ThinkSystem SR850 V4
Internal Cable Routing Guide

Machine Type: 7DJT, 7DJS, and 7DJU

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

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.

ᠡᠨᠡ ᠵᠦᠢᠯ ᠢ ᠤᠭᠰᠠᠷᠠᠬᠤ ᠠᠴᠠ ᠡᠮᠦᠨᠡ ᠠᠮᠤᠷ ᠲᠦᠪᠰᠢᠨ ᠦ ᠮᠡᠳᠡᠭᠡᠯᠡᠯ ᠢ ᠤᠩᠰᠢᠭᠠᠷᠠᠢ᠃

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་སྐྱོད་མ་བྱས་གོང་། སྲོར་གྱི་ཡིད་གཟབ་ བྱ་འདུ་མིན་ཡོད་པའི་ཕོད་སྐྱེར་བསླུ་དགོས།

Bu ürünü kurmadan önce güvenlik bilgilerini okuyun.

مەزكۇر مەھسۇلاتنى ئورنىتىشتىن بۇرۇن بىخەتەرلىك ئۇچۇرلىرىنى ئوقۇپ چىقىڭ.

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

Safety inspection checklist

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

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

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.

Internal cable routing

See this section to do cable routing for specific components.

Notes: Follow below guidelines when connecting cables:

- Turn off the server before you connect or disconnect any internal cables.

- See the documentation that comes with any external devices for additional cabling instructions. It might be easier for you to route cables before you connect the devices to the server.

- Cable identifiers of some cables are printed on the cables that come with the server and optional devices. Use these identifiers to connect the cables to the correct connectors.

- Ensure that the cable is not pinched and does not cover any connectors or obstruct any components on the system board assembly.

- Ensure that the relevant cables pass through the cable clips.

- 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.

- Remove the cable connectors vertically or horizontally in alignment with the orientations of the corresponding cable sockets, avoiding any tilt.
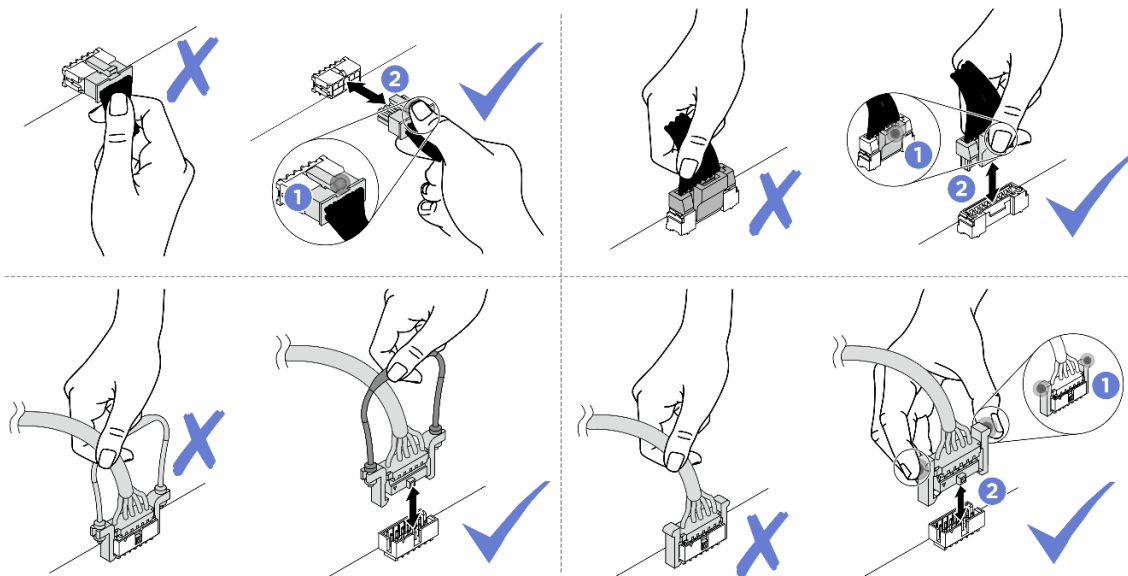
Identifying connectors

See this section to locate and identify the connectors on the electric boards.

Drive backplane connectors

See this section to locate the connectors on the drive backplanes.

Two types of drive backplanes are supported in this server:

- "8 x 2.5-inch SAS/SATA front backplane" on page 2

8 x 2.5-inch SAS/SATA front backplane
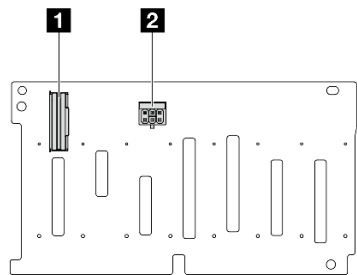
1 SAS connector	**2** Power connector

8 x 2.5-inch AnyBay front backplane
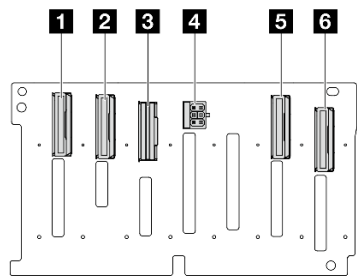
1 NVMe 6-7 connector	**2** NVMe 4-5 connector
3 SAS connector	**4** Power connector
5 NVMe 2-3 connector	**6** NVMe 0-1 connector

E3.S drive backplane
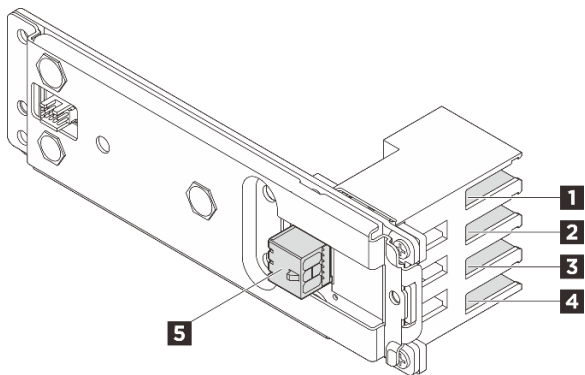
1 Bay 0	**2** Bay 1
3 Bay 2	**4** Bay 3
5 Power connector	

Rear M.2 boot adapter
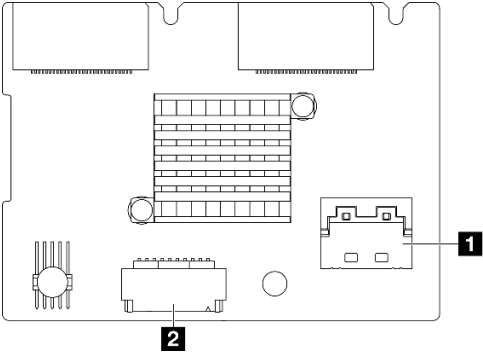
1 Signal connector	**2** Power connector

PCIe riser card connectors

See this section to locate the connectors on the PCIe riser card.

Two-slot riser card
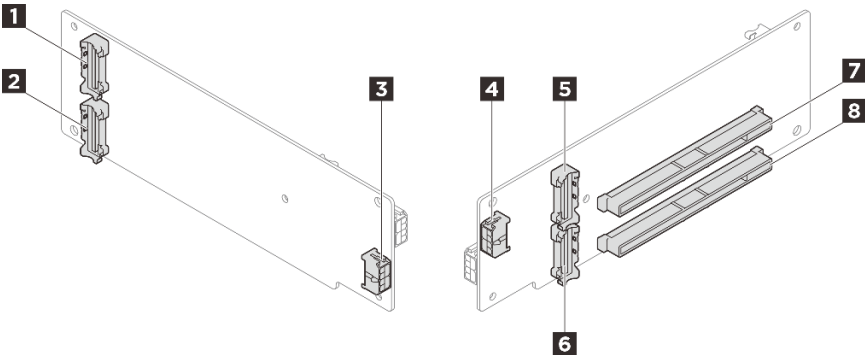
Figure 1. Two-slot riser card connectors

1 R3 connector	**2** R1 connector
3 Riser power connector	**4** GPU power connector
5 R4 connector	**6** R2 connector
7 PCIe x16 (Gen5 x16) slot	**8** PCIe x16 (Gen5 x16) slot

Three-slot riser card (with power connector)
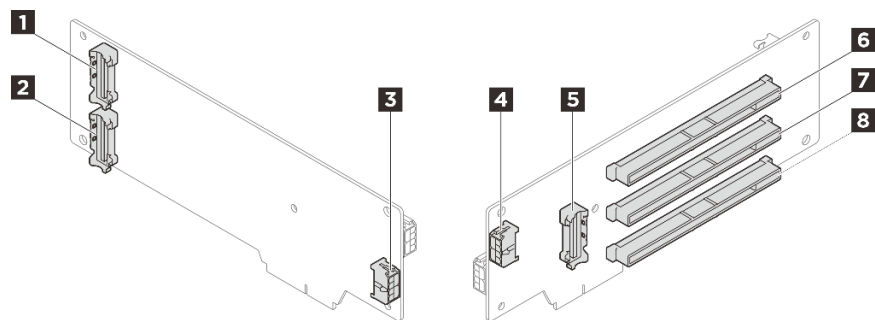
Figure 2. Three-slot riser card connectors (with power connector)

1 R3 connector	**2** R1 connector
3 Riser power connector	**4** GPU power connector
5 R2 connector	**6** PCIe x16 (Gen5 x8) slot
7 PCIe x16 (Gen5 x16) slot	**8** PCIe x16 (Gen4 x16) slot

Three-slot riser card (without power connector)
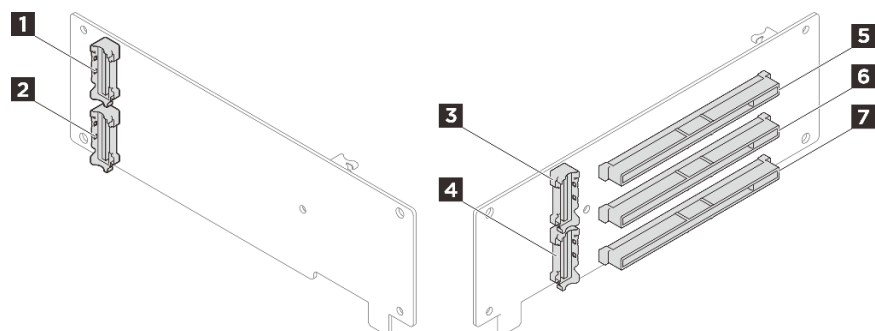
Figure 3. Three-slot riser card (without power connector)

1 R3 connector	**2** R1 connector
3 R4 connector	**4** R2 connector
5 PCIe x16 (Gen5 x16) slot	**6** PCIe x16 (Gen5 x8) slot
7 PCIe x16 (Gen5 x8) slot	

Power distribution board connectors

See this section to locate the connectors on the power distribution board.
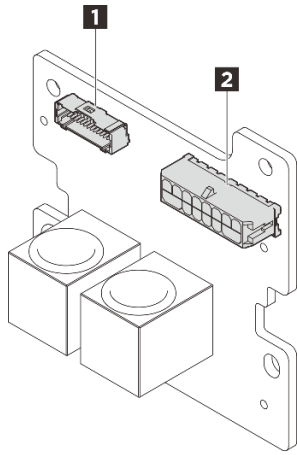
Figure 4. Power distribution board connectors

1 Power distribution board sideband connector	**2** PCIe riser power connector

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.
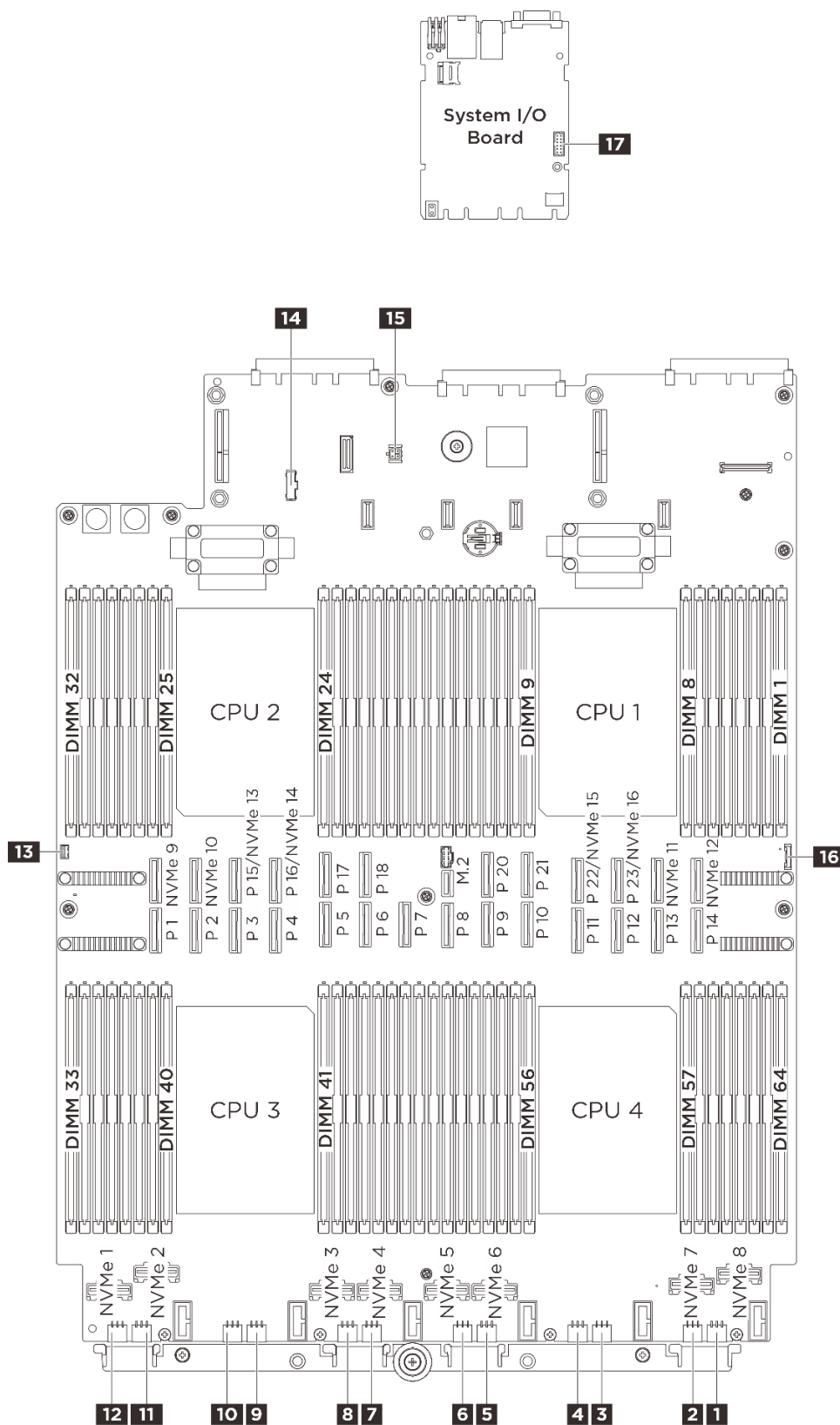
Figure 5. System-board-assembly connectors

Table 1. System-board-assembly connectors

1 Backplane 12 power connector	**2** Backplane 11 power connector
3 Backplane 10 power connector	**4** Backplane 9 power connector
5 Backplane 8 power connector	**6** Backplane 7 power connector
7 Backplane 6 power connector	**8** Backplane 5 power connector
9 Backplane 4 power connector	**10** Backplane 3 power connector
11 Backplane 2 power connector	**12** Backplane 1 power connector
13 Intrusion switch connector	**14** Power distribution board sideband connector
15 Leakage sensor connector	**16** Front panel USB connector
17 Serial port connector	

2.5-inch drive backplane cable routing

Use the section to understand the cable routing for the 2.5-inch drive backplane.

Before routing the power or NVMe cables for the 2.5-inch drive backplanes, remove the fans and fan cage. See "Remove a fan" and "Remove the fan cage" in *User Guide* or *Hardware Maintenance Guide*.

Notes:

- Connections between connectors; **1**↔**1**, **2**↔**2**, **3**↔**3**, ... **n**↔**n**
- The **Cable PN** or **FRU PN** can be found on the label attached to the cable.
- When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.
- The illustrations in this section use the HL PCIe riser as an example for PCIe riser 1 and 3, the routing is the same for the FL PCIe riser.
- AnyBay backplanes are used as NVMe backplanes when no RAID/HBA adapters are installed.
- AnyBay backplanes currently support NVMe drives only. Support for SAS/SATA drives or NVMe + SAS/ SATA drives will be enabled via a firmware update in Q4 of 2025.

Power cable routing
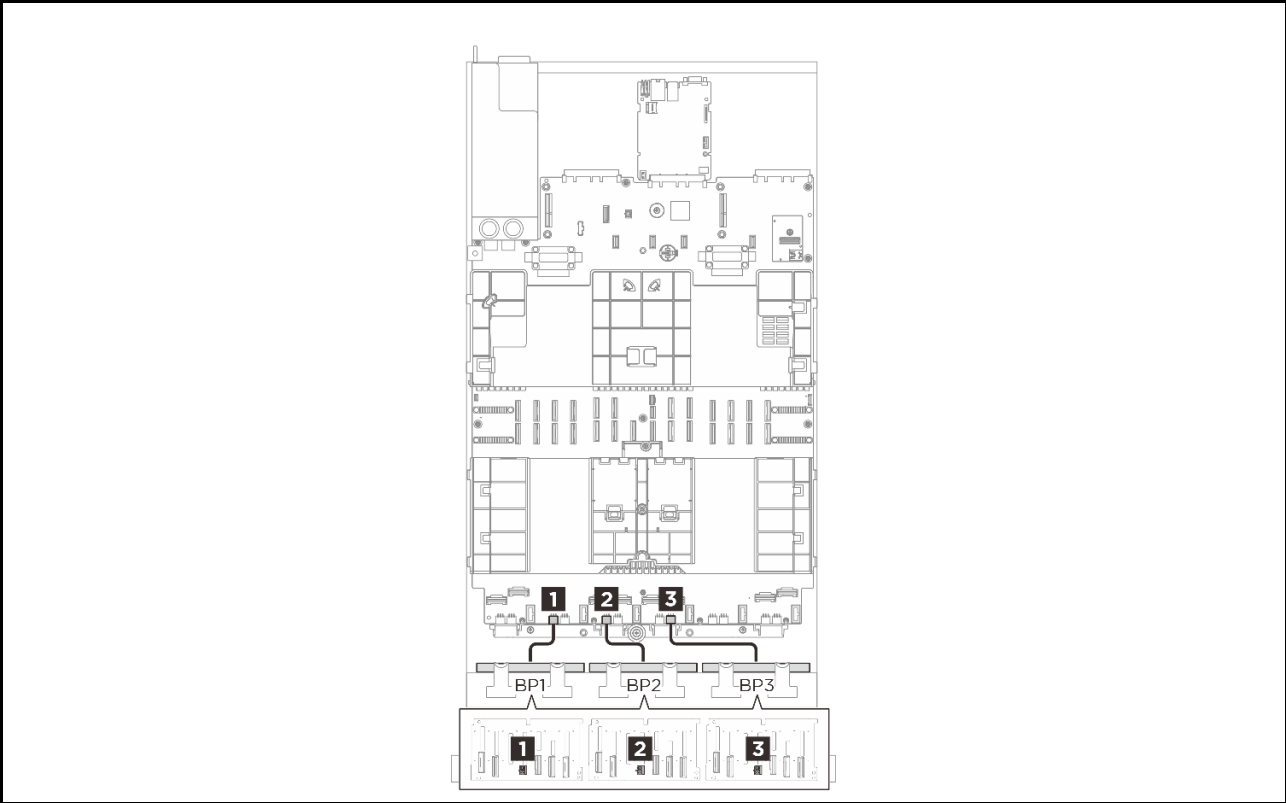
From (Backplane)	To (System board assembly)	Cable
1 BP1: PWR	**1** BP3 PWR	6P+6S to 6P+6S (150 mm)
2 BP2: PWR	**2** BP5 PWR	6P+6S to 6P+6S (150 mm)
3 BP3: PWR	**3** BP8 PWR	6P+6S to 6P+6S (150 mm)

NVMe cable routing

BP 1 NVMe cable routing	BP 2 NVMe cable routing	BP 3 NVMe cable routing
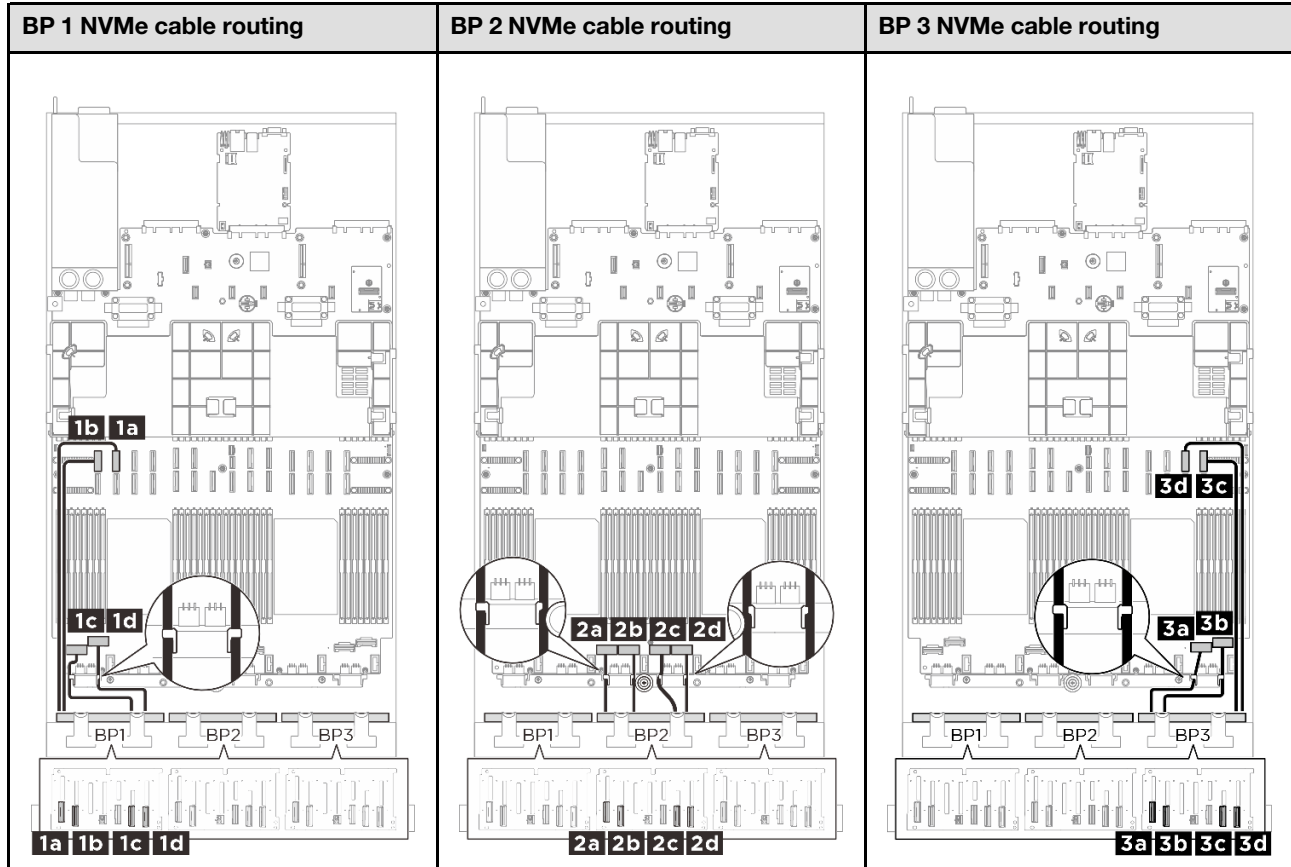
From (Backplane)	To (System board assembly)	Cable
1a BP1: NVMe 0-1	**1a** NVMe 10	MCIO x8 to MCIO x8 (420 mm)
1b BP1: NVMe 2-3	**1b** NVMe 9	MCIO x8 to MCIO x8 (420 mm)
1c BP1: NVMe 4-5	**1c** NVMe 1	Swift x8 to MCIO x8 (150 mm)
1d BP1: NVMe 6-7	**1d** NVMe 2	Swift x8 to MCIO x8 (150 mm)
2a BP2: NVMe 0-1	**2a** NVMe 3	Swift x8 to MCIO x8 (150 mm)
2b BP2: NVMe 2-3	**2b** NVMe 4	Swift x8 to MCIO x8 (150 mm)
2c BP2: NVMe 4-5	**2c** NVMe 5	Swift x8 to MCIO x8 (150 mm)
2d BP2: NVMe 6-7	**2d** NVMe 6	Swift x8 to MCIO x8 (150 mm)
3a BP3: NVMe 0-1	**3a** NVMe 7	Swift x8 to MCIO x8 (150 mm)
3b BP3: NVMe 2-3	**3b** NVMe 8	Swift x8 to MCIO x8 (150 mm)
3c BP3: NVMe 4-5	**3c** NVMe 12	MCIO x8 to MCIO x8 (420 mm)
3d BP3: NVMe 6-7	**3d** NVMe 11	MCIO x8 to MCIO x8 (420 mm)

SAS/SATA cable routing (three risers)

Based on the location of the adapter, select the corresponding routing path for SAS/SATA cable from the following table.

SAS/SATA cable routing to riser 3	SAS/SATA cable routing to riser 2	SAS/SATA cable routing to riser 1

From (Backplane)	To (RAID/HBA adapter)	Cable
1 BP1: SAS	**1** • 16i Gen 4: C0 • 16i Gen 3: C0, C1 • 8i Gen 4: C0 • 8i Gen 3: C0, C1	SlimSAS x8 to SlimSAS x8 (1020 mm)
2 BP2: SAS	**2** • 16i Gen 4: C1 • 16i Gen 3: C2, C3 • 8i Gen 4: C0 • 8i Gen 3: C0, C1	SlimSAS x8 to SlimSAS x8 (1020 mm)
3 BP3: SAS	**3** • 8i Gen 4: C0 • 8i Gen 3: C0, C1	SlimSAS x8 to SlimSAS x8 (1020 mm)

SAS/SATA cable routing (four risers)

Based on the location of the adapter, select the corresponding routing path for SAS/SATA cable from the following table.
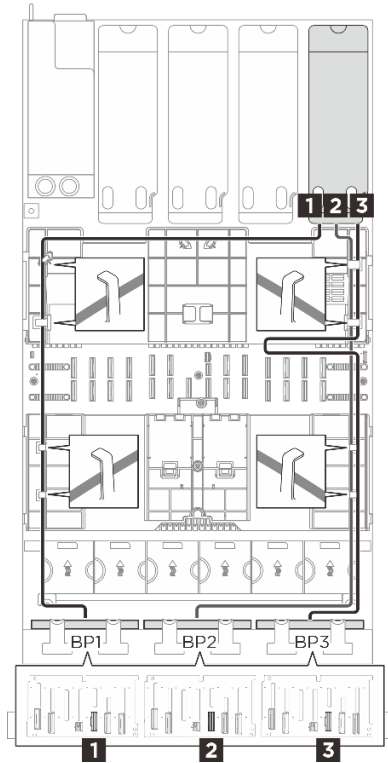
SAS/SATA cable routing to riser A	SAS/SATA cable routing to riser B
SAS/SATA cable routing to riser C	SAS/SATA cable routing to riser D
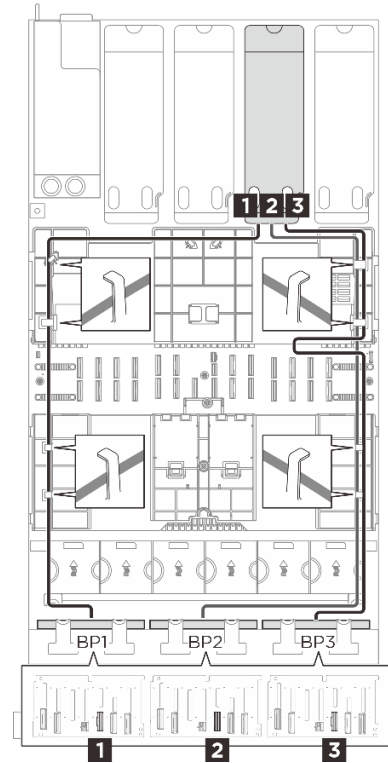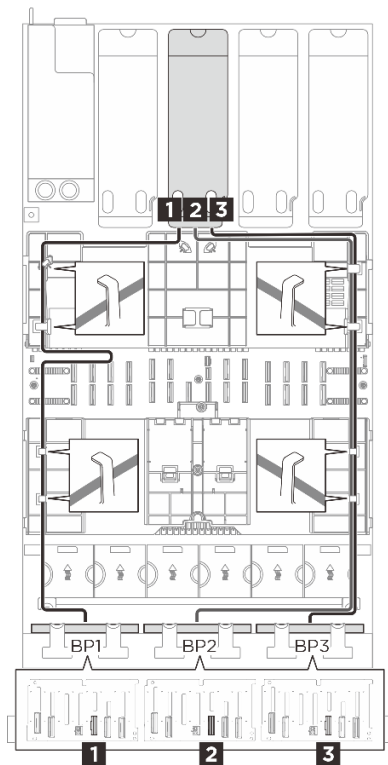
From (Backplane)	To (RAID/HBA adapter)	Cable
1 BP1: SAS	**1** • 16i Gen 4: C0 • 16i Gen 3: C0, C1 • 8i Gen 4: C0 • 8i Gen 3: C0, C1	SlimSAS x8 to SlimSAS x8 (1020 mm)
2 BP2: SAS	**2** • 16i Gen 4: C1 • 16i Gen 3: C2, C3 • 8i Gen 4: C0 • 8i Gen 3: C0, C1	SlimSAS x8 to SlimSAS x8 (1020 mm)
3 BP3: SAS	**3** • 8i Gen 4: C0 • 8i Gen 3: C0, C1	SlimSAS x8 to SlimSAS x8 (1020 mm)

E3.S backplane cable routing

Use the section to understand the cable routing for the E3.S backplane.

Before routing the cables for the E3.S backplanes, remove the fans and fan cage. See "Remove a fan" and "Remove the fan cage" in *User Guide* or *Hardware Maintenance Guide*.

Notes:

- Connections between connectors; **1**↔**1**, **2**↔**2**, **3**↔**3**, ... **n**↔**n**

- The **Cable PN** or **FRU PN** can be found on the label attached to the cable.

- When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.

Power cable routing
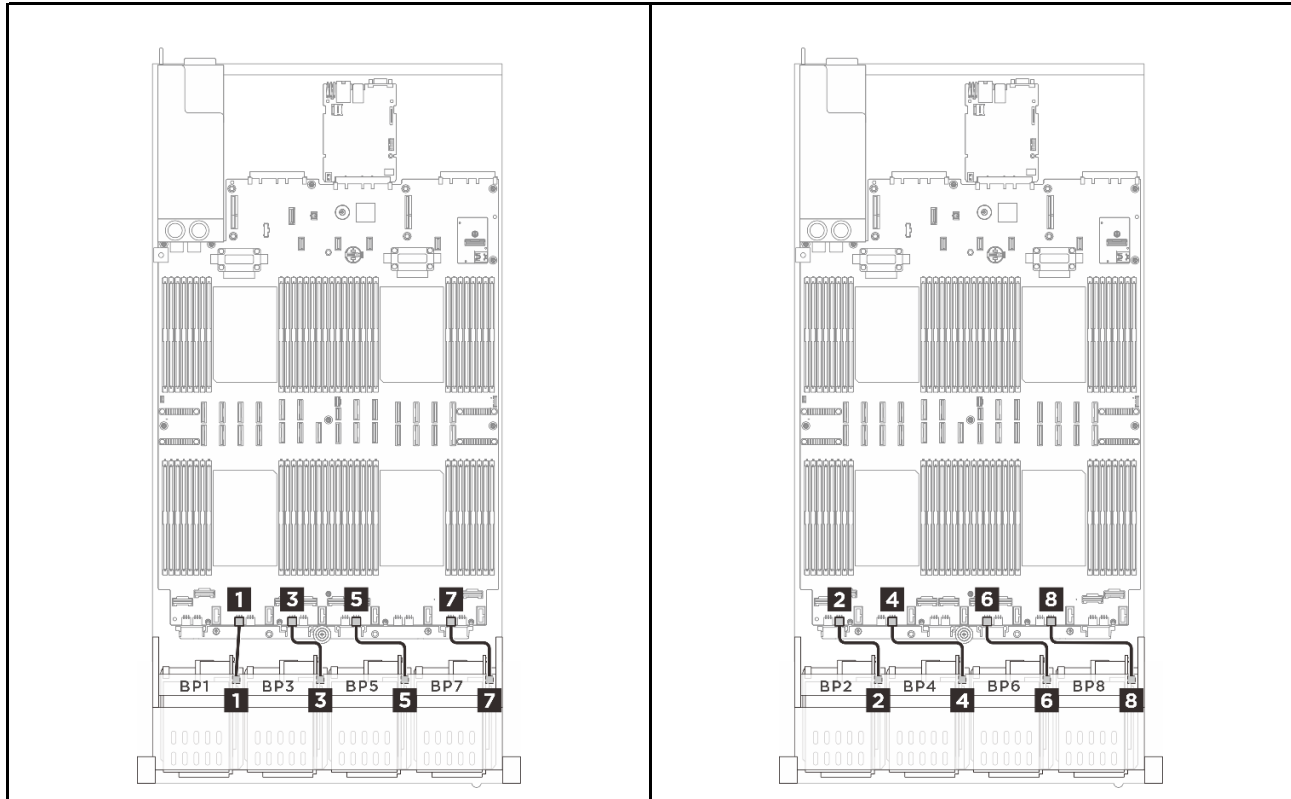
From (Backplane)	To (System board assembly)	Cable
1 BP1: PWR	**1** BP3 PWR	6P+6S to 6P+6S (150 mm)
2 BP2: PWR	**2** BP2 PWR	6P+6S to 6P+6S (150 mm)
3 BP3: PWR	**3** BP5 PWR	6P+6S to 6P+6S (150 mm)
4 BP4: PWR	**4** BP4 PWR	6P+6S to 6P+6S (150 mm)
5 BP5: PWR	**5** BP8 PWR	6P+6S to 6P+6S (150 mm)
6 BP6: PWR	**6** BP7 PWR	6P+6S to 6P+6S (150 mm)
7 BP7: PWR	**7** BP11 PWR	6P+6S to 6P+6S (150 mm)
8 BP8: PWR	**8** BP10 PWR	6P+6S to 6P+6S (150 mm)

E3.S 1T signal cable routing
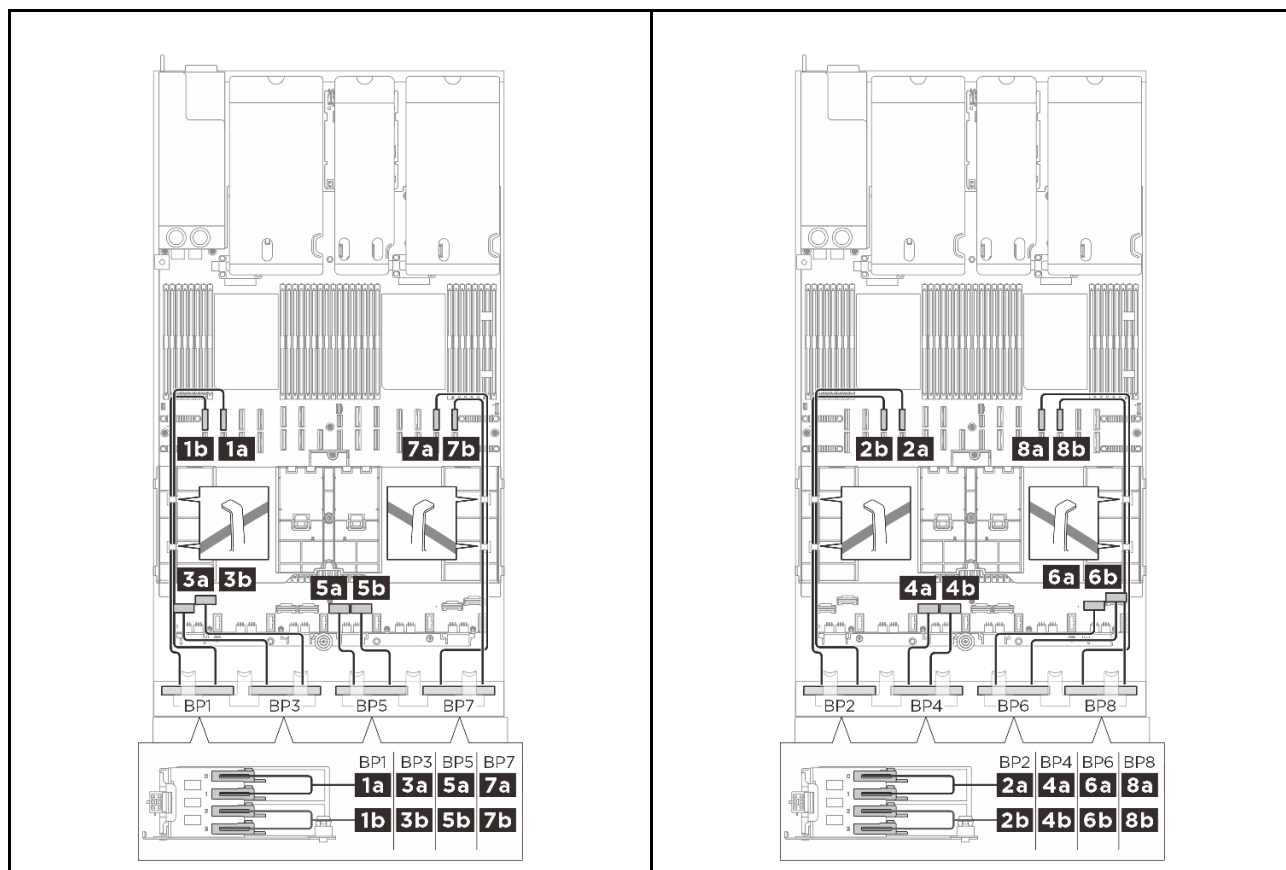
From (Backplane)	To (System board assembly)	Cable
1a BP1: Bay 0, Bay 1	**1a** NVMe 10	MCIO x8 to Z-link 1C*2 (500 mm)
1b BP1: Bay 2, Bay 3	**1b** NVMe 9	MCIO x8 to Z-link 1C*2 (500 mm)
2a BP2: Bay 0, Bay 1	**2a** NVMe 14	MCIO x8 to Z-link 1C*2 (500 mm)
2b BP2: Bay 2, Bay 3	**2b** NVMe 13	MCIO x8 to Z-link 1C*2 (500 mm)
3a BP3: Bay 0, Bay 1	**3a** NVMe 1	Swift x8 to Z-link 1C*2 (240 mm)
3b BP3: Bay 2, Bay 3	**3b** NVMe 2	Swift x8 to Z-link 1C*2 (240 mm)
4a BP4: Bay 0, Bay 1	**4a** NVMe 3	Swift x8 to Z-link 1C*2 (240 mm)
4b BP4: Bay 2, Bay 3	**4b** NVMe 4	Swift x8 to Z-link 1C*2 (240 mm)
5a BP5: Bay 0, Bay 1	**5a** NVMe 5	Swift x8 to Z-link 1C*2 (240 mm)
5b BP5: Bay 2, Bay 3	**5b** NVMe 6	Swift x8 to Z-link 1C*2 (240 mm)
6a BP6: Bay 0, Bay 1	**6a** NVMe 7	Swift x8 to Z-link 1C*2 (240 mm)
6b BP6: Bay 2, Bay 3	**6b** NVMe 8	Swift x8 to Z-link 1C*2 (240 mm)
7a BP7: Bay 0, Bay 1	**7a** NVMe 11	MCIO x8 to Z-link 1C*2 (500 mm)
7b BP7: Bay 2, Bay 3	**7b** NVMe 12	MCIO x8 to Z-link 1C*2 (500 mm)

From (Backplane)	To (System board assembly)	Cable
8a BP8: Bay 0, Bay 1	**8a** NVMe 15	MCIO x8 to Z-link 1C*2 (500 mm)
8b BP8: Bay 2, Bay 3	**8b** NVMe 16	MCIO x8 to Z-link 1C*2 (500 mm)

E3.S 2T signal cable routing
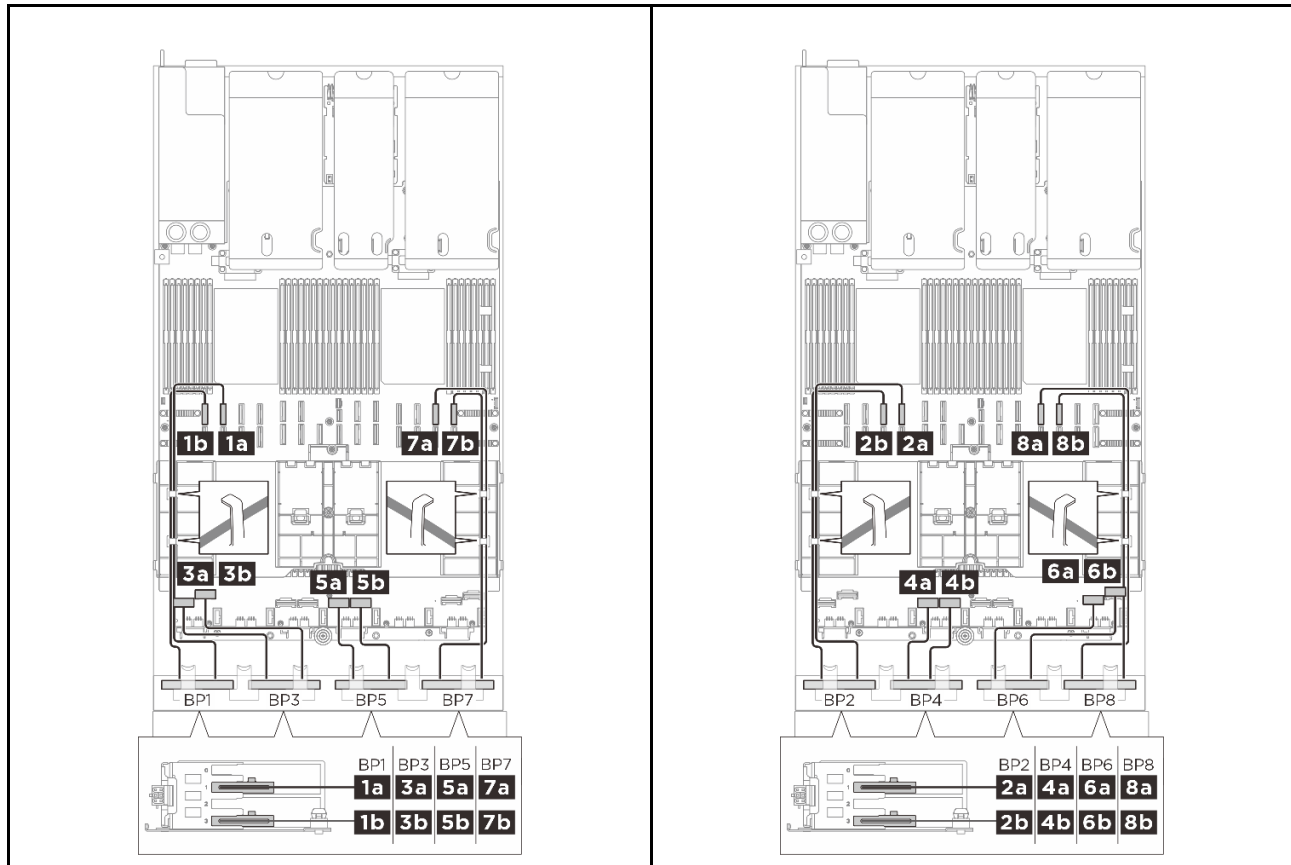
From (Backplane)	To (System board assembly)	Cable
1a BP1: Bay 1	**1a** NVMe 10	MCIO x8 to Z-link 2C (500 mm)
1b BP1: Bay 3	**1b** NVMe 9	MCIO x8 to Z-link 2C (500 mm)
2a BP2: Bay 1	**2a** NVMe 14	MCIO x8 to Z-link 2C (500 mm)
2b BP2: Bay 3	**2b** NVMe 13	MCIO x8 to Z-link 2C (500 mm)
3a BP3: Bay 1	**3a** NVMe 1	Swift x8 to Z-link 1C*2 (240 mm)
3b BP3: Bay 3	**3b** NVMe 2	Swift x8 to Z-link 1C*2 (240 mm)
4a BP4: Bay 1	**4a** NVMe 3	Swift x8 to Z-link 1C*2 (240 mm)
4b BP4: Bay 3	**4b** NVMe 4	Swift x8 to Z-link 1C*2 (240 mm)
5a BP5: Bay 1	**5a** NVMe 5	Swift x8 to Z-link 1C*2 (240 mm)
5b BP5: Bay 3	**5b** NVMe 6	Swift x8 to Z-link 1C*2 (240 mm)
6a BP6: Bay 1	**6a** NVMe 7	Swift x8 to Z-link 1C*2 (240 mm)
6b BP6: Bay 3	**6b** NVMe 8	Swift x8 to Z-link 1C*2 (240 mm)

From (Backplane)	To (System board assembly)	Cable
7a BP7: Bay 1	**7a** NVMe 11	MCIO x8 to Z-link 2C (500 mm)
7b BP7: Bay 3	**7b** NVMe 12	MCIO x8 to Z-link 2C (500 mm)
8a BP8: Bay 1	**8a** NVMe 15	MCIO x8 to Z-link 2C (500 mm)
8b BP8: Bay 3	**8b** NVMe 16	MCIO x8 to Z-link 2C (500 mm)

Flash power module cable routing

Follow the instructions in this section to learn how to do cable routing for the flash power modules.

Notes:

- Connections between connectors; **1**↔**1**, **2**↔**2**, **3**↔**3**, ... **n**↔**n**
- The **Cable PN** or **FRU PN** can be found on the label attached to the cable.
- When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.

Choose the routing plan according to the server model.

-
-

Flash power module cable routing (three risers)

Flash power module cable routing to riser 3	Flash power module cable routing to riser 2	Flash power module cable routing to riser 1

From	To	Cable
1 Flash power module	**1** RAID adapter installed on PCIe riser	• Gen 4: 2x4p to 1x9p (680 mm) • Gen 3: 1x8p to 1x8p (680 mm)
2 Flash power module	**2** RAID adapter installed on PCIe riser	• Gen 4: 2x4p to 1x9p (680 mm) • Gen 3: 1x8p to 1x8p (680 mm)

Flash power module cable routing (four risers)

Flash power module cable routing to riser A	Flash power module cable routing to riser B

Flash power module cable routing to riser C	Flash power module cable routing to riser D

From	To	Cable
1 Flash power module	**1** RAID adapter installed on PCIe riser	• Gen 4: 2x4p to 1x9p (680 mm) • Gen 3: 1x8p to 1x8p (680 mm)
2 Flash power module	**2** RAID adapter installed on PCIe riser	• Gen 4: 2x4p to 1x9p (680 mm) • Gen 3: 1x8p to 1x8p (680 mm)

Internal M.2 boot adapter cable routing

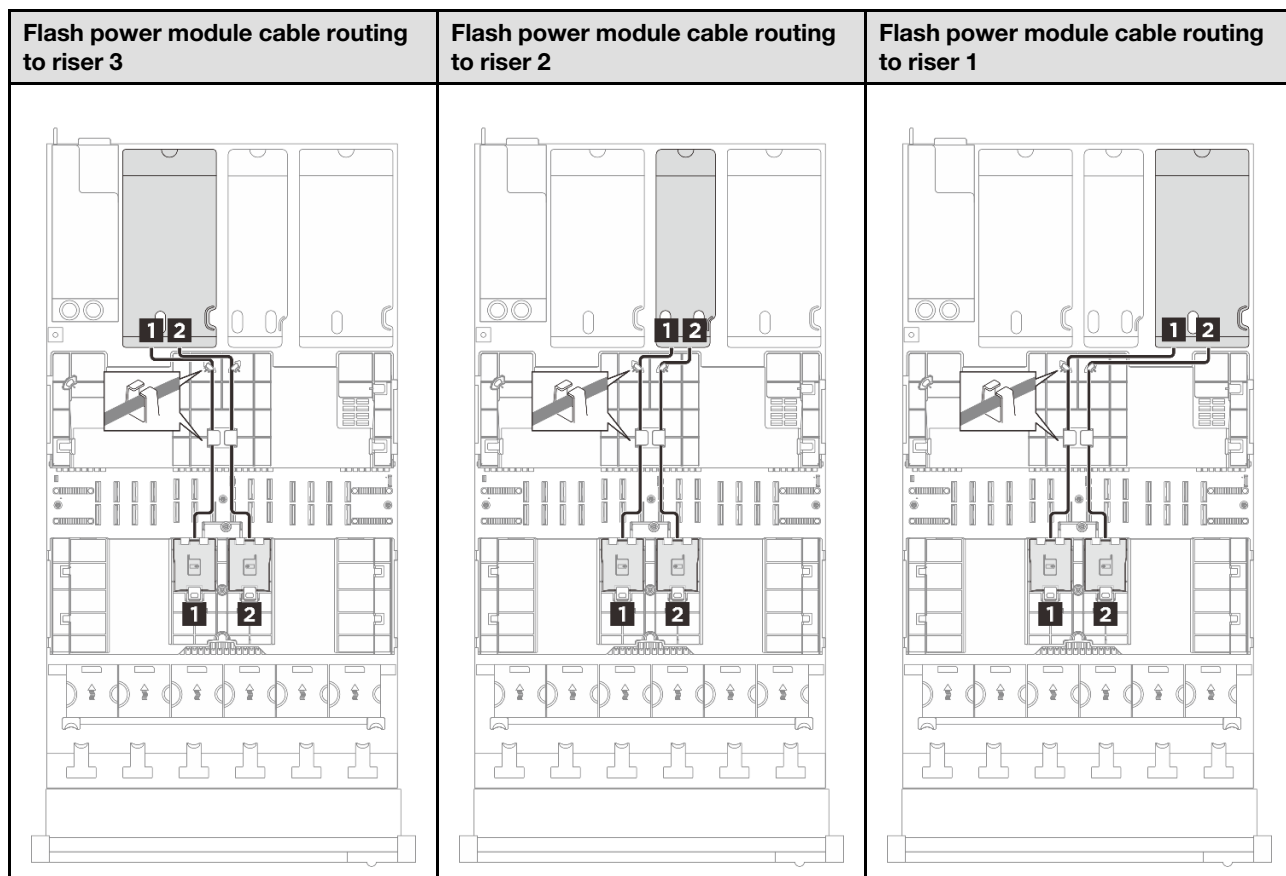Follow the instructions in this section to learn how to do cable routing for the internal M.2 boot adapter.

Notes:

- Connections between connectors; **1**↔**1**, **2**↔**2**, **3**↔**3**, ... **n**↔**n**

- The **Cable PN** or **FRU PN** can be found on the label attached to the cable.

- When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.
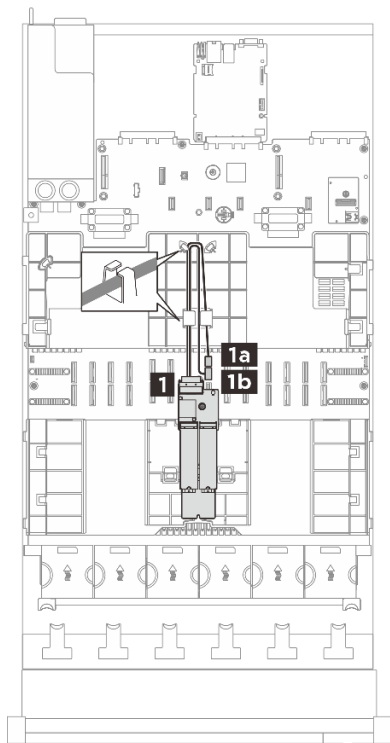
Figure 6. Cable routing for internal M.2 boot adapter

From (M.2 boot adapter)	To (System board assembly)	Cable
1 M.2 power and signal	**1a** M.2 power	MCIO x4+2x10p to ULP 82p (300/300 mm)
	1b M.2 signal	

PCIe riser cable routing (server model with three PCIe risers)

Follow the instructions in this section to learn how to do PCIe riser cable routing for the server model with three PCIe risers.

Choose the routing plan according to the PCIe riser location.

PCIe riser 1 cable routing

Follow the instructions in this section to learn how to do cable routing for the PCIe riser 1.

Notes:

- Connections between connectors; **1**↔**1**, **2**↔**2**, **3**↔**3**, ... **n**↔**n**
- The **Cable PN** or **FRU PN** can be found on the label attached to the cable.
- When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.

- A label on each signal cable indicates the connection source and destination. This information is in the format **RY-X** and **P Z**. Where Y indicates the PCIe riser number, **X** indicates the connector on the riser card, and **Z** indicates the connector on the system board assembly.

Choose the routing plan according to the server model.

Server model with 2-slot PCIe riser 1

Figure 7. Cable routing for the 2-slot PCIe riser 1

Notes:

- For x8/x8 riser 1 configuration without M.2 drive cage, only connect **1** R1, **3** R3, and **5** Power.
- For x8/x8 riser 1 configuration with M.2 drive cage, only connect **1** R1, **2** R2, and **5** Power.

From (PCIe riser)	To (System board assembly)	Cable
1 R1	**1** P20	MCIO x8 to Swift x8 (440 mm, flat 140 mm)
2 R2	**2** P21	MCIO x8 to Swift x8 (360 mm)
3 R3	**3** P14	MCIO x8 to Swift x8 (580 mm, flat 140 mm)
4 R4	**4** P13	MCIO x8 to Swift x8 (420 mm)
5 Power	**5** PDB: Riser power	• 2x8 to 2x4 (660 mm) • 2x8 to 2x4*2 (200/660 mm)

Note: For x8/x8 configuration, only connect **1**, **3**, and **5**

Server model with 3-slot PCIe riser 1
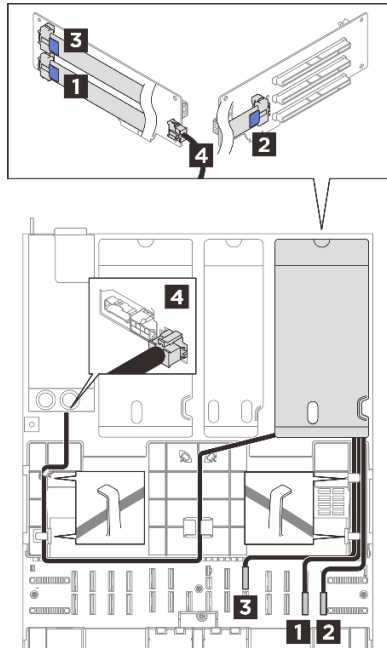
Figure 8. Cable routing for the 3-slot PCIe riser 1

From (PCIe riser)	To (System board assembly)	Cable
1 R1	**1** P13	MCIO x8 to Swift x8 (540 mm, flat 140 mm)
2 R2	**2** P14	MCIO x8 to Swift x8 (380 mm)
3 R3	**3** P21	MCIO x8 to Swift x8 (600 mm, flat 140 mm)
4 Power	**4** PDB: Riser power	• 2x8 to 2x4 (660 mm) • 2x8 to 2x4*2 (200/660 mm)

PCIe riser 2 cable routing

Follow the instructions in this section to learn how to do cable routing for the PCIe riser 2.

Notes:

- Connections between connectors; **1**↔**1**, **2**↔**2**, **3**↔**3**, … **n**↔**n**
- The **Cable PN** or **FRU PN** can be found on the label attached to the cable.
- When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.
- A label on each signal cable indicates the connection source and destination. This information is in the format **RY-X** and **P Z**. Where Y indicates the PCIe riser number, **X** indicates the connector on the riser card, and **Z** indicates the connector on the system board assembly.
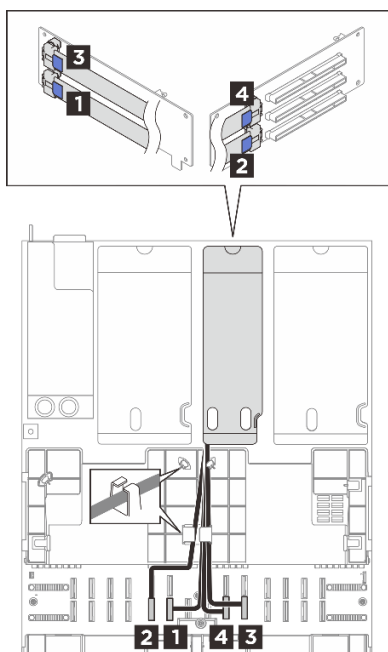
Figure 9. Cable routing for the PCIe riser 2

From (PCIe riser)	To (System board assembly)	Cable
1 R1	**1** P6	MCIO x8 to Swift x8 (440 mm, flat 140 mm)
2 R2	**2** P5	MCIO x8 to Swift x8 (360 mm)
3 R3	**3** P10	MCIO x8 to Swift x8 (440 mm, flat 140 mm)
4 R4	**4** P9	MCIO x8 to Swift x8 (320 mm)

PCIe riser 3 cable routing

Follow the instructions in this section to learn how to do cable routing for the PCIe riser 3.

Notes:

- Connections between connectors; **1**↔**1**, **2**↔**2**, **3**↔**3**, ... **n**↔**n**

- The **Cable PN** or **FRU PN** can be found on the label attached to the cable.

- When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.

- A label on each signal cable indicates the connection source and destination. This information is in the format **RY-X** and **P Z**. Where Y indicates the PCIe riser number, **X** indicates the connector on the riser card, and **Z** indicates the connector on the system board assembly.

Choose the routing plan according to the server model.

Server model with 2-slot PCIe riser 3

Figure 10. Cable routing for the 2-slot PCIe riser 3

Note: For x8/x8 riser 3 configuration, only connect **1** R1, **3** R3, and **5** Power.

From (PCIe riser)	To	Cable
1 R1	**1** System board assembly: P17	MCIO x8 to Swift x8 (540 mm, flat 140 mm)
2 R2	**2** System board assembly: P18	MCIO x8 to Swift x8 (620 mm)
3 R3	**3** System board assembly: P2	MCIO x8 to Swift x8 (500 mm, flat 140 mm)
4 R4	**4** System board assembly: P1	MCIO x8 to Swift x8 (500 mm)
5 Power	**5** PDB: Riser power	• 2x8 to 2x4 (200 mm) • 2x8 to 2x4*2 (200/660 mm)

Note: For x8/x8 configuration, only connect **1**, **3**, and **5**

Server model with 3-slot PCIe riser 3 (2.5-inch bays)
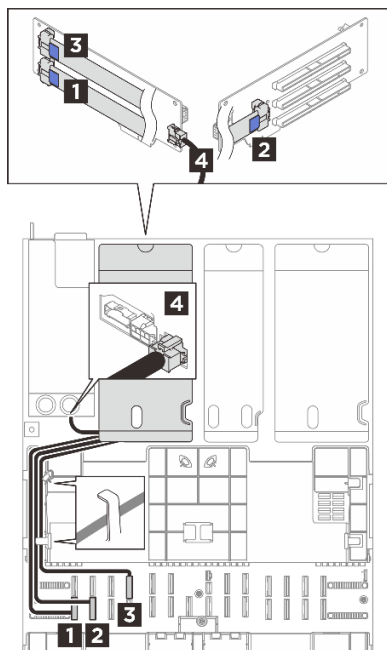
Figure 11. Cable routing for the 3-slot PCIe riser 3 (2.5-inch bays)

From (PCIe riser)	To (System board assembly)	Cable
1 R1	**1** P1	MCIO x8 to Swift x8 (540 mm, flat 140 mm)
2 R2	**2** P2	MCIO x8 to Swift x8 (420 mm)
3 R3	**3** P16	MCIO x8 to Swift x8 (540 mm, flat 140 mm)
4 Power	**4** PDB: Riser power	2x8 to 2x4 (200 mm) 2x8 to 2x4*2 (200/660 mm)

Server model with 3-slot PCIe riser 3 (E3.S bays)
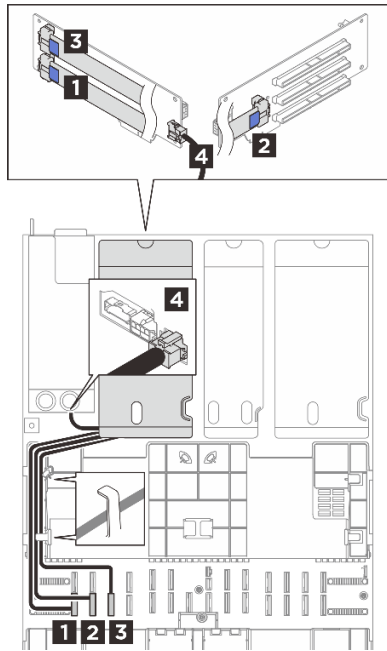
Figure 12. Cable routing for the 3-slot PCIe riser 3 (E3.S server)

From (PCIe riser)	To (System board assembly)	Cable
1 R1	**1** P1	MCIO x8 to Swift x8 (540 mm, flat 140 mm)
2 R2	**2** P2	MCIO x8 to Swift x8 (420 mm)
3 R3	**3** P3	MCIO x8 to Swift x8 (540 mm, flat 140 mm)
4 Power	**4** PDB: Riser power	• 2x8 to 2x4 (200 mm) • 2x8 to 2x4*2 (200/660 mm)

PCIe riser cable routing (server model with four PCIe risers)

Follow the instructions in this section to learn how to do PCIe riser cable routing for the server model with four PCIe risers.

Choose the routing plan according to the PCIe riser location.

-
-
-
-

PCIe riser A cable routing

Follow the instructions in this section to learn how to do cable routing for the PCIe riser A.

Notes:

- Connections between connectors; **1**↔**1**, **2**↔**2**, **3**↔**3**, ... **n**↔**n**
- The **Cable PN** or **FRU PN** can be found on the label attached to the cable.
- When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.
- A label on each signal cable indicates the connection source and destination. This information is in the format **RY-X** and **P Z**. Where Y indicates the PCIe riser number, **X** indicates the connector on the riser card, and **Z** indicates the connector on the system board assembly.

Choose the routing plan according to the server model.

Server model with 2.5-inch bays

Figure 13. Cable routing for the PCIe riser A (2.5-inch server)

From (PCIe riser)	To (System board assembly)	Cable
1 R1	**1** P22	MCIO x8 to Swift x8 (580 mm, flat 140 mm)
2 R2	**2** P23	MCIO x8 to Swift x8 (420 mm)
3 R3	**3** P14	MCIO x8 to Swift x8 (500 mm, flat 140 mm)
4 R4	**4** P13	MCIO x8 to Swift x8 (420 mm)

Server model with E3.S bays
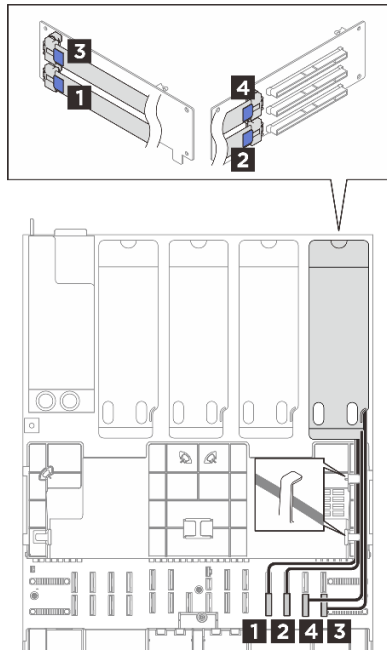
Figure 14. Cable routing for the PCIe riser A (E3.S server)

From (PCIe riser)	To (System board assembly)	Cable
1 R1	**1** P11	MCIO x8 to Swift x8 (580 mm, flat 140 mm)
2 R2	**2** P12	MCIO x8 to Swift x8 (420 mm)
3 R3	**3** P14	MCIO x8 to Swift x8 (500 mm, flat 140 mm)
4 R4	**4** P13	MCIO x8 to Swift x8 (420 mm)

PCIe riser B cable routing

Follow the instructions in this section to learn how to do cable routing for the PCIe riser B.

Notes:

- Connections between connectors; **1**↔**1**, **2**↔**2**, **3**↔**3**, ... **n**↔**n**
- The **Cable PN** or **FRU PN** can be found on the label attached to the cable.
- When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.
- A label on each signal cable indicates the connection source and destination. This information is in the format **RY-X** and **P Z**. Where Y indicates the PCIe riser number, **X** indicates the connector on the riser card, and **Z** indicates the connector on the system board assembly.
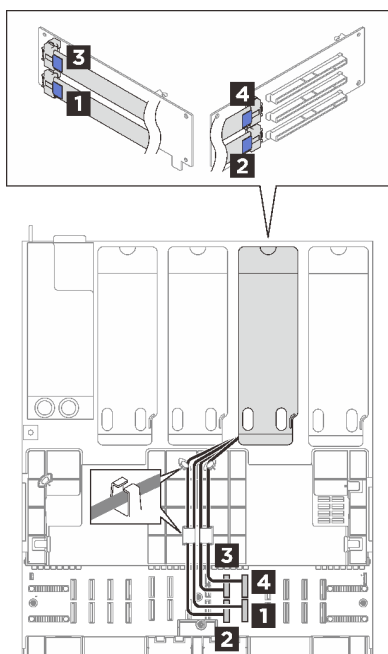
Figure 15. Cable routing for the PCIe riser B

From (PCIe riser)	To (System board assembly)	Cable
1 R1	**1** P10	MCIO x8 to Swift x8 (500 mm, flat 140 mm)
2 R2	**2** P9	MCIO x8 to Swift x8 (360 mm)
3 R3	**3** P20	MCIO x8 to Swift x8 (500 mm, flat 140 mm)
4 R4	**4** P21	MCIO x8 to Swift x8 (360 mm)

PCIe riser C cable routing

Follow the instructions in this section to learn how to do cable routing for the PCIe riser C.

Notes:

- Connections between connectors; **1**↔**1**, **2**↔**2**, **3**↔**3**, ... **n**↔**n**

- The **Cable PN** or **FRU PN** can be found on the label attached to the cable.

- When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.

- A label on each signal cable indicates the connection source and destination. This information is in the format **RY-X** and **P Z**. Where Y indicates the PCIe riser number, **X** indicates the connector on the riser card, and **Z** indicates the connector on the system board assembly.
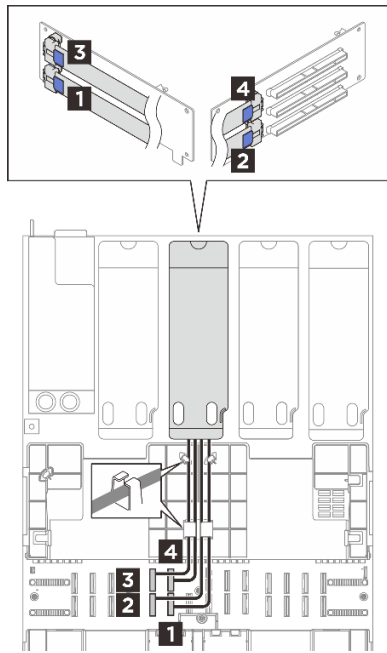
Figure 16. Cable routing for the PCIe riser C

From (PCIe riser)	To (System board assembly)	Cable
1 R1	**1** P6	MCIO x8 to Swift x8 (500 mm, flat 140 mm)
2 R2	**2** P5	MCIO x8 to Swift x8 (360 mm)
3 R3	**3** P17	MCIO x8 to Swift x8 (500 mm, flat 140 mm)
4 R4	**4** P18	MCIO x8 to Swift x8 (360 mm)

PCIe riser D cable routing

Follow the instructions in this section to learn how to do cable routing for the PCIe riser D.

Notes:

- Connections between connectors; **1**↔**1**, **2**↔**2**, **3**↔**3**, ... **n**↔**n**

- The **Cable PN** or **FRU PN** can be found on the label attached to the cable.

- When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.

- A label on each signal cable indicates the connection source and destination. This information is in the format **RY-X** and **P Z**. Where Y indicates the PCIe riser number, **X** indicates the connector on the riser card, and **Z** indicates the connector on the system board assembly.

Choose the routing plan according to the server model.

- "Server model with 2.5-inch bays" on page 30
- "Server model with E3.S bays" on page 31

Server model with 2.5-inch bays
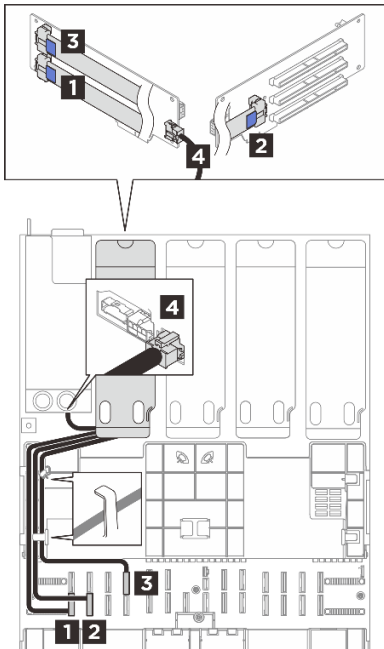
Figure 17. Cable routing for the PCIe riser D (2.5-inch server)

From (PCIe riser)	To	Cable
1 R1	**1** System board assembly: P1	MCIO x8 to Swift x8 (500 mm, flat 140 mm)
2 R2	**2** System board assembly: P2	MCIO x8 to Swift x8 (420 mm)
3 R3	**3** System board assembly: P16	MCIO x8 to Swift x8 (500 mm, flat 140 mm)
4 Power	**4** PDB: Riser power	2x8 to 2x4 (200 mm)

Server model with E3.S bays
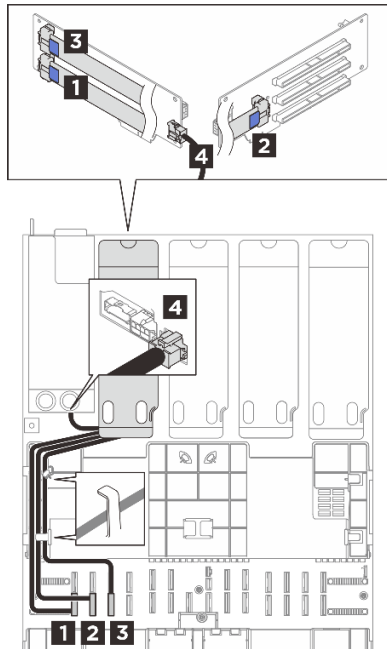
Figure 18. Cable routing for the PCIe riser D (E3.S server)

From (PCIe riser)	To	Cable
1 R1	**1** System board assembly: P1	MCIO x8 to Swift x8 (500 mm, flat 140 mm)
2 R2	**2** System board assembly: P2	MCIO x8 to Swift x8 (420 mm)
3 R3	**3** System board assembly: P3	MCIO x8 to Swift x8 (500 mm, flat 140 mm)
4 Power	**4** PDB: Riser power	2x8 to 2x4 (200 mm)

Power distribution board cable routing

Follow the instructions in this section to learn how to do cable routing for the power distribution board.

Notes:

- Connections between connectors; **1**↔**1**, **2**↔**2**, **3**↔**3**, ... **n**↔**n**
- The **Cable PN** or **FRU PN** can be found on the label attached to the cable.
- When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.
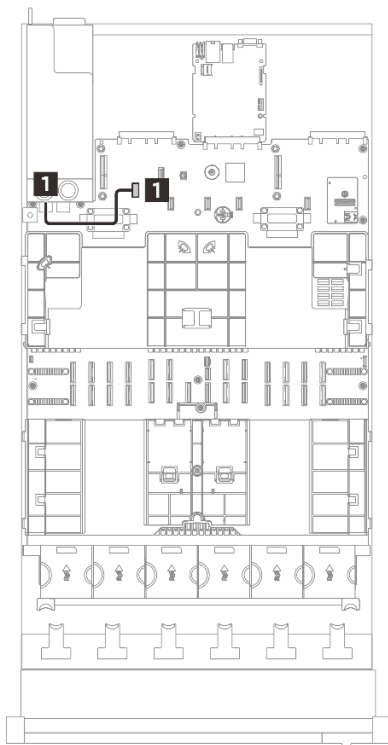
Figure 19. Cable routing for the power distribution board

From	To (System board assembly)	Cable
1 PDB sideband	**1** Sideband power	2x15p to 2x15p (210 mm)

Rack latch cable routing

Follow the instructions in this section to learn how to do cable routing for rack latches.

Notes:

- Connections between connectors; **1**↔**1**, **2**↔**2**, **3**↔**3**, ... **n**↔**n**

- The **Cable PN** or **FRU PN** can be found on the label attached to the cable.

- When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.
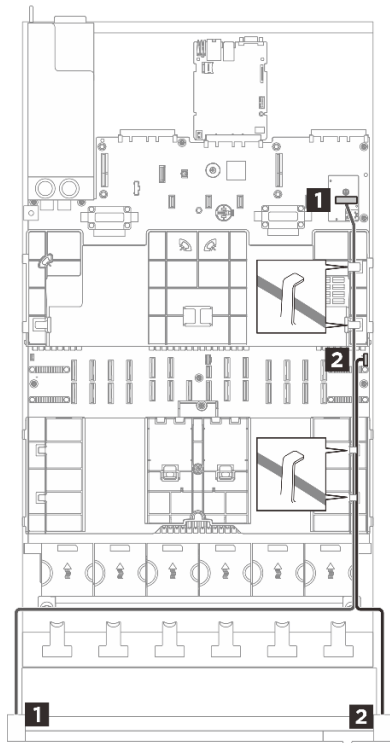
Figure 20. Cable routing for rack latches

From (System board assembly)	To	Cable
1 USB I/O board	**1** Left rack latch	MCIO x8 to USB 2x/Mini HD (1200 mm)
2 FIO	**2** Right rack latch	1x9 to PCBA (550 mm)

Rear M.2 drive backplane cable routing

Follow the instructions in this section to learn how to do cable routing for the rear M.2 drive backplane.

Notes:

- Connections between connectors; **1**↔**1**, **2**↔**2**, **3**↔**3**, ... **n**↔**n**

- The **Cable PN** or **FRU PN** can be found on the label attached to the cable.

- When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.
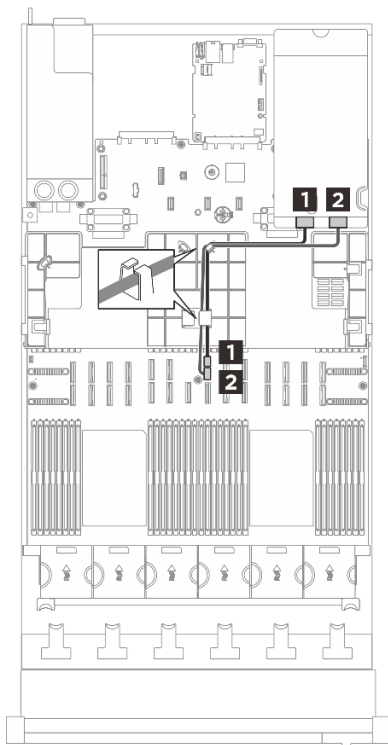
Figure 21. Cable routing for the rear M.2 drive backplane

From (System board assembly)	To (Rear M.2 boot adapter)	Cable
1 M.2 power	**1** M.2 power	2x10p to 2x10p (520 mm)
2 M.2 signal	**2** M.2 signal	MCIO x4 to MCIO x4 (520 mm)

Serial port cable routing

Follow the instructions in this section to learn how to do cable routing for the serial port module.

Notes:

- Connections between connectors; **1**↔**1**, **2**↔**2**, **3**↔**3**, ... **n**↔**n**

- The **Cable PN** or **FRU PN** can be found on the label attached to the cable.

- When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.
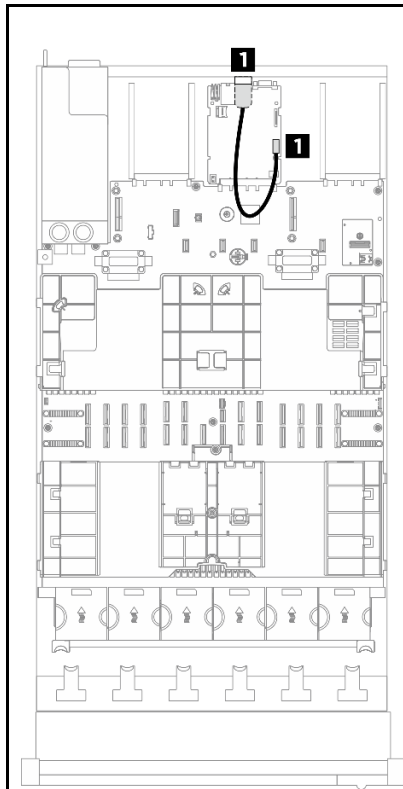
Figure 22. Serial port module cable routing for server model with three PCIe risers
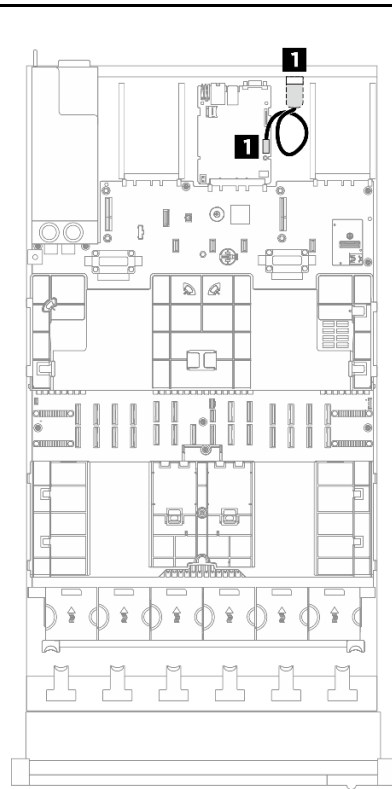
Figure 23. Serial port module cable routing for server model with four PCIe risers

From (System board assembly)	To	Cable
1 Serial port connector	**1** Serial port module	2x6p to COM port (220 mm)

Appendix A. 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/sr850v4/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 and troubleshooting.
- ***Cable Routing Guide***
  - Cable routing information.
- ***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 SR850 V4
  - https://datacentersupport.lenovo.com/products/servers/thinksystem/sr850v4/7djt/downloads/driver-list/
- Lenovo Data Center Forum
  - https://forums.lenovo.com/t5/Datacenter-Systems/ct-p/sv_eg
- Lenovo Data Center Support for ThinkSystem SR850 V4
  - https://datacentersupport.lenovo.com/products/servers/thinksystem/sr850v4/7djt/
- 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 B. 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.

Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service.

Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document is not an offer and does not provide a license under any patents or patent applications. You can send inquiries in writing to the following:

Lenovo (United States), Inc.
8001 Development Drive
Morrisville, NC 27560
U.S.A.
Attention: Lenovo Director of Licensing

LENOVO PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

The products described in this document are not intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. The information contained in this document does not affect or change Lenovo product specifications or warranties. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Lenovo or third parties. All information contained in this document was obtained in specific environments and is presented as an illustration. The result obtained in other operating environments may vary.

Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-Lenovo Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this Lenovo product, and use of those Web sites is at your own risk.

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.

Trademarks

LENOVO, THINKSYSTEM, Flex System, System x, NeXtScale System, xArchitecture, ThinkEdge, and Neptune are trademarks of Lenovo.

Intel and Intel Xeon are trademarks of Intel Corporation in the United States, other countries, or both.

Internet Explorer, Microsoft, and Windows are trademarks of the Microsoft group of companies.

Linux is a registered trademark of Linus Torvalds.

All other trademarks are the property of their respective owners. © 2018 Lenovo.

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:

Taiwan Region BSMI RoHS declaration

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

備考1. ″超出0.1 wt %″ 及 ″超出0.01 wt %″ 係指限用物質之百分比含量超出百分比含量基準值。
Note1 : "exceeding 0.1wt%" and "exceeding 0.01 wt%" indicate that the percentage content
   of the restricted substance exceeds the reference percentage value of presence condition.

備考2. ″○″ 係指該項限用物質之百分比含量未超出百分比含量基準值。
Note2 : "○"indicates that the percentage content of the restricted substance does not exceed the
   percentage of reference value of presence.

備考3. ″－″ 係指該項限用物質為排除項目。
Note3 : The "-" indicates that the restricted substance corresponds to the exemption.

Taiwan Region import and export contact information

Contacts are available for Taiwan Region import and export information.

委製商/進口商名稱: 台灣聯想環球科技股份有限公司
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