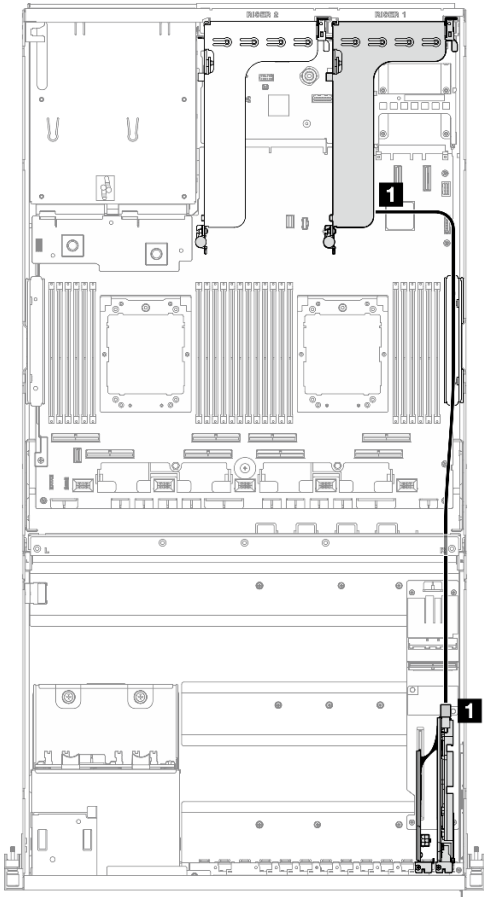
Figure 331. DPU adapter power cable routing

Cable	From	To
1	DPU adapter: Power connector	PCIe riser 1: Power connector

Front I/O expansion board cable routing

Use the section to understand the cable routing for the front I/O expansion board.

Based on the configuration, select the corresponding routing plan:

- "Direct GPU distribution board configuration" on page 359
- "Switched GPU distribution board configuration" on page 360

Direct GPU distribution board configuration
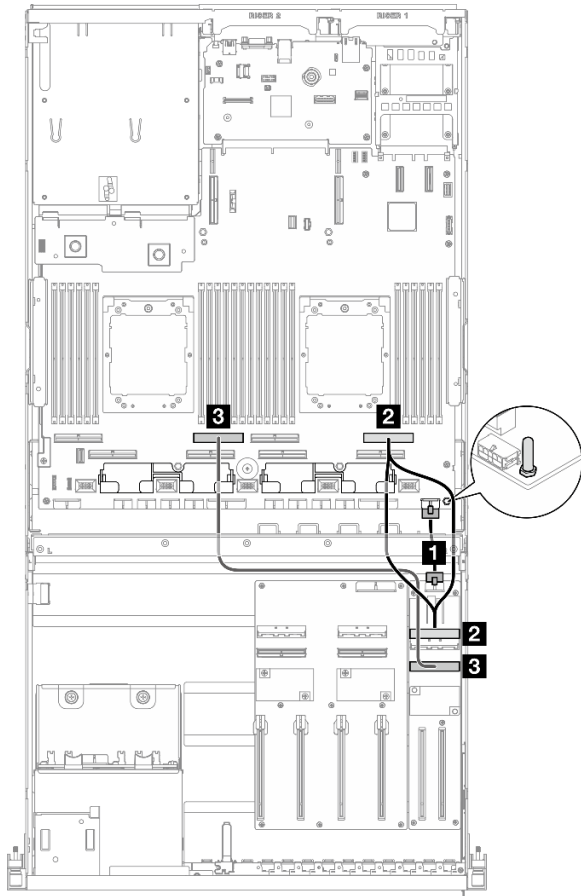
Figure 332. Front I/O expansion board cable routing

Cable	From	To
1	Front I/O expansion board: Power connector	System board assembly: Front riser power connector
2	Front I/O expansion board: MCIO connector A	System board assembly: PCIe connector 2
3	Front I/O expansion board: MCIO connector B	System board assembly: PCIe connector 6

Switched GPU distribution board configuration
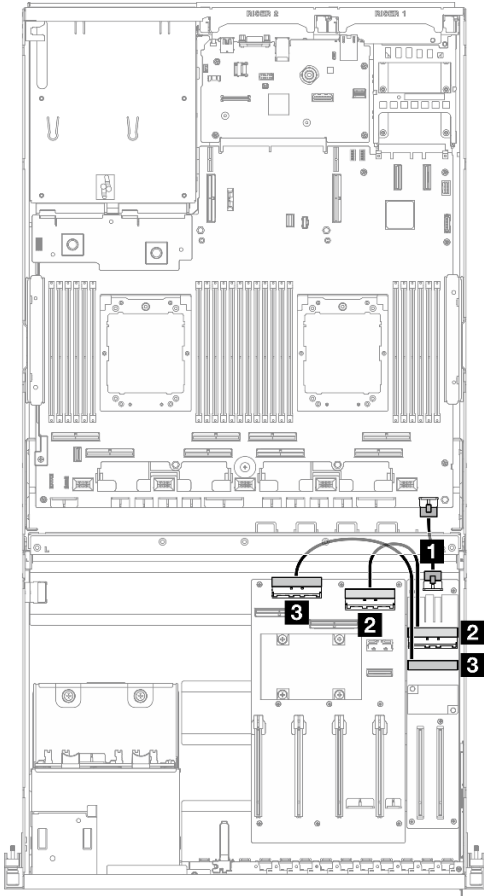
Figure 333. Cable routing for the front I/O expansion board

Cable	From	To
1	Front I/O expansion board: Power connector	System board assembly: Front riser power connector
2	Front I/O expansion board: MCIO connector A	GPU distribution board: MCIO connector D
3	Front I/O expansion board: MCIO connector B	GPU distribution board: MCIO connector C

GPU adapter power cable routing

Use the section to understand the power cable routing for the GPU adapters.

Note: Make sure to route the GPU power cable through the cable guide that is located behind the cross bar.
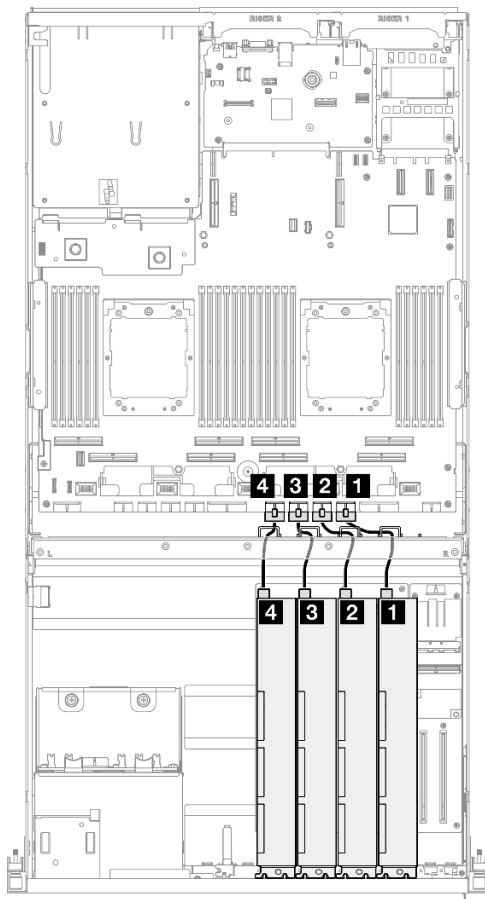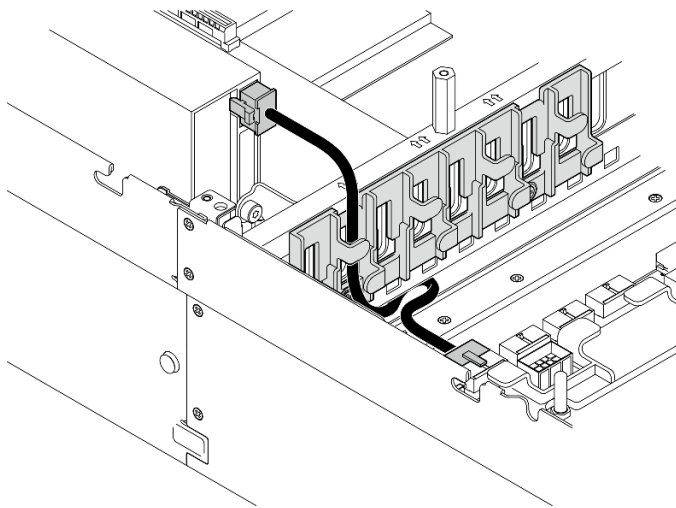
Figure 334. GPU adapter power cable routing

Cable	From	To
1	GPU adapter 1: Power connector	System board assembly: GPU 1 power connector
2	GPU adapter 2: Power connector	System board assembly: GPU 2 power connector

Cable	From	To
3	GPU adapter 3: Power connector	System board assembly: GPU 3 power connector
4	GPU adapter 4: Power connector	System board assembly: GPU 4 power connector

GPU distribution board cable routing

Use the section to understand the cable routing for the GPU distribution board.

Based on the configuration, select the corresponding routing plan:

- "Direct GPU distribution board configuration" on page 362
- "Switched GPU distribution board configuration" on page 363

Direct GPU distribution board configuration

Figure 335. Direct GPU distribution board cable routing

Cable	From	To
1	GPU distribution board: Power connector	System board assembly: PCIe distribution board connector
2	GPU distribution board: MCIO connector A	System board assembly: PCIe connector 1
3	GPU distribution board: MCIO connector B	System board assembly: PCIe connector 3

Cable	From	To
4	GPU distribution board: MCIO connector C	System board assembly: PCIe connector 5
5	GPU distribution board: MCIO connector D	System board assembly: PCIe connector 7

Switched GPU distribution board configuration
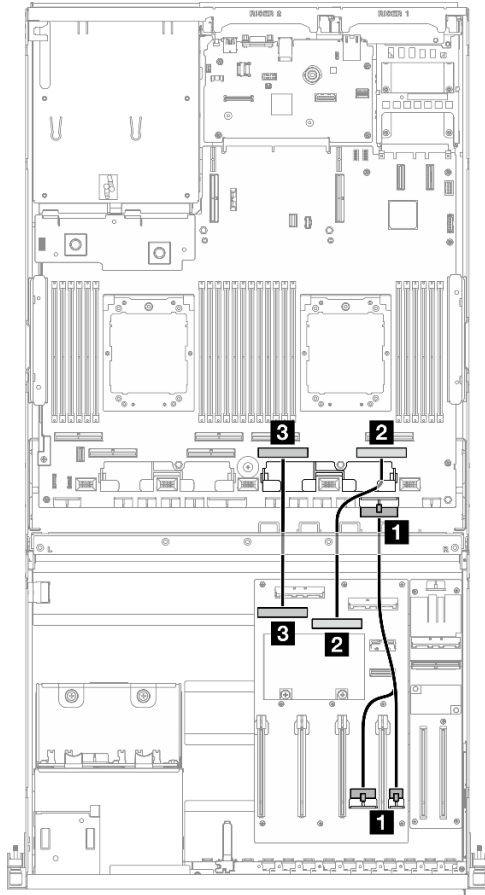
Figure 336. Switched GPU distribution board cable routing

Cable	From	To
1	GPU distribution board: Power connectors 1 and 2	System board assembly: PCIe distribution board connector
2	GPU distribution board: MCIO connector B	System board assembly: PCIe connector 1
3	GPU distribution board: MCIO connector A	System board assembly: PCIe connector 3

M.2 backplane cable routing

Use the section to understand the cable routing for the M.2 backplane.

Based on the configuration, select the corresponding routing plan:

- "M.2 backplane" on page 364
- "M.2 backplane with RAID adapter" on page 364

M.2 backplane

Based on the type of the M.2 backplane, select the corresponding routing path from the following table.

SATA/x4 NVMe M.2 backplane   **SATA/NVMe or NVMe RAID M.2 backplane**

Figure 337. SATA/x4 NVMe M.2 backplane cable routing
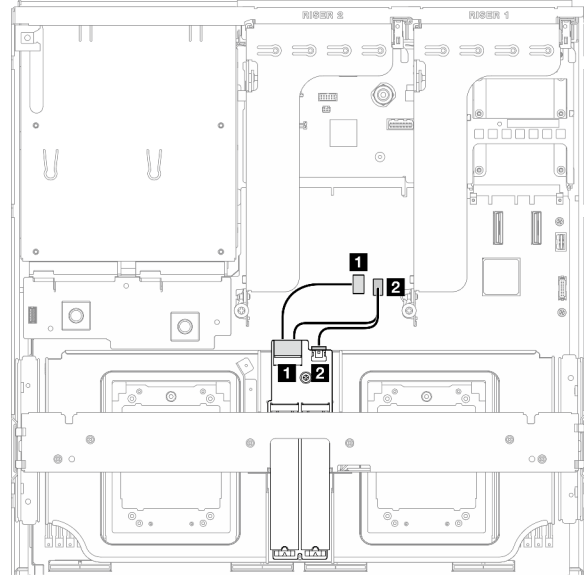
Figure 338. SATA/NVMe or NVMe RAID M.2 backplane cable routing

Cable	From	To
1	M.2 backplane: Signal connector	System board assembly: M.2 signal connector
2	M.2 backplane: Power connector	System board assembly: M.2 power connector

M.2 backplane with RAID adapter

Based on the location of the RAID adapter, select the corresponding routing path from the following table.

RAID adapter on the PCIe riser 2   **RAID adapter on the PCIe riser 1**

Figure 339. SATA/x4 NVMe M.2 backplane cable routing (RAID adapter on the PCIe riser 2)
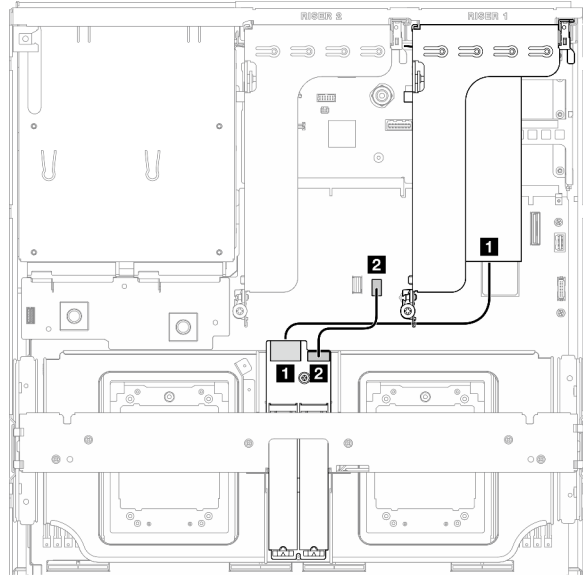
Figure 340. SATA/x4 NVMe M.2 backplane cable routing (RAID adapter on the PCIe riser 1)

Cable	From	To
1	M.2 backplane: Signal connector	RAID adapter installed on the PCIe riser 1 or 2
2	M.2 backplane: Power connector	System board assembly: M.2 power connector

OCP module cable routing

Use the section to understand the cable routing for the OCP module.

Based on the configuration, select the corresponding routing plan:

-
-

Direct GPU distribution board configuration

Figure 341. OCP module cable routing

Cable	From	To
1	System board assembly: PCIe connectors 11 and 12	System board assembly: PCIe connector 9

Switched GPU distribution board configuration
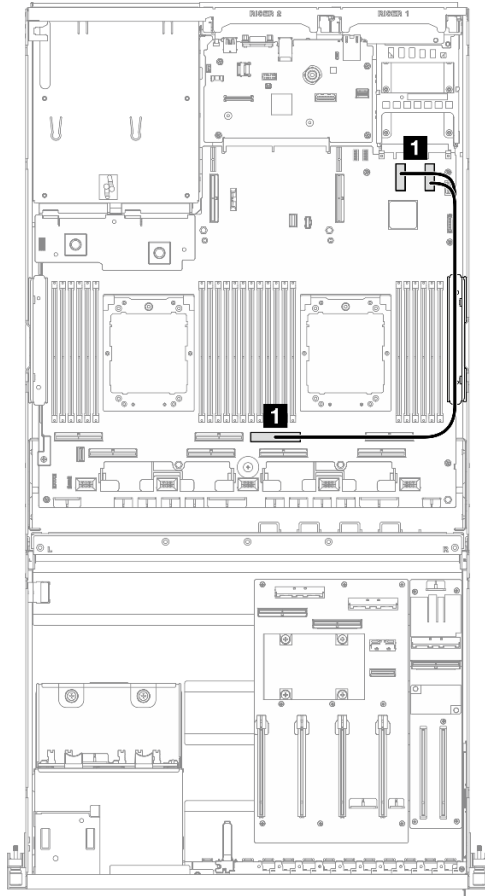
Figure 342. OCP module cable routing

Cable	From	To
1	System board assembly: PCIe connectors 11 and 12	System board assembly: PCIe connector 4

PCIe riser 1 cable routing

Use the section to understand the cable routing for the PCIe riser 1.
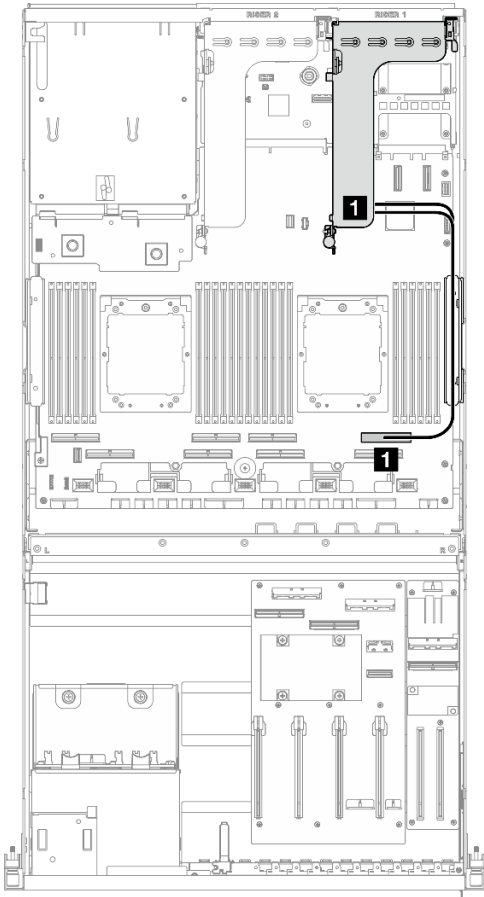
Figure 343. PCIe riser 1 cable routing

Cable	From	To
1	PCIe riser 1: MCIO connectors A and B	System board assembly: PCIe connector 2

8-DW GPU Model cable routing

Use the section to understand the cable routing for the 8-DW GPU Model.

Notes:

1. Go through the following sections in "Identifying connectors" on page 343 to acquire necessary information before starting cable routing.

2. Make sure to remove the top of the cross bar before routing the cables.

3. Make sure to route the cables through cable guide and cable clip as instructed in the cable routing guides. See the illustration below for the cable guide and cable clip locations.
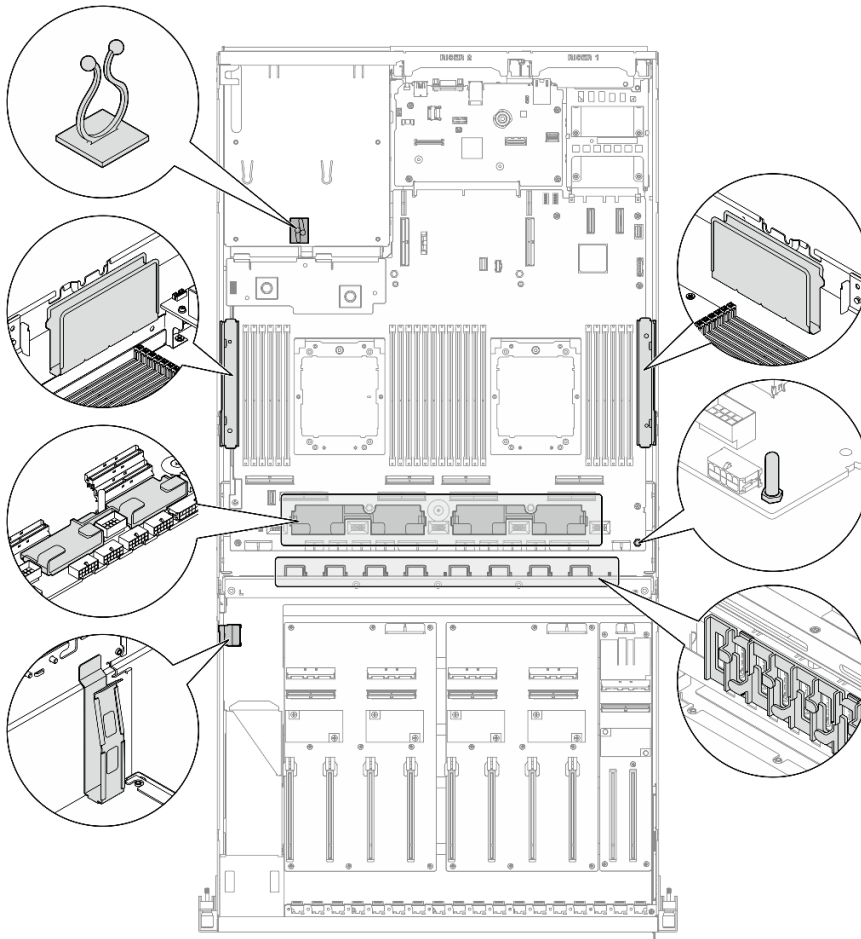
Figure 344. Cable guide and cable clip locations in the chassis

- "DPU adapter power cable routing" on page 369
- "E1.S drive backplane cable routing" on page 371
- "E3.S drive backplane cable routing" on page 373
- "Front I/O expansion board cable routing" on page 375
- "GPU adapter power cable routing" on page 379
- "GPU distribution board cable routing" on page 381
- "M.2 backplane cable routing" on page 363
- "OCP module cable routing" on page 384
- "PCIe riser 1 cable routing" on page 388
- "PCIe riser 2 cable routing" on page 389

DPU adapter power cable routing

Use the section to understand the power cable routing for the DPU adapter.

Based on the location of the DPU adapter, select the corresponding routing plan:

- "On the front I/O expansion board" on page 370
- "On the PCIe riser 1" on page 371

On the front I/O expansion board
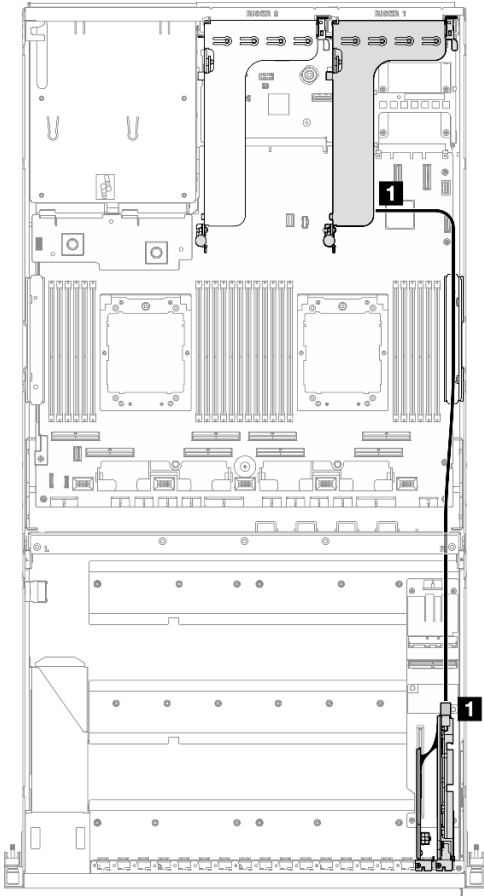
Figure 345. DPU adapter power cable routing

Cable	From	To
1	DPU adapter: Power connector	PCIe riser 1: Power connector

On the PCIe riser 1
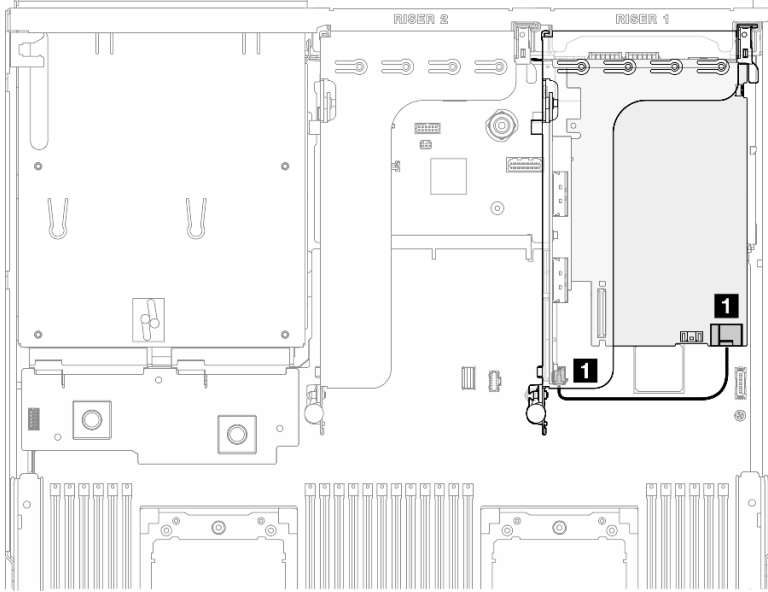
Figure 346. Power cable routing for the DPU adapter

Cable	From	To
1	DPU adapter: Power connector	PCIe riser 1: Power connector

E1.S drive backplane cable routing

Use the section to understand the cable routing for the E1.S drive backplane.

Based on the configuration, select the corresponding routing plan:

- "Direct GPU distribution board configuration" on page 372
- "Switched GPU distribution board configuration" on page 373

Direct GPU distribution board configuration

Figure 347. E1.S drive backplane cable routing

Cable	From	To
1	Backplane: EDSFF 0-1 and EDSFF 2-3	System board assembly: PCIe connector 4
2	Backplane: Power connector	System board assembly: Backplane power connector
3	Backplane: EDSFF 4-5	System board assembly: PCIe connector 8
	PCIe riser 2: MCIO connector A	

Switched GPU distribution board configuration

Figure 348. E1.S drive backplane cable routing

Cable	From	To
1	Backplane: EDSFF 0-1	GPU distribution board (right side): MCIO connector E
2	Backplane: Power connector	System board assembly: Backplane power connector
3	Backplane: EDSFF 2-3	GPU distribution board (right side): MCIO connector F
4	Backplane: EDSFF 4-5	GPU distribution board (left side): MCIO connector E

E3.S drive backplane cable routing

Use the section to understand the cable routing for the E3.S drive backplane.

Based on the configuration, select the corresponding routing plan:

- "Direct GPU distribution board configuration" on page 374
- "Switched GPU distribution board configuration" on page 375
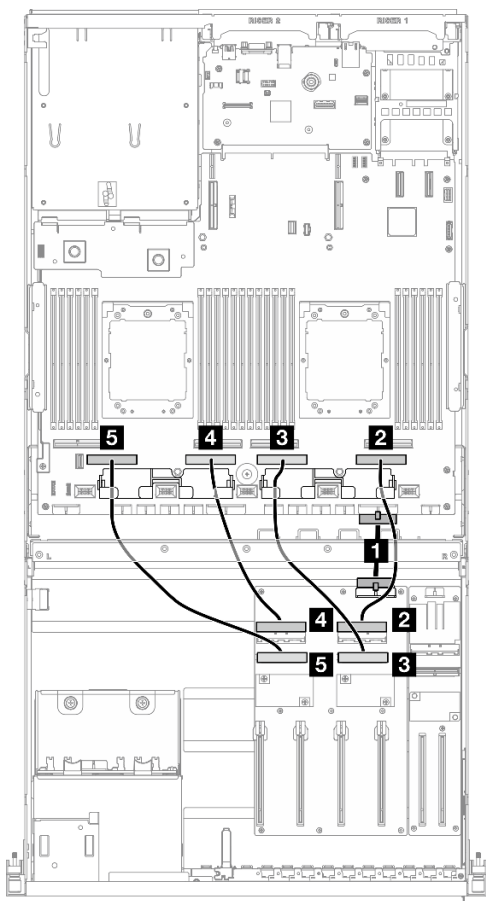
Direct GPU distribution board configuration
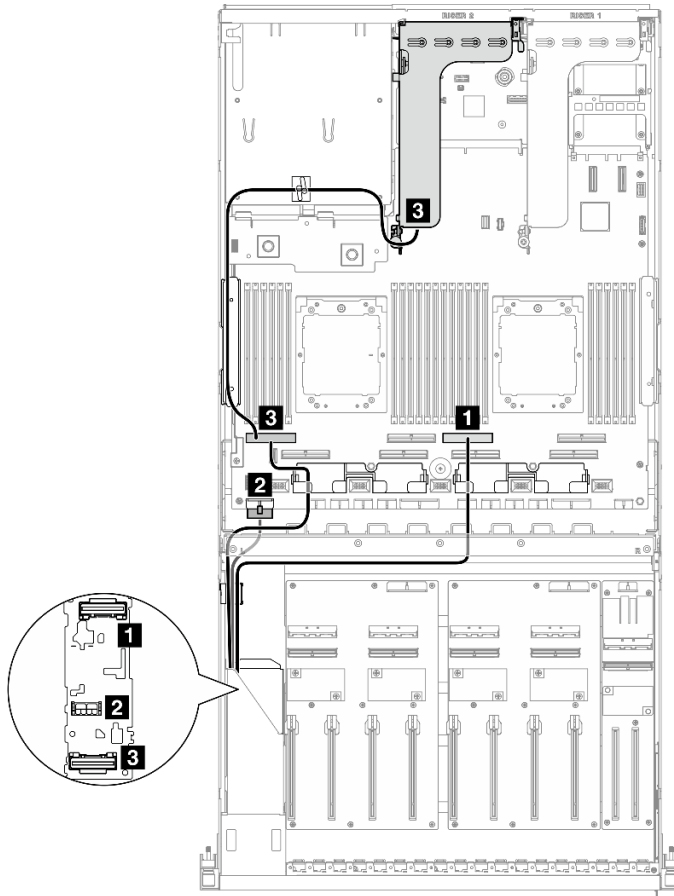
Figure 349. E3.S drive backplane cable routing

Cable	From	To
1	Backplane: EDSFF 0-1	System board assembly: PCIe connector 4
2	Backplane: Power connector	System board assembly: Backplane power connector
3	Backplane: EDSFF 2-3	System board assembly: PCIe connector 8
	PCIe riser 2: MCIO connector A	

Switched GPU distribution board configuration
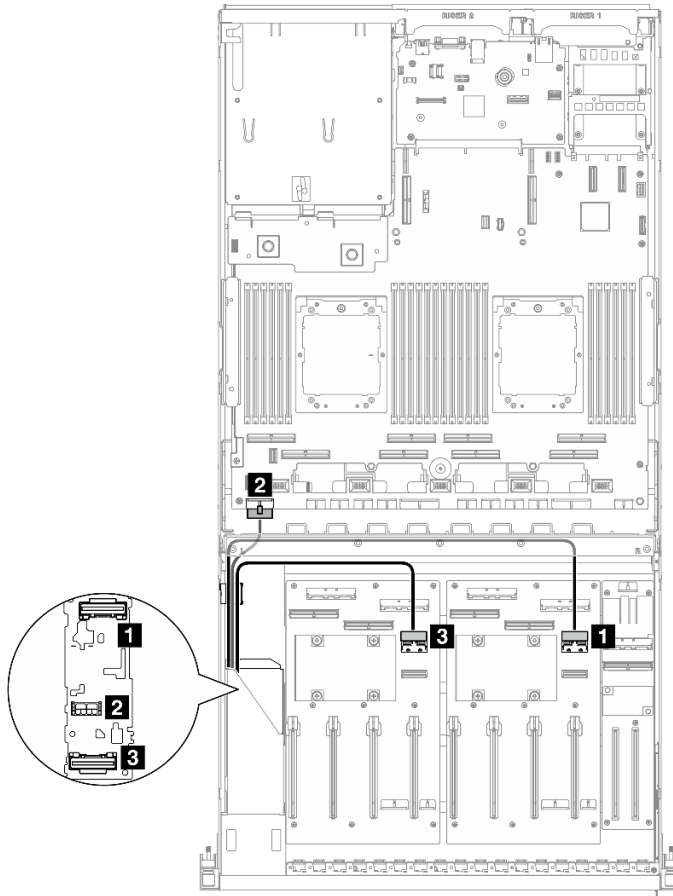
Figure 350. E3.S drive backplane cable routing

Cable	From	To
1	Backplane: EDSFF 0-1	GPU distribution board (right side): MCIO connector E
2	Backplane: Power connector	System board assembly: Backplane power connector
3	Backplane: EDSFF 2-3	GPU distribution board (left side): MCIO connector E

Front I/O expansion board cable routing

Use the section to understand the cable routing for the front I/O expansion board.

Based on the configuration, select the corresponding routing plan:

-
-

Direct GPU distribution board configuration

Use the section to understand the front I/O expansion board cable routing for the server configuration with direct GPU distribution board.
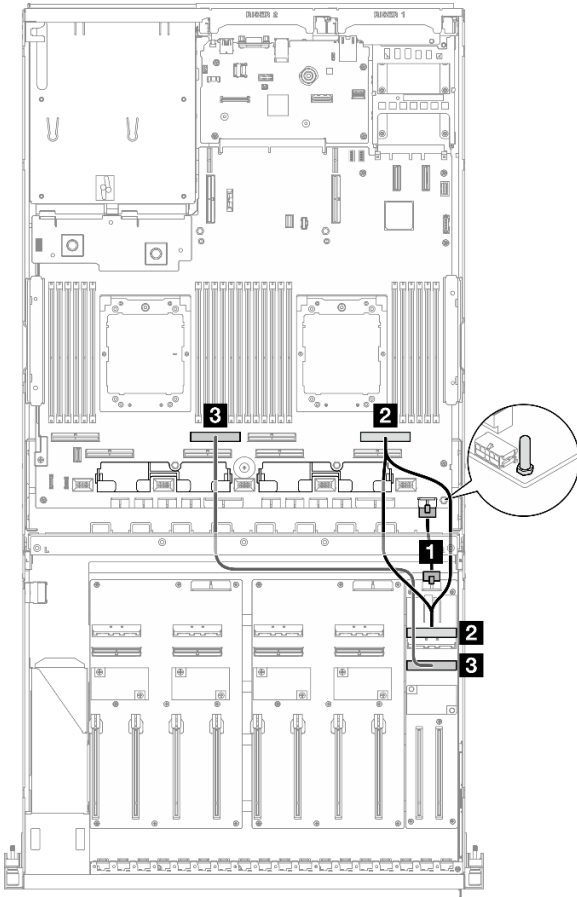
Figure 351. Front I/O expansion board cable routing

Cable	From	To
1	Front I/O expansion board: Power connector	System board assembly: Front riser power connector
2	Front I/O expansion board: MCIO connector A	System board assembly: PCIe connector 2
3	Front I/O expansion board: MCIO connector B	System board assembly: PCIe connector 6

Switched GPU distribution board configuration

Use the section to understand the front I/O expansion board cable routing for the server configuration with switched GPU distribution board.

Choose the routing plan depending on if the DPU adapter is installed in the system or not.

- "Without DPU adapter" on page 377
- "With DPU adapter on the front I/O expansion board" on page 378
- "With DPU adapter on the PCIe riser 1" on page 379

Without DPU adapter
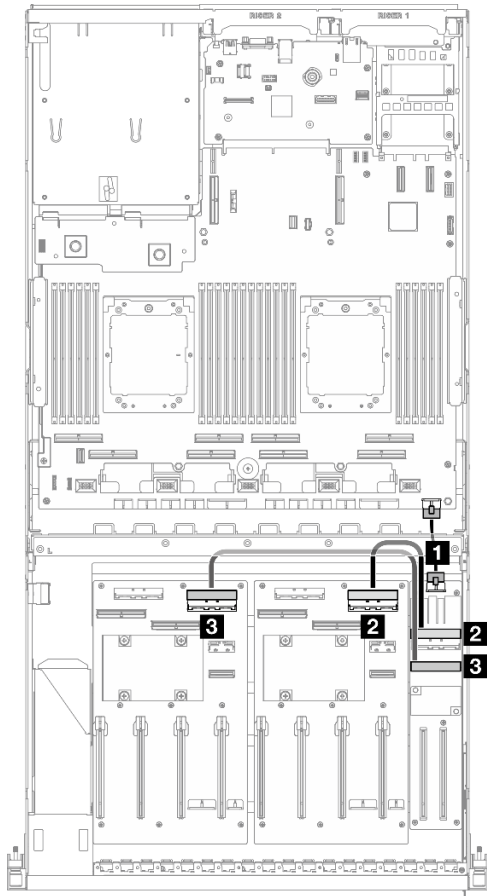
Figure 352. Front I/O expansion board cable routing

Cable	From	To
1	Front I/O expansion board: Power connector	System board assembly: Front riser power connector
2	Front I/O expansion board: MCIO connector A	GPU distribution board (right side): MCIO connector D
3	Front I/O expansion board: MCIO connector B	GPU distribution board (left side): MCIO connector D

With DPU adapter on the front I/O expansion board
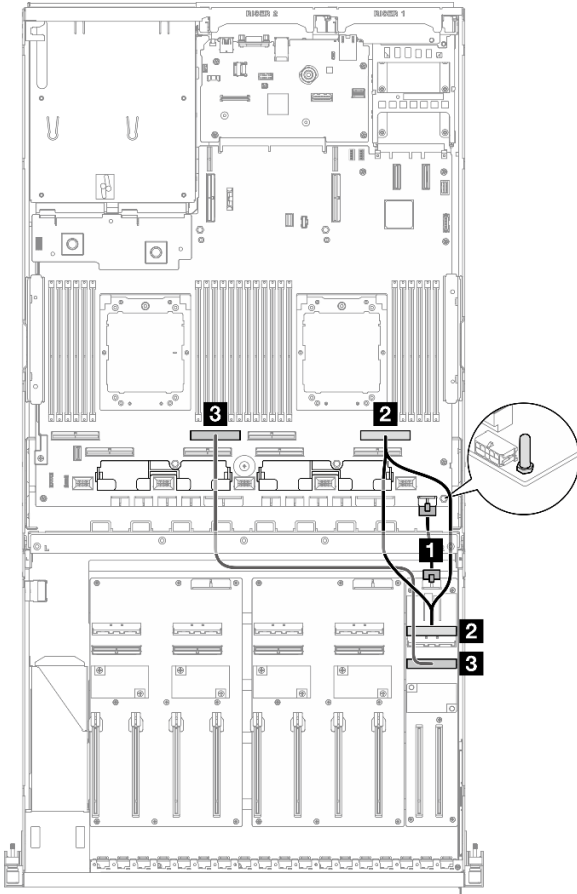
Figure 353. Front I/O expansion board cable routing

Cable	From	To
1	Front I/O expansion board: Power connector	System board assembly: Front riser power connector
2	Front I/O expansion board: MCIO connector A	System board assembly: PCIe connector 2
3	Front I/O expansion board: MCIO connector B	System board assembly: PCIe connector 6

With DPU adapter on the PCIe riser 1
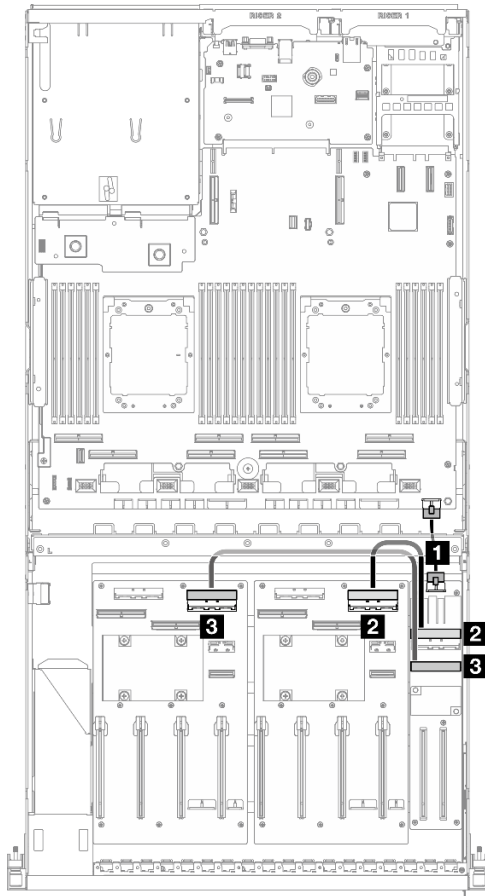
Figure 354. Front I/O expansion board cable routing

Cable	From	To
1	Front I/O expansion board: Power connector	System board assembly: Front riser power connector
2	Front I/O expansion board: MCIO connector A	GPU distribution board (right side): MCIO connector D
3	Front I/O expansion board: MCIO connector B	GPU distribution board (left side): MCIO connector D

GPU adapter power cable routing

Use the section to understand the power cable routing for the GPU adapters.

Note: Make sure to route the GPU power cable through the cable guide that is located behind the cross bar.
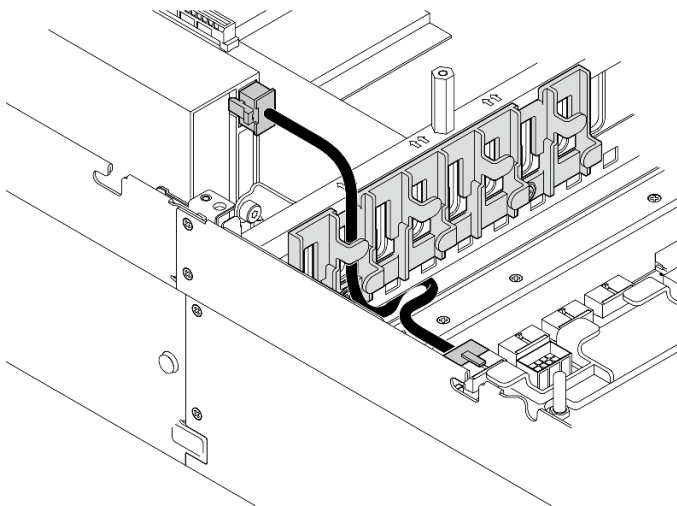
Table 28. GPU adapter power cable routing
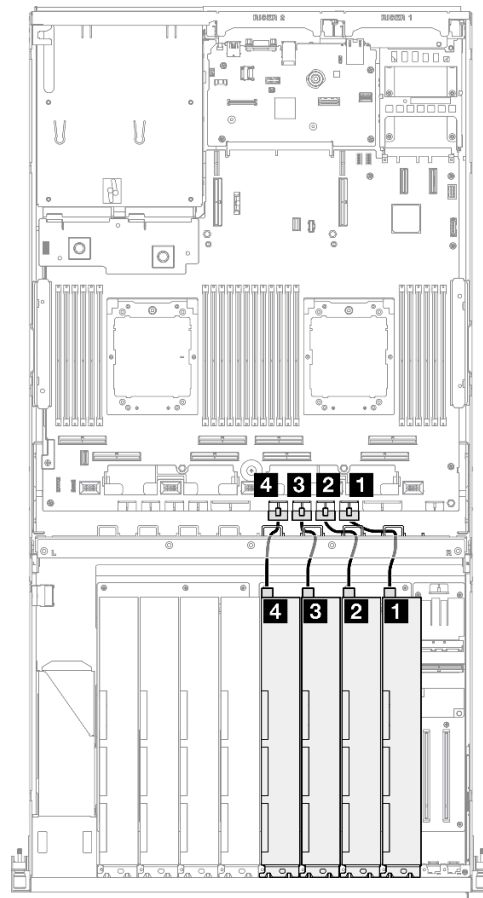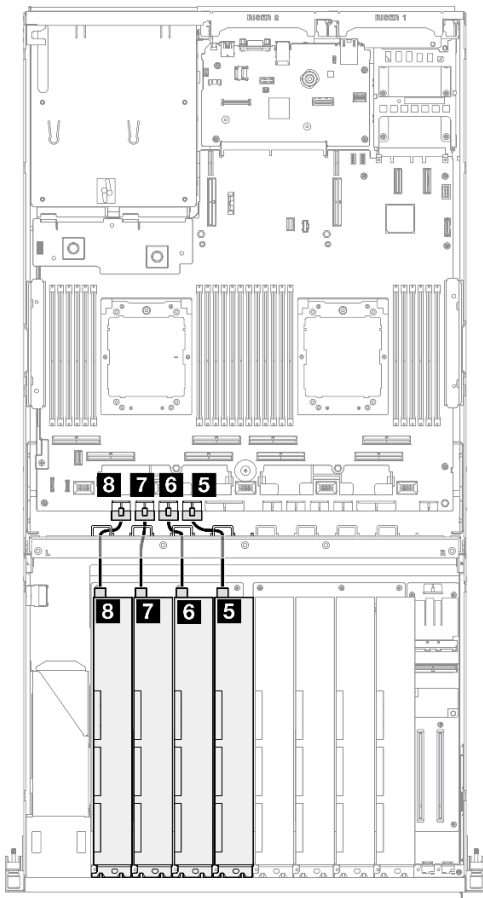
Cable	From	To
1	GPU adapter 1: Power connector	System board assembly: GPU 1 power connector
2	GPU adapter 2: Power connector	System board assembly: GPU 2 power connector
3	GPU adapter 3: Power connector	System board assembly: GPU 3 power connector

Cable	From	To
4	GPU adapter 4: Power connector	System board assembly: GPU 4 power connector
5	GPU adapter 5: Power connector	System board assembly: GPU 5 power connector
6	GPU adapter 6: Power connector	System board assembly: GPU 6 power connector
7	GPU adapter 7: Power connector	System board assembly: GPU 7 power connector
8	GPU adapter 8: Power connector	System board assembly: GPU 8 power connector

GPU distribution board cable routing

Use the section to understand the cable routing for the GPU distribution boards.

Based on the configuration, select the corresponding routing plan:

- "Direct GPU distribution board configuration" on page 381
- "Switched GPU distribution board configuration" on page 382

Direct GPU distribution board configuration

Table 29. Direct GPU distribution board cable routing

Cable	From	To
1	GPU distribution board (right side): Power connector	System board assembly: PCIe distribution board connector
2	GPU distribution board (right side): MCIO connectors A and B	System board assembly: PCIe connector 1
3	GPU distribution board (right side): MCIO connectors C and D	System board assembly: PCIe connector 3
4	GPU distribution board (left side): Power connector	System board assembly: PCIe distribution board connector
5	GPU distribution board (left side): MCIO connectors A and B	System board assembly: PCIe connector 5
6	GPU distribution board (left side): MCIO connectors C and D	System board assembly: PCIe connector 7

Switched GPU distribution board configuration

Table 30. Switched GPU distribution board cable routing

Cable	From	To
1	GPU distribution board (right side): Power connectors 1 and 2	System board assembly: PCIe distribution board connector
2	GPU distribution board (right side): MCIO connector B	System board assembly: PCIe connector 1
3	GPU distribution board (right side): MCIO connector A	System board assembly: PCIe connector 3
4	GPU distribution board (left side): Power connectors 1 and 2	System board assembly: PCIe distribution board connector
5	GPU distribution board (left side): MCIO connector B	System board assembly: PCIe connector 5
6	GPU distribution board (left side): MCIO connector A	System board assembly: PCIe connector 7

M.2 backplane cable routing

Use the section to understand the cable routing for the M.2 backplane.

Based on the configuration, select the corresponding routing plan:

- "M.2 backplane" on page 383
- "M.2 backplane with RAID adapter" on page 384

M.2 backplane

Based on the type of the M.2 backplane, select the corresponding routing path from the following table.

SATA/x4 NVMe M.2 backplane
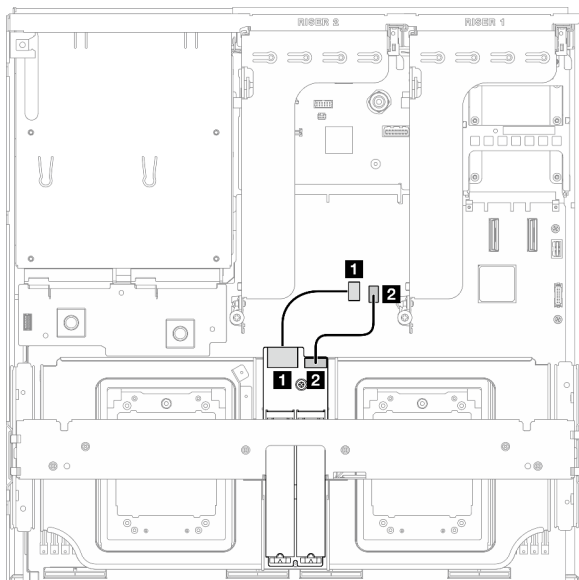
Figure 355. SATA/x4 NVMe M.2 backplane cable routing

SATA/NVMe or NVMe RAID M.2 backplane
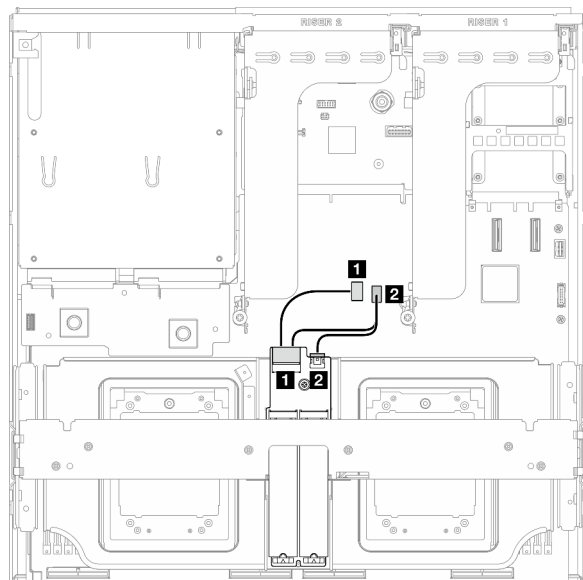
Figure 356. SATA/NVMe or NVMe RAID M.2 backplane cable routing

Cable	From	To
1	M.2 backplane: Signal connector	System board assembly: M.2 signal connector
2	M.2 backplane: Power connector	System board assembly: M.2 power connector

M.2 backplane with RAID adapter

Based on the location of the RAID adapter, select the corresponding routing path from the following table.

RAID adapter on the PCIe riser 2   **RAID adapter on the PCIe riser 1**

Figure 357. SATA/x4 NVMe M.2 backplane cable routing (RAID adapter on the PCIe riser 2)
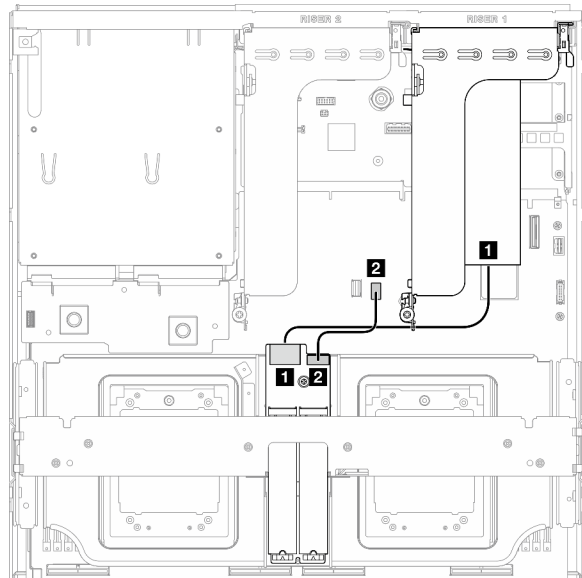
Figure 358. SATA/x4 NVMe M.2 backplane cable routing (RAID adapter on the PCIe riser 1)

Cable	From	To
1	M.2 backplane: Signal connector	RAID adapter installed on the PCIe riser 1 or 2
2	M.2 backplane: Power connector	System board assembly: M.2 power connector

OCP module cable routing

Use the section to understand the cable routing for the OCP module.

Based on the configuration, select the corresponding routing plan:

-
-

Direct GPU distribution board configuration

Use the section to understand the OCP module cable routing for the server configuration with direct GPU distribution board.

Choose the routing plan depending on if the front I/O expansion board is installed in the system or not.

-

Without front I/O expansion board
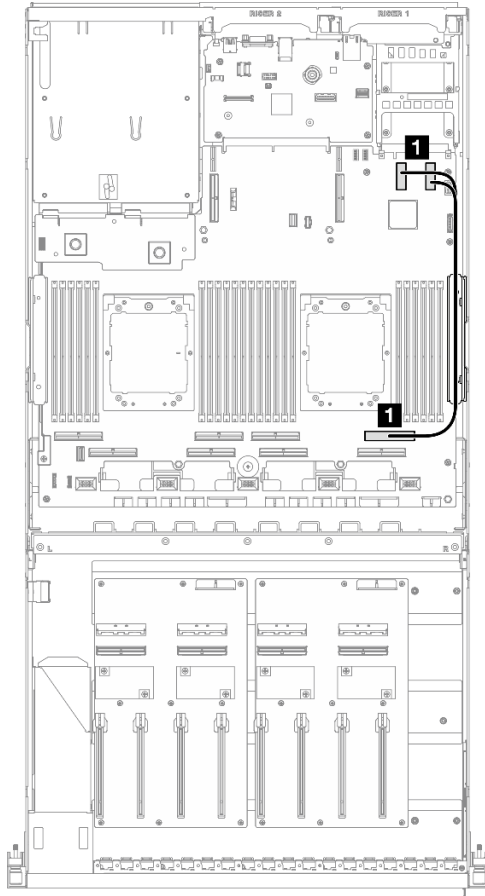
Figure 359. OCP module cable routing

Cable	From	To
1	System board assembly: PCIe connectors 11 and 12	System board assembly: PCIe connector 2

With front I/O expansion board
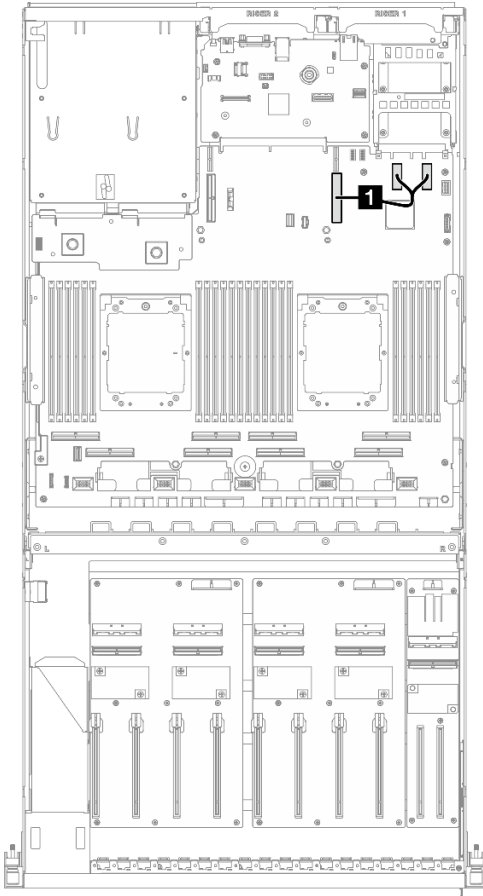
Figure 360. OCP module cable routing

Cable	From	To
1	System board assembly: PCIe connectors 11 and 12	System board assembly: PCIe connector 9

Switched GPU distribution board configuration

Use the section to understand the OCP module cable routing for the server configuration with switched GPU distribution board.

Choose the routing plan depending on if the DPU adapter is installed in the system or not.

- "Without DPU adapter" on page 387
- "With DPU adapter" on page 388

Without DPU adapter
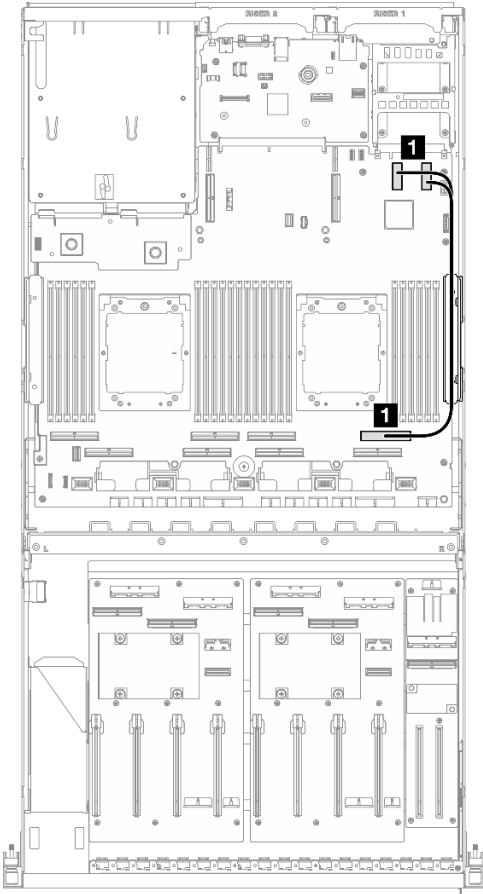
Figure 361. OCP module cable routing

Cable	From	To
1	System board assembly: PCIe connectors 11 and 12	System board assembly: PCIe connector 2

With DPU adapter
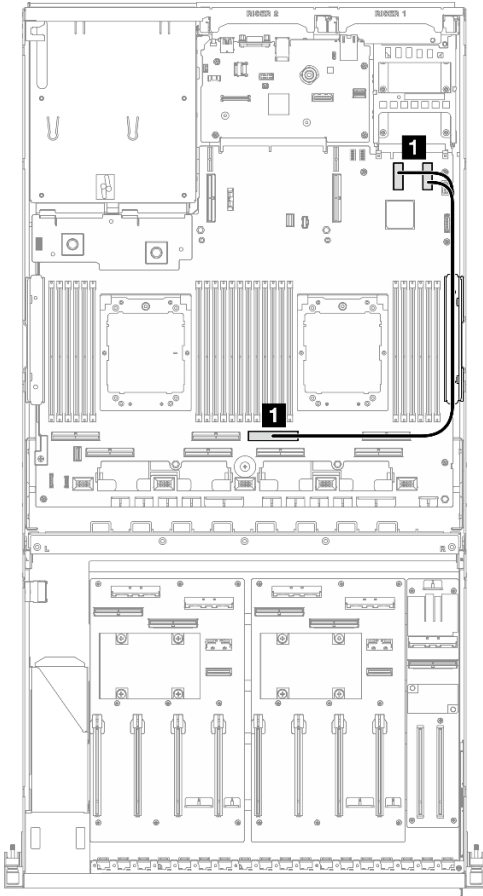
Figure 362. OCP module cable routing

Cable	From	To
1	System board assembly: PCIe connectors 11 and 12	System board assembly: PCIe connector 4

PCIe riser 1 cable routing

Use the section to understand the cable routing for the PCIe riser 1.
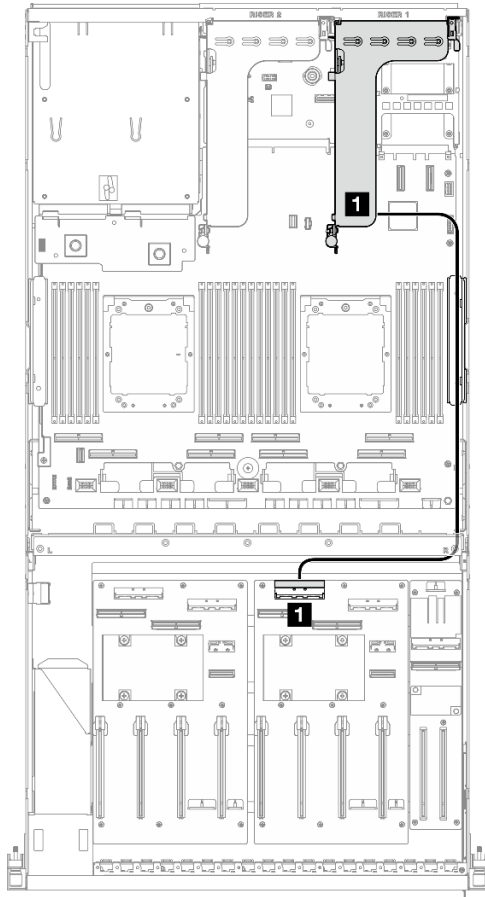
Figure 363. PCIe riser 1 cable routing

Cable	From	To
1	PCIe riser 1: MCIO connectors A and B	GPU distribution board (right side): MCIO connector C

PCIe riser 2 cable routing

Use the section to understand the cable routing for the PCIe riser 2.

Based on the configuration, select the corresponding routing plan:

- "x16/x8 PCIe riser 2" on page 389
- "x16/x16 PCIe riser 2" on page 391

x16/x8 PCIe riser 2

Use the section to understand the cable routing for the x16/x8 PCIe riser 2.

Choose the routing plan according to the type of drive installed in the system.

- "E1.S drive" on page 390
- "E3.S drive" on page 391

E1.S drive
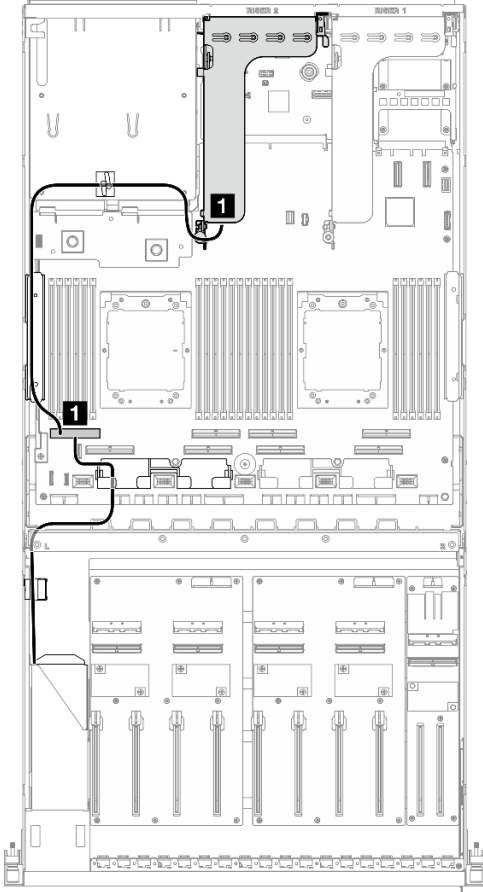
Figure 364. PCIe riser 2 cable routing

Cable	From	To
1	PCIe riser 2: MCIO connector A	System board assembly: PCIe connector 8
	Backplane: EDSFF 4-5	

E3.S drive
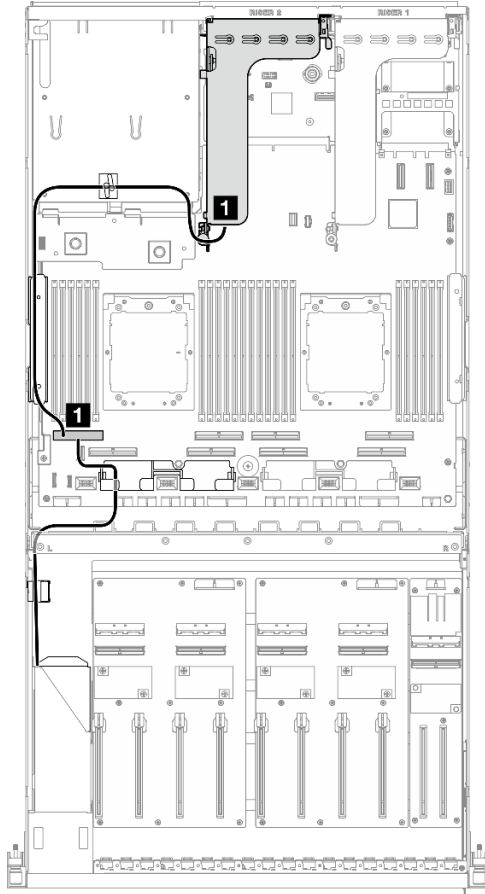
Figure 365. PCIe riser 2 cable routing

Cable	From	To
1	PCIe riser 2: MCIO connector A	System board assembly: PCIe connector 8
	Backplane: EDSFF 2-3	

x16/x16 PCIe riser 2

Use the section to understand the cable routing for the x16/x16 PCIe riser 2.
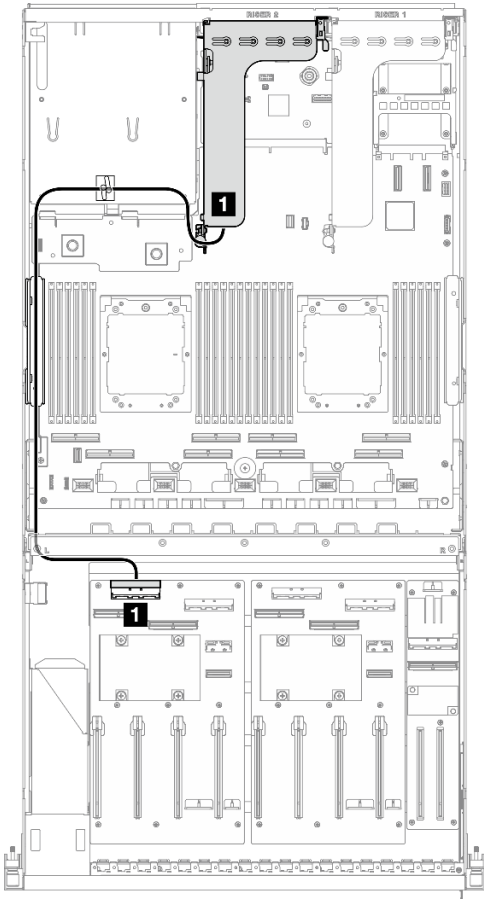
Figure 366. PCIe riser 2 cable routing

Cable	From	To
1	PCIe riser 2: MCIO connectors A and B	GPU distribution board (left side): MCIO connector C

SXM5 GPU Model cable routing

Use the section to understand the cable routing for the SXM5 GPU Model.

Notes:

1. Go through the following sections in "Identifying connectors" on page 343 to acquire necessary information before starting cable routing.

2. There are two cable ties on the front drive tray. Unfasten the cable tie before removing the cables. After connecting the cables, equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the cable ties.

3. Make sure to route the cables through cable guide and cable clip as instructed in the cable routing guides. See the illustration below for the cable guide, cable clip, cable retaining guide, and cable tie locations.
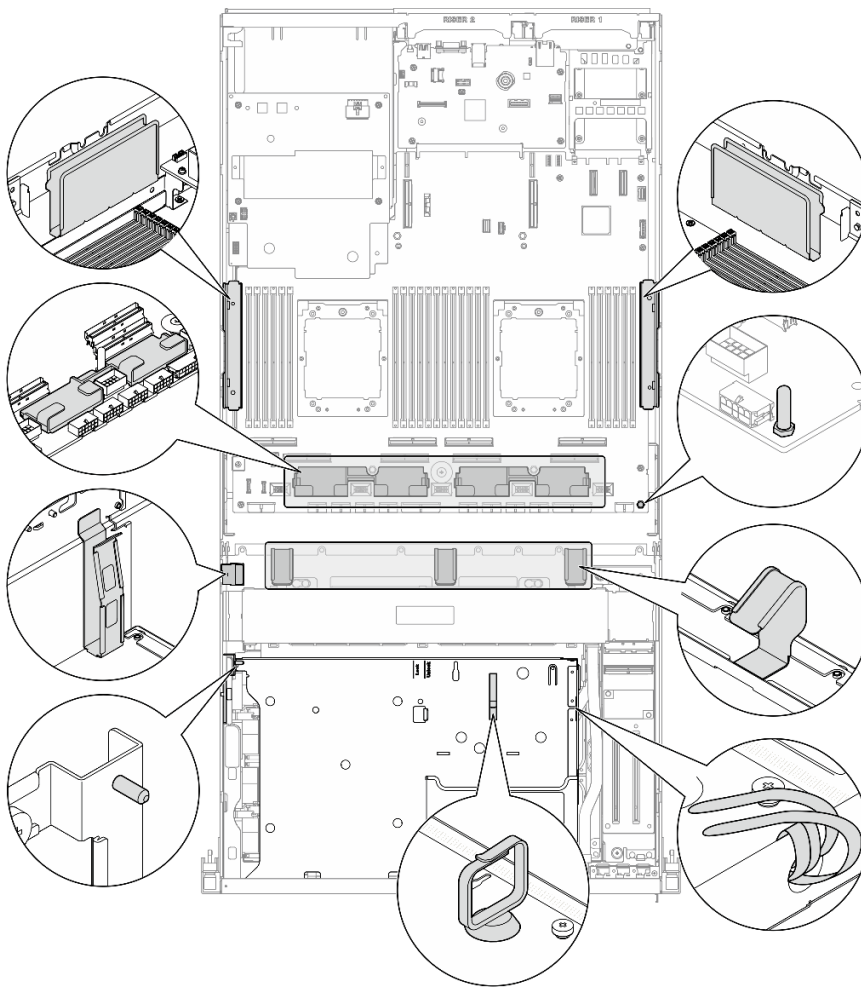
Figure 367. Cable guide, cable clip, cable retaining guide, and cable tie locations in the chassis

- "2.5-inch drive backplane cable routing" on page 393
- "CX-7 carrier board cable routing" on page 402
- "E3.S drive backplane cable routing" on page 405
- "Front I/O expansion board cable routing" on page 411
- "Interposer card power cable routing" on page 411
- "M.2 backplane cable routing" on page 383
- "OCP module cable routing" on page 414
- "OSFP port card cable routing" on page 418
- "PCIe riser 1 cable routing" on page 419
- "PCIe riser 2 cable routing" on page 420
- "SXM5 PCIe switch board cable routing" on page 421
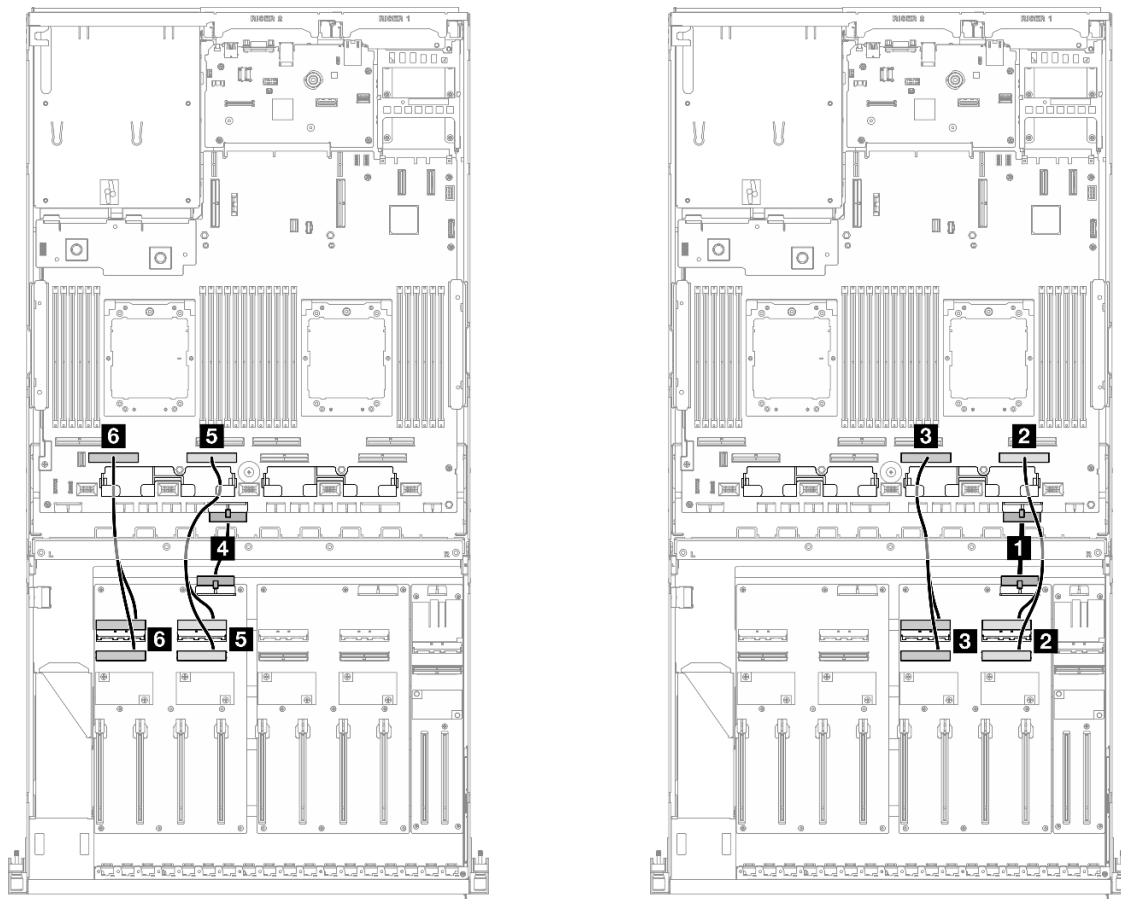
2.5-inch drive backplane cable routing

Use the section to understand the cable routing for the 2.5-inch drive backplane.

Based on the configuration, select the corresponding routing plan:

- "SXM5 PCIe switch board configuration" on page 394
- "CX-7 mezz board configuration" on page 396

SXM5 PCIe switch board configuration

Use the section to understand the 2.5-inch drive backplane cable routing for the server configuration with SXM5 PCIe switch board.

Notes:

- Make sure the backplane cables are placed underneath the cables that are connected to the SXM5 PCIe switch board.
- Make sure the cables that go through the right side of the server are routed under the radiator bracket as illustrated.
- Make sure the backplane power cable is routed above the radiator bracket as illustrated.

Choose the routing plan depending on if the RAID adapter is installed in the system or not.

- "Without RAID adapter" on page 394
- "With RAID adapter" on page 395

Without RAID adapter
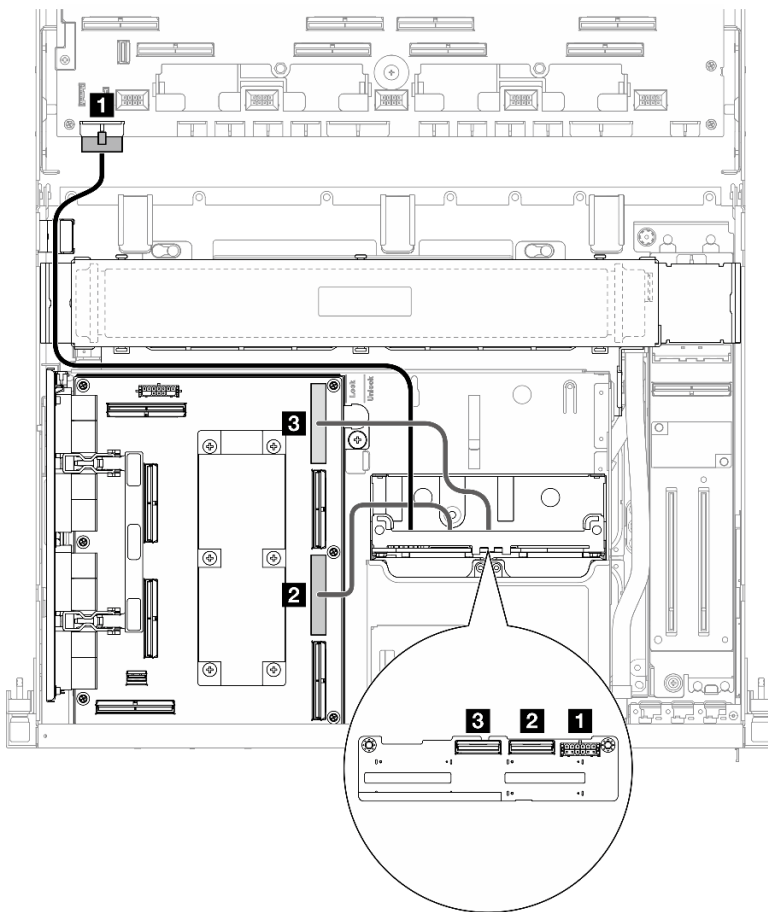
Figure 368. 2.5-inch drive backplane cable routing

Cable	From	To
1	Backplane: Power connector	System board assembly: Backplane power connector
2	Backplane: NVMe 0-1	SXM5 PCIe switch board: MCIO connector C
3	Backplane: NVMe 2-3	SXM5 PCIe switch board: MCIO connector A

With RAID adapter

Notes:

- For the configuration with RAID adapter on the PCIe riser 1: after connecting cables, use the cable tie that is near the front of the chassis to secure the two cables to the RAID adapter.

- For the configuration with RAID adapter on the PCIe riser 2: after connecting cables, equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.

Figure 369. Securing cables with cable tie(s)

Based on the location of the RAID adapter, select the corresponding routing path from the following table.

RAID adapter on the PCIe riser 2   **RAID adapter on the PCIe riser 1**
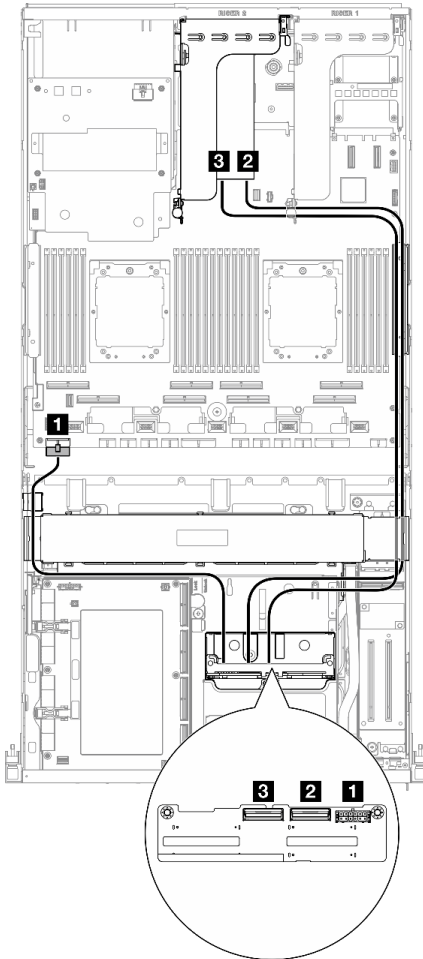
Figure 370. 2.5-inch drive backplane cable routing (RAID adapter on the PCIe riser 2)
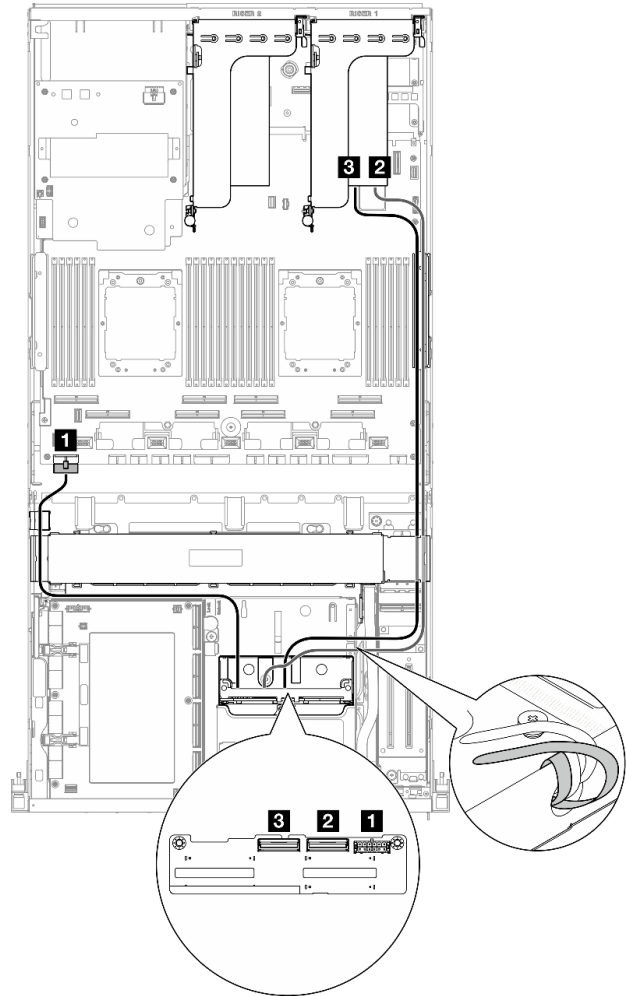
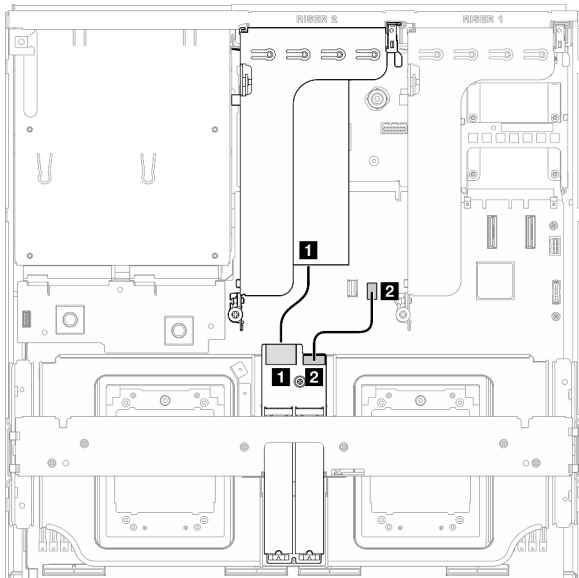Figure 371. 2.5-inch drive backplane cable routing (RAID adapter on the PCIe riser 1)

Cable	From	To
1	Backplane: Power connector	System board assembly: Backplane power connector
2	Backplane: NVMe 0-1	16i RAID adapter installed on the PCIe riser 1 or 2: C0
3	Backplane: NVMe 2-3	16i RAID adapter installed on the PCIe riser 1 or 2: C1

CX-7 mezz board configuration

Use the section to understand the 2.5-inch drive backplane cable routing for the server configuration with CX-7 mezz board.

Choose the routing plan according to the number of processor installed in the system:

- "One processor" on page 397

-

One processor

Use the section to understand the 2.5-inch drive backplane cable routing for the server configuration with CX-7 mezz board and one processor.

Notes:

- Make sure the backplane cables are placed underneath the cables that are connected to the CX-7 carrier board and the CX-7 mezz board.
- Make sure the cables that go through the right side of the server are routed under the radiator bracket as illustrated.
- Make sure the backplane power cable is routed above the radiator bracket as illustrated.
- After connecting cables, equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.

Figure 372. Securing cables with cable ties

Choose the routing plan according to the number of drive installed in the system:

-
-

Two drives
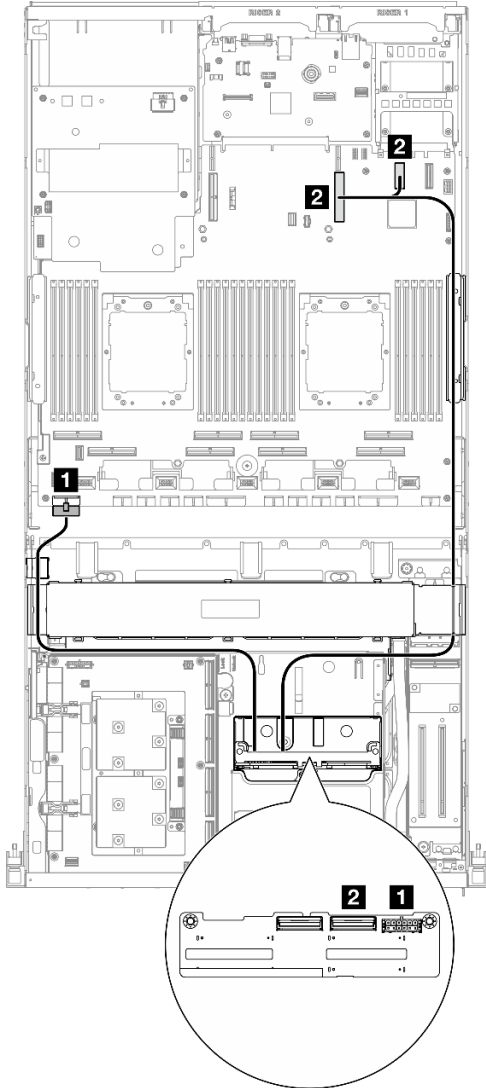
Figure 373. 2.5-inch drive backplane cable routing

Cable	From	To
1	Backplane: Power connector	System board assembly: Backplane power connector
2	Backplane: NVMe 0-1	System board assembly: PCIe connector 9
	System board assembly: PCIe connector 12	

Four drives
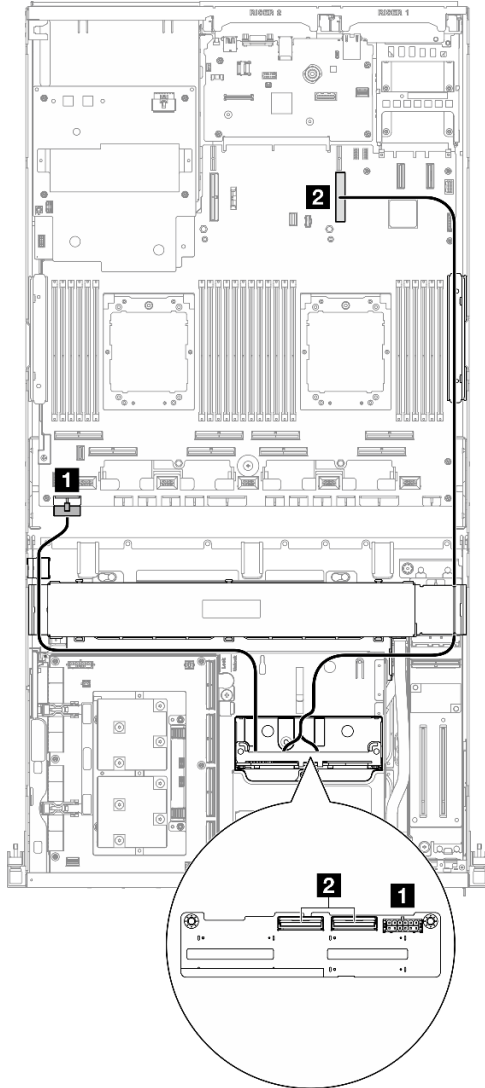
Figure 374. 2.5-inch drive backplane cable routing

Cable	From	To
1	Backplane: Power connector	System board assembly: Backplane power connector
2	Backplane: NVMe 0-1 and NVMe 2-3	System board assembly: PCIe connector 9

Two processors

Use the section to understand the 2.5-inch drive backplane cable routing for the server configuration with CX-7 mezz board and two processors.

Notes:

- Make sure the backplane cables are placed underneath the cables that are connected to the CX-7 carrier board and the CX-7 mezz board.

- Make sure the cables that go through the right side of the server are routed under the radiator bracket as illustrated.

- Make sure the backplane power cable is routed above the radiator bracket as illustrated.

Choose the routing plan depending on if the RAID adapter is installed in the system or not.

- "Without RAID adapter" on page 400
- "With RAID adapter" on page 401

Without RAID adapter

Note: After connecting cables, equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.
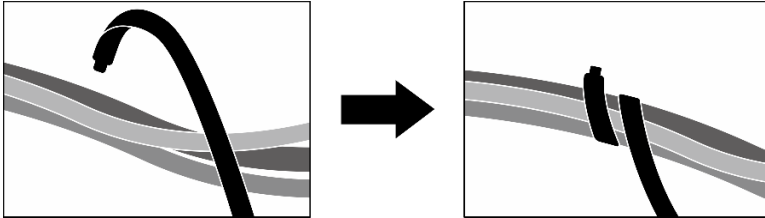
Figure 375. Securing cables with cable ties
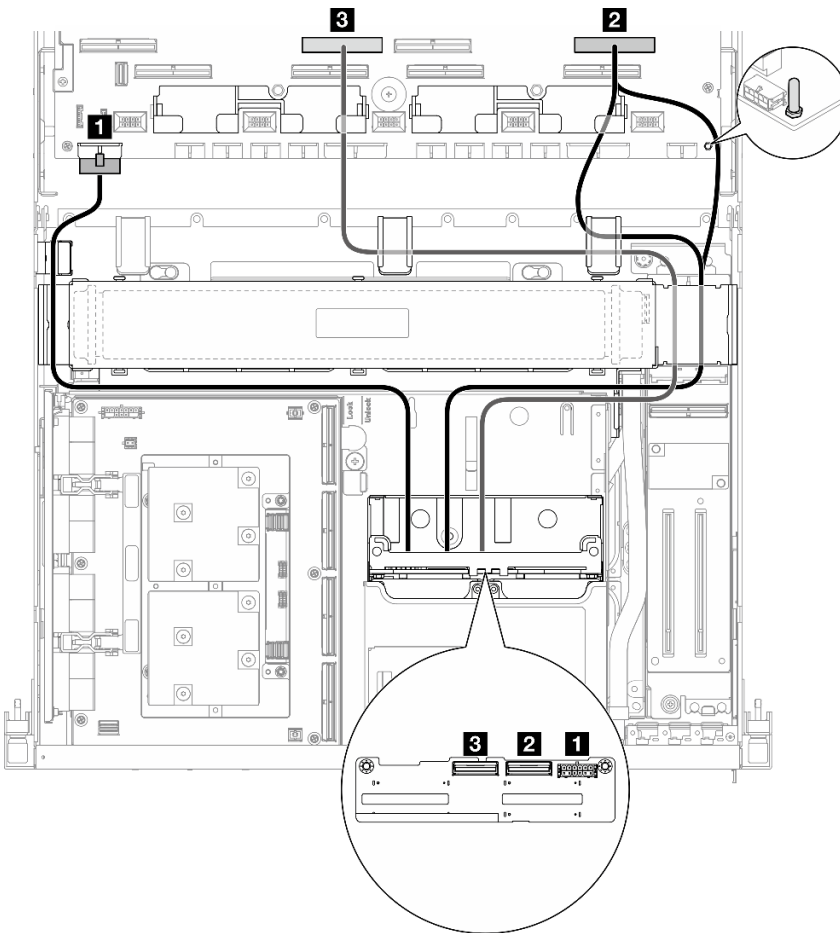
Figure 376. 2.5-inch drive backplane cable routing

Cable	From	To
1	Backplane: Power connector	System board assembly: Backplane power connector
2	Backplane: NVMe 0-1	System board assembly: PCIe connector 2
3	Backplane: NVMe 2-3	System board assembly: PCIe connector 6

With RAID adapter

Notes:

- For the configuration with RAID adapter on the PCIe riser 1: after connecting cables, use the cable tie that is near the front of the chassis to secure the two cables to the RAID adapter.

- For the configuration with RAID adapter on the PCIe riser 2: after connecting cables, equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.

Figure 377. Securing cables with cable tie(s)

Based on the location of the RAID adapter, select the corresponding routing path from the following table.

RAID adapter on the PCIe riser 2   **RAID adapter on the PCIe riser 1**
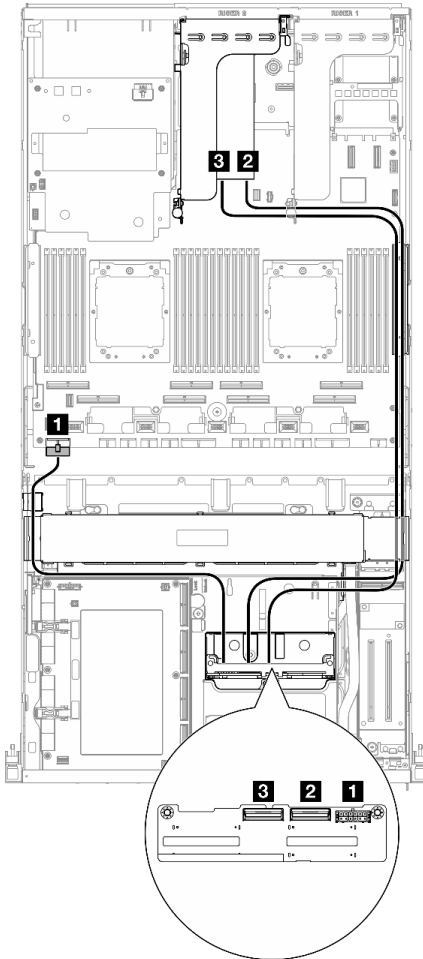
Figure 378. 2.5-inch drive backplane cable routing (RAID adapter on the PCIe riser 2)
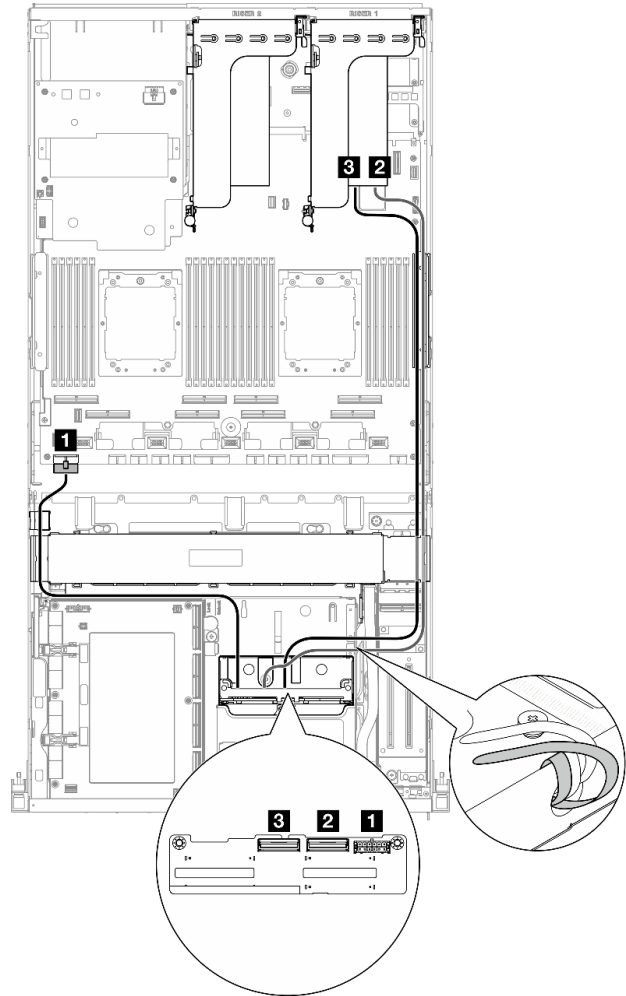
Figure 379. 2.5-inch drive backplane cable routing (RAID adapter on the PCIe riser 1)

Cable	From	To
1	Backplane: Power connector	System board assembly: Backplane power connector
2	Backplane: NVMe 0-1	16i RAID adapter installed on the PCIe riser 1 or 2: C0
3	Backplane: NVMe 2-3	16i RAID adapter installed on the PCIe riser 1 or 2: C1

CX-7 carrier board cable routing

Use the section to understand the cable routing for the CX-7 carrier board.

Notes:

- Make sure the cables that go through the right side of the server are routed under the radiator bracket as illustrated.

- Make sure the cables that go through the left side of the server are routed above the radiator bracket as illustrated.
- Connect the power cable that is connected to the **Power connector 1** on the CX-7 carrier board last; then, press the power cable down to secure all the cables under the cable retaining guide on the front drive tray as illustrated.
- After connecting cables, equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.

Figure 380. Securing cables with cable ties

Choose the routing plan according to the number of processor installed in the system:

One processor

Table 31. CX-7 carrier board cable routing
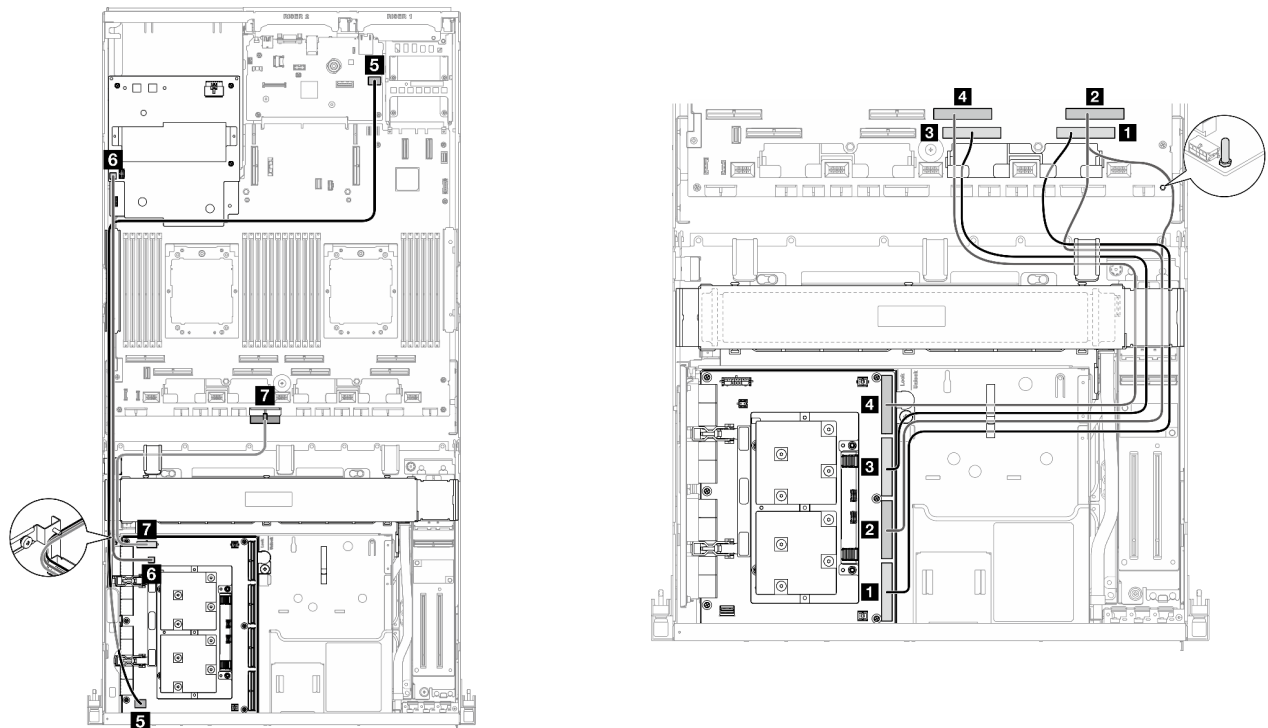
Cable	From	To
1	CX-7 carrier board: MCIO connector D	System board assembly: PCIe connector 1
2	CX-7 carrier board: MCIO connector C	System board assembly: PCIe connector 2
3	CX-7 carrier board: MCIO connector B	System board assembly: PCIe connector 3
4	CX-7 carrier board: MCIO connector A	System board assembly: PCIe connector 4
5	CX-7 carrier board: GPU management connector	System board assembly: Front SXM5 GPU management PCIe connector
6	CX-7 carrier board: Power connector 2	SXM5 GPU power distribution board: Riser power connector
7	CX-7 carrier board: Power connector 1	System board assembly: PCIe distribution board power connector

Two processors

Table 32. Cable routing for the CX-7 carrier board
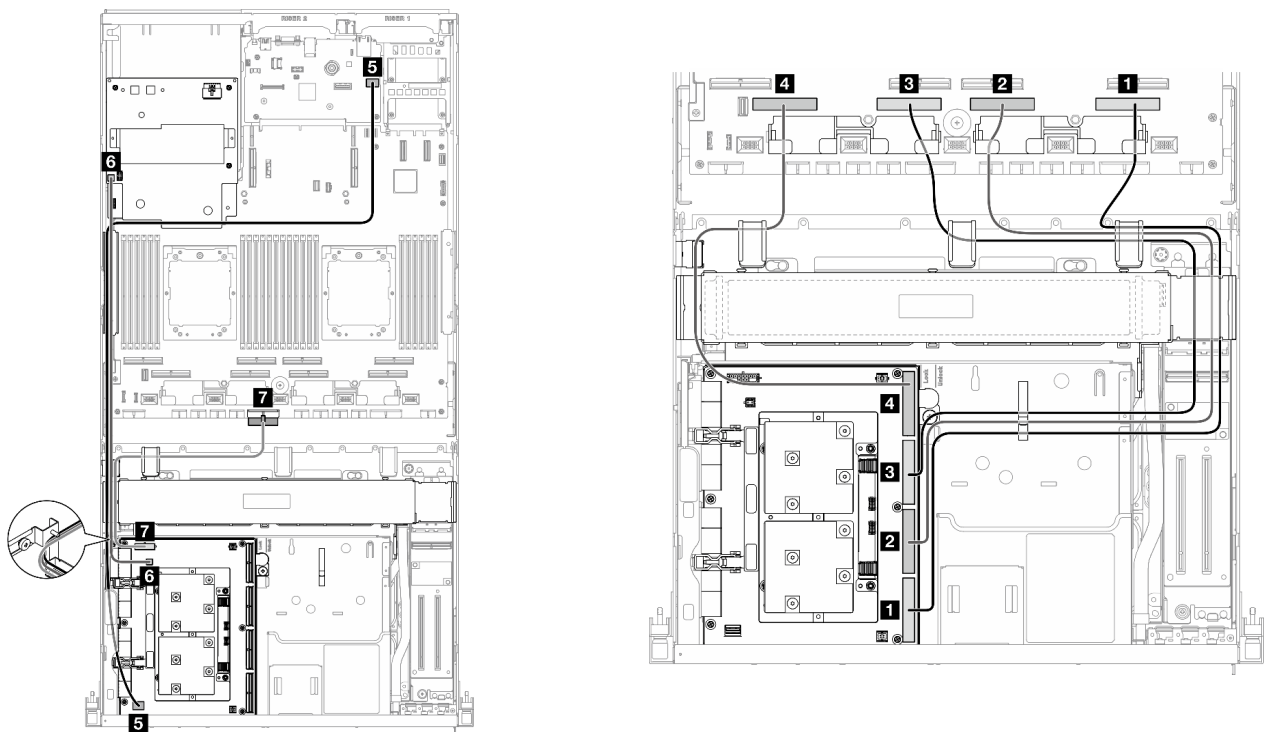
Cable	From	To
1	CX-7 carrier board: MCIO connector D	System board assembly: PCIe connector 1
2	CX-7 carrier board: MCIO connector C	System board assembly: PCIe connector 3
3	CX-7 carrier board: MCIO connector B	System board assembly: PCIe connector 5
4	CX-7 carrier board: MCIO connector A	System board assembly: PCIe connector 7
5	CX-7 carrier board: GPU management connector	System board assembly: Front SXM5 GPU management PCIe connector

Cable	From	To
6	CX-7 carrier board: Power connector 2	SXM5 GPU power distribution board: Riser power connector
7	CX-7 carrier board: Power connector 1	System board assembly: PCIe distribution board power connector

E3.S drive backplane cable routing

Use the section to understand the cable routing for the E3.S drive backplane.

Based on the configuration, select the corresponding routing plan:

SXM5 PCIe switch board configuration

Use the section to understand the E3.S drive backplane cable routing for the server configuration with SXM5 PCIe switch board.

Notes:

- Make sure the backplane cables are placed underneath the cables that are connected to the SXM5 PCIe switch board.
- Make sure the backplane power cable is routed above the radiator bracket as illustrated.
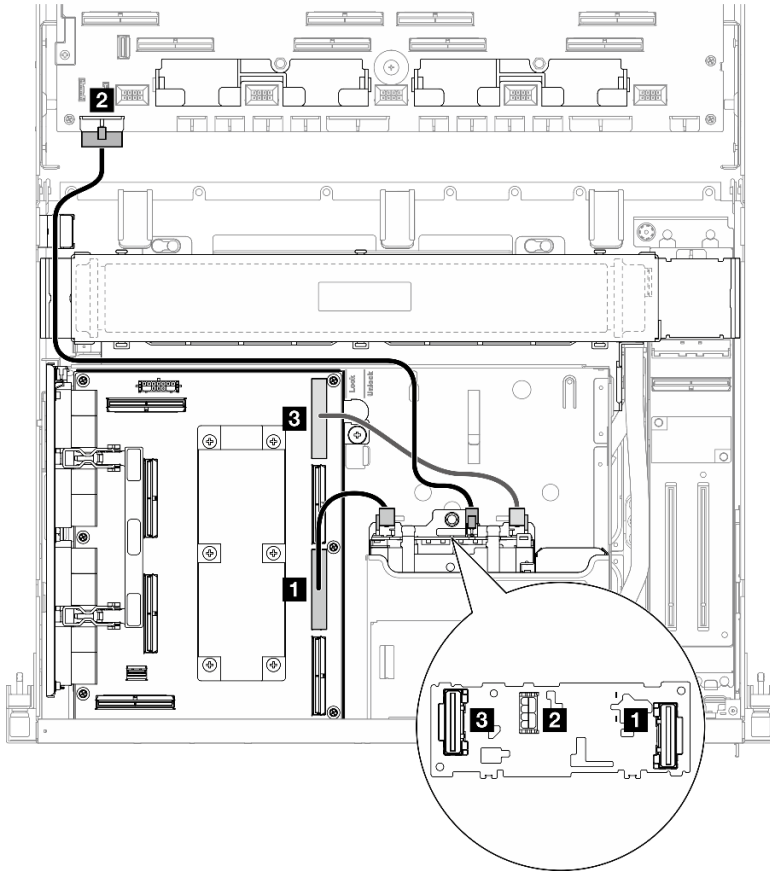
Figure 381. E3.S drive backplane cable routing

Cable	From	To
1	Backplane: EDSFF 0-1	SXM5 PCIe switch board: MCIO connector C
2	Backplane: Power connector	System board assembly: Backplane power connector
3	Backplane: EDSFF 2-3	SXM5 PCIe switch board: MCIO connector A

CX-7 mezz board configuration

Use the section to understand the E3.S drive backplane cable routing for the server configuration with CX-7 mezz board.

Choose the routing plan according to the number of processor installed in the system:

One processor

Use the section to understand the E3.S drive backplane cable routing for the server configuration with CX-7 mezz board and one processor.

Notes:

- Make sure the backplane cables are placed underneath the cables that are connected to the CX-7 carrier board and the CX-7 mezz board.

- Make sure the cables that go through the right side of the server are routed under the radiator bracket as illustrated.
- Make sure the backplane power cable is routed above the radiator bracket as illustrated.
- After connecting cables, equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.
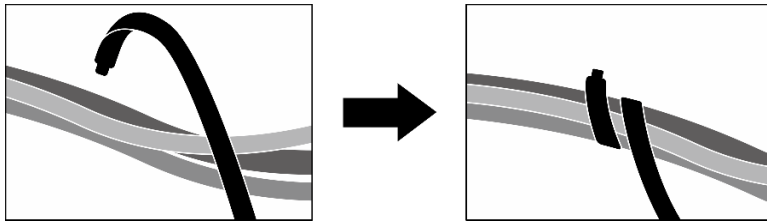

Figure 382. Securing cables with cable ties

Choose the routing plan according to the number of processor and drive installed in the system:

- "Two drives" on page 408
- "Four drives" on page 409

Two drives
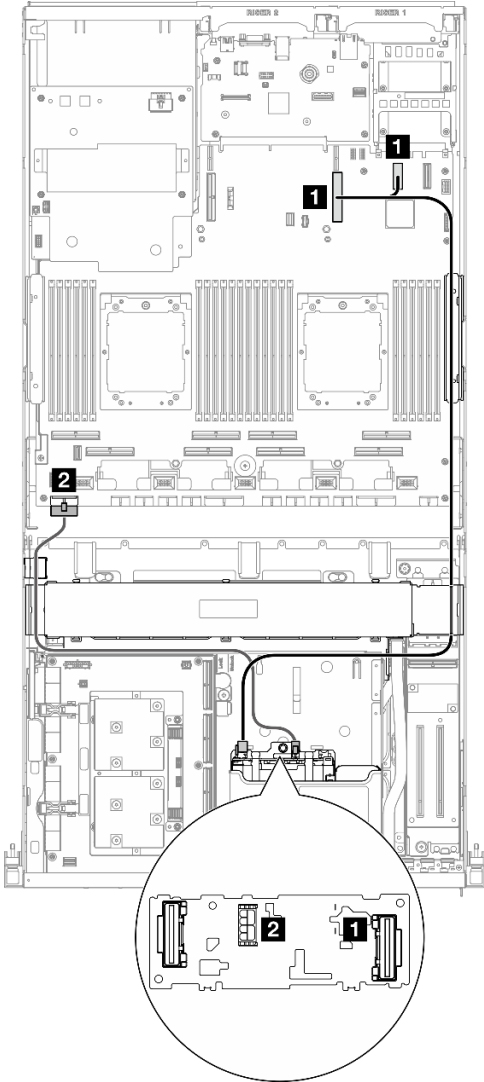
Figure 383. E3.S drive backplane cable routing

Cable	From	To
1	Backplane: EDSFF 0-1	System board assembly: PCIe connector 9
	System board assembly: PCIe connector 12	
2	Backplane: Power connector	System board assembly: Backplane power connector

Four drives
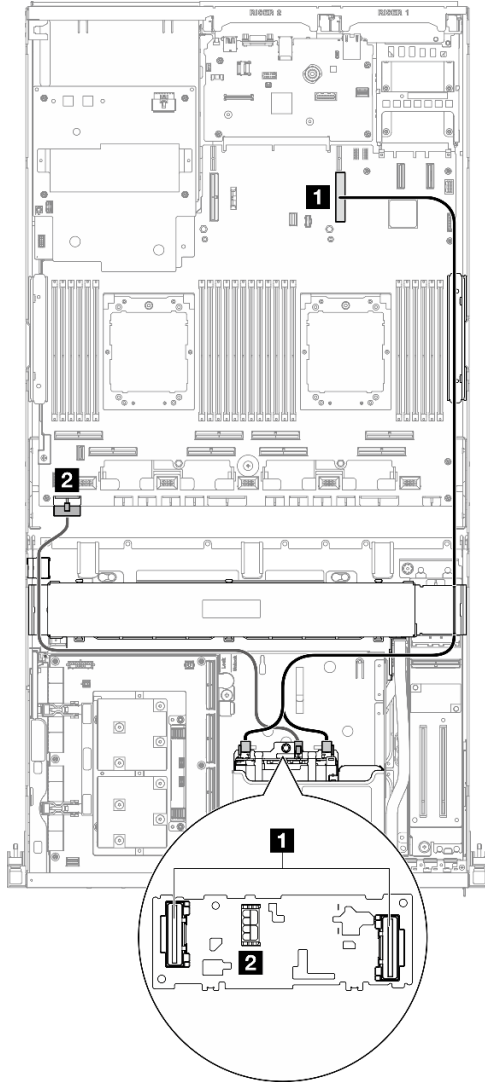
Figure 384. E3.S drive backplane cable routing

Cable	From	To
1	Backplane: EDSFF 0-1 and EDSFF 2-3	System board assembly: PCIe connector 9
2	Backplane: Power connector	System board assembly: Backplane power connector

Two processors

Use the section to understand the E3.S drive backplane cable routing for the server configuration with CX-7 mezz board and two processors.

Notes:

- Make sure the backplane cables are placed underneath the cables that are connected to the CX-7 carrier board and the CX-7 mezz board.

- Make sure the cables that go through the right side of the server are routed under the radiator bracket as illustrated.

- Make sure the backplane power cable is routed above the radiator bracket as illustrated.
- After connecting cables, equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.
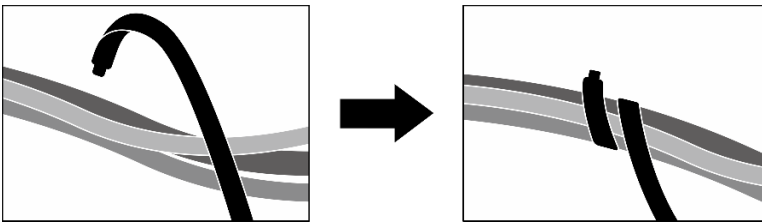

Figure 385. Securing cables with cable ties
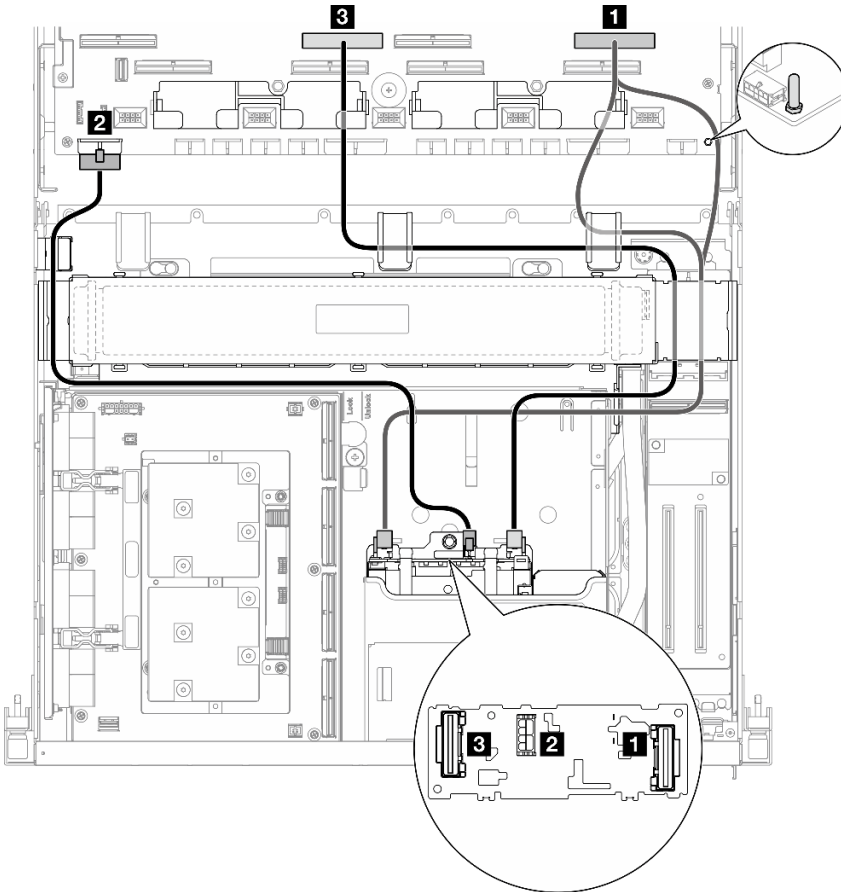
Figure 386. E3.S drive backplane cable routing

Cable	From	To
1	Backplane: EDSFF 0-1	System board assembly: PCIe connector 2
2	Backplane: Power connector	System board assembly: Backplane power connector
3	Backplane: EDSFF 2-3	System board assembly: PCIe connector 6

Front I/O expansion board cable routing

Use the section to understand the cable routing for the front I/O expansion board.

Note: After connecting cables, equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.
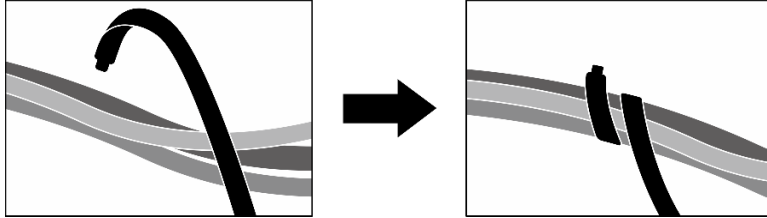
Figure 387. Securing cables with cable ties
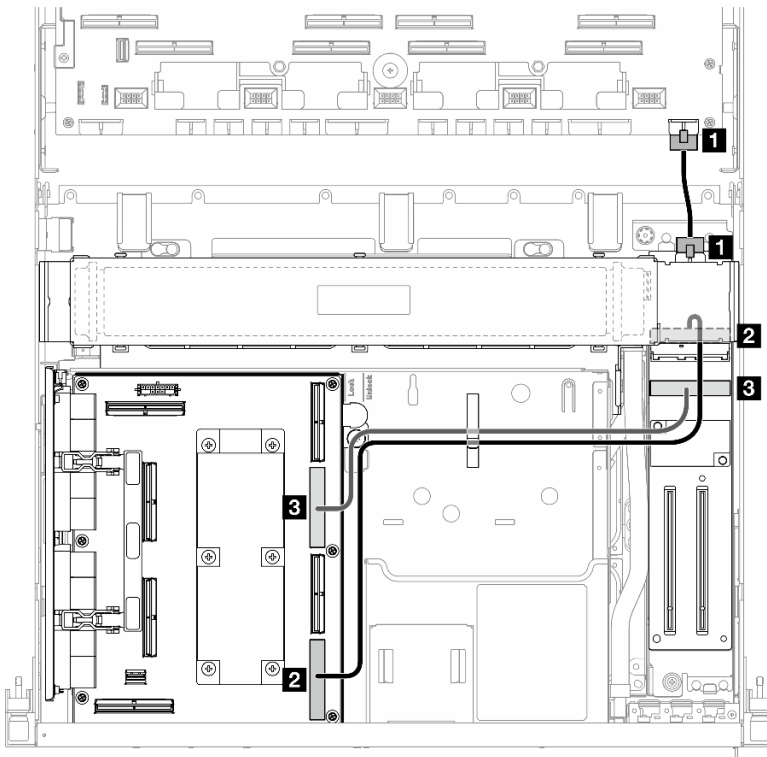
Figure 388. Front I/O expansion board cable routing

Cable	From	To
1	Front I/O expansion board: Power connector	System board assembly: Front riser power connector
2	Front I/O expansion board: MCIO connector A	SXM5 PCIe switch board: MCIO connector D
3	Front I/O expansion board: MCIO connector B	SXM5 PCIe switch board: MCIO connector B

Interposer card power cable routing

Use the section to understand the cable routing for the interposer card.

Note: Make sure the cable is routed under the radiator bracket as illustrated.
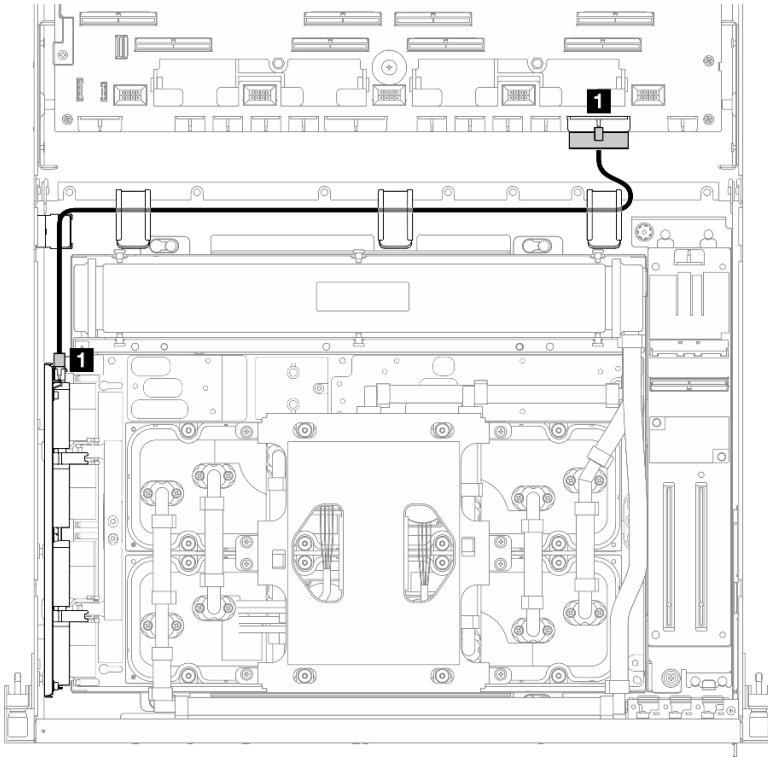
Figure 389. Interposer card power cable routing

Cable	From	To
1	Interposer card: Power connector	System board assembly: PCIe distribution board power connector

M.2 backplane cable routing

Use the section to understand the cable routing for the M.2 backplane.

Based on the configuration, select the corresponding routing plan:

- "M.2 backplane" on page 412
- "M.2 backplane with RAID adapter" on page 413

M.2 backplane

Based on the type of the M.2 backplane, select the corresponding routing path from the following table.

SATA/x4 NVMe M.2 backplane

SATA/NVMe or NVMe RAID M.2 backplane

Figure 390. SATA/x4 NVMe M.2 backplane cable routing
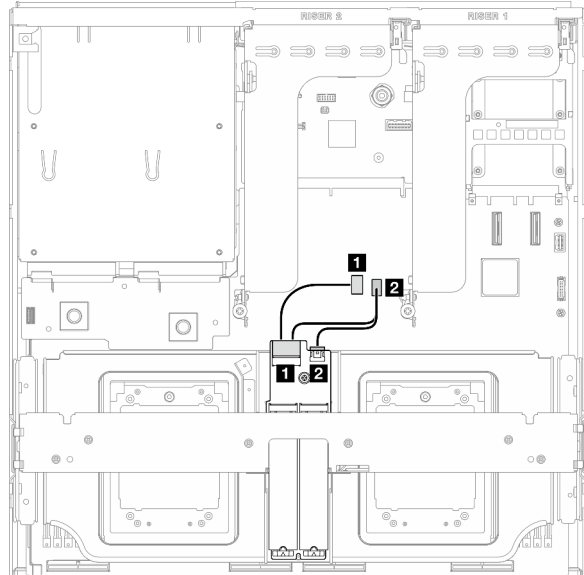
Figure 391. SATA/NVMe or NVMe RAID M.2 backplane cable routing

Cable	From	To
1	M.2 backplane: Signal connector	System board assembly: M.2 signal connector
2	M.2 backplane: Power connector	System board assembly: M.2 power connector

M.2 backplane with RAID adapter

Based on the location of the RAID adapter, select the corresponding routing path from the following table.

RAID adapter on the PCIe riser 2

Figure 392. SATA/x4 NVMe M.2 backplane cable routing (RAID adapter on the PCIe riser 2)

RAID adapter on the PCIe riser 1
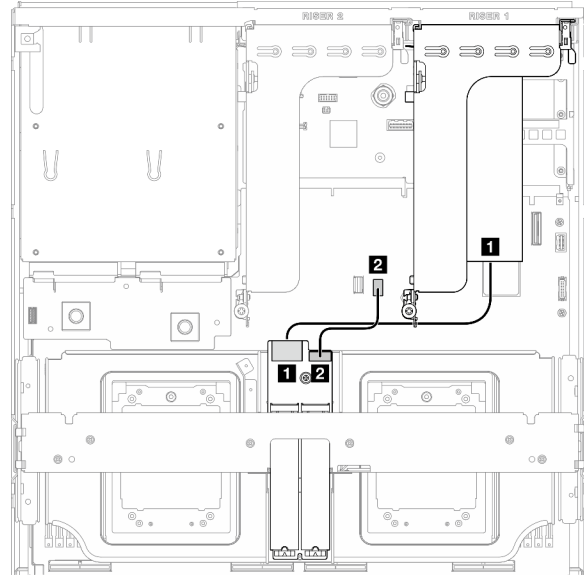
Figure 393. SATA/x4 NVMe M.2 backplane cable routing (RAID adapter on the PCIe riser 1)

Cable	From	To
1	M.2 backplane: Signal connector	RAID adapter installed on the PCIe riser 1 or 2
2	M.2 backplane: Power connector	System board assembly: M.2 power connector

OCP module cable routing

Use the section to understand the cable routing for the OCP module.

Based on the configuration, select the corresponding routing plan:

-
-

x8 OCP module

Use the section to understand the cable routing for the x8 OCP module.

Notes:

- Make sure the cable is routed under the radiator bracket as illustrated.
- After connecting cables, equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.
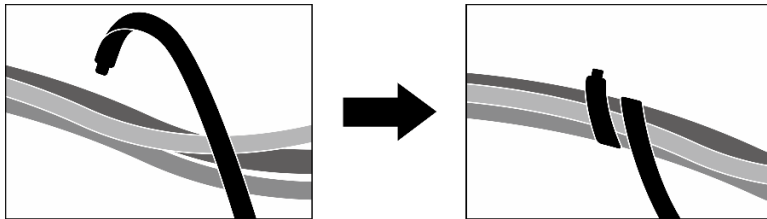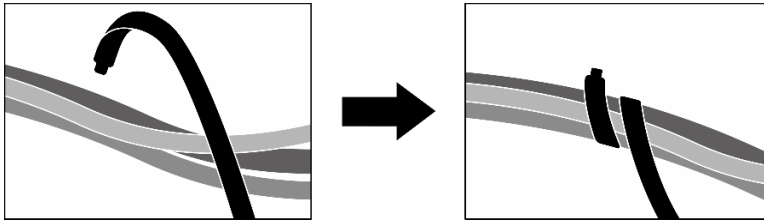
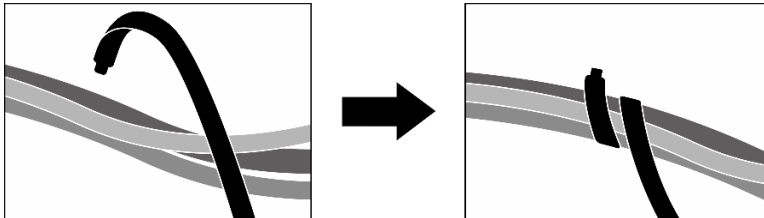*Figure 394. Securing cables with cable ties*

Choose the routing plan according to the type of drive installed in the system:

- "Two 2.5-inch drives" on page 415
- "Two E3.S drives" on page 416

Two 2.5-inch drives
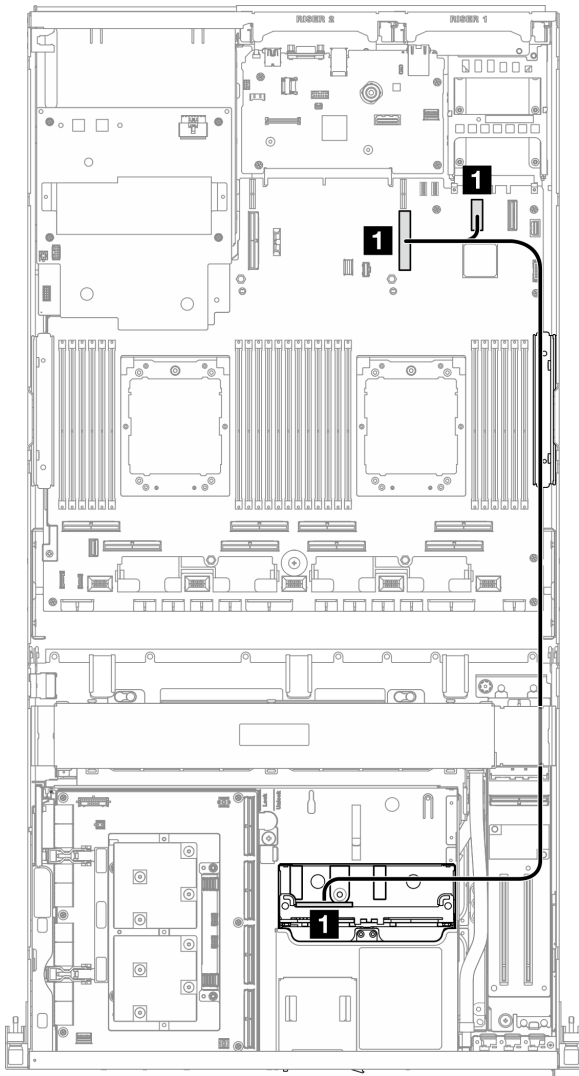
Figure 395. OCP module cable routing

Cable	From	To
1	System board assembly: PCIe connector 12	System board assembly: PCIe connector 9
	Backplane: NVMe 0-1	

Two E3.S drives
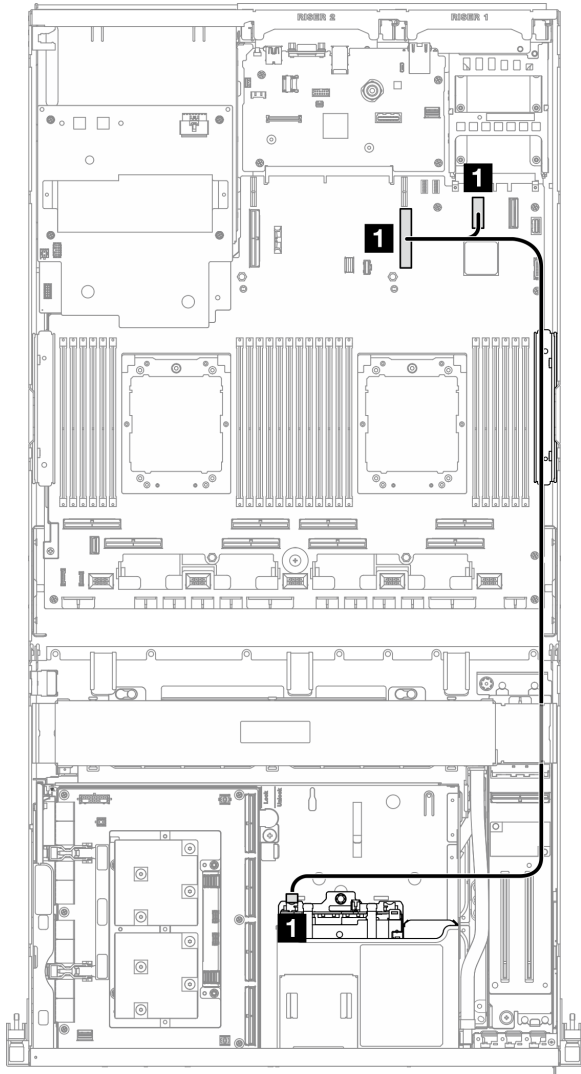
Figure 396. OCP module cable routing

Cable	From	To
1	System board assembly: PCIe connector 12	System board assembly: PCIe connector 9
	Backplane: EDSFF 0-1	

x16 OCP module

Use the section to understand the cable routing for the x16 OCP module.

Choose the routing plan according to the number of drive installed in the system:

- "No drive" on page 417

No drive
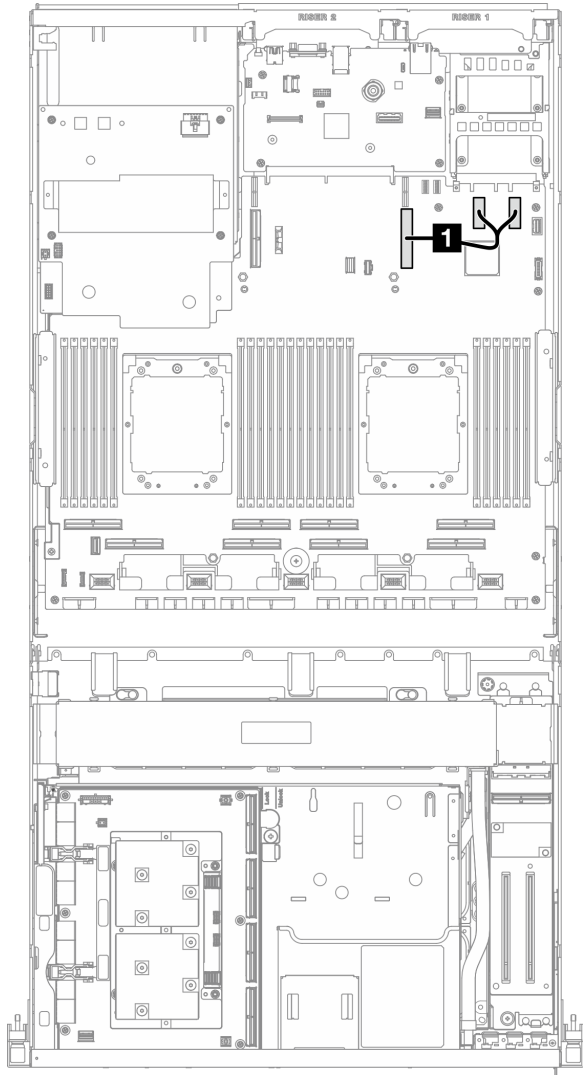
Figure 397. OCP module cable routing

Cable	From	To
1	System board assembly: PCIe connectors 11 and 12	System board assembly: PCIe connector 9

Four 2.5-inch/E3.S drives
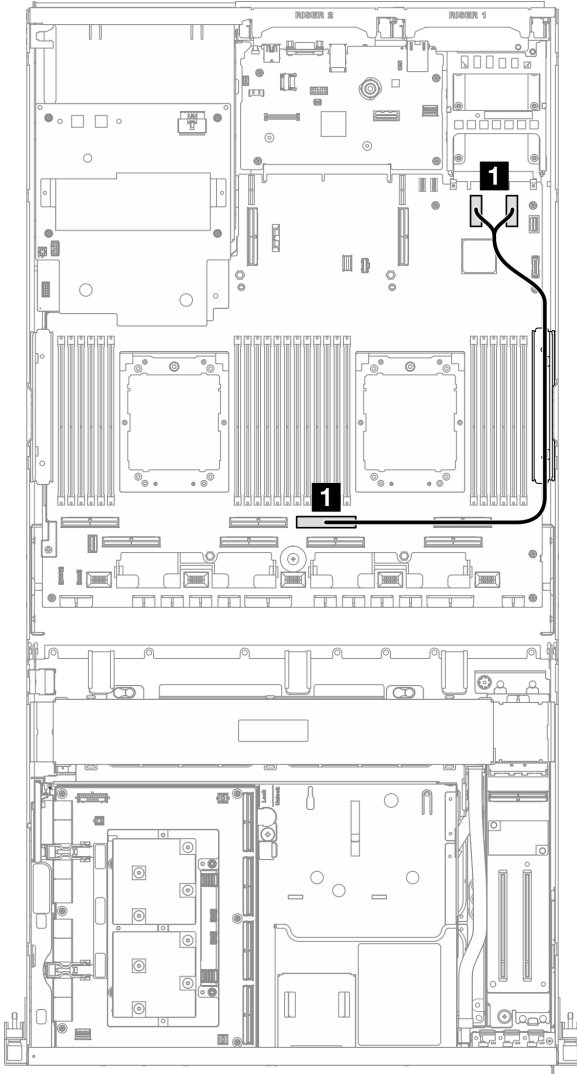
Figure 398. OCP module cable routing

Cable	From	To
1	System board assembly: PCIe connectors 11 and 12	System board assembly: PCIe connector 4

OSFP port card cable routing

Use the section to understand the cable routing for the OSFP port card.

Note: After connecting cables, equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.
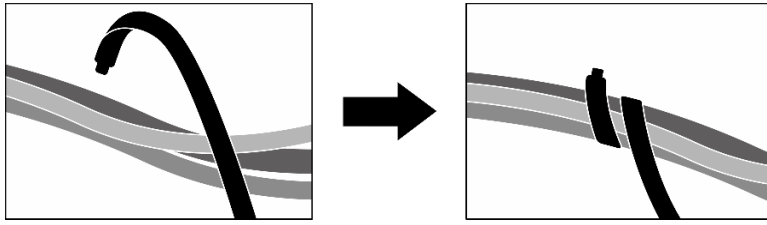
Figure 399. Securing cables with cable ties
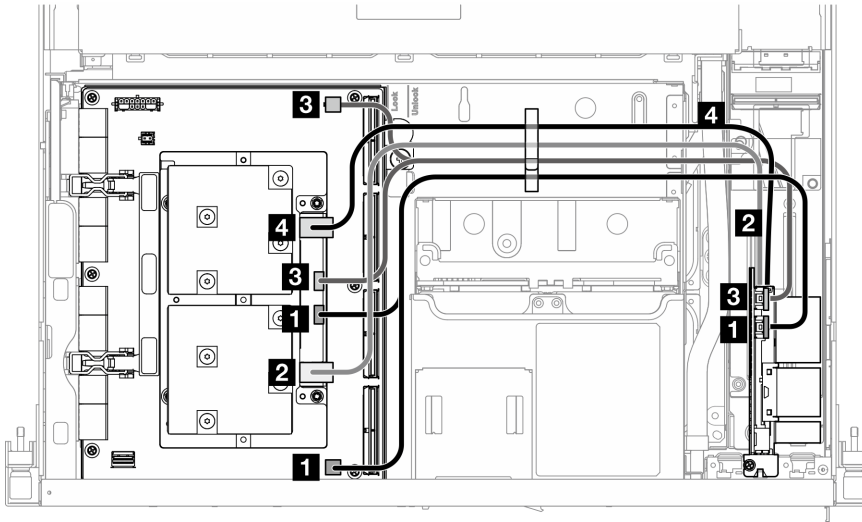
Figure 400. OSFP port card cable routing

Cable	From	To
1	OSFP port card: Power/OSFP control connector 1	CX-7 mezz board: OOB Port 0
		CX-7 carrier board: P0 connector
2	OSFP port card: Network connector (near the top)	CX-7 mezz board: Port 0
3	OSFP port card: Power/OSFP control connector 2	CX-7 mezz board: OOB Port 1
		CX-7 carrier board: P1 connector
4	OSFP port card: Network connector (near the bottom)	CX-7 mezz board: Port 1

PCIe riser 1 cable routing

Use the section to understand the cable routing for the PCIe riser 1.
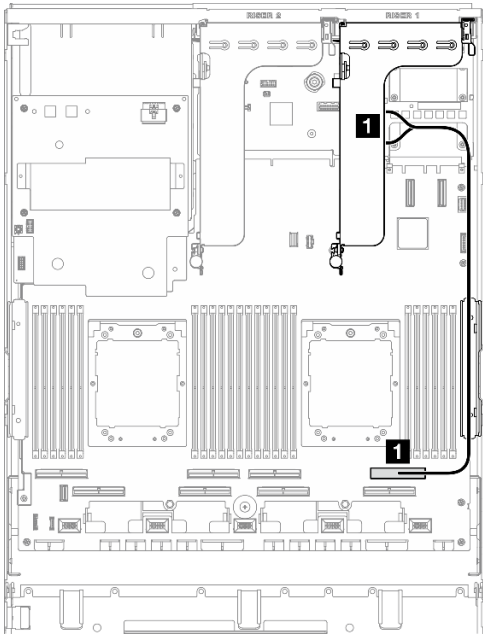
Figure 401. PCIe riser 1 cable routing

Cable	From	To
1	PCIe riser 1: MCIO connectors A and B	System board assembly: PCIe connector 2

PCIe riser 2 cable routing

Use the section to understand the cable routing for the PCIe riser 2.

Note: Make sure the PCIe riser 2 cable is routed underneath the SXM5 GPU board assembly power cable.
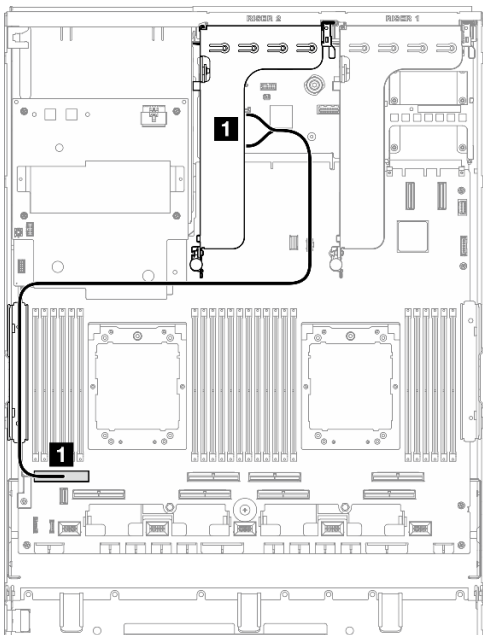
Figure 402. PCIe riser 2 cable routing

Cable	From	To
1	PCIe riser 2: MCIO connectors A and B	System board assembly: PCIe connector 8

SXM5 PCIe switch board cable routing

Use the section to understand the cable routing for the SXM5 PCIe switch board.

Notes:

- Make sure the cables that go through the right side of the server are routed under the radiator bracket as illustrated.
- Make sure the cables that go through the left side of the server are routed above the radiator bracket as illustrated.
- Connect the power cable last; then, press the power cable down to secure all the cables under the cable retaining guide on the front drive tray as illustrated.
- After connecting cables, equally divide the cables that go through the right side of the front drive tray into two bundles, and secure them with the two cable ties.
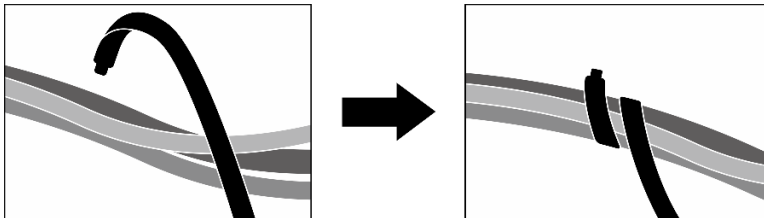
Figure 403. Securing cables with cable ties

Choose the routing plan according to the number of processor installed in the system:

One processor

Table 33. SXM5 PCIe switch board cable routing
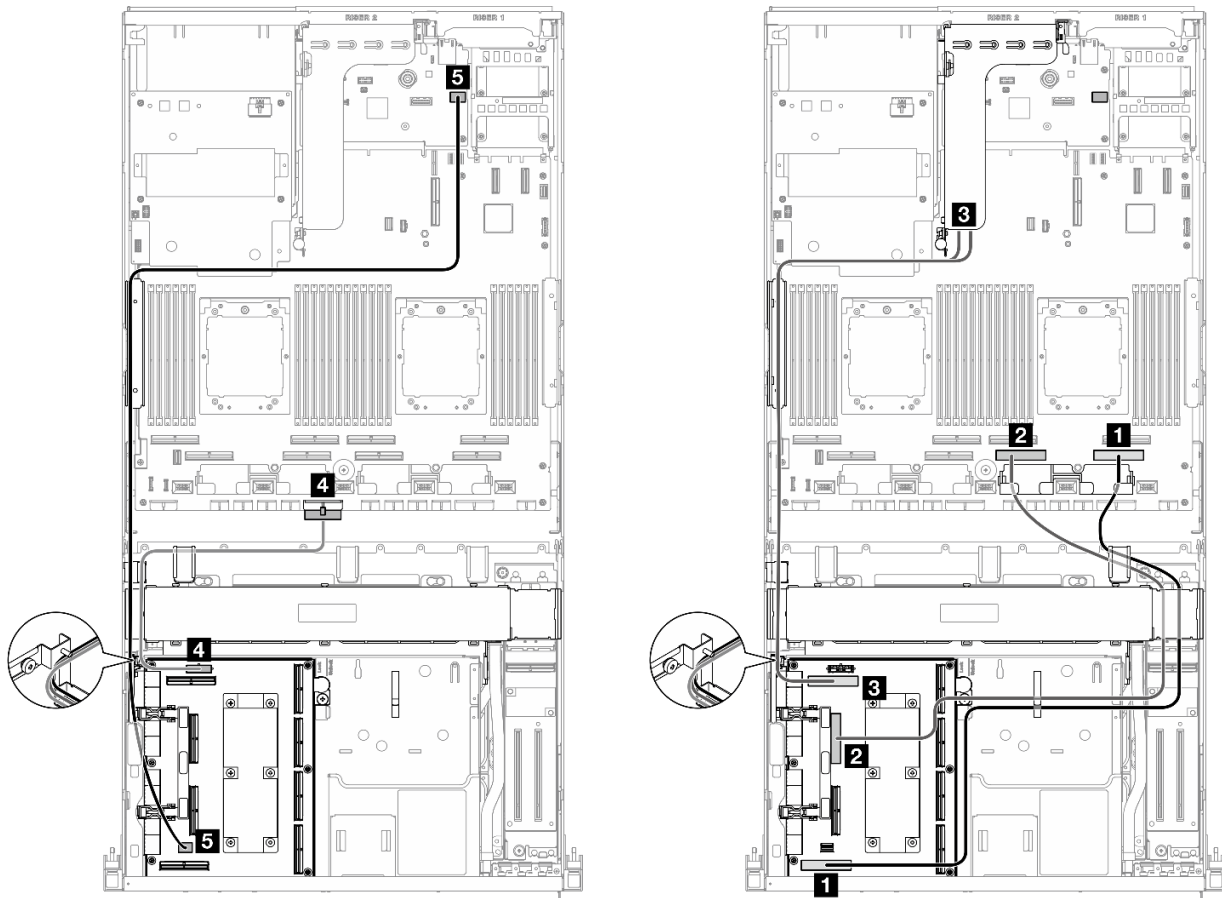
Cable	From	To
1	SXM5 PCIe switch board: MCIO connector H	System board assembly: PCIe connector 1
2	SXM5 PCIe switch board: MCIO connector F	System board assembly: PCIe connector 3
3	SXM5 PCIe switch board: MCIO connector E	PCIe riser 2: MCIO connectors A and B
4	SXM5 PCIe switch board: Power connector	System board assembly: PCIe distribution board power connector
5	SXM5 PCIe switch board: GPU management connector	System board assembly: Front SXM5 GPU management PCIe connector

Two processors

Table 34. SXM5 PCIe switch board cable routing
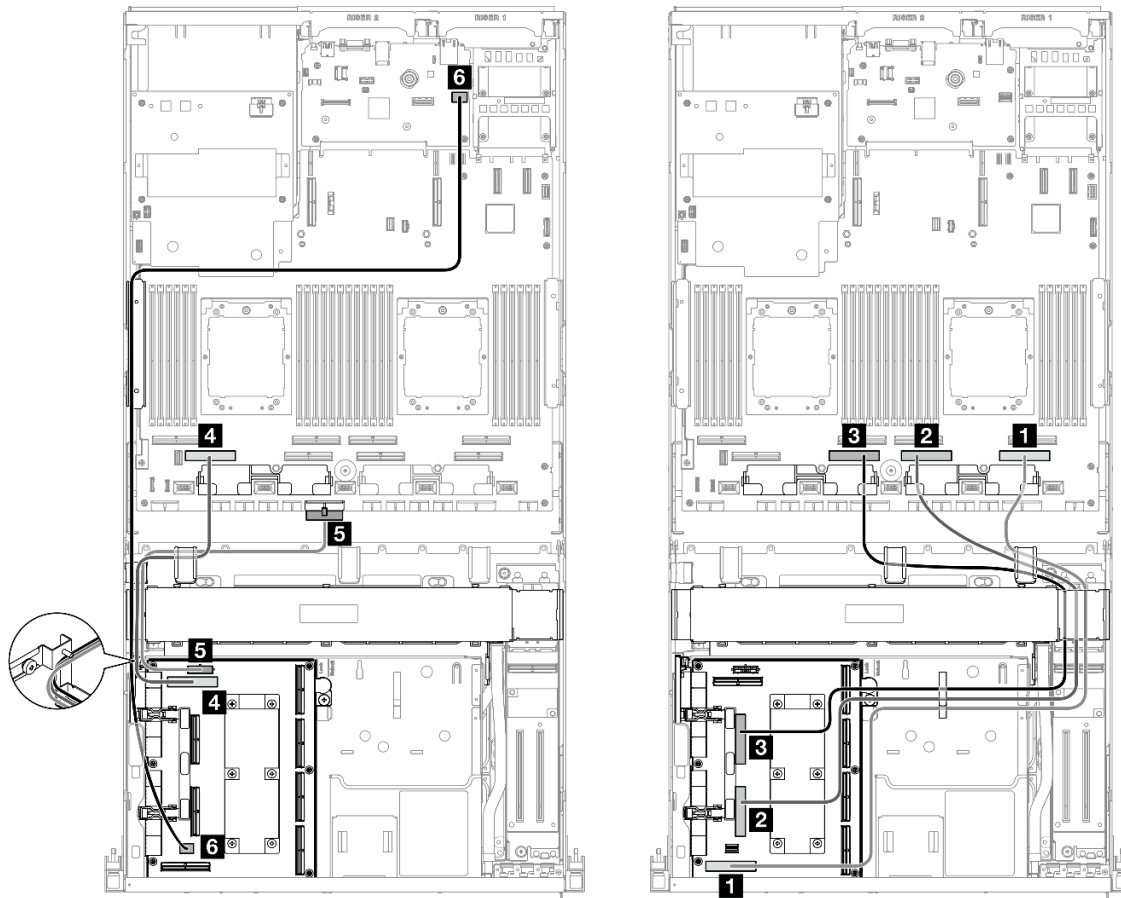
Cable	From	To
1	SXM5 PCIe switch board: MCIO connector H	System board assembly: PCIe connector 1
2	SXM5 PCIe switch board: MCIO connector G	System board assembly: PCIe connector 3
3	SXM5 PCIe switch board: MCIO connector F	System board assembly: PCIe connector 5
4	SXM5 PCIe switch board: MCIO connector E	System board assembly: PCIe connector 7
5	SXM5 PCIe switch board: Power connector	System board assembly: PCIe distribution board power connector
6	SXM5 PCIe switch board: GPU management connector	System board assembly: Front SXM5 GPU management PCIe connector

Chapter 7. 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.

- If no monitor is attached to the server, you can set the network connection through the Lenovo XClarity Controller interface. Connect an Ethernet cable from your laptop to XCC system management port on your server. For the location of the XCC system management port, see Chapter 2 "Server components" on page 15.

  Note: Make sure that you modify the IP settings on the laptop so that it is on the same network as the server default settings.

  The default IPv4 address and the IPv6 Link Local Address (LLA) is provided on the Lenovo XClarity Controller Network Access label that is affixed to the Pull Out Information Tab. See "Identify the server and access the Lenovo XClarity Controller" on page 55.

- If you are using the Lenovo XClarity Administrator Mobile app from a mobile device, you can connect to the Lenovo XClarity Controller through the Lenovo XClarity Controller USB connector on the server. For the location of the Lenovo XClarity Controller USB connector, see Chapter 2 "Server components" on page 15.

Note: The Lenovo XClarity Controller USB connector mode must be set to manage the Lenovo XClarity Controller (instead of normal USB mode). To switch from normal mode to Lenovo XClarity Controller management mode, hold the ID button on the server for at least 3 seconds until its LED flashes slowly (once every couple of seconds). See Chapter 2 "Server components" on page 15 for the location of the ID button.

To connect using the Lenovo XClarity Administrator Mobile app:

1. Connect the USB cable of your mobile device to the Lenovo XClarity Controller USB connector on the server.

2. On your mobile device, enable USB tethering.

3. On your mobile device, launch the Lenovo XClarity Administrator mobile app.

4. If automatic discovery is disabled, click **Discovery** on the USB Discovery page to connect to the Lenovo XClarity Controller.

For more information about using the Lenovo XClarity Administrator Mobile app, see:

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

Set USB port for Lenovo XClarity Controller connection

Before you can access the Lenovo XClarity Controller through the USB port, you need to configure the USB port for Lenovo XClarity Controller connection.

Server support

To see if your server supports accessing Lenovo XClarity Controller through the USB port, check one of the following:

- Refer to Chapter 2 "Server components" on page 15.

- ⚒ If there is a wrench icon on the USB port of your server, you can set the management USB port to connect to Lenovo XClarity Controller. It is also the only USB port that supports USB automation update of the firmware and RoT security module.

Setting the USB port for Lenovo XClarity Controller connection

You can switch the USB port between normal and Lenovo XClarity Controller management operation by performing one of the following steps.

- Hold the ID button for at least 3 second until its LED flashes slowly (once every couple of seconds). See Chapter 2 "Server components" on page 15 for ID button location.

- From the Lenovo XClarity Controller management controller CLI, run the `usbfp` command. For information about using the Lenovo XClarity Controller CLI, see the "Command-line interface" section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/.

- From the Lenovo XClarity Controller management controller web interface, click **BMC Configuration ➙ Network ➙ USB Management Port Assignment**. For information about Lenovo XClarity Controller web interface functions, see the "Description of XClarity Controller functions on web interface" section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/.

Checking USB port current setting

You can also check the current setting of the USB port using the Lenovo XClarity Controller management controller CLI (`usbfp` command) or the Lenovo XClarity Controller management controller web interface (**BMC Configuration ➙ Network ➙ USB Management Port Assignment**). See the "Command-line

interface" and "Description of XClarity Controller functions on web interface" sections in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/.

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/thinksystem/sr675v3/7d9q/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 Windows Server, Red Hat Enterprise Linux (RHEL) and SUSE Linux Enterprise Server (SLES) 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]		√	√
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		√		√

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 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/

Configure the firmware

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

Important: Lenovo does not recommend setting option ROMs to **Legacy**, but you can conduct this setting if necessary. Note that this setting prevents UEFI drivers for the slot devices from loading, which may cause negative side effects to Lenovo software, such as LXCA, OneCLI, and XCC. These side effects include but

are not limited to the inability to determine adapter card details, such as model name and firmware levels. For example, "ThinkSystem RAID 930-16i 4GB Flash" may be displayed as "Adapter 06:00:00". In some cases, the functionality on a specific PCIe adapter may not be enabled properly.

- **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 updating firmware 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

RAID configuration

Using a Redundant Array of Independent Disks (RAID) to store data remains one of the most common and cost-efficient methods to increase server's storage performance, availability, and capacity.

RAID increases performance by allowing multiple drives to process I/O requests simultaneously. RAID can also prevent data loss in case of a drive failure by reconstructing (or rebuilding) the missing data from the failed drive using the data from the remaining drives.

RAID array (also known as RAID drive group) is a group of multiple physical drives that uses a certain common method to distribute data across the drives. A virtual drive (also known as virtual disk or logical drive) is a partition in the drive group that is made up of contiguous data segments on the drives. Virtual drive is presented up to the host operating system as a physical disk that can be partitioned to create OS logical drives or volumes.

An introduction to RAID is available at the following Lenovo Press website:

https://lenovopress.lenovo.com/lp0578-lenovo-raid-introduction

Detailed information about RAID management tools and resources is available at the following Lenovo Press website:

https://lenovopress.lenovo.com/lp0579-lenovo-raid-management-tools-and-resources

Deploy the operating system

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

Available operating systems

- Microsoft Windows Server
- VMware ESXi
- Red Hat Enterprise Linux
- SUSE Linux Enterprise Server
- Canonical Ubuntu

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

– Lenovo XClarity Integrator deployment pack for SCCM (for Windows operating system only)

  https://pubs.lenovo.com/lxci-deploypack-sccm/dpsccm_c_endtoend_deploy_scenario

- **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

  – Lenovo XClarity Integrator deployment pack for SCCM (for Windows operating system only)

    https://pubs.lenovo.com/lxci-deploypack-sccm/dpsccm_c_endtoend_deploy_scenario

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 8. 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
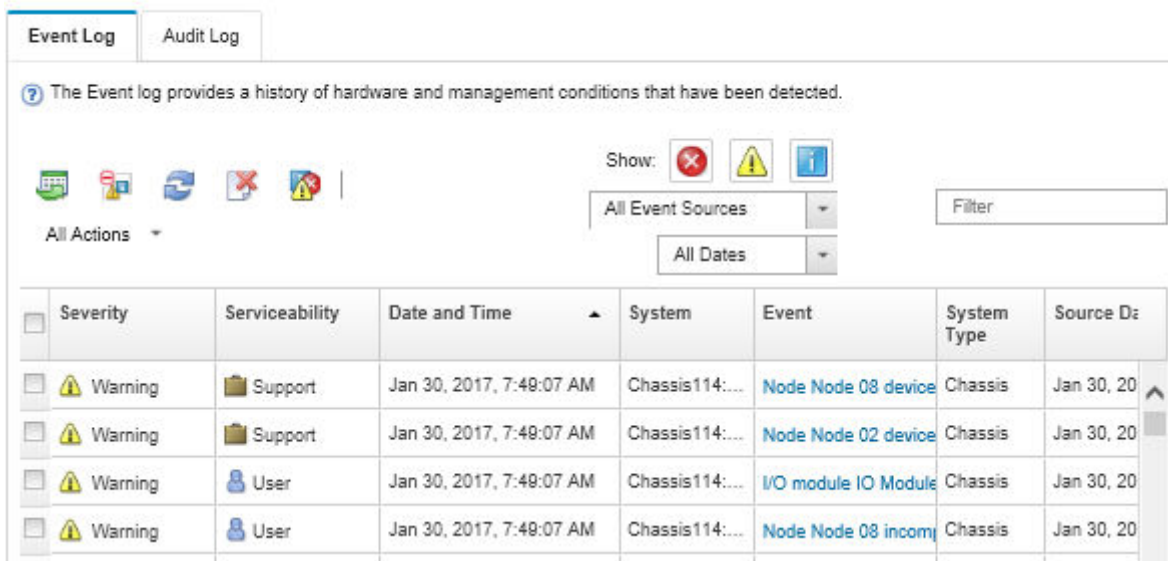
An *alert* is a message or other indication that signals an event or an impending event. Alerts are generated by the Lenovo XClarity Controller or by UEFI in the servers. These alerts are stored in the Lenovo XClarity Controller Event Log. If the server is managed by the Lenovo XClarity Administrator, 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/sr675-v3/pdf_files.html.

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.

Logs

Figure 404. Lenovo XClarity Administrator event log
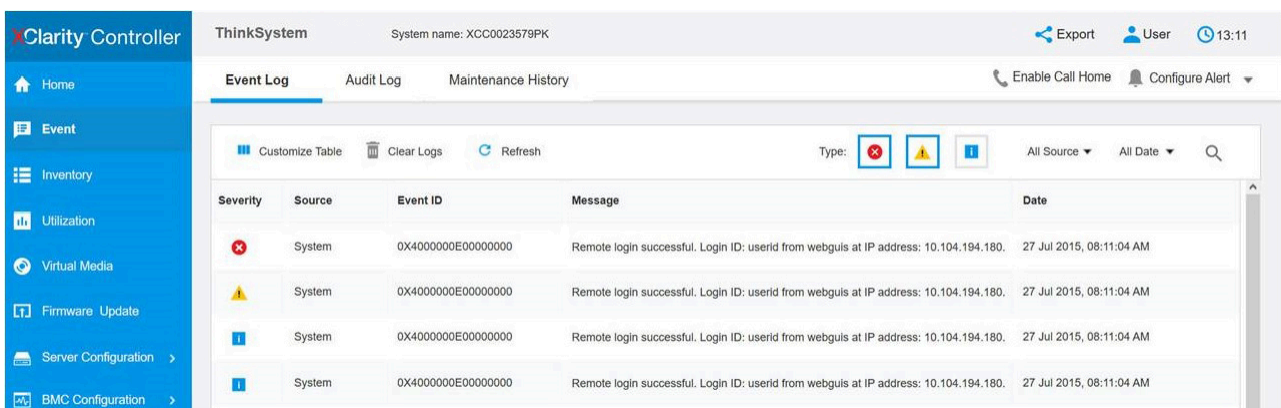
For more information about working with events from XClarity Administrator, see:

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 405. Lenovo XClarity Controller event log

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

Troubleshooting by system LEDs and diagnostics display

See the following section for information on available system LEDs and diagnostics display.

Drive LEDs

This topic provides information on drive LEDs.

The following table describes the problems that are indicated by drive activity LED and drive status LED.
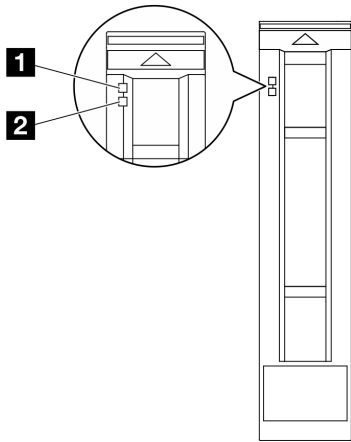
Figure 406. 2.5-inch drive LEDs
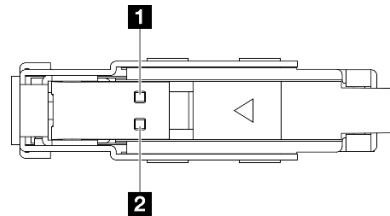
Figure 407. E1.S drive LEDs
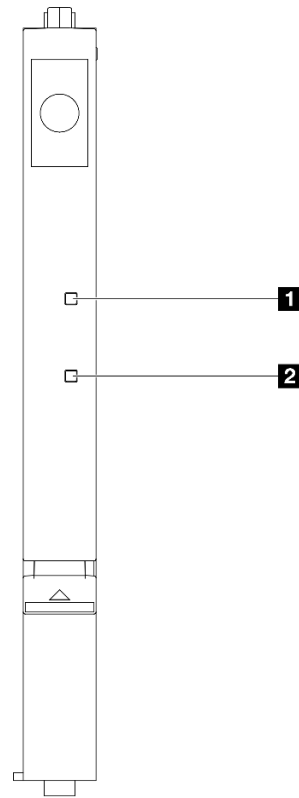
Figure 408. E3.S drive LEDs

Figure 409. Drive LEDs

Table 35. Drive LEDs

LED	Description
1 Drive activity LED (green)	Each hot-swap drive comes with an activity LED. When this LED is flashing, it indicates that the drive is in use.
2 Drive status LED (yellow)	The drive status LED indicates the following status: • The LED is lit: the drive has failed. • The LED is flashing slowly (once per second): the drive is being rebuilt. • The LED is flashing rapidly (three times per second): the drive is being identified.

Front operator panel LEDs

This section contains information about the front operator panel LEDs.
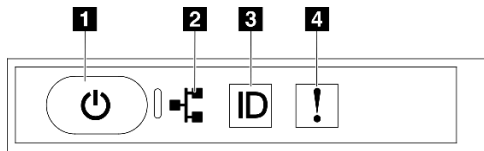
Figure 410. Front operator panel LEDs

Table 36. Front operator panel LEDs

1 Power button and power LED (green)	**3** System ID button/LED (blue)
2 Network Activity LED (green)	**4** System Error LED (yellow)

1 Power button and power LED (green)

Press this button to turn the server on and off manually. The states of the power LED are as follows:

Status	Color	Description
Off	None	Power is not present, or the power supply has failed.
Fast blinking (about four flashes per second)	Green	• The server is off, but the XClarity Controller is initializing, and the server is not ready to be powered on. • System-board-assembly power has failed.
Slow blinking (about one flash per second)	Green	The server is off and is ready to be powered on (standby state).
Solid on	Green	The server is on and running.

2 Network Activity LED (green)

The network activity LED helps you identify the network connectivity and activity.

Status	Color	Description
On	Green	The server is connected to a network.
Blinking	Green	The network is connected and active.
Off	None	The server is disconnected from the network.

3 System ID button/LED (blue)

Use this system ID button and the blue system ID LED to visually locate the server. Each time you press the system ID button, the state of the system ID LED changes. The LED can be changed to on, blinking, or off. You can also use the Lenovo XClarity Controller or a remote management program to change the state of the system ID LED to assist in visually locating the server among other servers.

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. • The power supply is not connected to the power.	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.

OSFP port card LEDs

This topic provides information on OSFP port card LEDs.
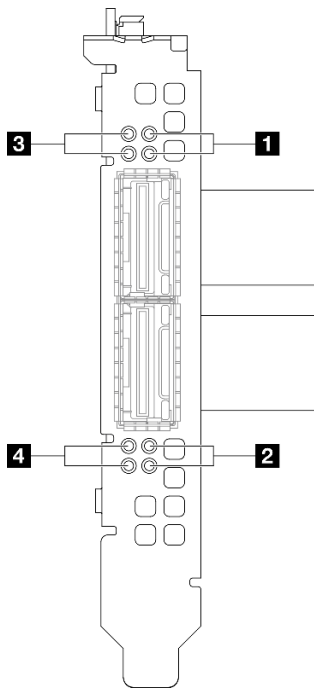
Figure 411. OSFP port card LEDs

Table 37. OSFP port card LEDs

LED	Description	Action
1/**2**	CX-7 mezz board link activity LED (green)	Use these green LEDs to distinguish the link activity of the four ConnectX-7 chip sets on the CX-7 mezz board. • For one-processor configuration: from top to bottom, these LEDs represent ConnectX-7 chip sets 0, 1, 2, and 3. • For two-processor configuration: from top to bottom, these LEDs represent ConnectX-7 chip sets 0, 1, 2, and 3. **Off:** The network is disconnected from switch. **Blinking:** The network link is connected and active. **On:** The network link is connected with no active traffic.
3/**4**	CX-7 mezz board link status LED (yellow)	Use these yellow LEDs to distinguish the link status of the four ConnectX-7 chip sets on the CX-7 mezz board. • For one-processor configuration: from top to bottom, these LEDs represent ConnectX-7 chip sets 0, 1, 2, and 3. • For two-processor configuration: from top to bottom, these LEDs represent ConnectX-7 chip sets 0, 1, 2, and 3. **Off:** The network is disconnected from switch. **Blinking (1 Hz):** The beacon command is used to locate the OSFP port card. **Blinking (4 Hz):** An error has occurred to the link. The error can be from I^2C or overcurrent. **On:** A physical network link is detected. **Note:** Using command to light up locating LED is available when transceiver or cable is attached to the OSFP port.

Power supply LEDs

This topic provides information about various power supply LED status and corresponding action suggestions.

The following minimal configuration is required for the server to start:

- One processor in socket 1
- One DRAM memory module in slots 6
- Two power supply units in bay 1 and 2
- One boot drive, M.2, 2.5-inch, EDSFF E1.S 5.9mm drive, or E3.S 1T drive and RAID adapter if configured. (If OS is needed by debugging)
- Five system fans
- One OCP module with required cable (if network is required)

The following table describes the problems that are indicated by various combinations of the power-supply LEDs and the power-on LED and suggested actions to correct the detected problems.
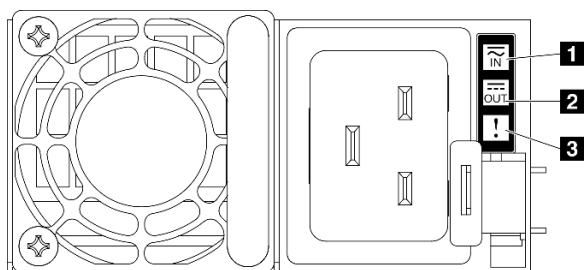
Figure 412. Power supply LEDs

Table 38. Power supply LEDs

LED	Description
1 Input status	The input status LED can be in one of the following states: • Off: The power supply is disconnected from the AC power source. • Green: The power supply is connected to the AC power source.
2 Output status	The output status LED can be in one of the following states: • Off: The server is powered off, or the power supply is not working properly. If the server is powered on but the output status LED is off, replace the power supply. • Green: The server is on and the power supply is working normally.
3 Fault LED	• Off: The power supply is working normally • Amber: The power supply may have failed. Dump the FFDC log from the system and contact Lenovo back end support team for PSU data log reviewing.

Rear system LEDs

This topic provides information on system LEDs on the rear of the server.
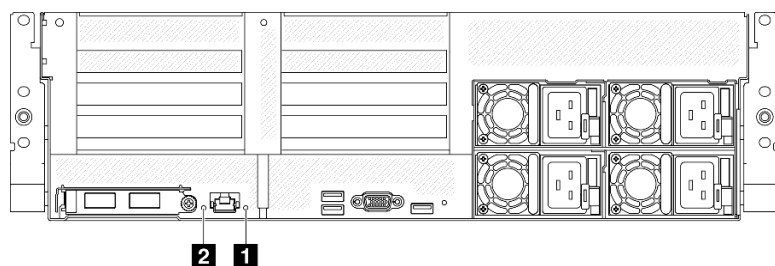
Figure 413. System LEDs on the rear view

Table 39. System LEDs on the rear view

LED	Description and actions
1 System error LED (yellow)	LED on: an error has occurred. Complete the following steps: 1. Check the identification LED and check log LED and follow the instructions. 2. Check the Lenovo XClarity Controller event log and the system error log for information about the error. 3. Save the log if necessary, and clear the log afterwards.
2 Identification LED (blue)	This LED is used as a presence detection LED. You can use Lenovo XClarity Controller to light this LED remotely. Use this LED to locate the server among other servers visually.

System-board-assembly LEDs

The following illustrations show the light-emitting diodes (LEDs) on the system board assembly.
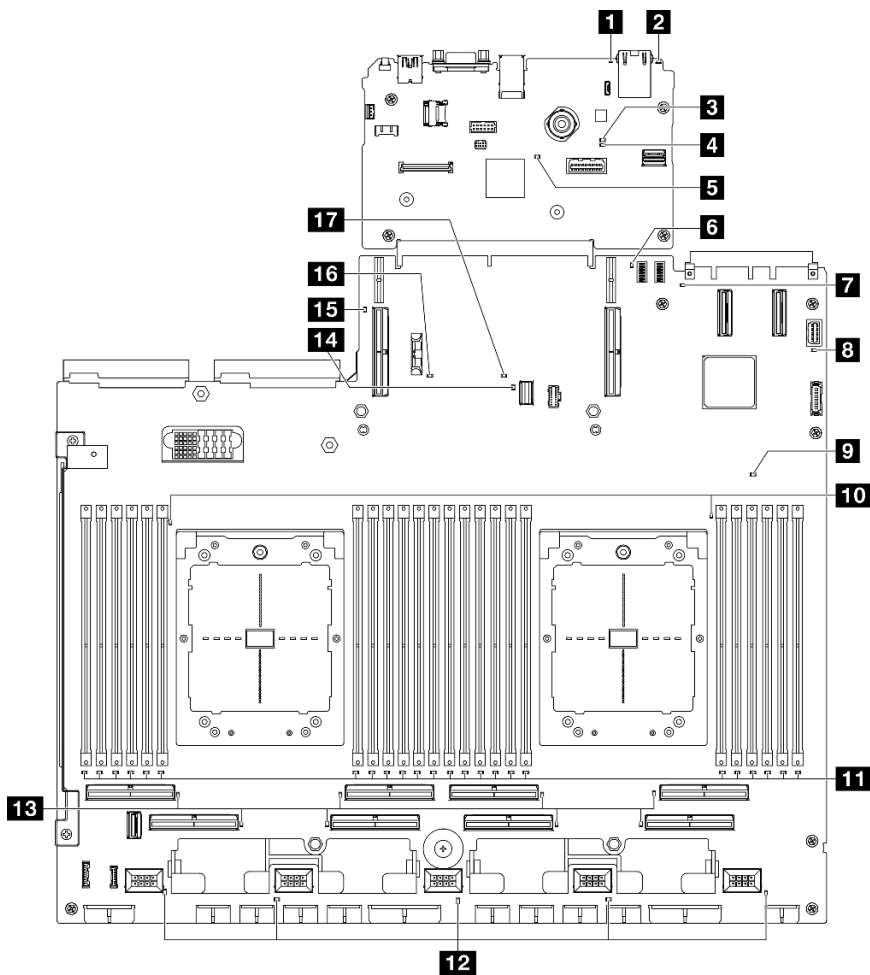
Figure 414. System-board-assembly LEDs

Table 40. System-board-assembly LEDs

LED	Description and actions
1 System error LED (yellow)	LED on: an error has occurred. Complete the following steps: 1. Check the identification LED and check log LED and follow the instructions. 2. Check the Lenovo XClarity Controller event log and the system error log for information about the error. 3. Save the log if necessary, and clear the log afterwards.
2 Identification LED (blue)	This LED is used as a presence detection LED. You can use Lenovo XClarity Controller to light this LED remotely. Use this LED to locate the server among other servers visually.
3 BMC status LED (green)	The states of the BMC status LED are as follows: • **LED on:** The BMC is alive. • **LED off:** The BMC is not ready or not alive. The LED is in this state when the server is first connected to AC power. It does not turn on until the SSP (Synchronous Serial Port) is ready.
4 BMC heartbeat LED (green)	The BMC heartbeat LED helps you identify the BMC status. • **LED on:** The BMC is not alive. • **LED Blinking:** The BMC is alive. • **LED off:** The BMC is not alive.
5 SSP heartbeat LED (green)	The states of the SSP (Synchronous Serial Port) heartbeat LED are as follows: • **LED on:** The SSP is synchronized and ready. • **LED off:** The serial port interface is not synchronized yet.
6 Rear PCIe riser 1 error LED (yellow)	LED on: an error has occurred to the rear PCIe riser 1.
7 OCP error LED (yellow)	LED on: an error has occurred to the OCP slot the LED represents. Complete the following steps: 1. Make sure the PCIe cable is connected to the appropriate downstream PCIe slot 15-16 or PCIe connector 1-12. 2. Make sure both ends of the cable are securely seated in the PCIe slots. 3. Replace the cable. 4. (trained technician only) replace the system board assembly. See "System board assembly replacement (trained technician only)" on page 158

Table 40. System-board-assembly LEDs (continued)

LED	Description and actions
8 System power LED (green)	The states of the power LED are as follows: • **Off:** No power supply is properly installed, or the LED itself has failed. • **Flashing rapidly (four times per second):** The server is turned off and is not ready to be turned on. The power-control button is disabled. This will last approximately 5 to 10 seconds. • **Flashing slowly (once per second):** The server is turned off and is ready to be turned on. You can press the power-control button to turn on the server. • **Lit:** The server is turned on.
9 FPGA heartbeat LED (yellow)	This LED indicates power-on and power-off sequencing. • **LED blinking:** The system is functioning properly, and no action is necessary. • **LED not blinking:** (trained technician only) replace the system board assembly. See "System board assembly replacement (trained technician only)" on page 158
10 Processor error LEDs (yellow)	LED on: an error has occurred to the processor the LED represents.
11 DIMM error LEDs (yellow)	LED on: an error has occurred to the DIMM the LED represents.
12 Fan error LEDs (yellow)	LED on: an error has occurred to the fan the LED represents.
13 PCIe connector error LEDs (yellow)	LED on: an error has occurred to the PCIe connector the LED represents. Complete the following steps: 1. Make sure the cable is connected to the appropriate downstream PCIe riser, drive backplane, or OCP adapter. 2. Make sure both ends of the cable are securely seated in the PCIe slots. 3. Replace the cable. 4. (trained technician only) replace the system board assembly. See "System board assembly replacement (trained technician only)" on page 158
14 M.2 error LED (yellow)	LED on: an error has occurred to the M.2.
15 Rear PCIe riser 2 error LED (yellow)	LED on: an error has occurred to the rear PCIe riser 2.
16 CMOS battery error LED (yellow)	The system CMOS battery is not installed or is not working.
17 System board assembly error LED (yellow)	LED on: an error has occurred to the system board assembly. Complete the following steps: 1. Check the Lenovo XClarity Controller event log and the system error log for information about the error. 2. Save the log if necessary, and clear the log afterward.

LEDs on the firmware and RoT security module

This topic provides information on LEDs of the ThinkSystem V3 Firmware and Root of Trust Security Module (firmware and RoT security module)

The following table describes the problems that are indicated by LEDs on the firmware and RoT security module.
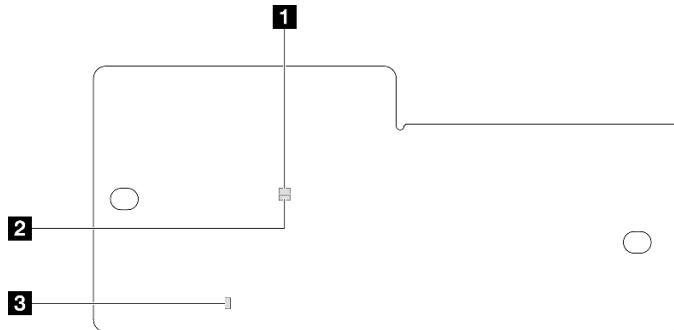
Figure 415. LEDs on the firmware and RoT security module

1 AP0 LED (Green)	**2** AP1 LED (Green)	**3** Fatal Error LED (Amber)

Table 41. LEDs description

Scenario	AP0 LED	AP1 LED	Fatal Error LED	FPGA heart-beat LED[note]	XCC heart-beat LED[note]	Actions
RoT security module fatal firmware failure	Off	Off	On	N/A	N/A	Replace the firmware and RoT security module.
	Blink	N/A	On	N/A	N/A	Replace the firmware and RoT security module.
	Blink	N/A	On	On	N/A	Replace the firmware and RoT security module.

No system power (FPGA heartbeat LED off)	Off	Off	Off	Off	Off	If the AC power is on, but the system board assembly does not have power, then:
						
						1. Check the power supply unit (PSU) or power distribution board (PDB) if any. If the PSU or PDB has any error, replace it.
						
						2. If the PSU or PDB is good, do the following:
						  a. Replace the system I/O board.
						  b. Replace the processor board.

XCC firmware recoverable error	Blink	N/A	Off	N/A	N/A	Information only. No action is required.
XCC firmware is recovered from error	On	N/A	Off	N/A	N/A	Information only. No action is required.

Table 41. LEDs description (continued)

Scenario	AP0 LED	AP1 LED	Fatal Error LED	FPGA heart-beat LED[note]	XCC heart-beat LED[note]	Actions
UEFI firmware authentication failure	N/A	Blink	Off	N/A	N/A	Information only. No action is required.
UEFI firmware is recovered from authentication failure	N/A	On	Off	N/A	N/A	Information only. No action is required.
System is OK (FPGA heartbeat LED is On)	On	On	Off	On	On	Information only. No action is required.

XCC system management port LEDs

This topic provides information on LEDs of XCC system management port.

The following table describes the problems that are indicated by LEDs on XCC system management port.
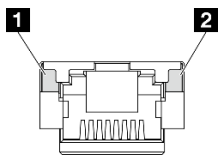
Figure 416. XCC system management port LEDs
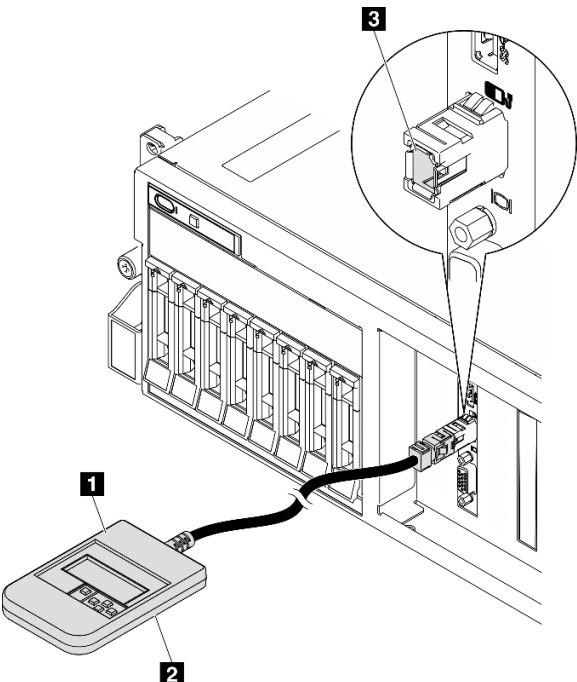
Table 42. XCC system management port LEDs

LED	Description
1 XCC system management port (1GB RJ-45) Ethernet port link LED	Use this green LED to distinguish the network connectivity status: • Off: The network link is disconnected. • Green: The network link is established.
2 XCC system management port (1 GB RJ-45) Ethernet port activity LED	Use this green LED to distinguish the network activity status: • Off: The server is disconnected from a LAN. • Green: The network is connected and active.

External diagnostics handset

The external diagnostics handset is an external device that is connected to the server with a cable, and it allows quick access to system information such as errors, system status, firmware, network, and health information.

Location of the external diagnostics handset

Location	Callouts
The external diagnostics handset is connected to the server with an external cable. 	**1** External diagnostics handset
	2 Magnetic bottom With this component, the diagnostic handset can be attached to the top or side of the rack with hands spared for service tasks.
	3 External diagnostics connector This connector is located on the front of the server, and is used to connect an external diagnostics handset.

Note: When unplugging the external diagnostics handset, see the following instructions:
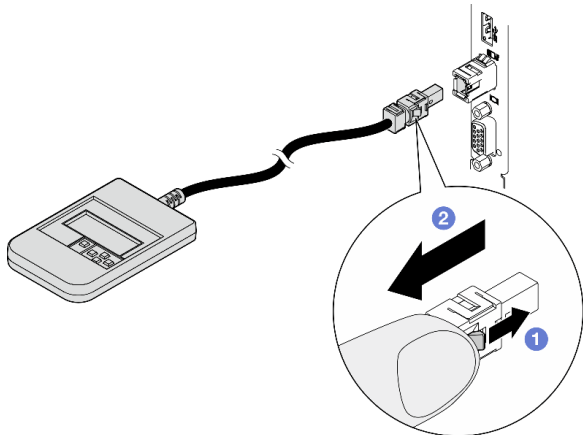
❶ Press the plastic clip on the plug forward.

❷ Hold the clip and remove the cable from the connector.

Display panel overview

The diagnostics device consists of an LCD display and 5 navigation buttons.

Status Dashboard
System Name   Ambient Temp
System Status   Power
Active Alerts   Checkpoint Code | Active Session
 	
Menu: • Active Alerts
      • Status Dashboard
      • VPD
      • System Firmware
      • XCC Network
      • Environmental
      • Active Sessions
      • Actions
	1 LCD display

	2 Scroll buttons (up/down/left/right) Press the scroll buttons to locate and select system information.
	3 Select button Press the select button to select from the options in the menu.

Option flow diagram

The LCD panel displays various system information. Navigate through the options with the scroll keys.

Depending on the model, the options and entries on the LCD display might be different.

Power consumption/
Temparature

Select

Scroll up/down/left/right

```
┌─────────────────────────┐
│ ◄    Status Dashboard  ► │
│ XXXXX              25 C  │
│ System Init.       11 W  │
│ 1 Active Alerts    0x09  │
└─────────────────────────┘
```

Checkpoint Code

System Status Dashboard ↔ **Active Alerts** ↔ **System VPD** ↔ **System Firmware**

Active Alerts:
- Alerts 1
- ...
- Alerts 31

System VPD:
- Machine Type Model Serial Number
- Universal Unique ID

System Firmware:
- XCC Primary
- XCC Backup
- uEFI

XCC Network Information ↔ **System Environment** ↔ **Active Sessions** ↔ **Actions**

XCC Network Information:
- XCC Hostname
- MAC Address
- IPv4 Network Mask
- IPv4 DNS
- IPv6 Link Local IP
- Stateless IPv6 IP
- Static IPv6 IP
- Current IPv6 Gateway
- IPv6 DNS

System Environment:
- Ambient Temp
- Exhaust Temp
- CPU Temp
- PSU
- FAN 1 - FAN 4

Active Sessions:
- User Session 1
- ...
- User Session 31

Actions:
- Revert XCC to Defaults
- Force XCC Reset
- Request XCC Reset
- Set UEFI MEM test
- System Reset
- Request Virtual Reseat
- Modify XCC IPv4 Address
- Modify System Name
- Generate / Download FFDC Service Data

Full menu list

Following is the list of available options. Switch between an option and the subordinate information entries with the select button, and switch among options or information entries with the scroll buttons.

Depending on the model, the options and entries on the LCD display might be different.

Home Menu (System Status Dashboard)

Home Menu	Example
1 System name **2** System status **3** Active alert quantity **4** Temperature **5** Power consumption **6** Checkpoint code	◄ Status Dashboard ► **1** XXXXX 25 C **4** **2** System Init. 11 W **5** **3** 1 Active Alerts 0x09 **6**

Active Alerts

Sub Menu	Example
Home screen: Active error quantity **Note:** The "Active Alerts" menu displays only the quantity of active errors. If no errors occur, the "Active Alerts" menu will not be available during navigation.	1 Active Alerts
Details screen: • Error message ID (Type: Error/Warning/Information) • Occurrence time • Possible sources of the error	Active Alerts: 1 Press ▼ to view alert details FQXSPPU009N(Error) 04/07/2020 02:37:39 PM CPU 1 Status: Configuration Error

System VPD Information

Sub Menu	Example
• Machine type and serial number • Universal Unique ID (UUID)	Machine Type: xxxx Serial Num: xxxxxx Universal Unique ID: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

System Firmware

Sub Menu	Example

XCC Primary
• Firmware level (status)
• Build ID
• Version number
• Release date
	`XCC Primary (Active)`
	`Build: DVI399T`
	`Version: 4.07`
	`Date: 2020-04-07`

XCC Backup
• Firmware level (status)
• Build ID
• Version number
• Release date
	`XCC Backup (Active)`
	`Build: D8BT05I`
	`Version: 1.00`
	`Date: 2019-12-30`

UEFI
• Firmware level (status)
• Build ID
• Version number
• Release date
	`UEFI (Inactive)`
	`Build: D0E101P`
	`Version: 1.00`
	`Date: 2019-12-26`

XCC Network Information

Sub Menu	Example

• XCC hostname
• MAC address
• IPv4 Network Mask
• IPv4 DNS
• IPv6 Link Local IP
• Stateless IPv6 IP
• Static IPv6 IP
• Current IPv6 Gateway
• IPv6 DNS
Note: Only the MAC address that is currently in use is displayed (extension or shared).
	`XCC Network Information`
	`XCC Hostname: XCC-xxxx-SN`
	`MAC Address:`
	`xx:xx:xx:xx:xx:xx`
	`IPv4 IP:`
	`xx.xx.xx.xx`
	`IPv4 Network Mask:`
	`x.x.x.x`
	`IPv4 Default Gateway:`
	`x.x.x.x`

System Environmental Information

Sub Menu	Example
• Ambient temperature • Exhaust temperature • CPU temperature • PSU status • Spinning speed of fans by RPM	Ambient Temp: 24 C Exhaust Temp: 30 C CPU1 Temp: 50 C PSU1: Vin= 213 w Inlet= 26 C FAN1 Front: 21000 RPM FAN2 Front: 21000 RPM FAN3 Front: 21000 RPM FAN4 Front: 21000 RPM

Active Sessions

Sub Menu	Example
Quantity of active sessions	Active User Sessions: 1

Actions

Sub Menu	Example
Several quick actions are available: • Revert XCC to Defaults • Force XCC Reset • Request XCC Reset • Set UEFI Memory Test • Request Virtual Reseat • Modify XCC Static IPv4 Address/Net mask/Gateway • Modify System Name • Generate/Download FFDC Service Data	Request XCC Reset? This will request the BMC to reboot itself. Hold √ for 3 seconds

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 4.

4. Power on the server.

If the problem is solved when you remove an adapter from the server, but the problem recurs when you install the same adapter again, suspect the adapter. If the problem recurs when you replace the adapter with a different one, try a different PCIe slot.

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 435.

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 4.

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.
- If you set the Ethernet controller to operate at 100 Mbps or 1000 Mbps, you must use Category 5 cabling.

Step 3. Determine whether the hub supports auto-negotiation. If it does not, try configuring the integrated Ethernet controller manually to match the speed and duplex mode of the hub.

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

Ethernet controller LED locations are specified in "Troubleshooting by system LEDs and diagnostics display" on page 437.

- The Ethernet link status LED is lit when the Ethernet controller receives a link pulse from the hub. If the LED is off, there might be a defective connector or cable or a problem with the hub.

- 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 and diagnostics display" on page 437.

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 435).

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 479).

Intermittent problems

Use this information to solve intermittent problems.

- "Intermittent external device problems" on page 455
- "Intermittent KVM problems" on page 455
- "Intermittent unexpected reboots" on page 455

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 **BMC Settings ➙ 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 435 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" on page 456
- "Mouse does not work" on page 456
- "KVM switch problems" on page 456
- "USB-device does not work" on page 456

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.

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.

Memory problems

See this section to resolve issues related to memory.

Common memory problems

- "Multiple memory modules in a channel identified as failing" on page 457
- "Displayed system memory is less than installed physical memory" on page 457
- "Invalid memory population detected" on page 458

Multiple memory modules in a channel identified as failing

Note: Each time you install or remove a memory module, you must disconnect the server from the power source; then, wait 10 seconds before restarting the server.

Complete the following procedure to solve the problem.

1. Reseat the memory modules; then, restart the server.

2. Remove the highest-numbered memory module of those that are identified and replace it with an identical known good memory module; then, restart the server. Repeat as necessary. If the failures continue after all identified memory modules are replaced, go to step 4.

3. Return the removed memory modules, one at a time, to their original connectors, restarting the server after each memory module, until a memory module fails. Replace each failing memory module with an identical known good memory module, restarting the server after each memory module replacement. Repeat step 3 until you have tested all removed memory modules.

4. Replace the highest-numbered memory module of those identified; then, restart the server. Repeat as necessary.

5. Reverse the memory modules between the channels (of the same processor), and then restart the server. If the problem is related to a memory module, replace the failing memory module.

6. (Trained technician only) Install the failing memory module into a memory module connector for processor 2 (if installed) to verify that the problem is not the processor or the memory module connector.

7. (Trained technician only) Replace the system board (system board assembly).

Displayed system memory is less than installed physical memory

Complete the following procedure to solve the problem.

Note: Each time you install or remove a memory module, you must disconnect the server from the power source; then, wait 10 seconds before restarting the server.

1. Make sure that:
   - No error LEDs are lit. See "Troubleshooting by system LEDs and diagnostics display" on page 437.
   - No memory module error LEDs are lit on the system board (system board assembly).
   - Memory mirrored channel does not account for the discrepancy.
   - The memory modules are seated correctly.
   - You have installed the correct type of memory module (see "Memory module installation rules and order" on page 63 for requirements).
   - After changing or replacing a memory module, memory configuration is updated accordingly in the Setup Utility.

- All banks of memory are enabled. The server might have automatically disabled a memory bank when it detected a problem, or a memory bank might have been manually disabled.
  - There is no memory mismatch when the server is at the minimum memory configuration.
2. Reseat the memory modules, and then restart the server.
3. Check the POST error log:
   - If a memory module was disabled by a systems-management interrupt (SMI), replace the memory module.
   - If a memory module was disabled by the user or by POST, reseat the memory module; then, run the Setup Utility and enable the memory module.
4. Re-enable all memory modules using the Setup Utility, and then restart the server.
5. (Trained technician only) Install the failing memory module into a memory module connector for processor 2 (if installed) to verify that the problem is not the processor or the memory module connector.
6. (Trained technician only) Replace the system board (system board assembly).

Invalid memory population detected

If this warning message appears, complete the following steps:

Invalid memory population (unsupported DIMM population) detected. Please verify memory configuration is valid.

1. See "Memory module installation rules and order" on page 63 to make sure the present memory module population sequence is supported.
2. If the present sequence is indeed supported, see if any of the modules is displayed as "disabled" in Setup Utility.
3. Reseat the module that is displayed as "disabled," and reboot the system.
4. If the problem persists, replace the memory module.

Monitor and video problems

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

- "Incorrect characters are displayed" on page 458
- "Screen is blank" on page 458
- "Screen goes blank when you start some application programs" on page 459
- "The monitor has screen jitter, or the screen image is wavy, unreadable, rolling, or distorted" on page 459
- "The wrong characters appear on the screen" on page 459

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 427.

Screen is blank

Note: Make sure that the expected boot mode has not been changed from the UEFI to Legacy or vice versa.

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. 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.

5. Make sure that the correct server is controlling the monitor, if applicable.

6. Make sure that the video output is not affected by corrupted server firmware; See "Update the firmware" on page 427.

7. 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 427.

Network problems

Use this information to resolve issues related to networking.

- "Cannot wake server using Wake on LAN" on page 460

- "Could not log in using LDAP account with SSL enabled" on page 460

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 XCC system event log (see "Event logs" on page 435), 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 3).

   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.

- "Server hangs during the UEFI boot process" on page 460
- "The server immediately displays the POST Event Viewer when it is turned on" on page 461
- "Server is unresponsive (POST is complete and operating system is running)" on page 461
- "Server is unresponsive (POST failed and cannot start System Setup)" on page 461
- "Voltage planar fault is displayed in the event log" on page 462
- "Unusual smell" on page 462
- "Server seems to be running hot" on page 462
- "Cannot enter legacy mode after installing a new adapter" on page 462
- "Cracked parts or cracked chassis" on page 463

Server hangs during the UEFI boot process

If the system hangs during the UEFI boot process with the message `UEFI: DXE INIT` on the display, make sure that Option ROMs were not configured with a setting of **Legacy**. You can remotely view the current settings for Option ROMs by running the following command using the Lenovo XClarity Essentials OneCLI:

`onecli config show EnableDisableAdapterOptionROMSupport --bmc` *xcc_userid*`:`*xcc_password*`@`*xcc_ipaddress*

To recover a system that hangs during the boot process with Legacy Option ROM settings, see the following Tech Tip:

https://datacentersupport.lenovo.com/solutions/ht506118

If legacy Option ROMs must be used, do not set slot Option ROMs to **Legacy** on the Devices and I/O Ports menu. Instead, set slot Option ROMs to **Auto** (the default setting), and set the System Boot Mode to **Legacy Mode**. Legacy option ROMs will be invoked shortly before the system boots.

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. Make sure that the server supports all the processors and that the processors match in speed and cache size.

   You can view processor details from system setup.

   To determine if the processor is supported for the server, see https://serverproven.lenovo.com.
3. (Trained technician only) Make sure that processor 1 is seated correctly.
4. (Trained technician only) Remove processor 2 and restart the server.
5. Replace the following components one at a time, in the order shown, restarting the server each time:
   a. (Trained technician only) Processor
   b. (Trained technician only) System board (system board assembly)

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 3 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 3).

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 in the server are installed correctly (see Chapter 5 "Hardware replacement procedures" on page 59 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 the each system has its own specific PMI 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.

Cannot enter legacy mode after installing a new adapter

Complete the following procedure to solve the problem.

1. Go to **UEFI Setup → Devices and I/O Ports → Set Option ROM Execution Order**.

2. Move the RAID adapter with operation system installed to the top of the list.

3. Select **Save**.

4. Reboot the system and auto boot to operating system.

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. Resolve any resource conflicts if running legacy mode (UEFI). Check legacy ROM boot orders and modify the UEFI setting for MM config base.

   Note: Ensure that you modify the ROM boot order associated with the PCIe adapter to the first execution order.

7. Check http://datacentersupport.lenovo.com for any tech tips (also known as retain tips or service bulletins) that might be related to the adapter.

8. Ensure any adapter external connections are correct and that the connectors are not physically damaged.

9. 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. If the Boot Device does not support MMIO above 4GB for Legacy Boot, use UEFI Boot Mode or remove/disable some PCIe devices.

9. DC cycle the system and ensure the system is enter UEFI boot menu or the operating system; then, capture the FFDC log.

10. 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 damages, 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.

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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, 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.

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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 front operator panel cable, and then repeat steps 1a and 2b.

      - If the server starts, reseat the front operator panel.
      - If the problem remains, replace the front operator panel.
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 AC power LED is lit on or the amber LED is lit on at the PSU rear side.

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 4).

9. Reseat all power supplies and make sure that AC LEDs on the PSU rear side are lit.

10. Replace the each power supply 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.

System error 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. The power cord is connected to a properly grounded electrical outlet for the server.

3. Make sure that the power supply AC source is stable within the supported range.

4. Swap the power supply to see if the issue follows the power supply, if it follows the power supply, then replace the failing one.

5. 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 467
- "Serial device does not work" on page 467

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 "System-board-assembly connectors" on page 38).
2. Reseat the following components:
   a. Failing serial device.
   b. Serial cable.
3. Replace the following components:
   a. Failing serial device.
   b. Serial cable.
4. (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.

Storage drive problems

Use this information to resolve issues related to the storage drives.

- "Server cannot recognize a drive" on page 468
- "Multiple drives fail" on page 468
- "Multiple drives are offline" on page 469
- "A replacement drive does not rebuild" on page 469

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Server cannot recognize a drive

Complete the following steps until the problem is solved.

1. Observe the associated yellow drive status LED. If the LED is lit, it indicates a drive fault.

2. If the status LED is lit, remove the drive from the bay, wait 45 seconds, and reinsert the drive, making sure that the drive assembly connects to the drive backplane.

3. Observe the associated green drive activity LED and the yellow status LED and perform corresponding operations in different situations:

    - If the green activity LED is flashing and the yellow status LED is not lit, the drive is recognized by the controller and is working correctly. Run the diagnostics tests for the drives. When you start a server and press the key according to the on-screen instructions, the LXPM is displayed by default. (For more information, see the "Startup" section in the LXPM documentation compatible with your server at https://pubs.lenovo.com/lxpm-overview/.) You can perform drive diagnostics from this interface. From the Diagnostic page, click **Run Diagnostic ➙ Disk Drive Test**.

    - If the green activity LED is flashing and the yellow status LED is flashing slowly, the drive is recognized by the controller and is rebuilding.

    - If neither LED is lit or flashing, check whether the drive backplane is correctly seated. For details, go to step 4.

    - If the green activity LED is flashing and the yellow status LED is lit, replace the drive.

4. Make sure that the drive backplane is correctly seated. When it is correctly seated, the drive assemblies correctly connect to the backplane without bowing or causing movement of the backplane.

5. Reseat the backplane power cable and repeat steps 1 through 3.

6. Reseat the backplane signal cable and repeat steps 1 through 3.

7. Suspect the backplane signal cable or the backplane:

    - Replace the affected backplane signal cable.

    - Replace the affected backplane.

8. Run the diagnostics tests for the drives. When you start a server and press the key according to the on-screen instructions, the LXPM is displayed by default. (For more information, see the "Startup" section in the LXPM documentation compatible with your server at https://pubs.lenovo.com/lxpm-overview/.) You can perform drive diagnostics from this interface. From the Diagnostic page, click **Run Diagnostic ➙ Disk Drive Test**.

    Based on those tests:

    - If the backplane passes the test but the drives are not recognized, replace the backplane signal cable and run the tests again.

    - Replace the backplane.

    - If the adapter fails the test, disconnect the backplane signal cable from the adapter and run the tests again.

    - If the adapter fails the test, replace the adapter.

Multiple drives fail

Complete the following steps until the problem is solved:

- View the Lenovo XClarity Controller event log for events related to power supplies or vibration issues and resolve those events.

- Make sure that the device drivers and firmware for the drive and server are at the latest level.

Important: Some cluster solutions require specific code levels or coordinated code updates. If the device is part of a cluster solution, verify that the latest level of code is supported for the cluster solution before you update the code.

Multiple drives are offline

Complete the following steps until the problem is solved:

- View the Lenovo XClarity Controller event log for events related to power supplies or vibration issues and resolve those events.
- View the storage subsystem log for events related to the storage subsystem and resolve those events.

A replacement drive does not rebuild

Complete the following steps until the problem is solved:

1. Make sure that the drive is recognized by the adapter (the green drive activity LED is flashing).
2. Review the SAS/SATA RAID adapter documentation to determine the correct configuration parameters and settings.

Green drive activity LED does not represent actual state of associated drive

Complete the following steps until the problem is solved:

1. If the green drive activity LED does not flash when the drive is in use, run the diagnostics tests for the drives. When you start a server and press the key according to the on-screen instructions, the LXPM is displayed by default. (For more information, see the "Startup" section in the LXPM documentation compatible with your server at https://pubs.lenovo.com/lxpm-overview/.) You can perform drive diagnostics from this interface. From the Diagnostic page, click **Run Diagnostic ➙ Disk Drive Test**
2. If the drive passes the test, replace the backplane.
3. If the drive fails the test, replace the drive.

Yellow drive status LED does not represent actual state of associated drive

Complete the following steps until the problem is solved:

1. Turn off the server.
2. Reseat the SAS/SATA adapter.
3. Reseat the backplane signal cable and backplane power cable.
4. Reseat the drive.
5. Power on the server and observe the activity of the drive LEDs.

U.3 NVMe drive can be detected in NVMe connection, but cannot be detected in Tri-mode

In Tri-mode, NVMe drives are connected via a PCIe x1 link to the controller. To support Tri-mode with U.3 NVMe drives, **U.3 x1 mode** must be enabled for the selected drive slots on the backplane through the XCC Web GUI. By default, the backplane setting is **U.2 x4 mode**.

Complete the following steps to enable **U.3 x1 mode**:

1. Log into the XCC Web GUI, and choose **Storage ➙ Detail** from the navigation tree on the left.
2. In the window that is displayed, click the icon ⚙ next to **Backplane**.
3. In the dialog box that is displayed, select the target drive slots and click **Apply**.
4. Do a DC power cycle to make the setting take effect.

Appendix A. Hardware disassembling for recycle

Follow the instructions in this section to recycle components with compliance with local laws or regulations.

Disassemble the system board assembly for recycle

Follow the instructions in this section to disassemble the system board assembly before recycling.

Notes: Make sure you have the required tools listed below available to properly replace the component:

- Phillips #1 head screwdriver
- Phillips #2 head screwdriver
- SR675 V3 Misc kit

About this task

Before disassembling the system board assembly:

1. Remove the system board assembly from the server. See "Remove the system I/O board or processor board" on page 162.
2. Remove the Firmware and RoT Security Module from the system I/O board. See "Remove the firmware and RoT security module" on page 159.
3. Refer to local environmental, waste or disposal regulations to ensure compliance.

Procedure

Step 1. Remove the following components from the processor board as illustrated:

- Use a 8 mm hex socket with a screwdriver to remove the two spacers.
- Use a Phillips #2 screwdriver to remove the two screws and one cable wall bracket.
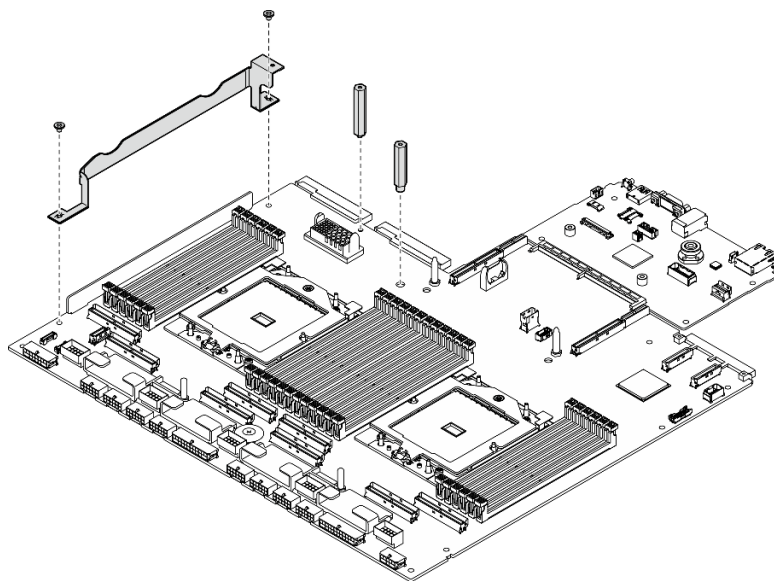
Figure 417. Component removal

Step 2. Hold the two lifting handles, and carefully turn the system board assembly over.
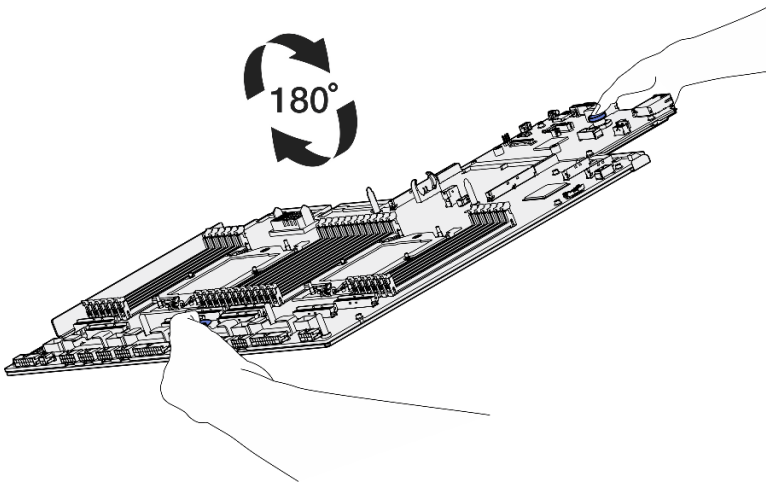
Figure 418. Turning the system board assembly over

Step 3. Use a Phillips #1 screwdriver to remove the two screws from the bottom of the supporting sheet metal.
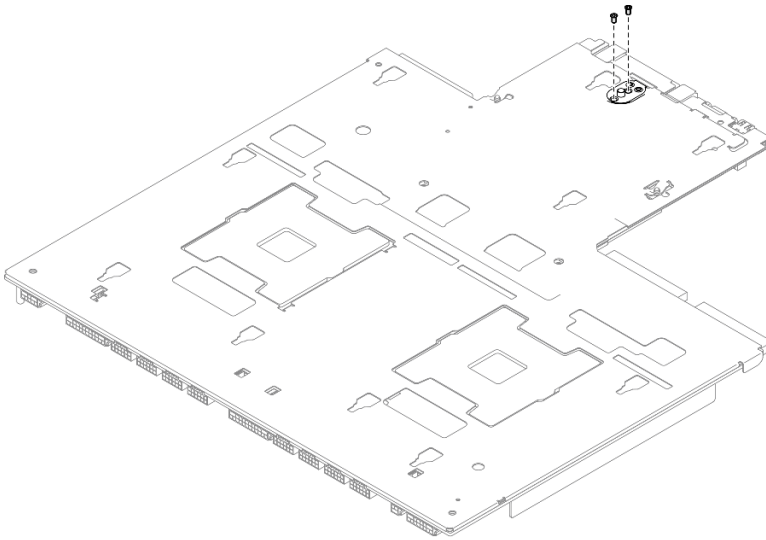
Figure 419. Screw removal

Step 4. Hold the two lifting handles, and carefully turn the system board assembly over.
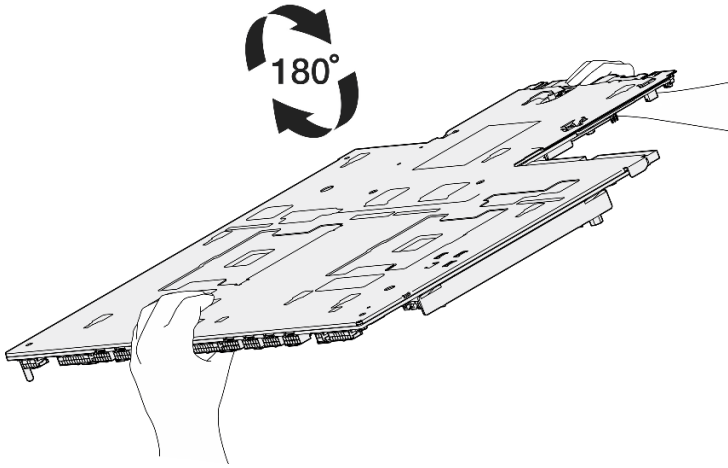
Figure 420. Turning the system board assembly over

Step 5.   Remove the following components from the system board assembly as illustrated:

- Use a 5 mm hex socket with a screwdriver to remove the two hex nuts.
- Use a 7 mm hex socket with a screwdriver to remove the five guide pins.
- Use a Phillips #2 screwdriver to remove the lifting handle.
- Use a Phillips #1 screwdriver to remove the nine screws.
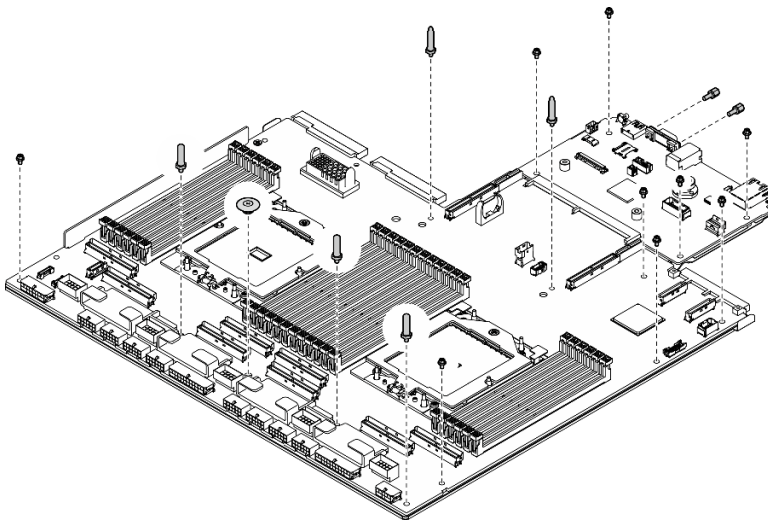
Figure 421. Component removal

Step 6.   Separate the system board assembly from the supporting sheet metal.
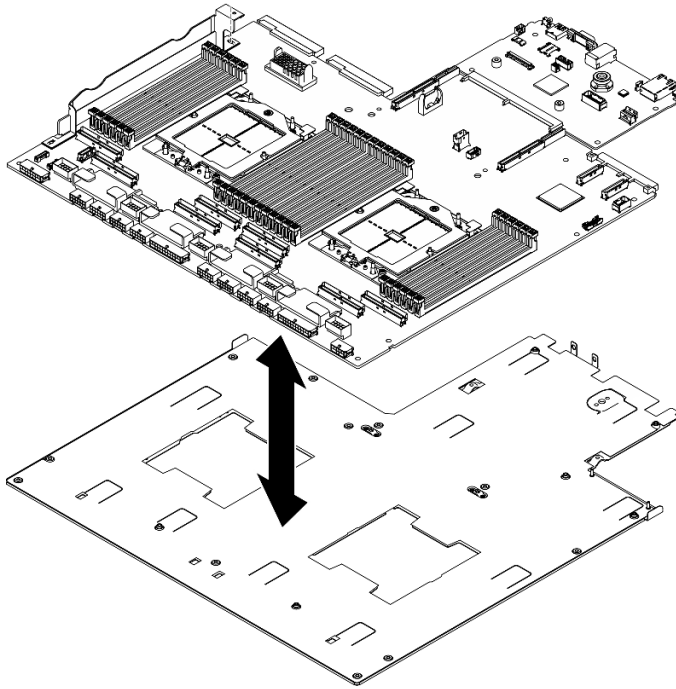
Figure 422. System board assembly disassembly

After you finish

After disassembling the system board assembly, recycle the unit in compliance with local regulations.

Appendix B. 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/thinksystem/sr675v3/7d9q/downloads/driver-list/
  - Operating system support center
    - https://datacentersupport.lenovo.com/solutions/server-os
  - Operating system installing instructions
    - https://pubs.lenovo.com/thinksystem#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 8 "Problem determination" on page 435 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 55.
- 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 `ffdc` 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 C. 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/sr675-v3/pdf_files.html

- *Rail Installation Guides*
  - Rail installation in a rack
- *User Guide*
  - Complete overview, system configuration, hardware components replacing, and troubleshooting.

    Selected chapters from *User Guide*:

    - *System Configuration Guide* : Server overview, components identification, system LEDs and diagnostics display, product unboxing, setting up and configuring the server.
    - *Hardware Maintenance Guide* : Installing hardware components, cable routing, and troubleshooting.
- *Messages and Codes Reference*
  - 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 ThinkSystem SR675 V3
  - https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr675v3/7d9q/downloads/driver-list/
- Lenovo Data Center Forum
  - https://forums.lenovo.com/t5/Datacenter-Systems/ct-p/sv_eg
- Lenovo Data Center Support for ThinkSystem SR675 V3
  - https://datacentersupport.lenovo.com/products/servers/thinksystem/sr675v3/7d9q
- 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/thinksystem#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 D. 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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Morrisville, NC 27560
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Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

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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.

Lenovo makes no representations or warranties with respect to non-Lenovo products. Support (if any) for the non-Lenovo products is provided by the third party, not Lenovo.

Some software might differ from its retail version (if available) and might not include user manuals or all program functionality.

Electronic emission notices

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.

Additional electronic emissions notices are available at:

https://pubs.lenovo.com/important_notices/

Taiwan 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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進口商地址: 台北市南港區三重路 66 號 8 樓
進口商電話: 0800-000-702