Lenovo

ThinkSystem SR860 V4
Internal Cable Routing Guide

Machine Type: 7DJN, 7DJR, and 7DJQ

Note

Before using this information and the product it supports, be sure to read and understand the safety information and the safety instructions, which are available at:
https://pubs.lenovo.com/safety_documentation/

In addition, be sure that you are familiar with the terms and conditions of the Lenovo warranty for your server, which can be found at:
http://datacentersupport.lenovo.com/warrantylookup

First Edition (September 2025)

Contents

Safety

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الآمنية

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

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

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

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

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

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

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

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

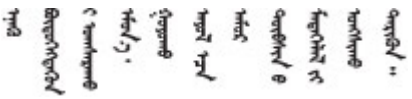
A termék telepítése előtt olvassa el a Biztonsági előírásokat!

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

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

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



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

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

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

Перед установкой продукта прочтите инструкции по технике безопасности.

Pred inštaláciou tohto zariadenia si pečítaje Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

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

Läs säkerhetsinformationen innan du installerar den här produkten.

ཐོན་རྫས་འདི་བདེ་སྐྱོང་མ་བྱས་གོང་། ·སྐྲ་ཐྱི་ཡིད་གཟབ· བྱ་འདྲ་མིན་ཡོད་པའི་འོད་སྣེར་བལྟ་དགོས།

Bu ürünü kurmadan önce güvenlik bilgilerini okuyun.

ھەزكۇر 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:

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.
7. The design of the electrical distribution system must take into consideration the total grounding leakage current from all power supplies in the server.

CAUTION:

High touch current. Connect to earth before connecting to supply.

Internal cable routing

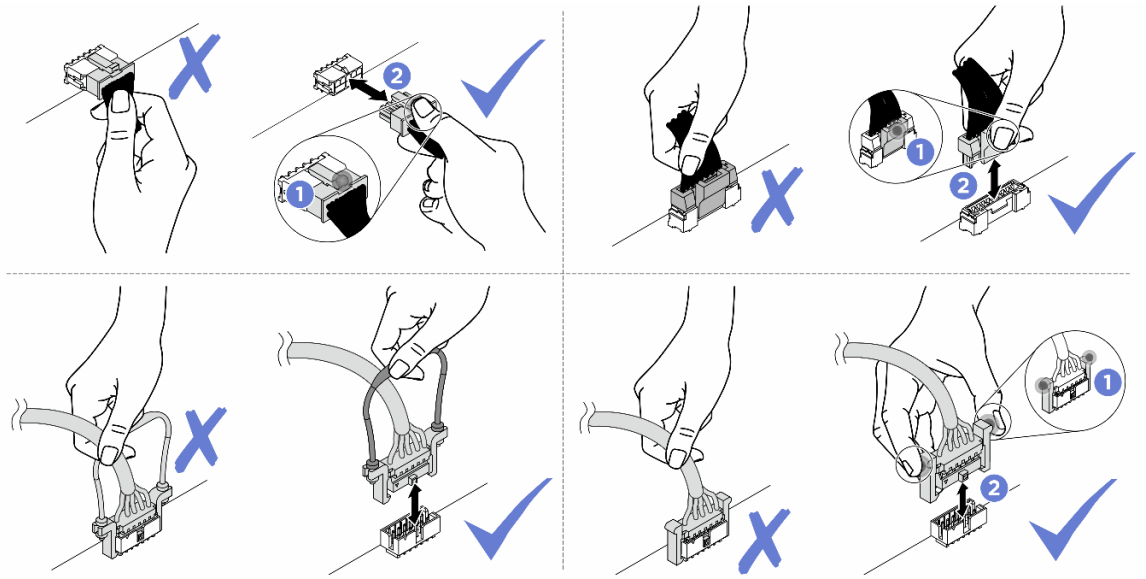
See this section to do cable routing for specific components.

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.

Attention: 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

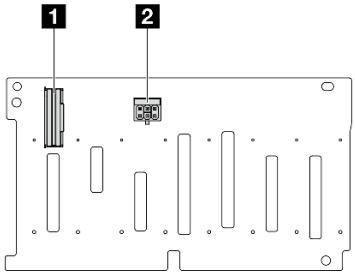
See this section to locate and identify the connectors on the electric boards.

Drive backplane connectors

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

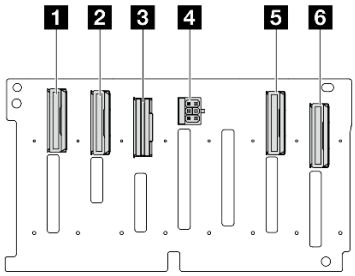
Two types of drive backplanes are supported in this server:

8 x 2.5-inch SAS/SATA front backplane



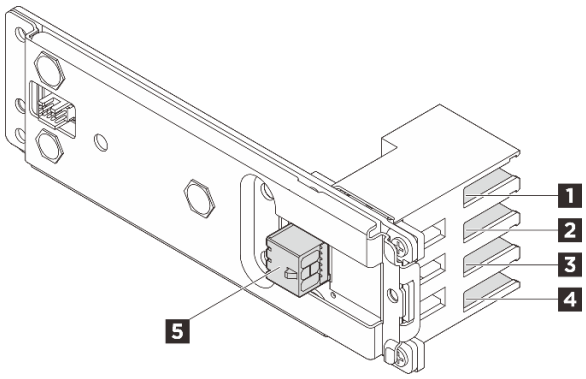
1 SAS connector	2 Power connector

8 x 2.5-inch AnyBay front backplane



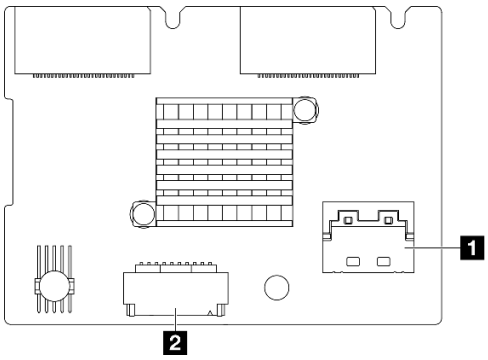
1 NVMe 6-7 connector	2 NVMe 4-5 connector
3 SAS connector	4 Power connector
5 NVMe 2-3 connector	6 NVMe 0-1 connector

E3.S drive backplane



1 Bay 0	2 Bay 1
3 Bay 2	4 Bay 3
5 Power connector	

Rear M.2 backplane



1 Signal connector	2 Power connector

PCIe riser card connectors

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

The server supports the following PCIe riser cards.

- “Two-slot PCIe Gen4 riser card” on page 3
- “Six-slot PCIe Gen5 riser card (HH)” on page 4
- “Six-slot PCIe Gen5 riser card (FH)” on page 4

Two-slot PCIe Gen4 riser card

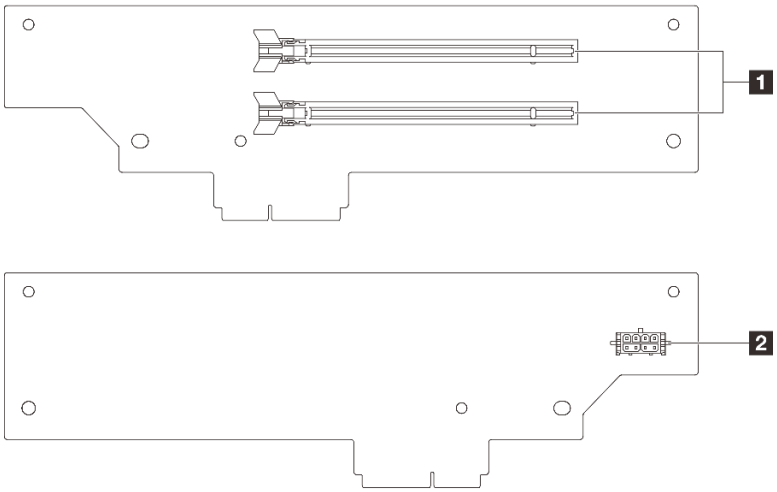


Figure 1. Two-slot PCIe Gen4 riser card connectors

1 PCIe slots (x2)	2 Riser power connector

Six-slot PCIe Gen5 riser card (HH)

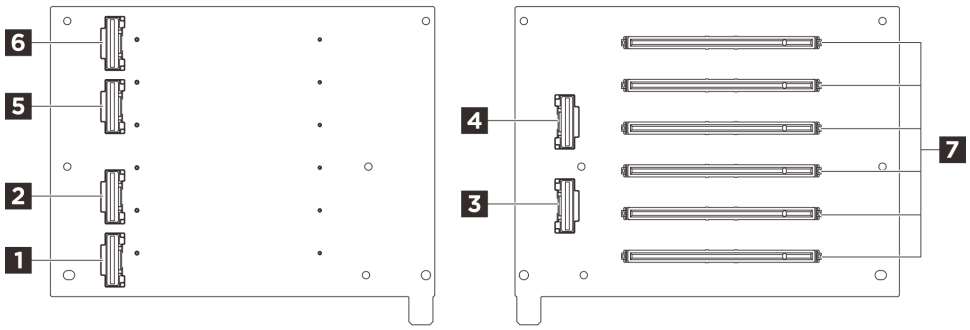


Figure 2. Six-slot PCIe Gen5 riser card (HH)

1 R1 connector	2 R2 connector
3 R3 connector	4 R4 connector
5 R5 connector	6 R6 connector
7 PCIe slots (x6)	

Six-slot PCIe Gen5 riser card (FH)

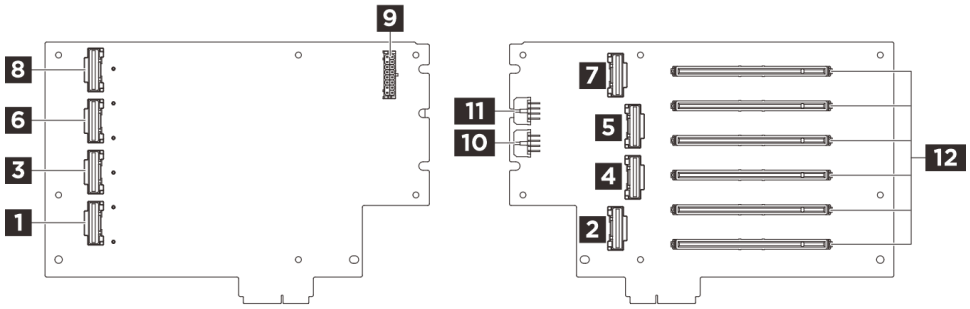


Figure 3. Six-slot PCIe Gen5 riser card (FH)

1 R1 connector	2 R2 connector
3 R3 connector	4 R4 connector
5 R5 connector	6 R6 connector
7 R7 connector	8 R8 connector
9 Riser power connector	10 GPU power 2 connector
11 GPU power 1 connector	12 PCIe slots (x6)

Power distribution board connectors

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

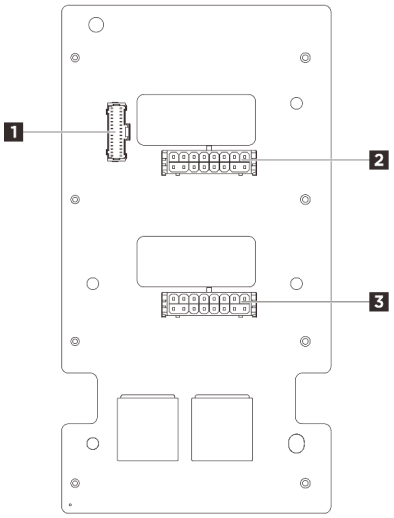


Figure 4. Power distribution board connectors

1 Power distribution board sideband connector	3 PCIe riser 1 power connector
2 PCIe riser 3 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.

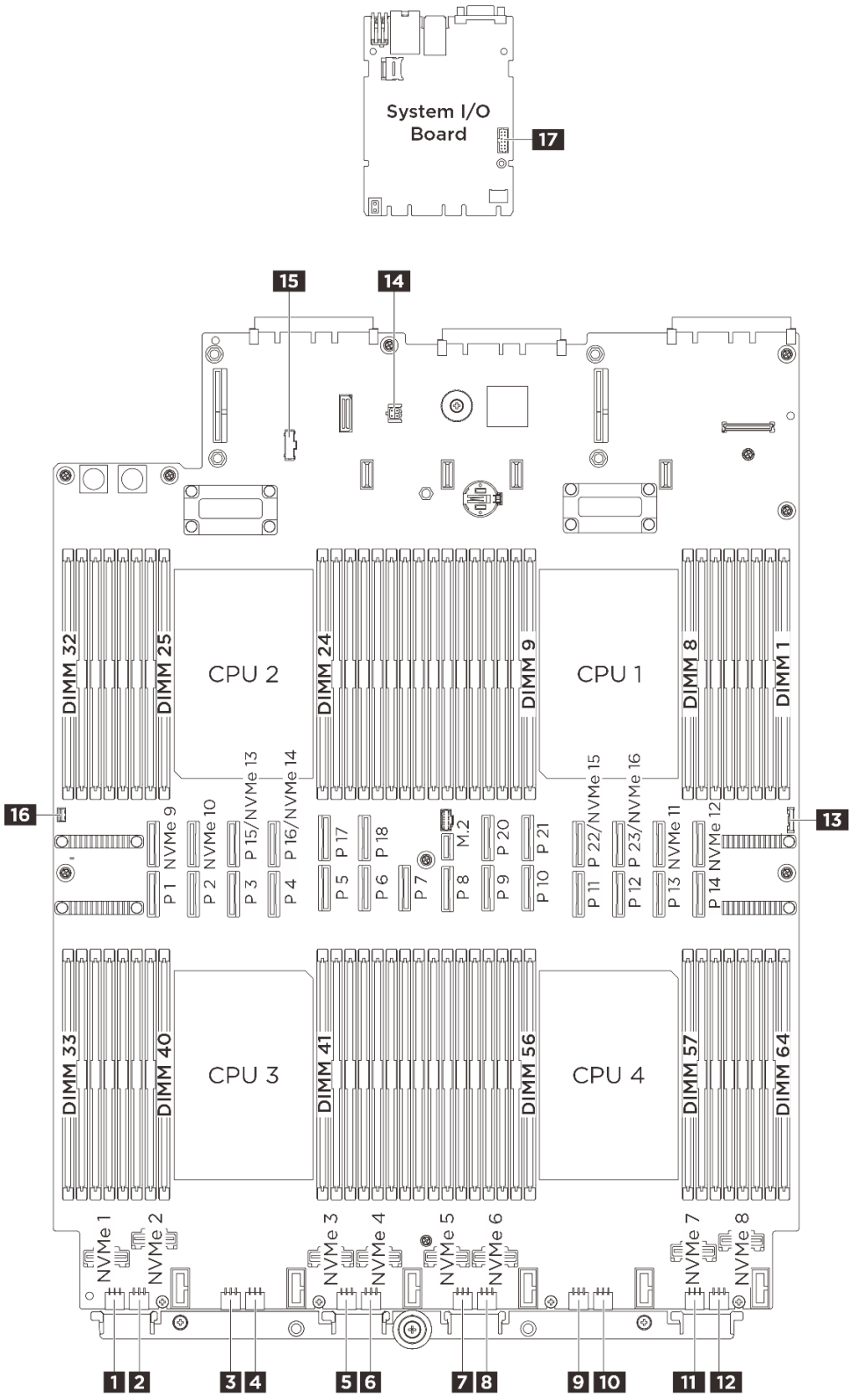


Figure 5. System-board-assembly connectors for cable routing

1 Backplane 1 power connector	2 Backplane 2 power connector
3 Backplane 3 power connector	4 Backplane 4 power connector
5 Backplane 5 power connector	6 Backplane 6 power connector
7 Backplane 7 power connector	8 Backplane 8 power connector
9 Backplane 9 power connector	10 Backplane 10 power connector
11 Backplane 11 power connector	12 Backplane 12 power connector
13 Front panel USB connector	14 Leakage sensor connector
15 PDB sideband connector	16 Intrusion switch 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.

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

- "Backplane numbering" on page 7
- "Power cable routing" on page 8
- "NVMe cable routing" on page 9
- "SAS/SATA cable routing" on page 10

Backplane numbering

The server supports up to six 2.5-inch drive backplanes.

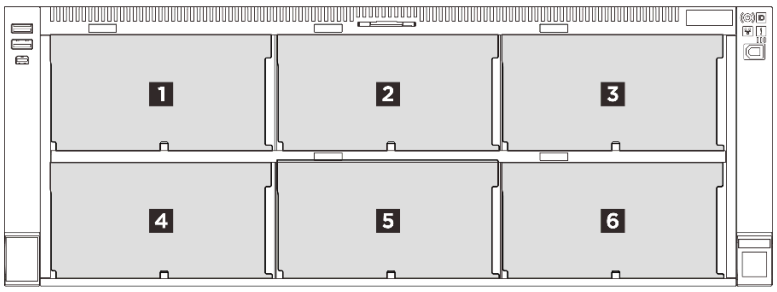


Figure 6. Backplane numbering

Table 1. Drive backplane and corresponding drive bays

Drive backplane	Drive bay	Supported drive backplanes	Supported drives
1 Backplane 1	0 to 7	• 2.5-inch AnyBay 8-bay drive backplane • 2.5-inch SAS/SATA 8-bay drive backplane	• 2.5-inch NVMe drives • 2.5-inch SAS/SATA drives
2 Backplane 2	8 to 15		
3 Backplane 3	16 to 23		
4 Backplane 4	24 to 31	• 2.5-inch SAS/SATA 8-bay drive backplane	• 2.5-inch SAS/SATA drives
5 Backplane 5	32 to 39		

Table 1. Drive backplane and corresponding drive bays (continued)

Drive backplane	Drive bay	Supported drive backplanes	Supported drives
6 Backplane 6	40 to 47		

Note: The AnyBay backplane currently supports NVMe drives only. Support for SAS/SATA drives or NVMe + SAS/SATA drives will be enabled via a firmware update in Q4 of 2025.

Table 2. Drive backplane installation order

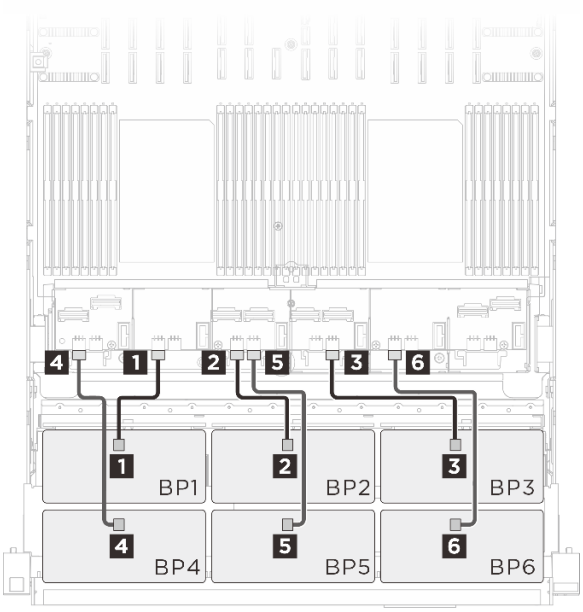
Installation priority	Backplane type	Backplane placement priority
1	2.5-inch AnyBay 8-bay drive backplane	1, 3, 2
2	2.5-inch SAS/SATA 8-bay drive backplane	1, 2, 3, 4, 5, 6

Notes: The server supports the following backplane combinations:

- 1 backplane: 1 x SAS/SATA backplane or 1 x AnyBay backplane
- 2 backplanes: 2 x SAS/SATA backplanes, 2 x AnyBay backplanes, or combination of both
- 3 backplanes: 3 x SAS/SATA backplanes, 3 x AnyBay backplanes, or combinations of both
- 6 backplanes: 6 x SAS/SATA backplanes, or combinations of both

  A maximum of 3 AnyBay backplanes are supported.

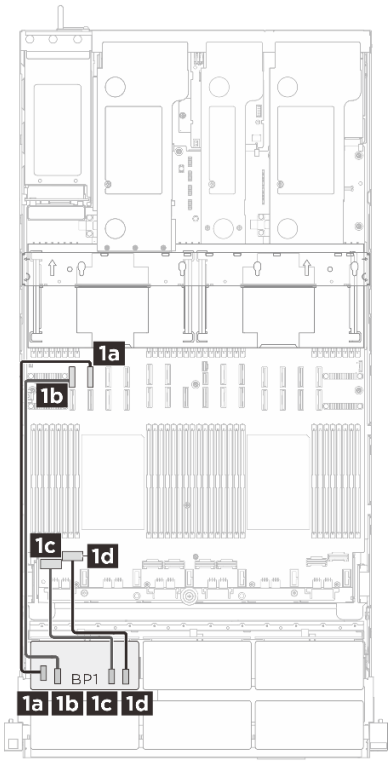
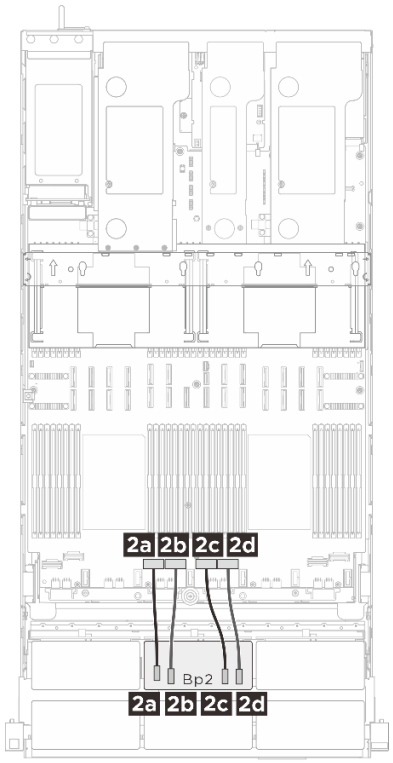
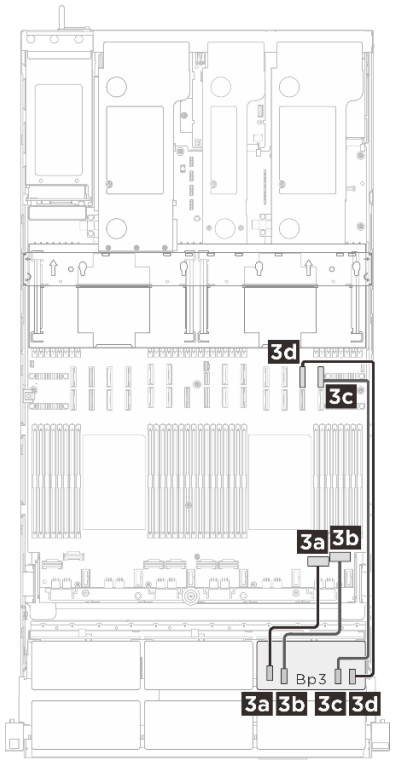
Power cable routing



Cable	From (backplane)	To (system board assembly)
MPIC 6p+6s to MPIC 6p+6s (230 mm)	1 BP 1: PWR	1 BP 3 PWR
MPIC 6p+6s to MPIC 6p+6s (230 mm)	2 BP 2: PWR	2 BP 5 PWR

Cable	From (backplane)	To (system board assembly)
MPIC 6p+6s to MPIC 6p+6s (230 mm)	3 BP 3: PWR	3 BP 8 PWR
MPIC 6p+6s to MPIC 6p+6s (150 mm)	4 BP 4: PWR	4 BP 1 PWR
MPIC 6p+6s to MPIC 6p+6s (150 mm)	5 BP 5: PWR	5 BP 6 PWR
MPIC 6p+6s to MPIC 6p+6s (150 mm)	6 BP 6: PWR	6 BP 9 PWR

NVMe cable routing

BP 1 NVMe cable routing	BP 2 NVMe cable routing	BP 3 NVMe cable routing
		

Cable	From (backplane)	To (system board assembly)
MCIO x8 to MCIO x8 (520 mm)	1a BP 1: NVMe 0-1	1a NVMe 10
MCIO x8 to MCIO x8 (520 mm)	1b BP 1: NVMe 2-3	1b NVMe 9
Swift x8 to MCIO x8 (230 mm)	1c BP 1: NVMe 4-5	1c NVMe 1
Swift x8 to MCIO x8 (230 mm)	1d BP 1: NVMe 6-7	1d NVMe 2
Swift x8 to MCIO x8 (230 mm)	2a BP 2: NVMe 0-1	2a NVMe 3
Swift x8 to MCIO x8 (230 mm)	2b BP 2: NVMe 2-3	2b NVMe 4
Swift x8 to MCIO x8 (230 mm)	2c BP 2: NVMe 4-5	2c NVMe 5

Cable	From (backplane)	To (system board assembly)
Swift x8 to MCIO x8 (230 mm)	2d BP 2: NVMe 6-7	2d NVMe 6
Swift x8 to MCIO x8 (230 mm)	3a BP 3: NVMe 0-1	3a NVMe 7
Swift x8 to MCIO x8 (230 mm)	3b BP 3: NVMe 2-3	3b NVMe 8
MCIO x8 to MCIO x8 (520 mm)	3c BP 3: NVMe 4-5	3c NVMe 12
MCIO x8 to MCIO x8 (520 mm)	3d BP 3: NVMe 6-7	3d NVMe 11

SAS/SATA cable routing

The server supports the following RAID/HBA adapters.

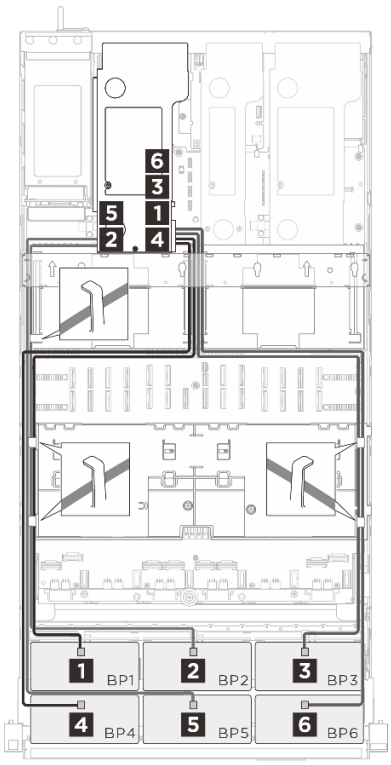
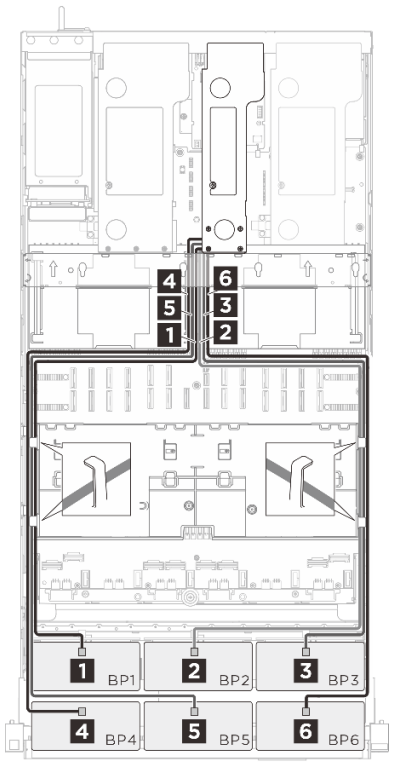
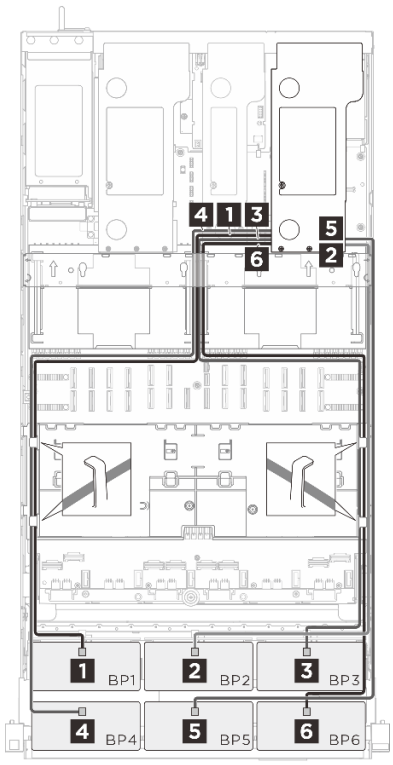
- Gen 4 RAID/HBA adapters: 545-8i/940-8i/940-16i/440-16i

Note: When the RAID 940-8i or RAID 940-16i adapter is installed for Tri-Mode (or Trimode), an AnyBay backplane also supports NVMe U.3 drives at the same time as SAS and SATA drives. Cabling of the controller to the backplanes is the same as with SAS/SATA drives, and the NVMe drives are connected via a PCIe x1 link to the controller.

Recommended RAID/HBA adapter selection:

- 1 x backplane: 1 x RAID/HBA 8i
- 2 x backplanes: 1 x RAID/HBA 16i
- 3 x backplanes: 1 x RAID/HBA 8i + 1 x RAID/HBA 16i
- 6 x backplanes: 3 x RAID/HBA 16i

Depending on your configuration, the RAID/HBA adapters will be installed in different risers. Based on the location of the RAID/HBA adapter, select the corresponding routing path from the following table.

Cable routing to riser 3	Cable routing to riser 2	Cable routing to riser 1
		

Cable	From (backplane)	To (RAID/HBA adapter)
SlimSAS x8 to SlimSAS x8 (1020 mm)	1 BP 1: SAS	1 RAID/HBA 8i/16i
SlimSAS x8 to SlimSAS x8 (1020 mm)	2 BP 2: SAS	2 RAID/HBA 8i/16i
SlimSAS x8 to SlimSAS x8 (1020 mm)	3 BP 3: SAS	3 RAID/HBA 8i/16i
SlimSAS x8 to SlimSAS x8 (1020 mm)	4 BP 4: SAS	4 RAID/HBA 8i/16i
SlimSAS x8 to SlimSAS x8 (1020 mm)	5 BP 5: SAS	5 RAID/HBA 8i/16i
SlimSAS x8 to SlimSAS x8 (1020 mm)	6 BP 6: SAS	6 RAID/HBA 8i/16i

E3.S backplane cable routing

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

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

- “Backplane numbering” on page 12
- “Power cable routing” on page 13
- “E3.S 1T signal cable routing” on page 14
- “E3.S 2T signal cable routing” on page 16

Backplane numbering

The server supports up to eight E3.S backplanes (backplanes 1 to 8) and three 2.5-inch drive backplanes (backplanes 9 to 11).

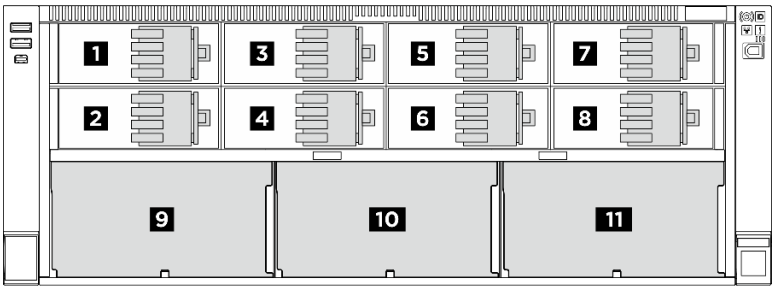


Figure 7. Backplane numbering

Table 3. Drive backplane and corresponding drive bays

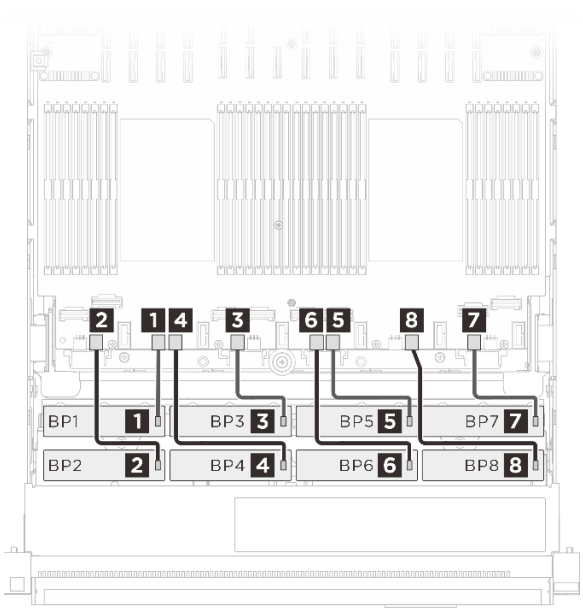
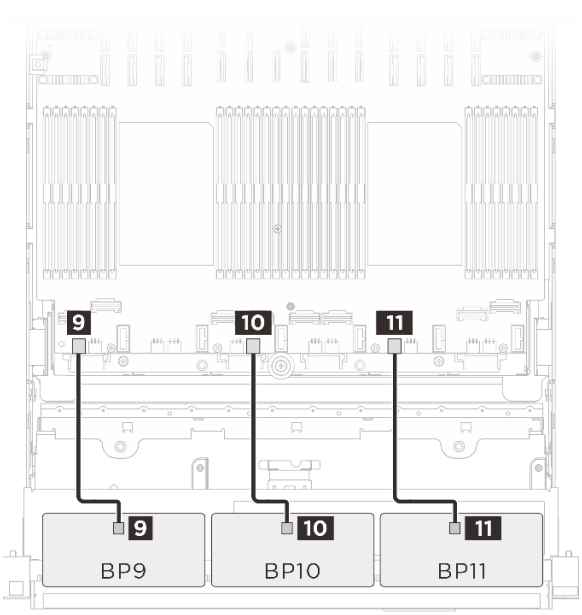
Drive backplane	E3.S 1T bay	E3.S 2T bay	2.5-inch SAS/SATA bay
1 Backplane 1	0 to 3	1, 3	
2 Backplane 2	4 to 7	5, 7	
3 Backplane 3	8 to 11	9, 11	
4 Backplane 4	12 to 15	13, 15	
5 Backplane 5	16 to 19	17, 19	
6 Backplane 6	20 to 23	21, 23	
7 Backplane 7	24 to 27	25, 27	
8 Backplane 8	28 to 31	29, 31	
9 Backplane 9			32 to 39
10 Backplane 10			40 to 47
11 Backplane 11			48 to 55

Notes:
- E3.S 1T bays support E3.S 1T drives.
- E3.S 2T bays support CXL memory modules (CMMs).

Table 4. Drive backplane installation order

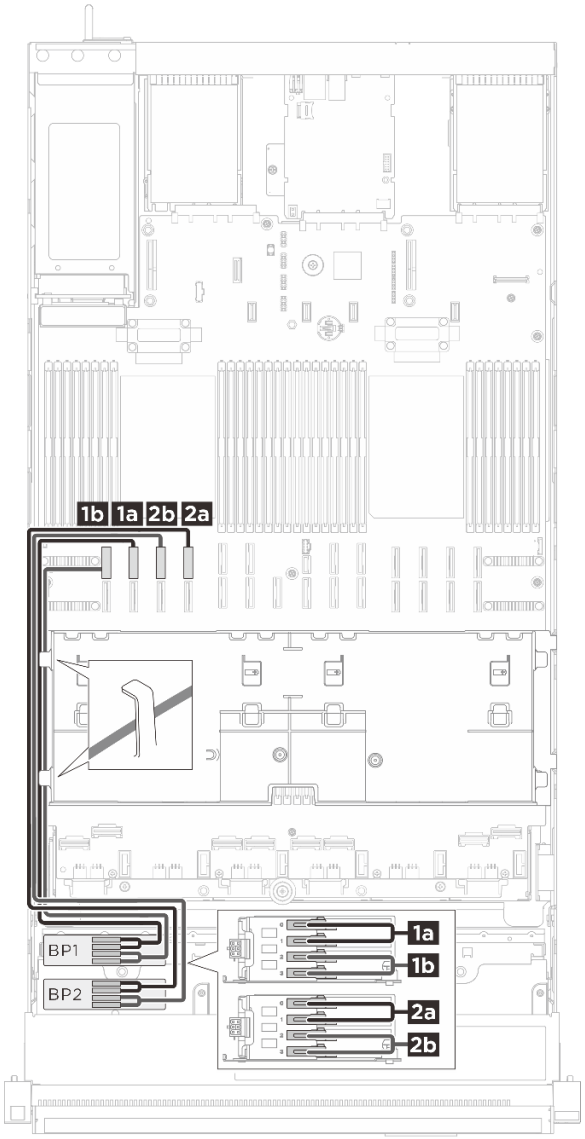
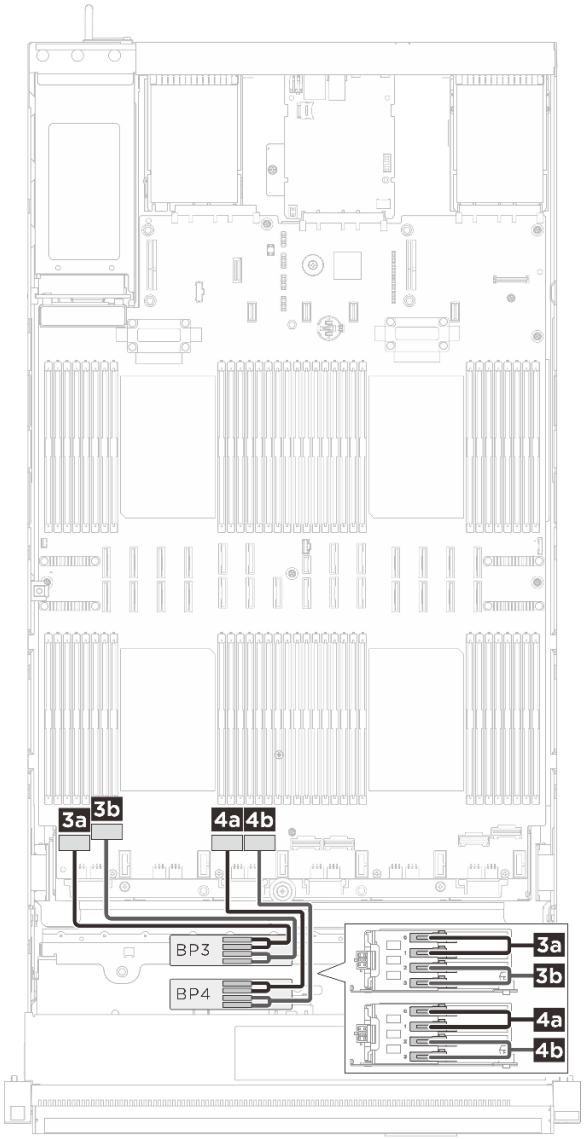
Backplane type	Backplane placement priority
E3.S backplane for E3.S 1T bays	1+2, 1+2+3+4, 1+2+3+4+5+6, 1+2+3+4+5+6+7+8
E3.S backplane for E3.S 2T bays	1+2+3+4+5+6+7+8
2.5-inch SAS/SATA 8-bay drive backplane	9, 10, 11

Power cable routing

E3.S backplane power cable routing	SAS/SATA backplane power cable routing
	

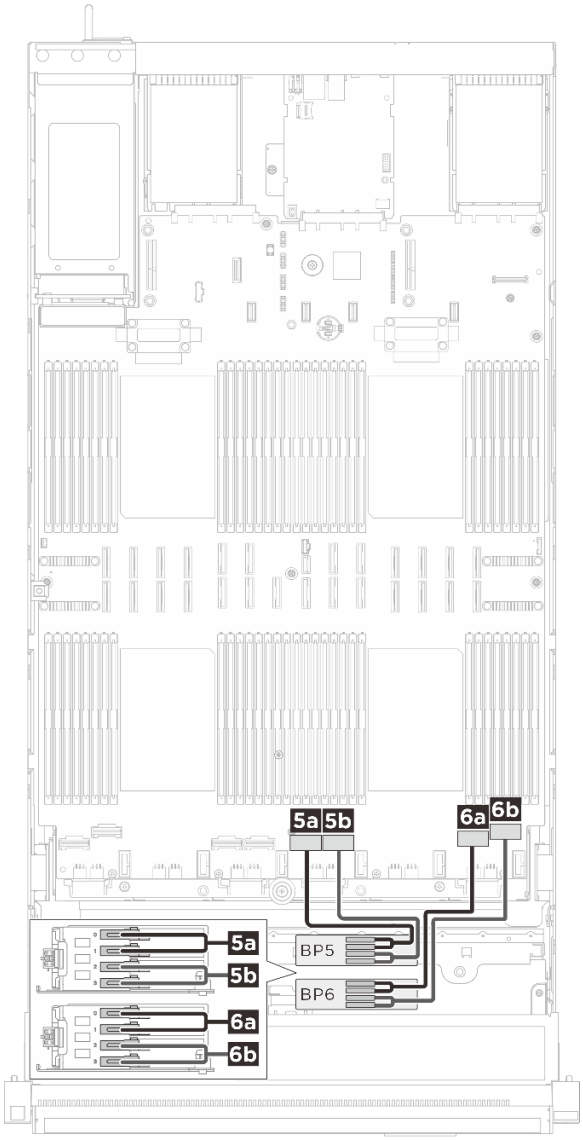
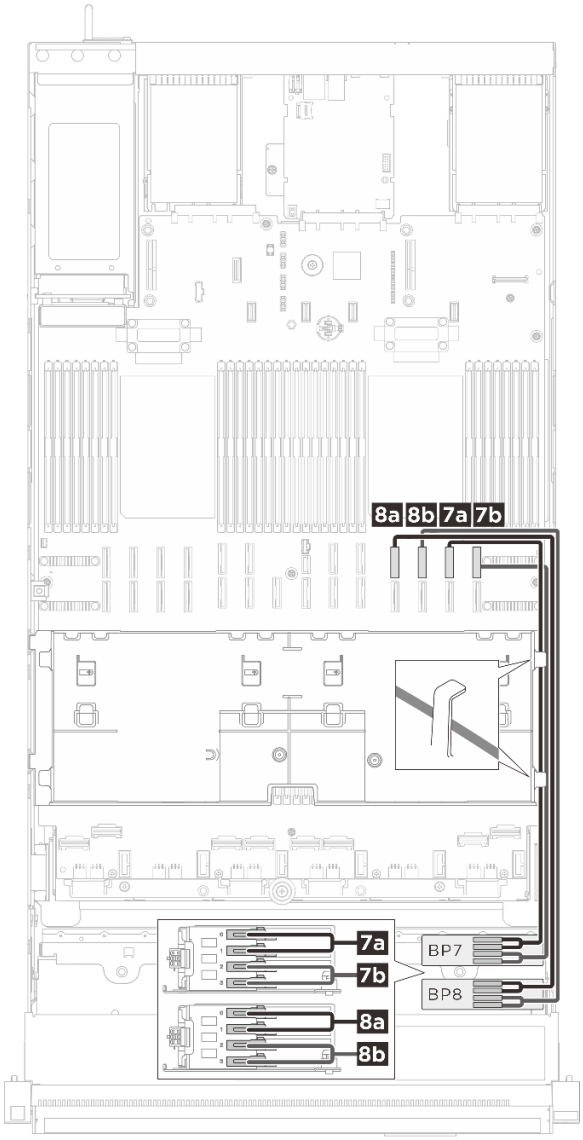
Cable	From (backplane)	To (system board assembly)
MPIC 6p+6s to MPIC 6p+6s (230 mm)	1 BP 1: PWR	1 BP 3 PWR
MPIC 6p+6s to MPIC 6p+6s (230 mm)	2 BP 2: PWR	2 BP 2 PWR
MPIC 6p+6s to MPIC 6p+6s (230 mm)	3 BP 3: PWR	3 BP 5 PWR
MPIC 6p+6s to MPIC 6p+6s (230 mm)	4 BP 4: PWR	4 BP 4 PWR
MPIC 6p+6s to MPIC 6p+6s (230 mm)	5 BP 5: PWR	5 BP 8 PWR
MPIC 6p+6s to MPIC 6p+6s (230 mm)	6 BP 6: PWR	6 BP 7 PWR
MPIC 6p+6s to MPIC 6p+6s (230 mm)	7 BP 7: PWR	7 BP 11: PWR
MPIC 6p+6s to MPIC 6p+6s (230 mm)	8 BP 8: PWR	8 BP 10: PWR
MPIC 6p+6s to MPIC 6p+6s (150 mm)	9 BP 9: PWR	9 BP 1: PWR
MPIC 6p+6s to MPIC 6p+6s (150 mm)	10 BP 10: PWR	10 BP 6: PWR
MPIC 6p+6s to MPIC 6p+6s (150 mm)	11 BP 11: PWR	11 BP 9: PWR

E3.S 1T signal cable routing

BP1/BP2 signal cable routing	BP3/BP4 signal cable routing
	

Cable	From (backplane)	To (system board assembly)
MCIO x8 to Gen-Z 1C*2 (560 mm)	1a BP 1: Bay 0, Bay 1	1a NVMe 10
MCIO x8 to Gen-Z 1C*2 (560 mm)	1b BP 1: Bay 2, Bay 3	1b NVMe 9
MCIO x8 to Gen-Z 1C*2 (560 mm)	2a BP 2: Bay 0, Bay 1	2a NVMe 14
MCIO x8 to Gen-Z 1C*2 (560 mm)	2b BP 2: Bay 2, Bay 3	2b NVMe 13
Swift x8 to Gen-Z 1C*2 (330 mm)	3a BP 3: Bay 0, Bay 1	3a NVMe 1
Swift x8 to Gen-Z 1C*2 (330 mm)	3b BP 3: Bay 2, Bay 3	3b NVMe 2

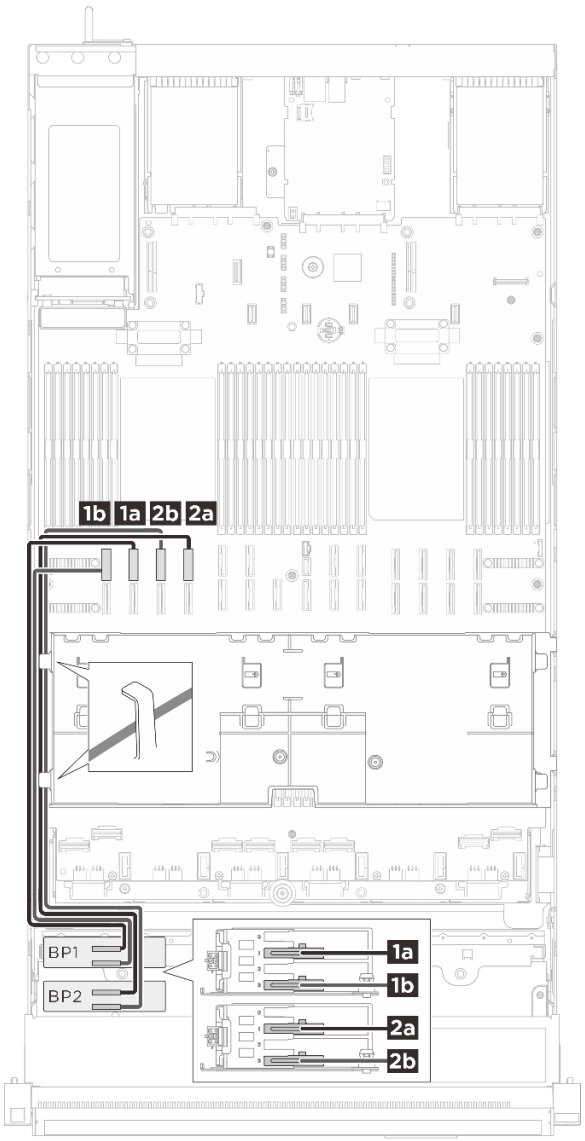
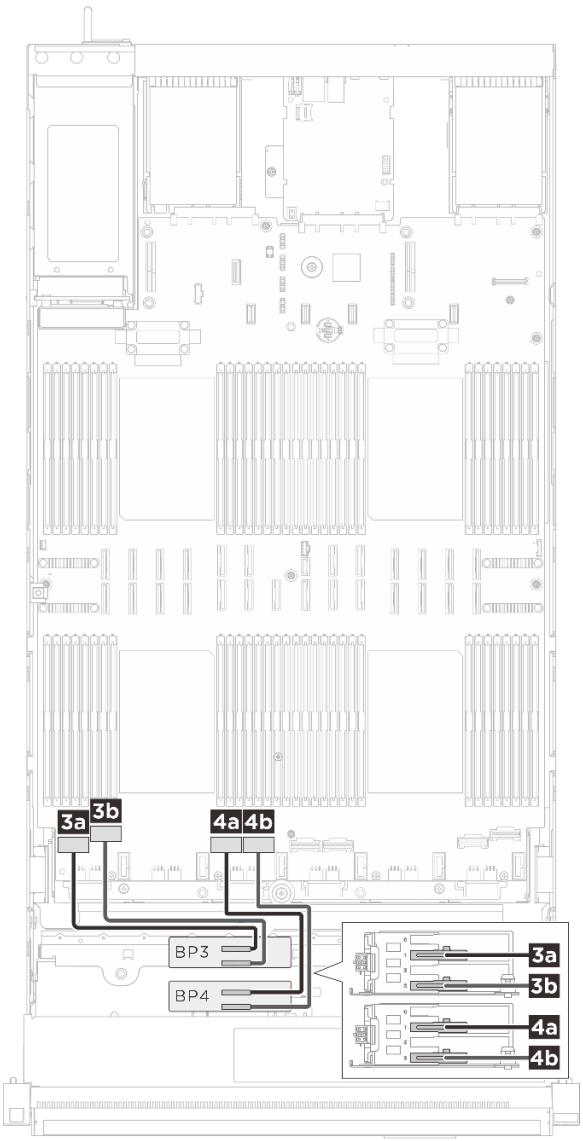
Cable	From (backplane)	To (system board assembly)
Swift x8 to Gen-Z 1C*2 (330 mm)	4a BP 4: Bay 0, Bay 1	4a NVMe 3
Swift x8 to Gen-Z 1C*2 (330 mm)	4b BP 4: Bay 2, Bay 3	4b NVMe 4

BP5/BP6 signal cable routing	BP7/BP8 signal cable routing
	

Cable	From (backplane)	To (system board assembly)
Swift x8 to Gen-Z 1C*2 (330 mm)	5a BP 5: Bay 0, Bay 1	5a NVMe 5
Swift x8 to Gen-Z 1C*2 (330 mm)	5b BP 5: Bay 2, Bay 3	5b NVMe 6
Swift x8 to Gen-Z 1C*2 (330 mm)	6a BP 6: Bay 0, Bay 1	6a NVMe 7
Swift x8 to Gen-Z 1C*2 (330 mm)	6b BP 6: Bay 2, Bay 3	6b NVMe 8
MCIO x8 to Gen-Z 1C*2 (560 mm)	7a BP 7: Bay 0, Bay 1	7a NVMe 11

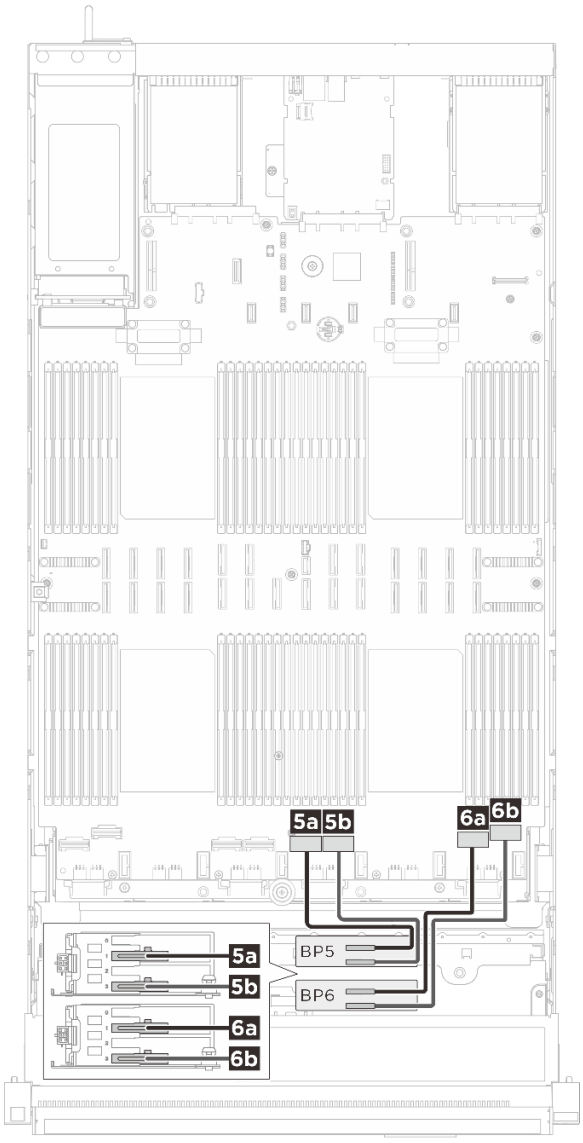
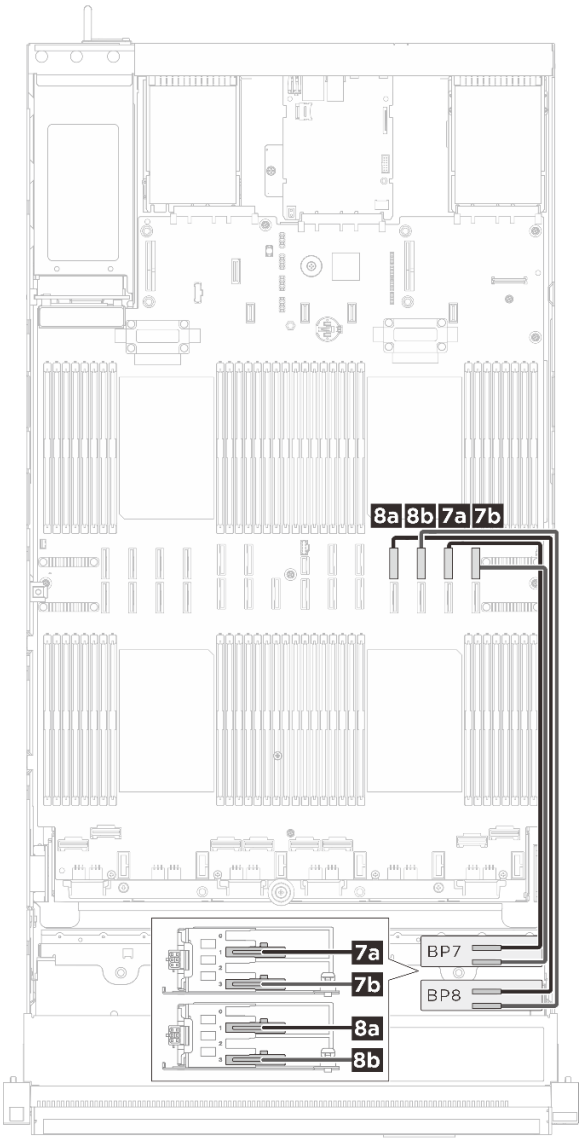
Cable	From (backplane)	To (system board assembly)
MCIO x8 to Gen-Z 1C*2 (560 mm)	7b BP 7: Bay 2, Bay 3	7b NVMe 12
MCIO x8 to Gen-Z 1C*2 (560 mm)	8a BP 8: Bay 0, Bay 1	8a NVMe 15
MCIO x8 to Gen-Z 1C*2 (560 mm)	8b BP 8: Bay 2, Bay 3	8b NVMe 16

E3.S 2T signal cable routing

BP1/BP2 signal cable routing	BP3/BP4 signal cable routing
	

Cable	From (backplane)	To (system board assembly)
MCIO x8 to Gen-Z 2C (560 mm)	1a BP 1: Bay 1	1a NVMe 10
MCIO x8 to Gen-Z 2C (560 mm)	1b BP 1: Bay 3	1b NVMe 9
MCIO x8 to Gen-Z 2C (560 mm)	2a BP 2: Bay 1	2a NVMe 14

Cable	From (backplane)	To (system board assembly)
MCIO x8 to Gen-Z 2C (560 mm)	2b BP 2: Bay 3	2b NVMe 13
Swift x8 to Gen-Z 2C (330 mm)	3a BP 3: Bay 1	3a NVMe 1
Swift x8 to Gen-Z 2C (330 mm)	3b BP 3: Bay 3	3b NVMe 2
Swift x8 to Gen-Z 2C (330 mm)	4a BP 4: Bay 1	4a NVMe 3
Swift x8 to Gen-Z 2C (330 mm)	4b BP 4: Bay 3	4b NVMe 4

BP5/BP6 signal cable routing	BP7/BP8 signal cable routing
	

Cable	From (Backplane)	To (System board assembly)
Swift x8 to Gen-Z 2C (330 mm)	5a BP 5: Bay 1	5a NVMe 5
Swift x8 to Gen-Z 2C (330 mm)	5b BP 5: Bay 3	5b NVMe 6

Cable	From (Backplane)	To (System board assembly)
Swift x8 to Gen-Z 2C (330 mm)	6a BP 6: Bay 1	6a NVMe 7
Swift x8 to Gen-Z 2C (330 mm)	6b BP 6: Bay 3	6b NVMe 8
MCIO x8 to Gen-Z 2C (560 mm)	7a BP 7: Bay 1	7a NVMe 11
MCIO x8 to Gen-Z 2C (560 mm)	7b BP 7: Bay 3	7b NVMe 12
MCIO x8 to Gen-Z 2C (560 mm)	8a BP 8: Bay 1	8a NVMe 15
MCIO x8 to Gen-Z 2C (560 mm)	8b BP 8: Bay 3	8b NVMe 16

SAS/SATA backplane signal cable routing

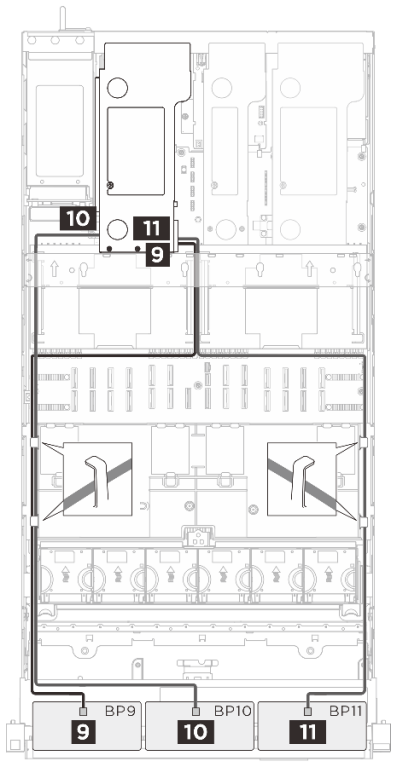
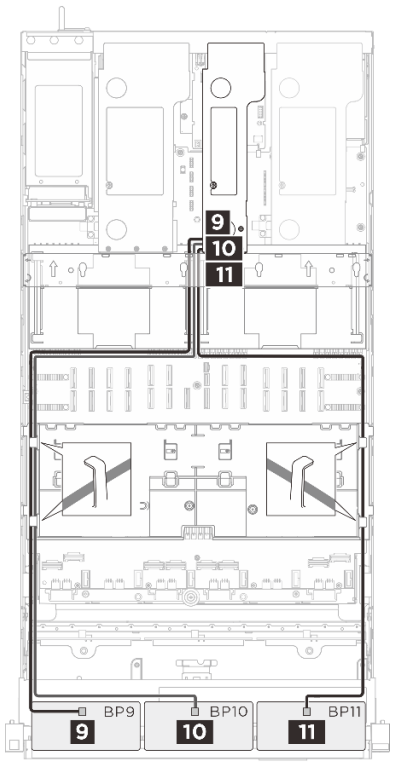
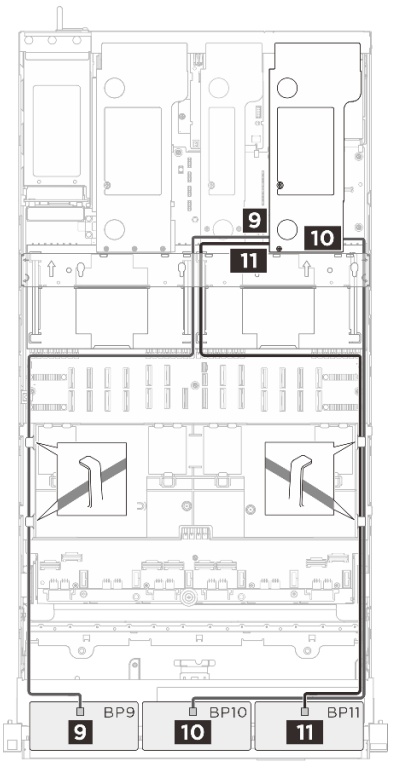
The server supports the following RAID/HBA adapters.

- Gen 4 RAID/HBA adapters: 545-8i/940-8i/940-16i/440-16i

Recommended RAID/HBA adapter selection:

- 1 x backplane: 1 x RAID/HBA 8i
- 2 x backplanes: 1 x RAID/HBA 16i
- 3 x backplanes: 1 x RAID/HBA 8i + 1 x RAID/HBA 16i

Depending on your configuration, the RAID/HBA adapters will be installed in different risers. Based on the location of the RAID/HBA adapter, select the corresponding routing path from the following table.

Cable routing to riser 3	Cable routing to riser 2	Cable routing to riser 1
		

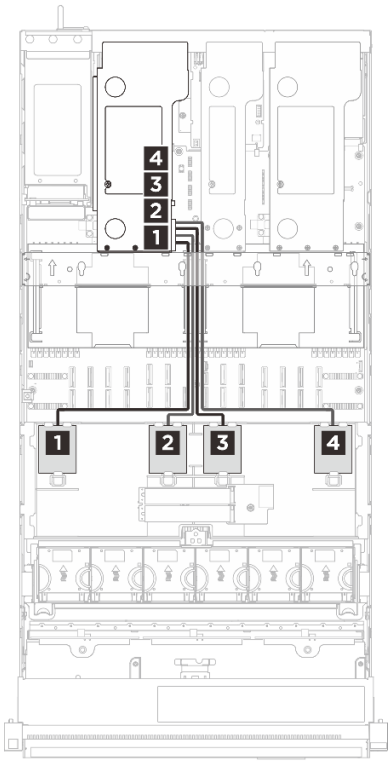
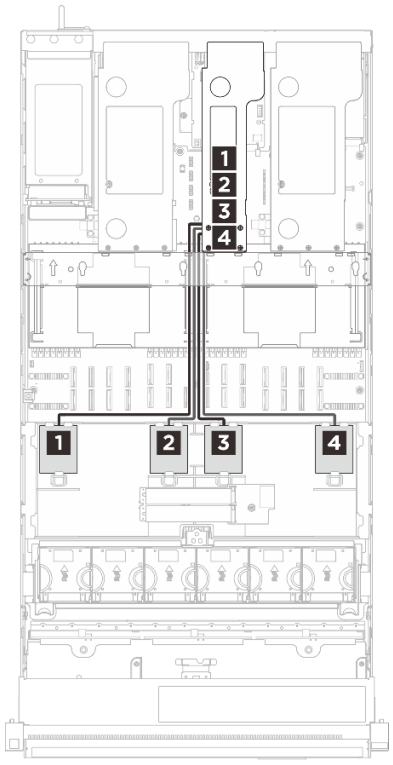
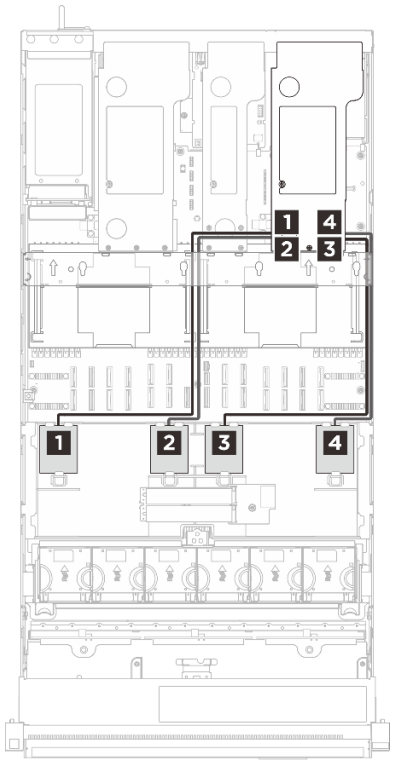
Cable	From (backplane)	To (RAID/HBA adapter)
SlimSAS x8 to SlimSAS x8 (1020 mm)	9 BP 9: SAS	9 RAID/HBA 8i/16i
SlimSAS x8 to SlimSAS x8 (1020 mm)	10 BP 10: SAS	10 RAID/HBA 8i/16i
SlimSAS x8 to SlimSAS x8 (1020 mm)	11 BP 11: SAS	11 RAID/HBA 8i/16i

Flash power module cable routing

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

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

Based on the location of the RAID adapter, select the corresponding routing path from the following table.

Cable routing to riser 3	Cable routing to riser 2	Cable routing to riser 1
		

Cable	From	To
2x4p to 1x9p (680 mm)	1 Flash power module	1 RAID adapter on the riser
2x4p to 1x9p (680 mm)	2 Flash power module	2 RAID adapter on the riser
2x4p to 1x9p (680 mm)	3 Flash power module	3 RAID adapter on the riser
2x4p to 1x9p (680 mm)	4 Flash power module	4 RAID adapter on the riser

GPU cable routing

Follow the instructions in this section to learn how to do cable routing for double-wide GPU adapters.

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

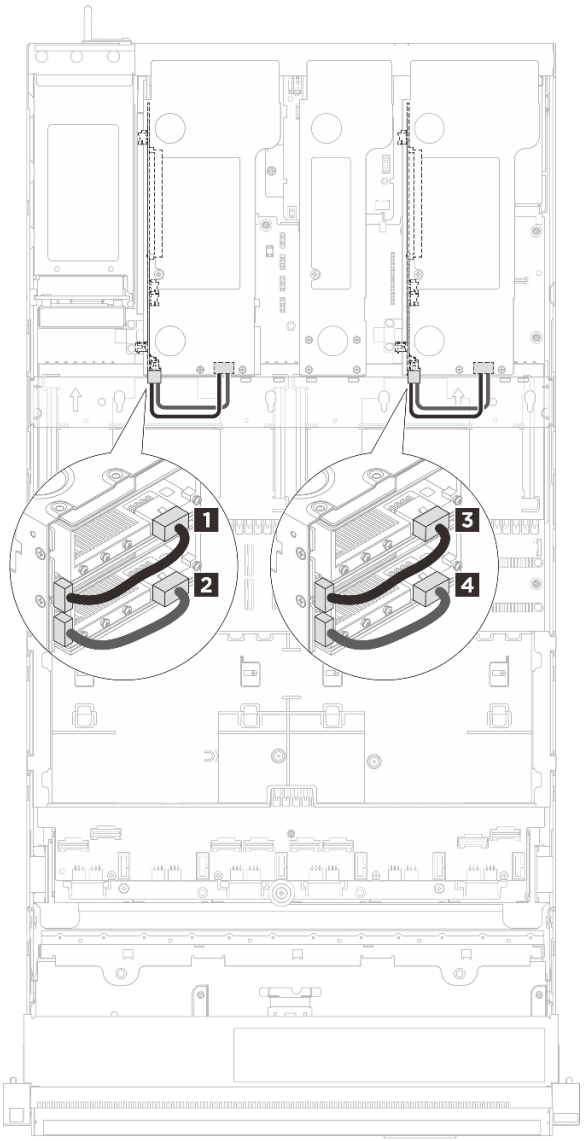


Figure 8. Cable routing for DW GPUs

Cable	From	To
Micro-Hi 2x4 to MPIC 12p+4s (200 mm)	1 GPU power 1 connector on riser 3	1 GPU on PCIe slot 16
Micro-Hi 2x4 to MPIC 12p+4s (200 mm)	2 GPU power 2 connector on riser 3	2 GPU on PCIe slot 18

Cable	From	To
Micro-Hi 2x4 to MPIC 12p+4s (200 mm)	3 GPU power 1 connector on riser 1	3 GPU on PCIe slot 4
Micro-Hi 2x4 to MPIC 12p+4s (200 mm)	4 GPU power 2 connector on riser 1	4 GPU on PCIe slot 6

Intrusion switch cable routing

Follow the instructions in this section to learn how to do cable routing for intrusion switch.

Note: When routing the intrusion switch cable, route the cable through the cable clip on the air baffle as shown in the illustration. Ensure that the cable does not touch the VR area (marked in dotted lines) on the system board assembly and is not entangled with other high-speed signal cables.

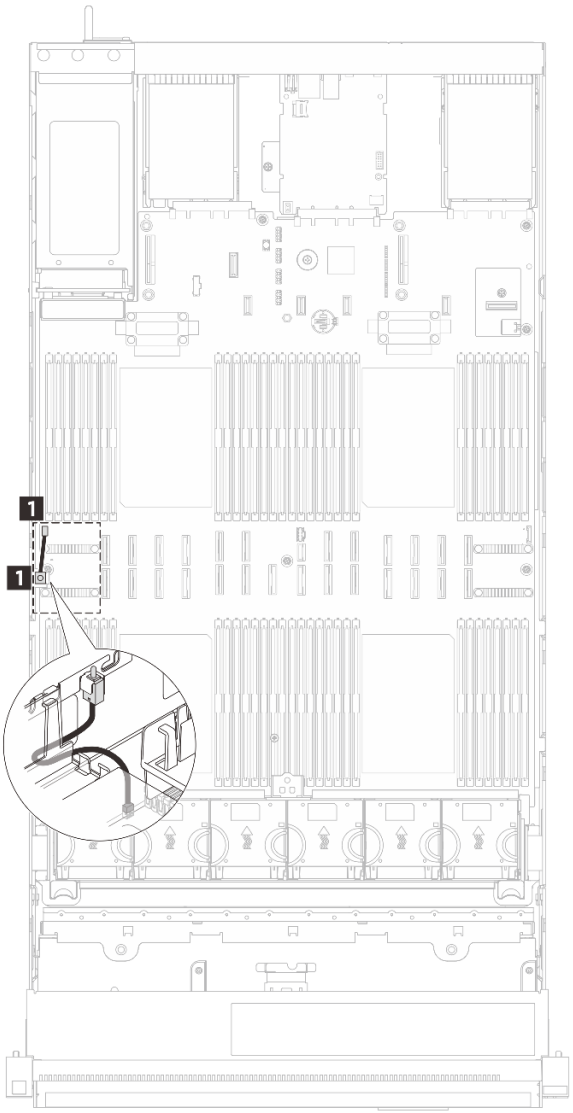


Figure 9. Cable routing for the intrusion switch

Cable	From	To
1x3p to Push switch (250 mm)	1 Intrusion switch	1 Intrusion switch connector

M.2 backplane cable routing

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

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

- "Internal M.2 backplane" on page 22
- "Rear M.2 backplane" on page 23

Internal M.2 backplane

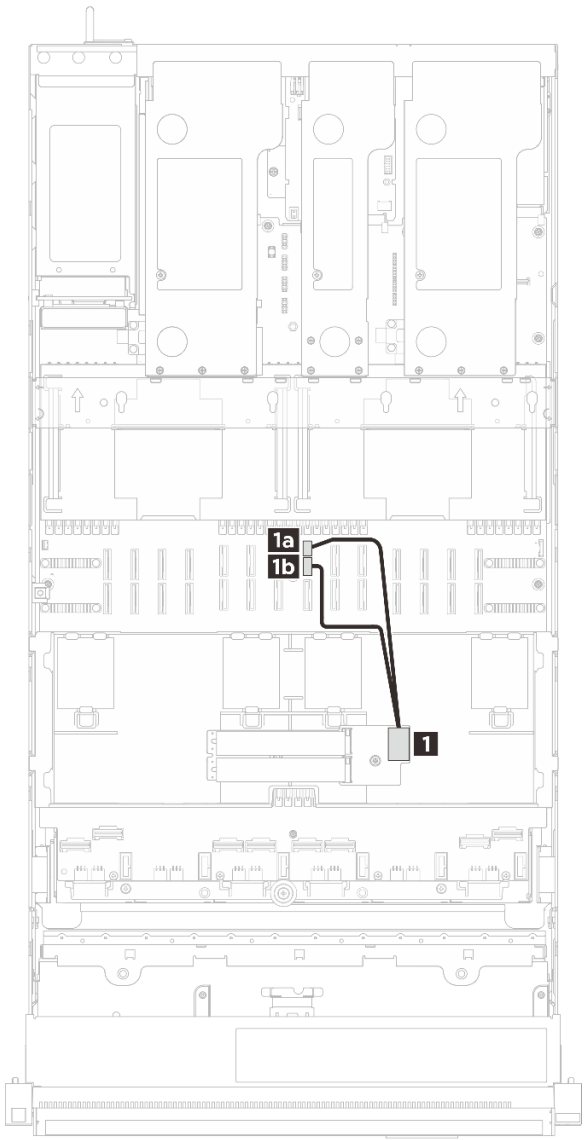


Figure 10. Cable routing for the internal M.2 backplane

Cable	From	To
MCIO x4+2x10p to ULP 82p (300/300 mm)	1 Internal M.2 backplane	1a M.2 power connector
		1b M.2 signal connector

Rear M.2 backplane

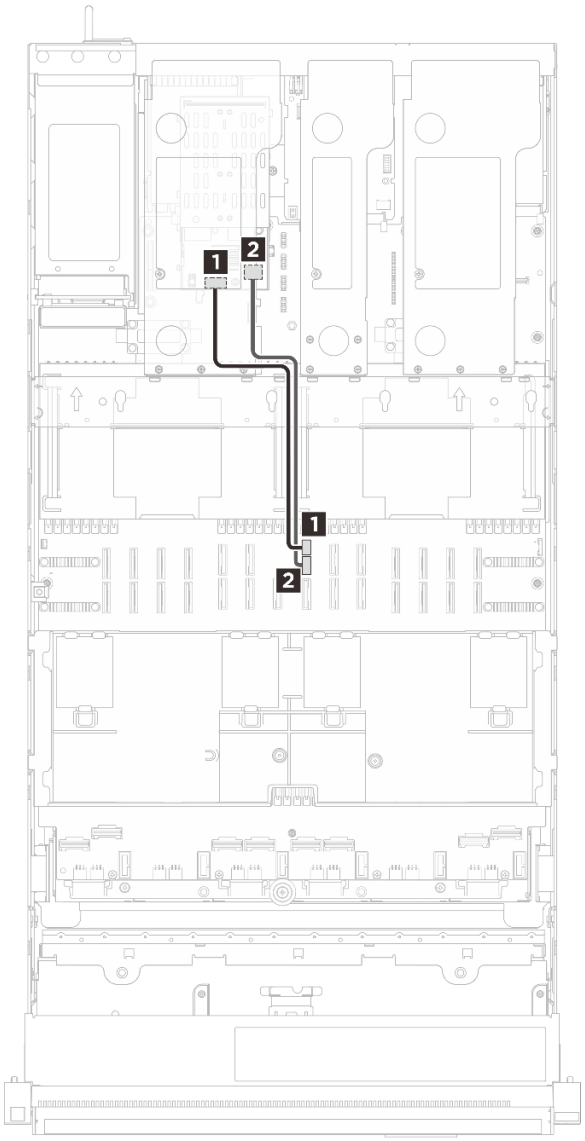


Figure 11. Cable routing for the rear M.2 backplane

Cable (length)	From	To
2x10p to 2x10p (520 mm)	1 M.2 power connector	1 M.2 power connector
MCIO x4 to MCIO x4 (520 mm)	2 M.2 signal connector	2 M.2 signal connector

PCIe riser cable routing

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

Choose the routing plan according to the PCIe riser location.

- “PCIe riser 1 cable routing” on page 24
- “PCIe riser 2 cable routing” on page 26
- “PCIe riser 3 cable routing” on page 28

PCIe riser 1 cable routing

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

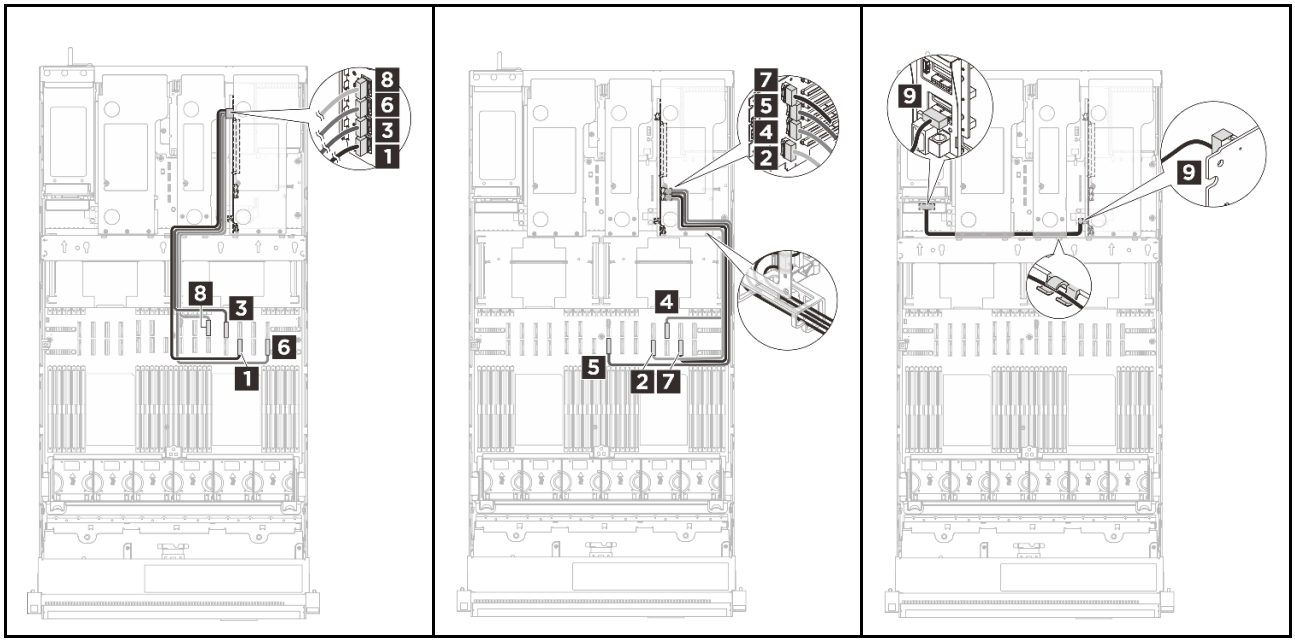
Note: When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.

Choose the routing plan according to the PCIe riser type.

- “Six-slot PCIe Gen5 riser 1 cable routing” on page 24
- “Six-slot PCIe Gen5 riser 1 cable routing (with liquid-cooling module)” on page 25
- “Two-slot PCIe Gen4 riser 1 cable routing” on page 26

Six-slot PCIe Gen5 riser 1 cable routing

The following illustration shows cable routing for the six-slot PCIe Gen5 riser 1.



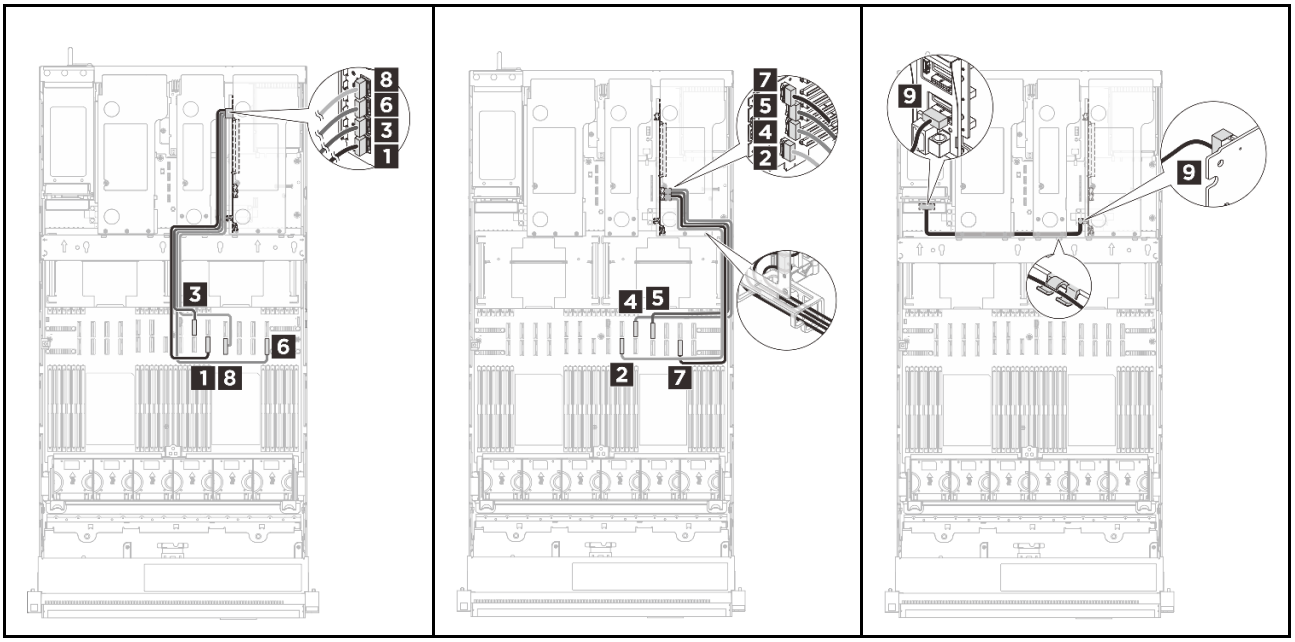
Cable	From (riser card)	To (system board assembly)
MCIO x8 to Swift x8 (600 mm, flat 140 mm)	1 R1	1 P12
MCIO x8 to Swift x8 (500 mm)	2 R2	2 P11
MCIO x8 to Swift x8 (600 mm, flat 140 mm)	3 R3	3 P22*
MCIO x8 to Swift x8 (500 mm)	4 R4	4 P23*
MCIO x8 to Swift x8 (620 mm)	5 R5	5 P8

Cable	From (riser card)	To (system board assembly)
MCIO x8 to Swift x8 (600 mm, flat 140 mm)	6 R6	6 P14
MCIO x8 to Swift x8 (500 mm)	7 R7	7 P13
MCIO x8 to Swift x8 (540 mm, flat 140 mm)	8 R8	8 P21
Micro-Hi 2x8p to Micro-Hi 2x8p (400 mm)	9 Power connector	9 PDB: riser 1 power connector

Note: *Connectors P22 and P23 on the system board assembly are designated for E3.S backplane connection in server models with E3.S bays. PCIe slot 6 on the riser is unavailable for server models with E3.S bays.

Six-slot PCIe Gen5 riser 1 cable routing (with liquid-cooling module)

The following illustration shows cable routing for the six-slot PCIe Gen5 riser 1 in the server with the Processor Neptune® Core Module (liquid-cooling module) installed.



Cable	From (riser card)	To (system board assembly)
MCIO x8 to Swift x8 (500 mm, flat 140 mm)	1 R1	1 P10
MCIO x8 to Swift x8 (500 mm)	2 R2	2 P9
MCIO x8 to Swift x8 (500 mm, flat 140 mm)	3 R3	3 P20
MCIO x8 to Swift x8 (500 mm)	4 R4	4 P21
MCIO x8 to Swift x8 (500 mm)	5 R5	5 P22*
MCIO x8 to Swift x8 (600 mm, flat 140 mm)	6 R6	6 P14

Cable	From (riser card)	To (system board assembly)
MCIO x8 to Swift x8 (500 mm)	7 R7	7 P13
MCIO x8 to Swift x8 (540 mm, flat 140 mm)	8 R8	8 P11
Micro-Hi 2x8p to Micro-Hi 2x8p (400 mm)	9 Power connector	9 PDB: riser 1 power connector

Note: *Connector P22 on the system board assembly is designated for E3.S backplane connection in server models with E3.S bays. PCIe slot 5 on the riser is unavailable for server models with E3.S bays.

Two-slot PCIe Gen4 riser 1 cable routing

The following illustration shows cable routing for the two-slot PCIe Gen4 riser 1.

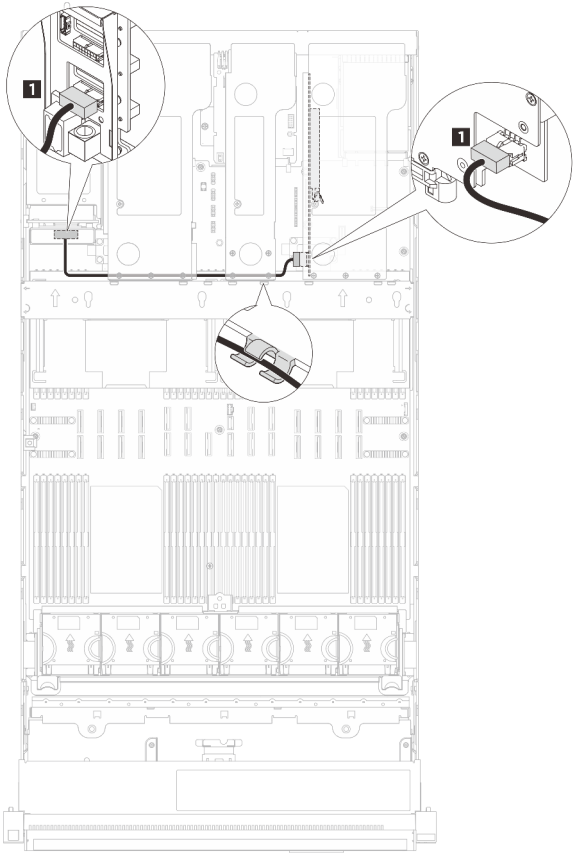


Figure 12. Cable routing for the two-slot PCIe Gen4 riser 1

Cable	From	To
Micro-Hi 2x8p to Micro-Hi 2x4p (330 mm)	1 Riser: power connector	1 PDB: riser 1 power connector

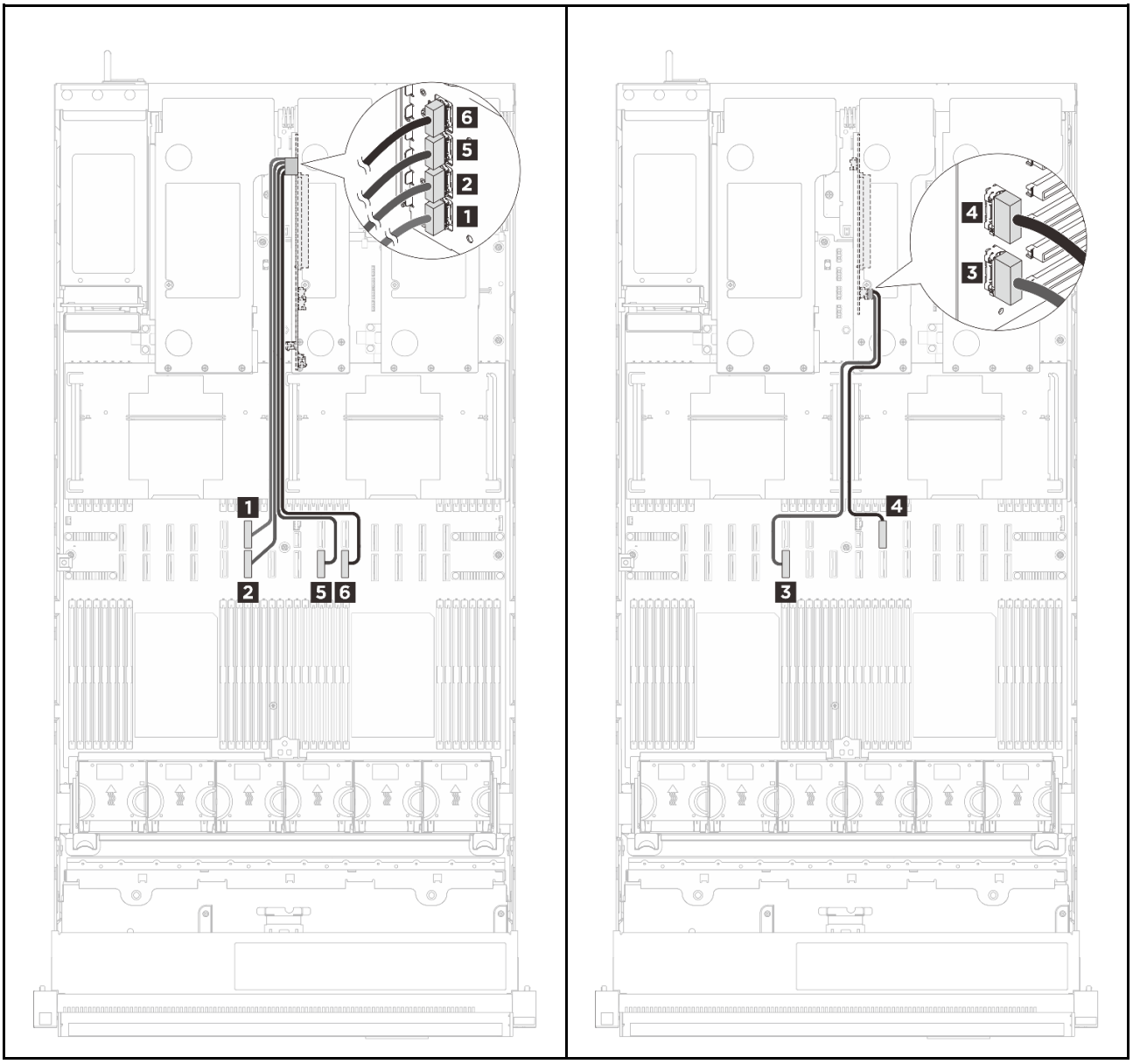
PCIe riser 2 cable routing

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

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

Six-slot PCIe riser 2 cable routing

The following illustration shows cable routing for the six-slot PCIe riser 2.



Cable	From (riser card)	To (system board assembly)
MCIO x8 to Swift x8 (440 mm, flat 140 mm)	1 R1	1 P18
MCIO x8 to Swift x8 (440 mm, flat 140 mm)	2 R2	2 P6
MCIO x8 to Swift x8 (320 mm)	3 R3	3 P5
MCIO x8 to Swift x8 (320 mm)	4 R4	4 P20

Cable	From (riser card)	To (system board assembly)
MCIO x8 to Swift x8 (440 mm, flat 140 mm)	5 R5	5 P9
MCIO x8 to Swift x8 (500 mm, flat 140 mm)	6 R6	6 P10

PCIe riser 3 cable routing

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

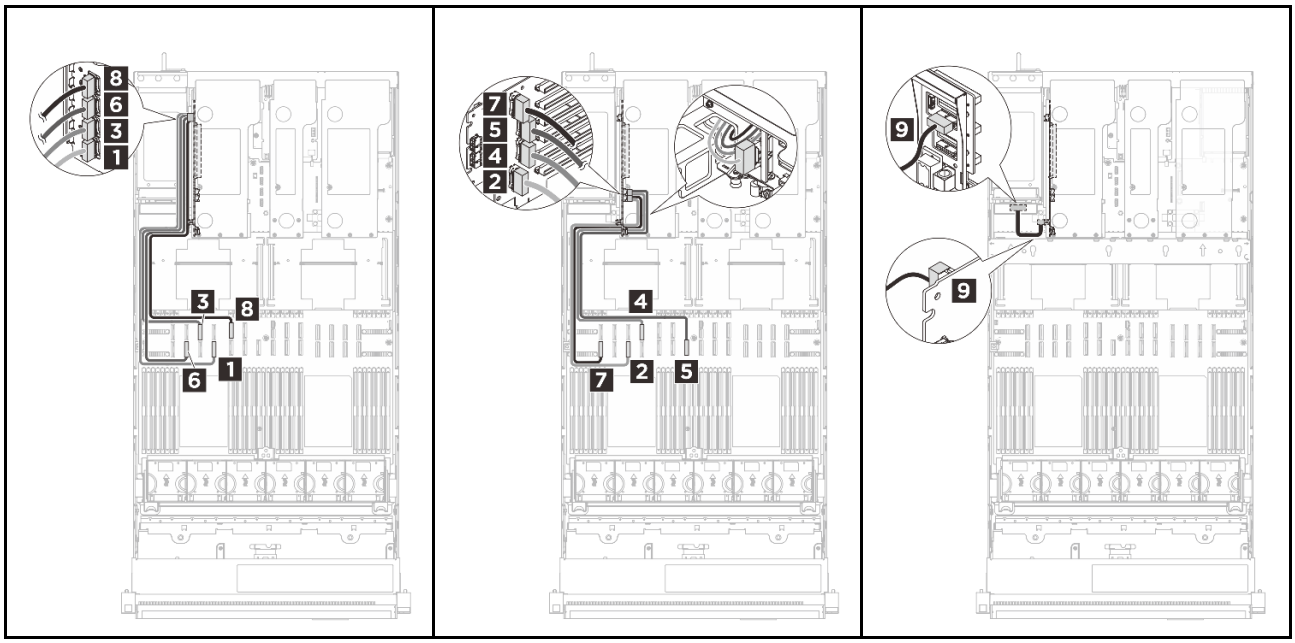
Note: When routing the cables, make sure that all cables are routed appropriately through the corresponding cable guides and cable clips.

Choose the routing plan according to the PCIe riser type.

- “Six-slot PCIe Gen5 riser 3 cable routing” on page 28
- “Six-slot PCIe Gen5 riser 3 cable routing (with liquid-cooling module)” on page 29
- “Two-slot PCIe Gen4 riser 3 cable routing” on page 30

Six-slot PCIe Gen5 riser 3 cable routing

The following illustration shows cable routing for the six-slot PCIe Gen5 riser 3.



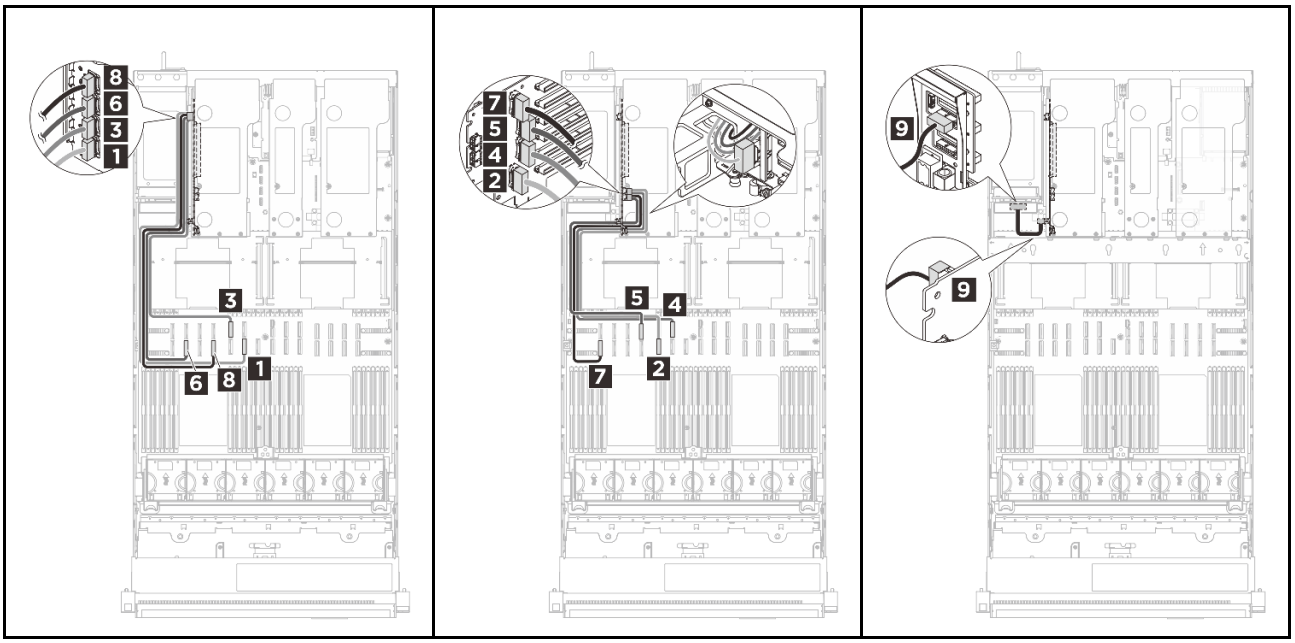
Cable	From (riser card)	To (system board assembly)
MCIO x8 to Swift x8 (580 mm, flat 140 mm)	1 R1	1 P4
MCIO x8 to Swift x8 (500 mm)	2 R2	2 P3
MCIO x8 to Swift x8 (580 mm, flat 140 mm)	3 R3	3 P15*
MCIO x8 to Swift x8 (560 mm)	4 R4	4 P16*

Cable	From (riser card)	To (system board assembly)
MCIO x8 to Swift x8 (620 mm)	5 R5	5 P7
MCIO x8 to Swift x8 (580 mm, flat 140 mm)	6 R6	6 P2
MCIO x8 to Swift x8 (560 mm)	7 R7	7 P1
MCIO x8 to Swift x8 (580 mm, flat 140 mm)	8 R8	8 P17
Micro-Hi 2x8p to Micro-Hi 2x8p (100 mm)	9 Power connector	9 PDB: riser 3 power connector

Note: *Connectors P15 and P16 on the system board assembly are designated for E3.S backplane connection in server models with E3.S bays. PCIe slot 18 on the riser is unavailable for server models with E3.S bays.

Six-slot PCIe Gen5 riser 3 cable routing (with liquid-cooling module)

The following illustration shows cable routing for the six-slot PCIe Gen5 riser 3 in the server with the Processor Neptune® Core Module (liquid-cooling module) installed.



Cable	From (riser card)	To (system board assembly)
MCIO x8 to Swift x8 (540 mm, flat 140 mm)	1 R1	1 P6
MCIO x8 to Swift x8 (560 mm)	2 R2	2 P5
MCIO x8 to Swift x8 (580 mm, flat 140 mm)	3 R3	3 P17
MCIO x8 to Swift x8 (560 mm)	4 R4	4 P18
MCIO x8 to Swift x8 (560 mm)	5 R5	5 P16*
MCIO x8 to Swift x8 (580 mm, flat 140 mm)	6 R6	6 P2

Cable	From (riser card)	To (system board assembly)
MCIO x8 to Swift x8 (560 mm)	7 R7	7 P1
MCIO x8 to Swift x8 (540 mm, flat 140 mm)	8 R8	8 P4
Micro-Hi 2x8p to Micro-Hi 2x8p (100 mm)	9 Power connector	9 PDB: riser 3 power connector

Note: *Connector P16 on the system board assembly is designated for E3.S backplane connection in server models with E3.S bays. PCIe slot 17 on the riser is unavailable for server models with E3.S bays.

Two-slot PCIe Gen4 riser 3 cable routing

The following illustration shows cable routing for the two-slot PCIe Gen4 riser 3.

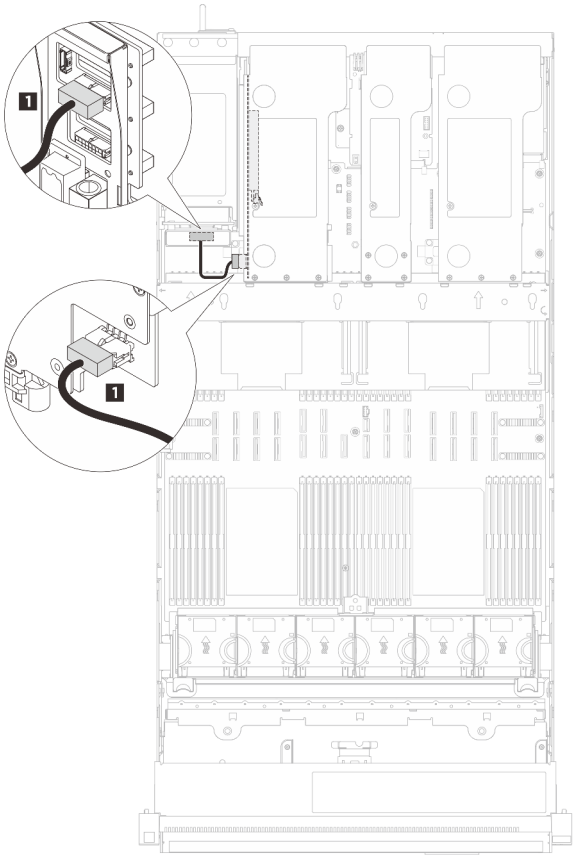


Figure 13. Cable routing for the two-slot PCIe Gen4 riser 3

Cable	From	To
Micro-Hi 2x8p to Micro-Hi 2x4p (100 mm)	1 Riser: power connector	1 PDB: riser 3 power connector

Power distribution board cable routing

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

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

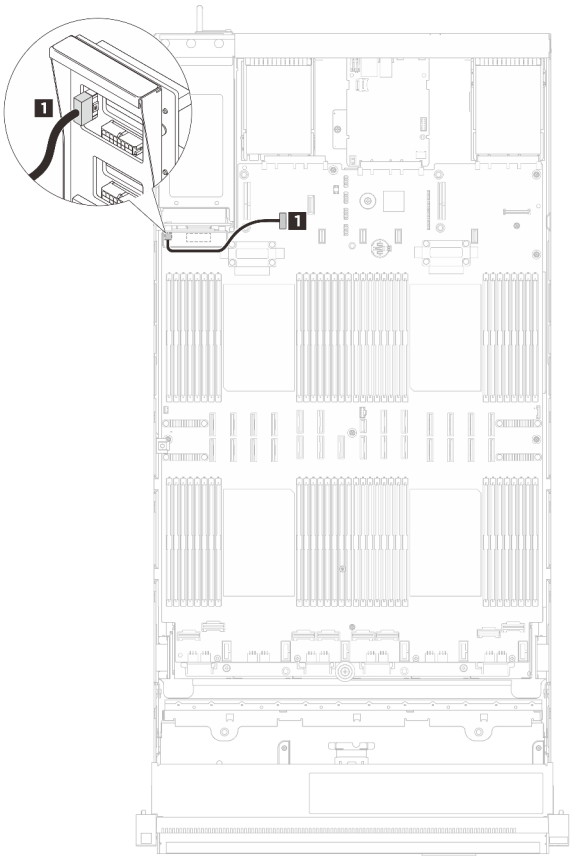


Figure 14. Cable routing for the power distribution board

Cable	From	To
2x15p ST to 2x15p (210 mm)	1 PDB sideband connector	1 PDB sideband power connector

Rack latch cable routing

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

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

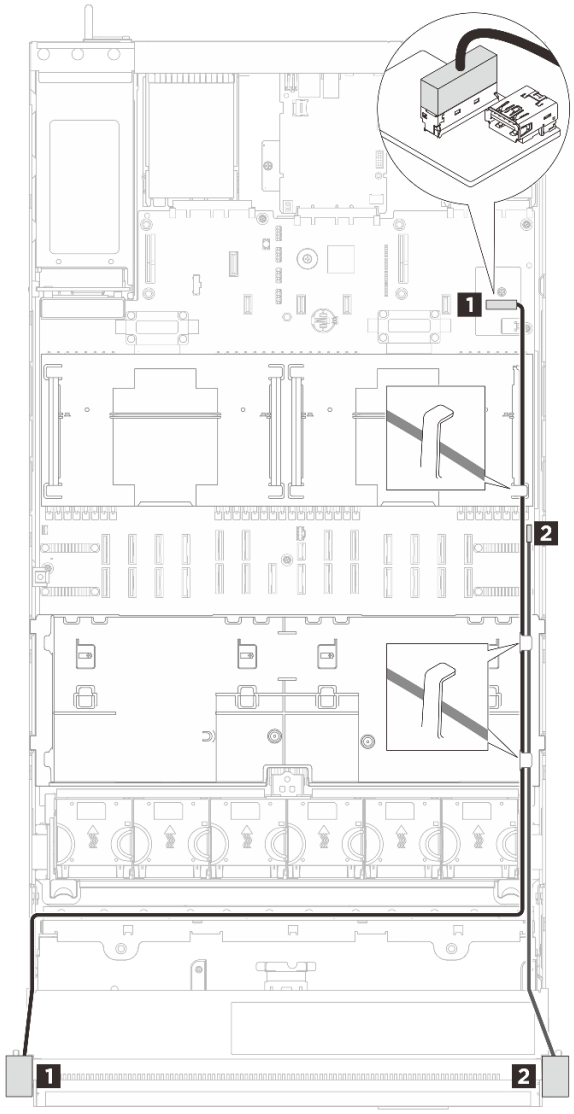


Figure 15. Cable routing for the rack latches

Cable	From	To
MCIO x8 to USB 2x/Mini HD (1200 mm)	1 Internal USB I/O board	1 Left rack latch
1x9p to PCBA (550 mm)	2 FIO connector	2 Right rack latch

Serial port cable routing

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

Note: Route the serial port cable as shown in the following illustration. Make sure that the cable is not routed across the system I/O board (DC-SCM).

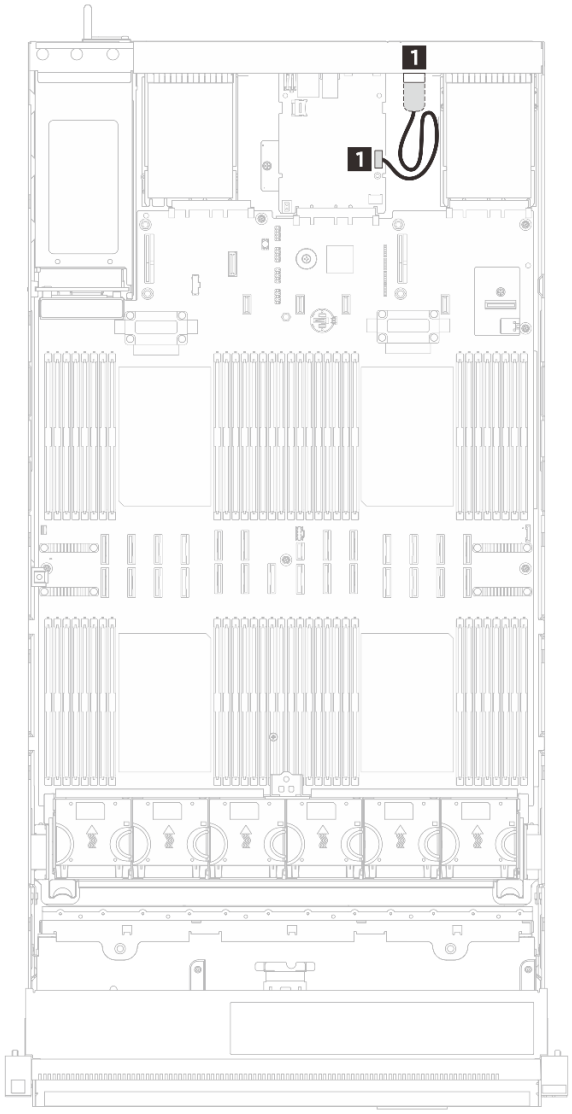


Figure 16. Cable routing for the serial port module

Cable	From	To
2x6p to com port 9p (220 mm)	1 Serial port connector	1 Serial port module

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/sr860v4/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 SR860 V4
  - https://datacentersupport.lenovo.com/products/servers/thinksystem/sr860v4/7djn/downloads/driver-list
- Lenovo Data Center Forum
  - https://forums.lenovo.com/t5/Datacenter-Systems/ct-p/sv_eg
- Lenovo Data Center Support for ThinkSystem SR860 V4
  - https://datacentersupport.lenovo.com/products/servers/thinksystem/sr860v4/7djn
- Lenovo License Information Documents
  - https://datacentersupport.lenovo.com/documents/lnvo-eula
- Lenovo Press website (Product Guides/Datasheets/White papers)
  - https://lenovopress.lenovo.com/

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  - https://www.lenovo.com/privacy
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- 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

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

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

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

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

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

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

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

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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 Region BSMI RoHS declaration

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

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

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

備考2. 〝○〞係指該項限用物質之百分比含量未超出百分比含量基準值。

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

備考3. 〝-〞係指該項限用物質為排除項目。

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

Taiwan Region import and export contact information

Contacts are available for Taiwan Region import and export information.

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