Lenovo

ThinkSystem SR680a V4
Internal Cable Routing Guide

Machine Types: 7DMK and 7DPA

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

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Contents

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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.

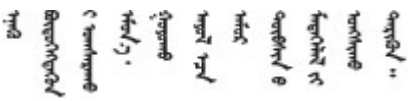
A termék telepítése előtt olvassa el a Biztonsági előírásokat!

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.

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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 serviced by trained personnel, as defined by the IEC 62368-1, 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. Equipment must be installed in a restricted access location and access to the equipment 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.
8. Use the PDUs (power distribution units) with pluggable equipment type B to distribute electrical power to servers.

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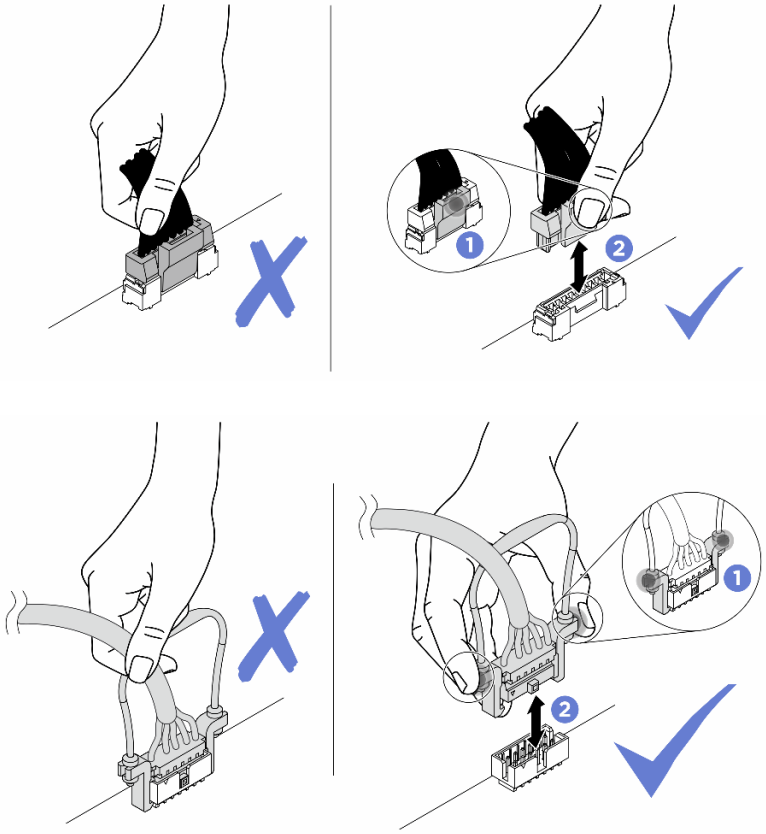
Internal cable routing

This section provides information on internal cable routing of specific components.

Attention: Strictly observe the following instructions to avoid damaging cable sockets on the system board. Any damage to the cable sockets might require replacing the system board.

- Connect cable connectors vertically or horizontally in alignment with the orientations of the corresponding cable sockets, avoiding any tilt.
- To disconnect cables from the system board, do as follows:
  1. Press and hold all latches, release tabs, or locks on cable connectors to release the cable connectors.
  2. Remove the cable connectors vertically or horizontally in alignment with the orientations of the corresponding cable sockets, avoiding any tilt.

     Note: The cable connectors might look different from those in the illustration, but the removal procedure is the same.



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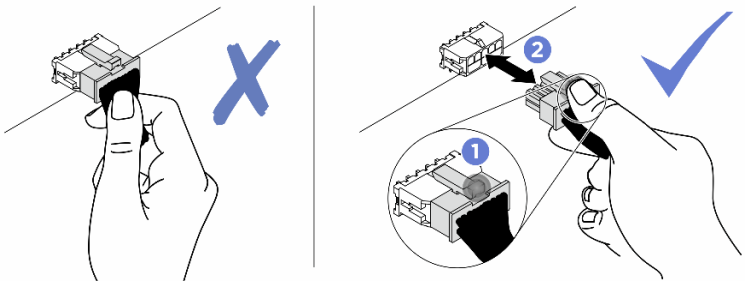


Identifying connectors

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 backplane.

8x 2.5-inch NVMe backplane

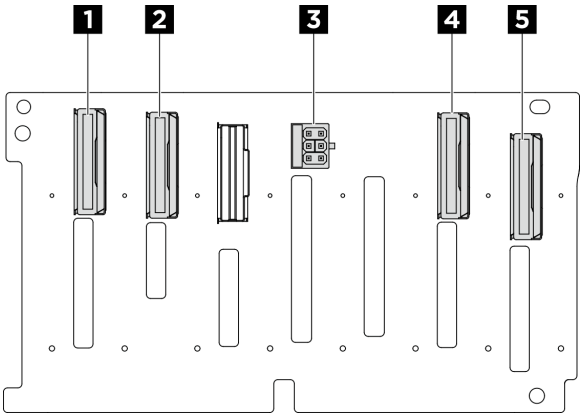


Figure 1. 8x 2.5-inch NVMe backplane connectors

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

M.2 backplane

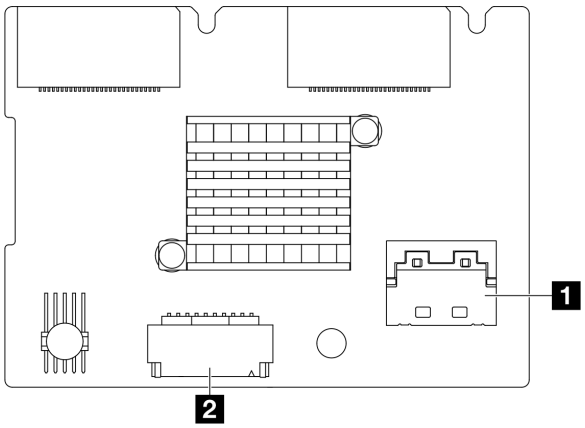


Figure 2. M.2 backplane connectors

1 Signal connector	2 Power connector

Fan control board connectors

See this section to locate the connectors on the fan control board.

- "Front fan control board" on page 3
- "Rear fan control board" on page 3

Front fan control board

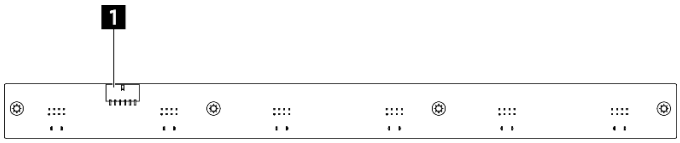


Figure 3. Front fan control board connector

1 Power connector

Rear fan control board

Figure 4. Rear fan control board connector

1 Power connector

GPU baseboard connectors

See this section to locate the connectors on the GPU baseboard.

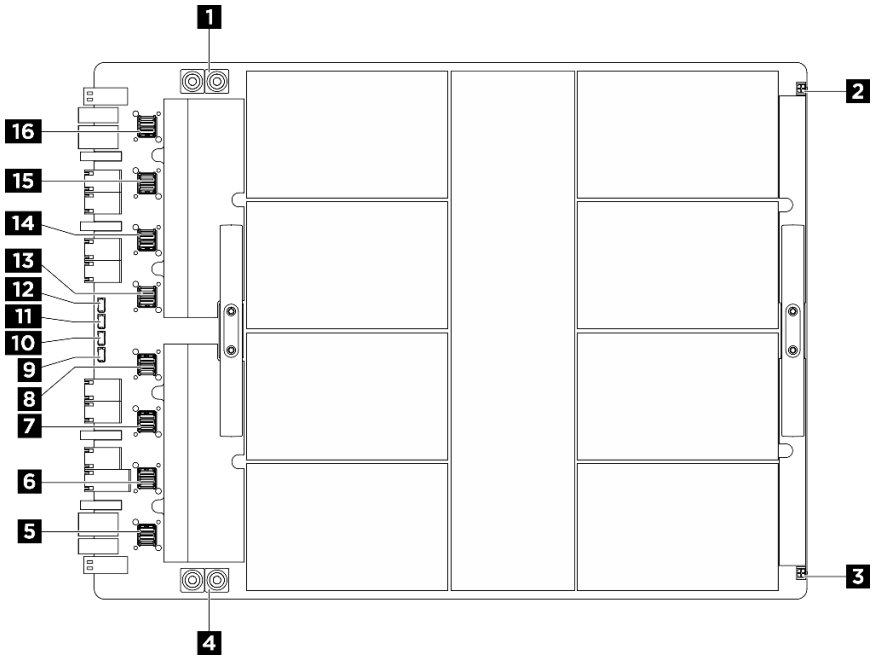


Figure 5. GPU baseboard connectors

1 Left power connector	2 OSFP card 1 power connector
3 OSFP card 2 power connector	4 Right power connector
5 UltraPass connector 2	6 UltraPass connector 4
7 UltraPass connector 3	8 UltraPass connector 1
9 Sideband connector 1	10 Sideband connector 2
11 Sideband connector 3	12 Sideband connector 4
13 UltraPass connector 8	14 UltraPass connector 6
15 UltraPass connector 5	16 UltraPass connector 7

OCP interposer card connectors

See this section to locate the connectors on the OCP interposer card.

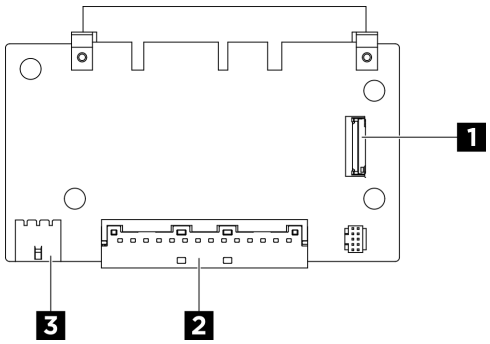


Figure 6. OCP interposer card connectors

1 Network controller sideband interface connector	2 MCIO connector
3 Power connector	

OSFP card cables and connectors

See this section to locate the cables and connectors on the OSFP card.

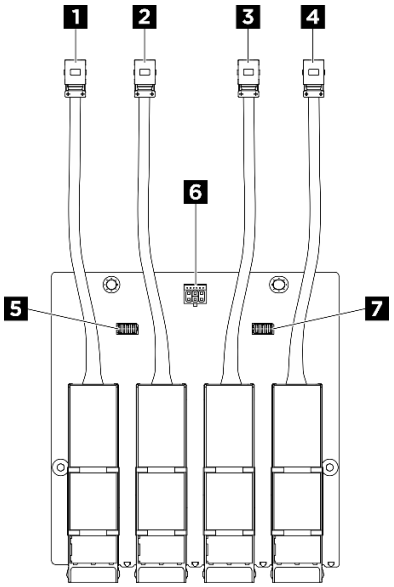


Figure 7. OSFP card cables and connectors

1 UltraPass cable 7/1	2 UltraPass cable 5/3
3 UltraPass cable 6/4	4 UltraPass cable 8/2
5 Sideband connector 4/2	6 Power connector
7 Sideband connector 3/1	

PCIe switch board connectors

See this section to locate the connectors on the PCIe switch board.

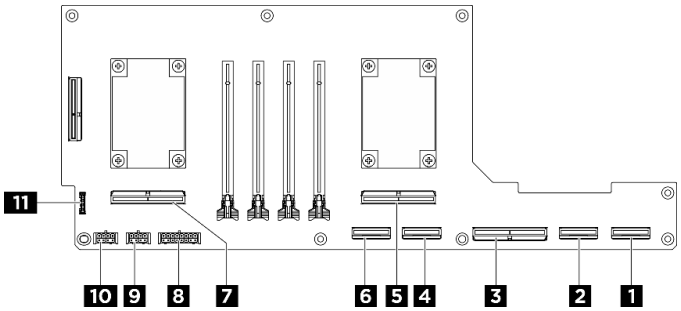


Figure 8. PCIe switch board connectors

1 NVMe connector 0-1	2 NVMe connector 2-3
3 MCIO connector I	4 NVMe connector 4-5

5 MCIO connector J	6 NVMe connector 6-7
7 MCIO connector K	8 Power connector
9 PCIe adapter power connector 1	10 PCIe adapter power connector 2
11 Sideband connector	

Power distribution board connectors

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

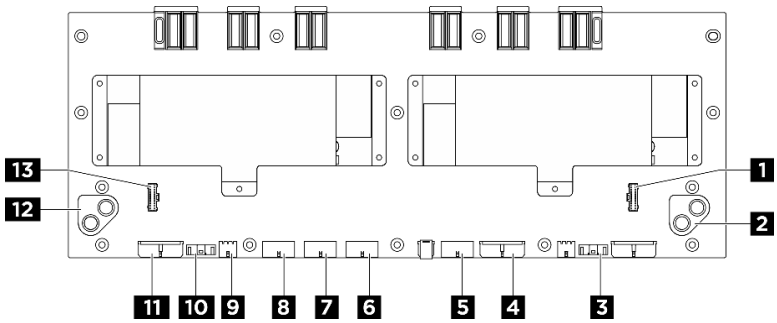


Figure 9. Power distribution board connectors

1 PSU interposer sideband connector 2	2 GPU baseboard power connector 2
3 Retimer board sideband connector 2	4 PCIe switch board power connector
5 Front fan control board connector	6 Rear bottom fan control board power connector
7 Rear middle fan control board power connector	8 Rear top fan control board power connector
9 Backplane 1 power connector	10 Retimer board sideband connector 1
11 Retimer board power connector	12 GPU baseboard power connector 1
13 PSU interposer sideband connector 1	

PSU interposer connectors

See this section to locate the connectors on the PSU interposer.

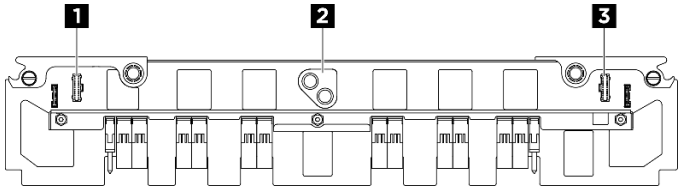


Figure 10. PSU interposer connectors

1 Power distribution board sideband connector 1	2 System board power connector
3 Power distribution board sideband connector 2	

Retimer board connectors

See this section to locate the connectors on the retimer board.

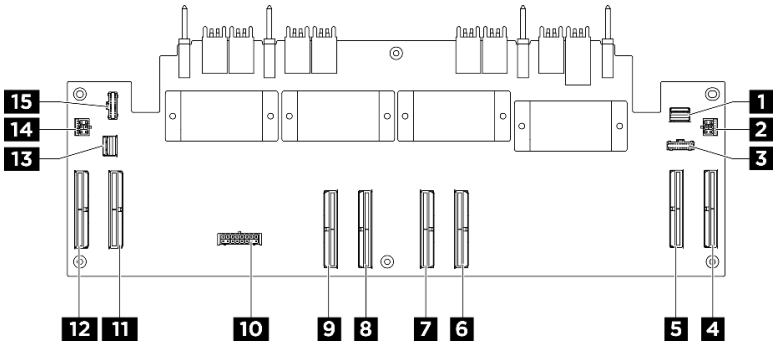


Figure 11. Retimer board connectors

1 EP management connector 2	2 OSFP card 2 power connector
3 Sideband connector 2	4 MCIO connector H
5 MCIO connector G	6 MCIO connector F
7 MCIO connector E	8 MCIO connector D
9 MCIO connector C	10 Power connector
11 MCIO connector B	12 MCIO connector A
13 EP management connector 1	14 OSFP card 1 power connector
15 Sideband connector 1	

System-board connectors for cable routing

The following illustrations show the internal connectors on the system board that are used for internal cable routing.

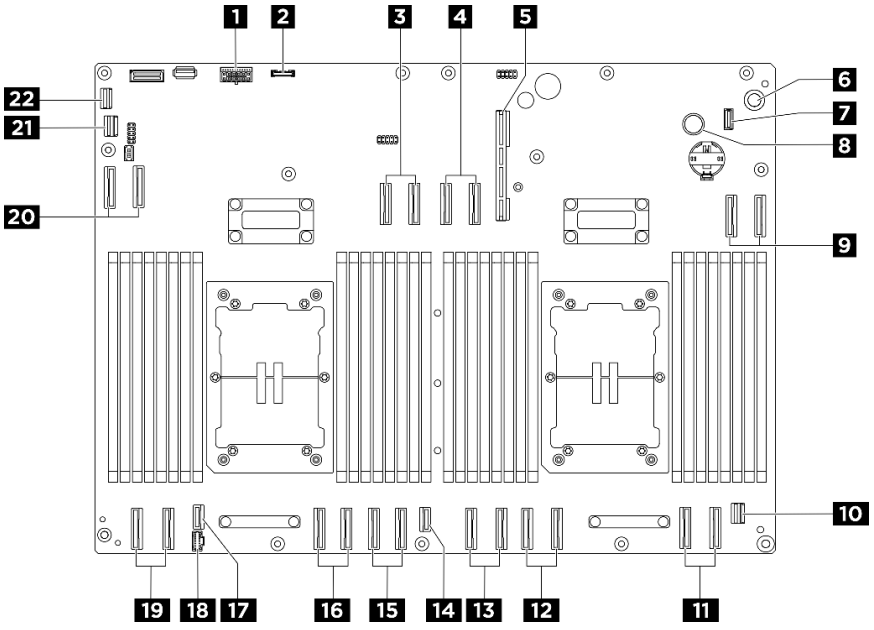


Figure 12. System-board connectors

Table 1. System board connectors

1 OCP interposer card power connector	2 PCIe switch board sideband connector
3 MCIO connectors 4A/4B	4 MCIO connectors 8A/8B
5 System I/O board connector (DC-SCM)	6 12V (+) connector
7 Integrated diagnostics panel (Front I/O) connector	8 Ground (-) connector
9 MCIO connectors 7A/7B	10 EP management connector 2
11 MCIO connectors 6A/6B	12 MCIO connectors 5A/5B
13 MCIO connectors 10A/10B	14 SPI/eSPI connector
15 MCIO connectors 3A/3B	16 MCIO connectors 2A/2B
17 M.2 signal connector	18 M.2 power connector
19 MCIO connectors 1A/1B	20 MCIO connectors 9A/9B
21 EP management connector 1	22 USB assembly (Front panel I/O) connector

System I/O board connectors

The following illustration shows the internal connectors on the system I/O board.

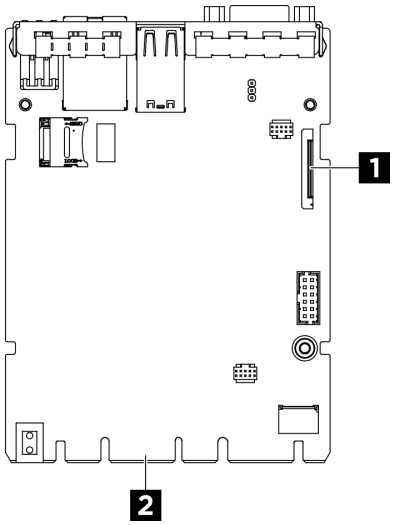


Figure 13. System I/O board connectors

Table 2. System I/O board connectors

1 Second Lenovo XClarity Controller management connector	2 System board connector

2.5-inch drive backplane cable routing

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

Notes:

- If necessary, attach the labels to both ends of the cables.
  1. 1 Attach the white space portion of the label to one end of the cable.

2. ❷ Wrap the label around the cable and attach it to the white space portion.
3. Repeat to attach the other label to the opposite end of the cable.

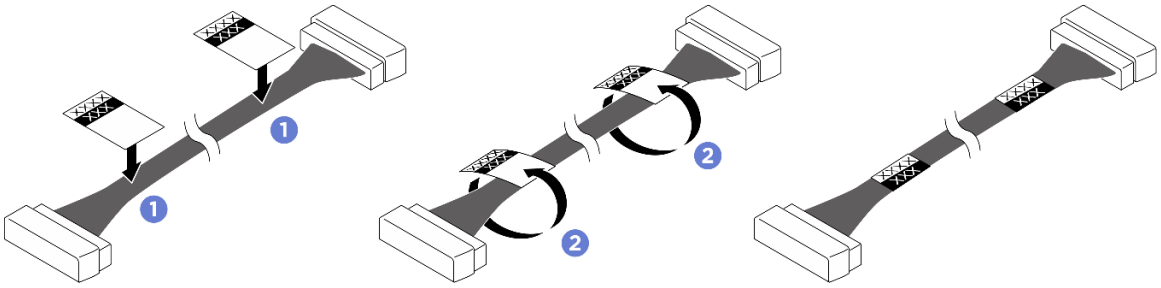


Figure 14. Label application

- Route the power cable under the compute tray as illustrated below.
- Route the power cable through the cable holder and sponge as illustrated below.

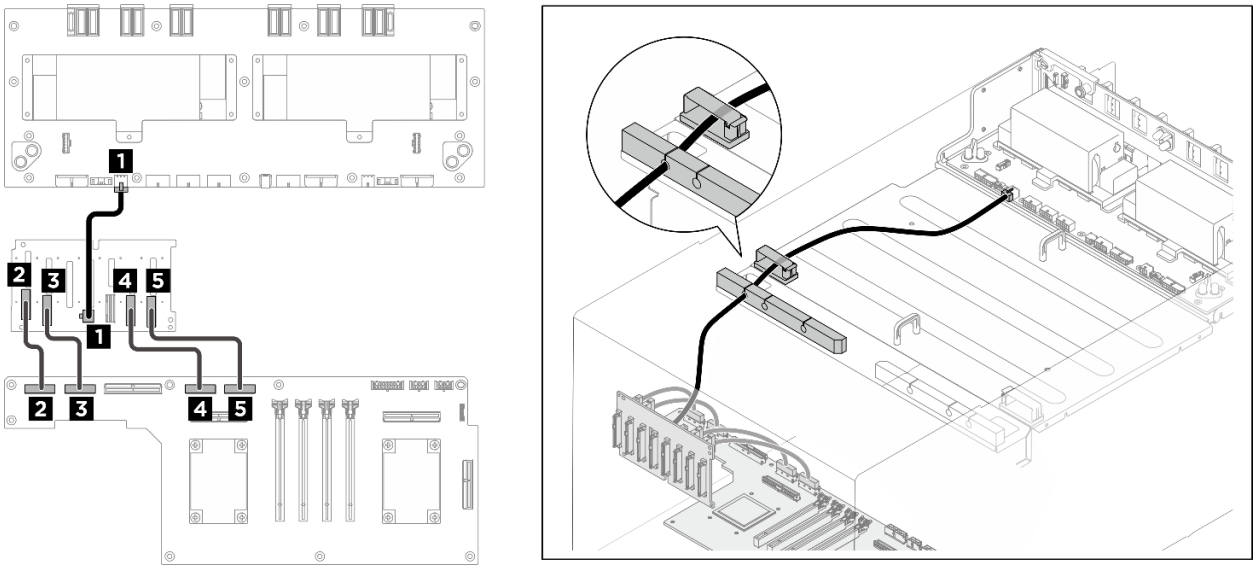


Figure 15. Backplane 1 cable routing

From	To	Label
1 Backplane: Power connector	1 Power distribution board: Backplane 1 power connector	NVMe PWR BP 1
2 Backplane: NVMe connector 0-1	2 PCIe switch board: NVMe connector 0-1	NVMe 0-1 NVMe 0-1
3 Backplane: NVMe connector 2-3	3 PCIe switch board: NVMe connector 2-3	NVMe 2-3 NVMe 2-3

From	To	Label
4 Backplane: NVMe connector 4-5	4 PCIe switch board: NVMe connector 4-5	NVMe 4-5 NVMe 4-5
5 Backplane: NVMe connector 6-7	5 PCIe switch board: NVMe connector 6-7	NVMe 6-7 NVMe 6-7

DPU adapter power cable routing

Use this section to understand the power cable routing for the DPU adapter.

- "BlueField-3 B3220" on page 10
- "BlueField-3 B3240" on page 11

BlueField-3 B3220

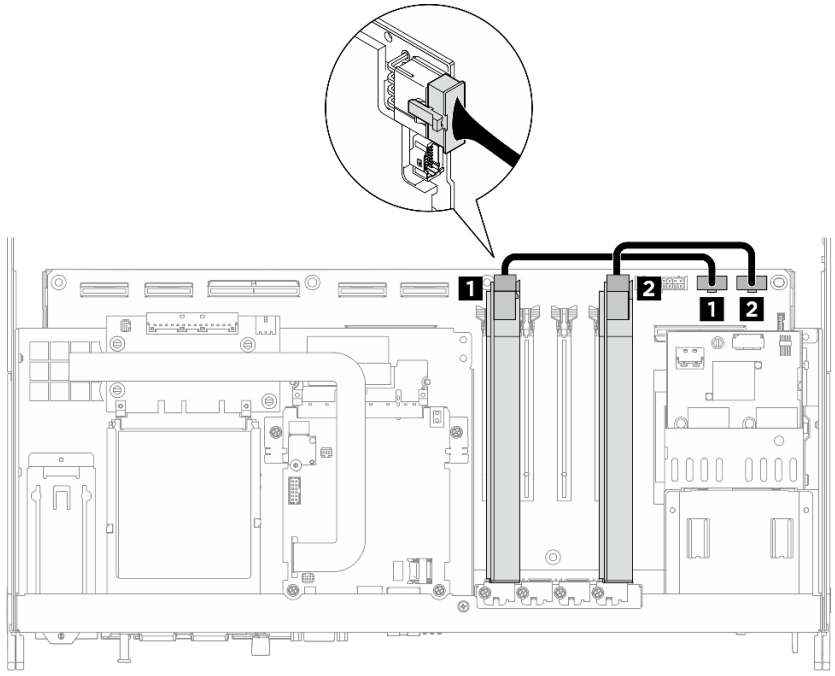


Figure 16. DPU adapter power cable routing

From	To
1 DPU adapter installed on PCIe slot 2: Power connector	1 PCIe switch board: PCIe adapter power connector 1
2 DPU adapter installed on PCIe slot 5: Power connector	2 PCIe switch board: PCIe adapter power connector 2

BlueField-3 B3240

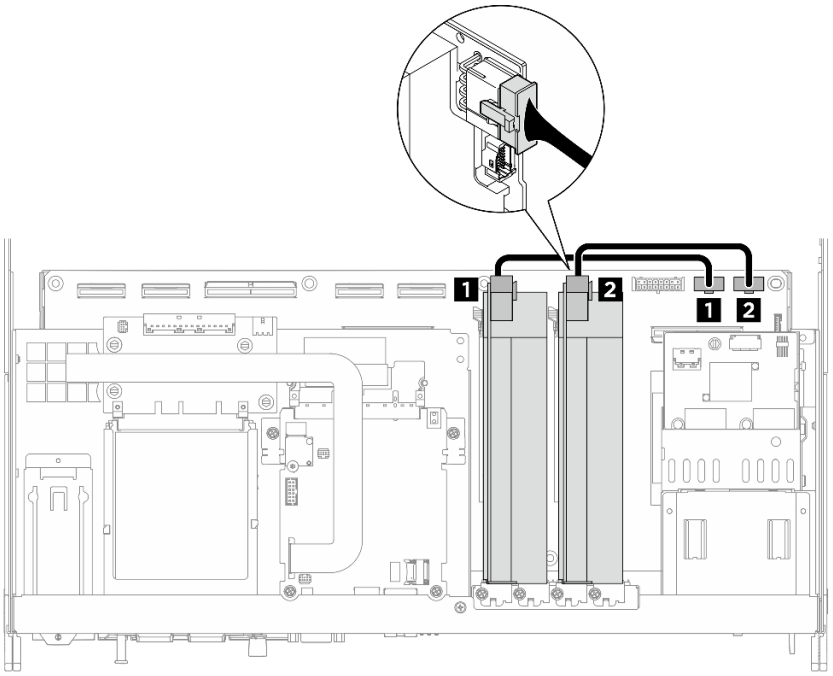


Figure 17. DPU adapter power cable routing

From	To
1 DPU adapter installed on PCIe slot 2: Power connector	1 PCIe switch board: PCIe adapter power connector 1
2 DPU adapter installed on PCIe slot 4: Power connector	2 PCIe switch board: PCIe adapter power connector 2

Fan control board cable routing

Use this section to understand the cable routing for the front and rear fan control boards.

Notes: If necessary, attach the labels to both ends of the cables.

1. ❶ Attach the white space portion of the label to one end of the cable.
2. ❷ Wrap the label around the cable and attach it to the white space portion.
3. Repeat to attach the other label to the opposite end of the cable.

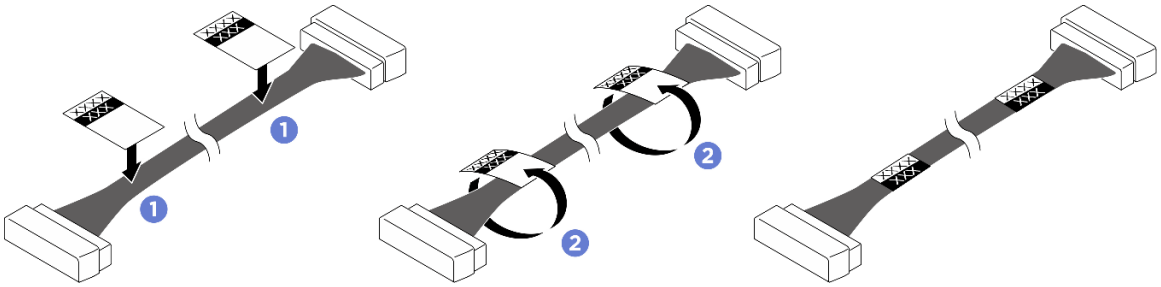


Figure 18. Label application

Based on the location of the fan control board, select the corresponding routing plan:

- “Front fan control board” on page 12
- “Rear top fan control board” on page 12
- “Rear middle fan control board” on page 13
- “Rear bottom fan control board” on page 13

Front fan control board

Notes:

- Route the cable under the compute tray as illustrated below.
- Route the cable through the cable holder and sponge as illustrated below.

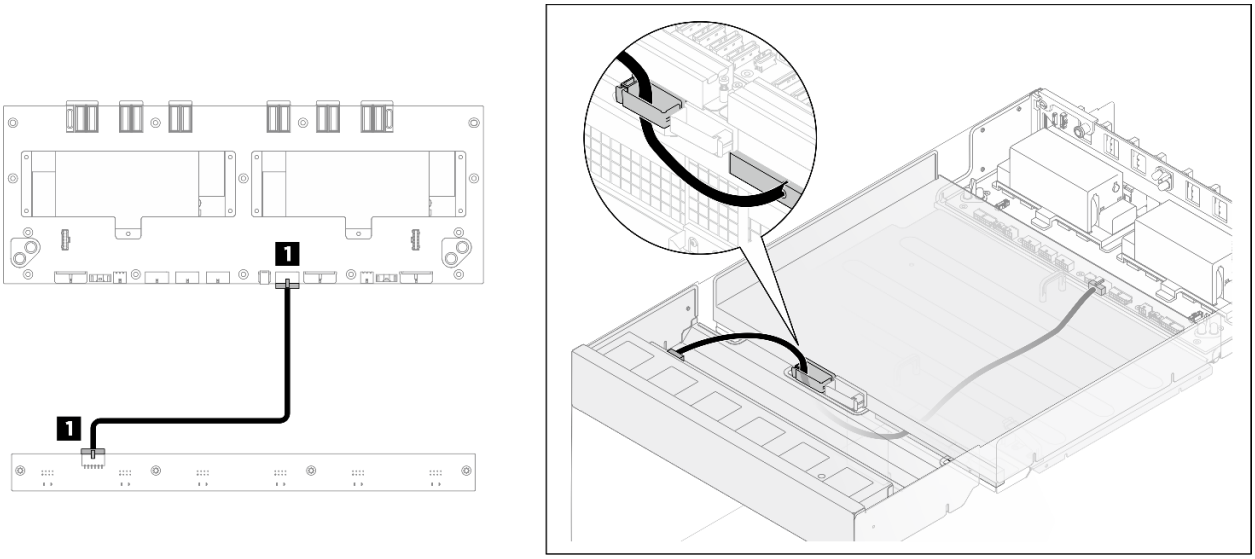


Figure 19. Front fan control board cable routing

From	To	Label
1 Front fan control board: Power connector	1 Power distribution board: Front fan control board power connector	F-FAN PWR F-FAN

Rear top fan control board

Note: Route the cable through the cable guide as illustrated below.

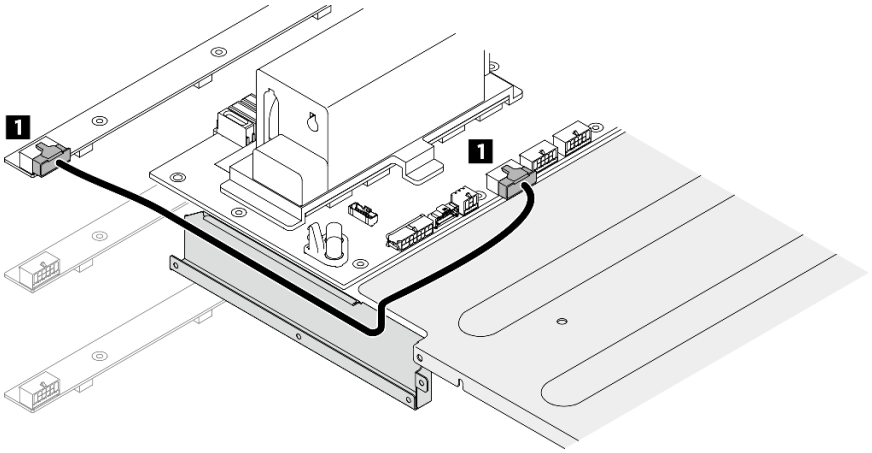


Figure 20. Rear top fan control board cable routing

From	To	Label
1 Rear top fan control board: Power connector	1 Power distribution board: Rear top fan control board power connector	R-FAN PWR TOP R-FAN TOP

Rear middle fan control board

Note: Route the cable through the cable guide as illustrated below.

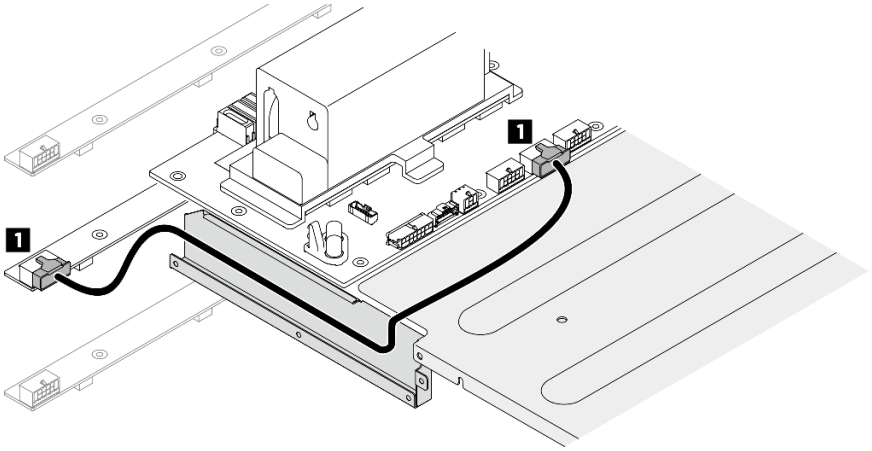


Figure 21. Rear middle fan control board cable routing

From	To	Label
1 Rear middle fan control board: Power connector	1 Power distribution board: Rear middle fan control board power connector	R-FAN PWR MID R-FAN MID

Rear bottom fan control board

Note: Route the cable through the cable guide as illustrated below.

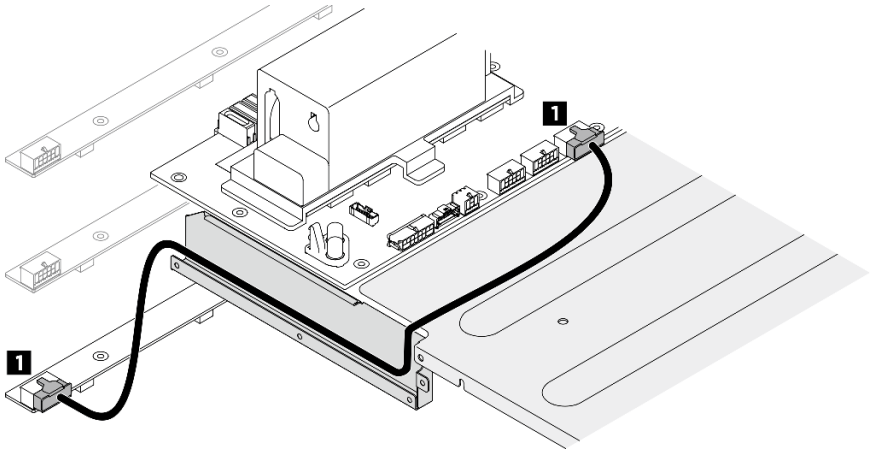


Figure 22. Rear bottom fan control board cable routing

From	To	Label
1 Rear bottom fan control board: Power connector	1 Power distribution board: Rear bottom fan control board power connector	R-FAN PWR BOT R-FAN BOT

GPU baseboard cable routing

Use this section to understand the cable routing for the GPU baseboard.

Blind mate – Female side

Note: Route the cables through the cable holders as illustrated below.

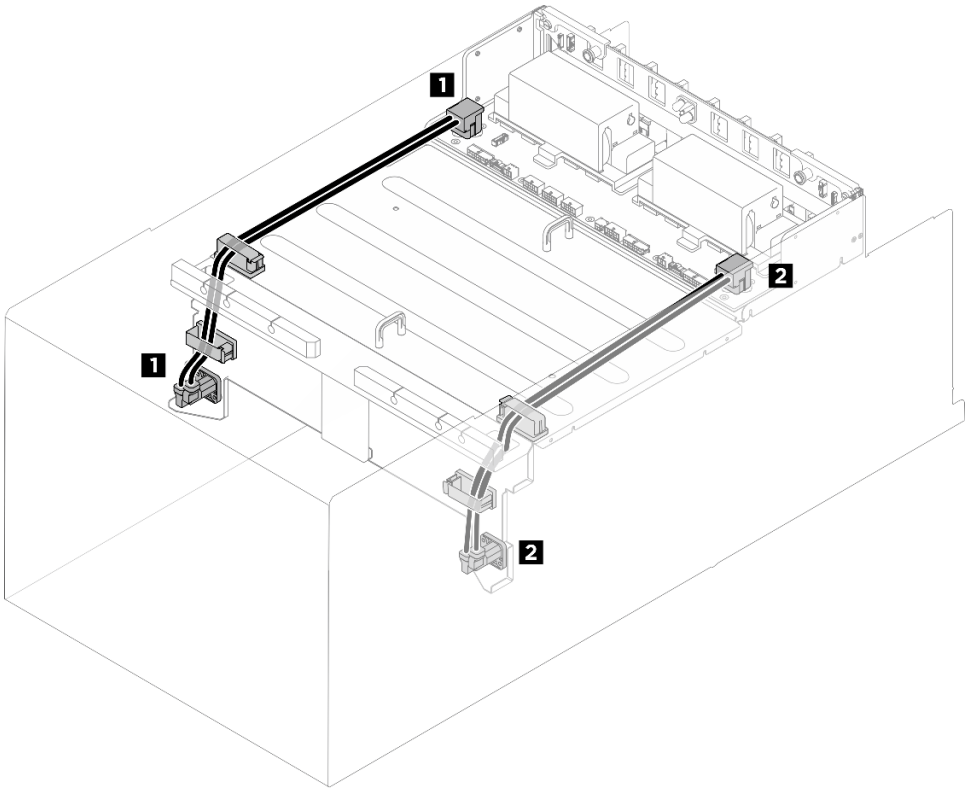


Figure 23. GPU baseboard cable routing

From	To
1 Left blind mate	1 Power distribution board: GPU baseboard power connector 1
2 Right blind mate	2 Power distribution board: GPU baseboard power connector 2

Blind mate – Male side

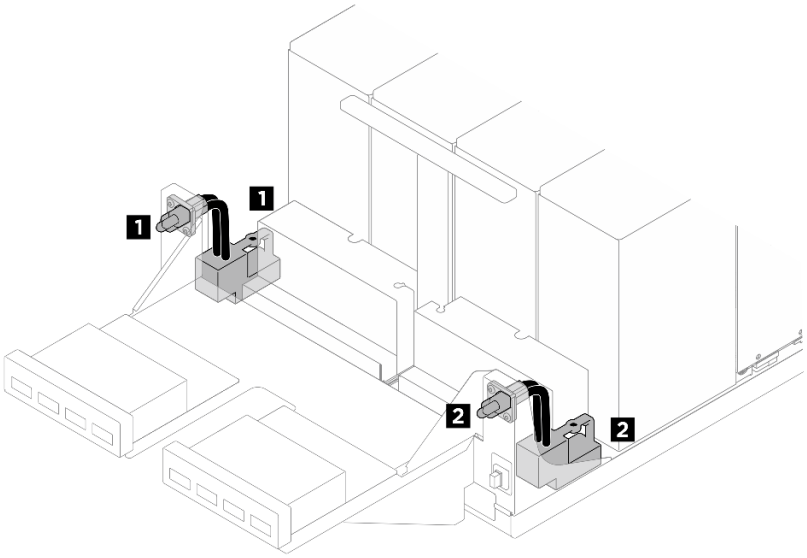


Figure 24. GPU baseboard cable routing

From	To
1 Left blind mate	1 GPU baseboard: Left power connector
2 Right blind mate	2 GPU baseboard: Right power connector

Integrated diagnostics panel cable routing

Use this section to understand the cable routing for the integrated diagnostics panel.

Notes:

- If necessary, attach the labels to both ends of the cable.
  1. 1 Attach the white space portion of the label.
  2. 2 Wrap the label around the cable and attach it to the white space portion.
  3. Repeat to attach the other label to the opposite end of the cable.

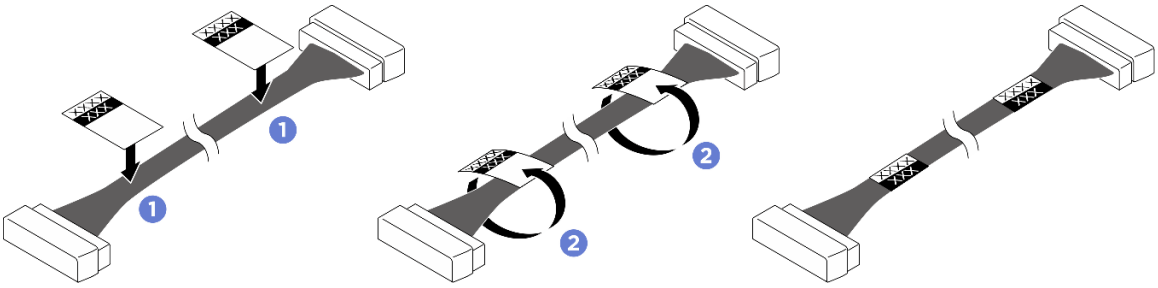


Figure 25. Label application

- Route the cable over the system board as illustrated below.
- Route the cable through the cable holder and cable guide as illustrated below.

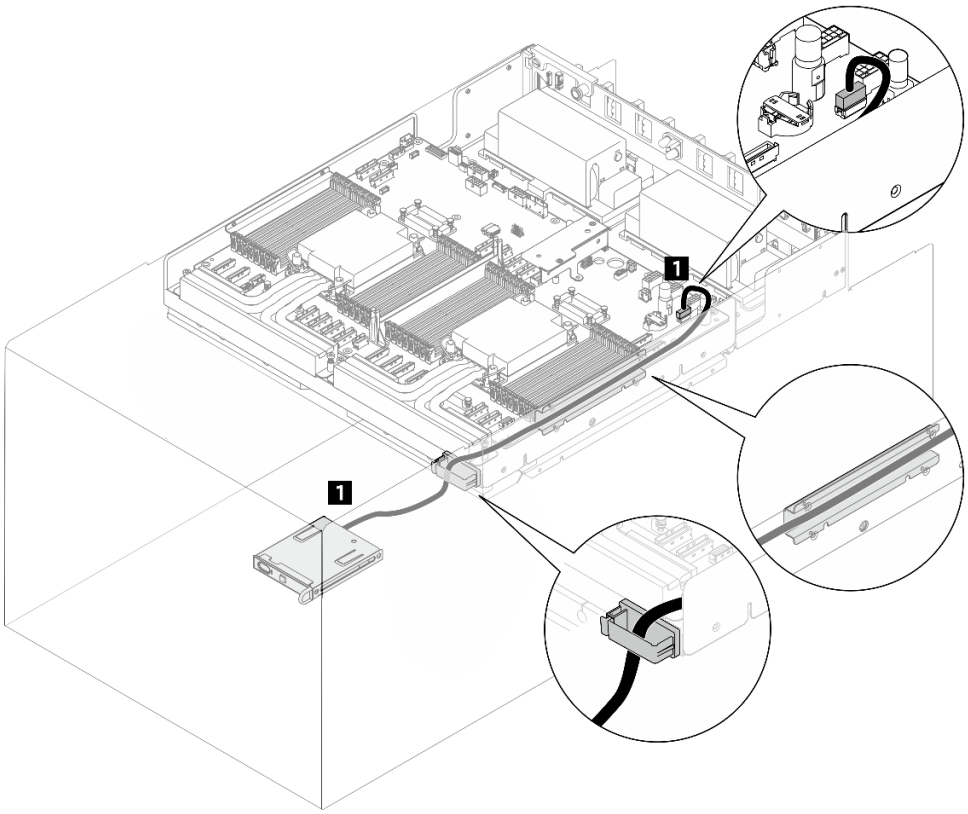


Figure 26. Integrated diagnostics panel cable routing

From	To	Label
1 Integrated diagnostics panel cable	1 System board: Integrated diagnostics panel (Front I/O) connector	PANEL FRONT IO 2

M.2 backplane cable routing

Use this section to understand the cable routing for the M.2 backplane.

Notes:

- If necessary, attach the labels to both ends of the cables.
  1. ❶ Attach the white space portion of the label to one end of the cable.
  2. ❷ Wrap the label around the cable and attach it to the white space portion.
  3. Repeat to attach the other label to the opposite end of the cable.

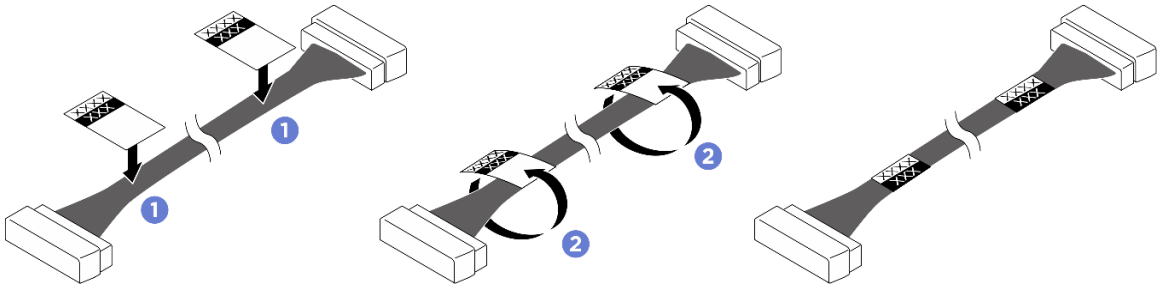


Figure 27. Label application

- Route the cables through the cable holders as illustrated below.

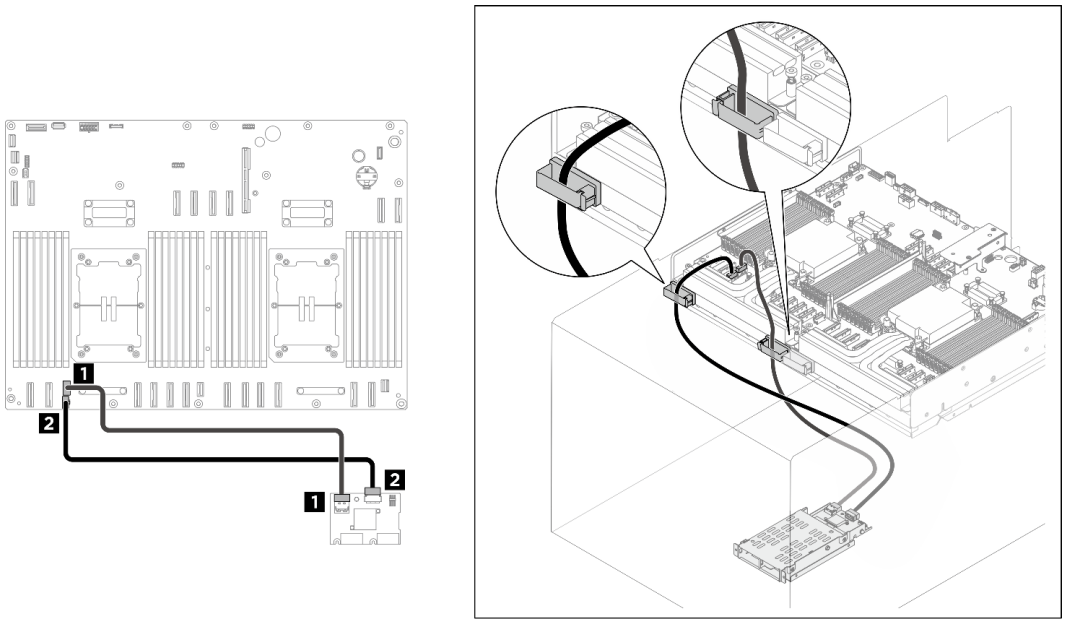


Figure 28. M.2 backplane cable routing

From	To	Label
1 M.2 backplane: Signal connector	1 System board: M.2 signal connector	M.2 SIGNAL
2 M.2 backplane: Power connector	2 System board: M.2 power connector	M.2 PWR

OCP interposer card cable routing

Use this section to understand the cable routing for the OCP interposer card.

- “Power and signal cable routing” on page 18
- “Network controller sideband interface cable routing” on page 20

Power and signal cable routing

Notes:

- If necessary, attach the labels to both ends of the cables.

1. ❶ Attach the white space portion of the label to one end of the cable.
2. ❷ Wrap the label around the cable and attach it to the white space portion.
3. Repeat to attach the other label to the opposite end of the cable.

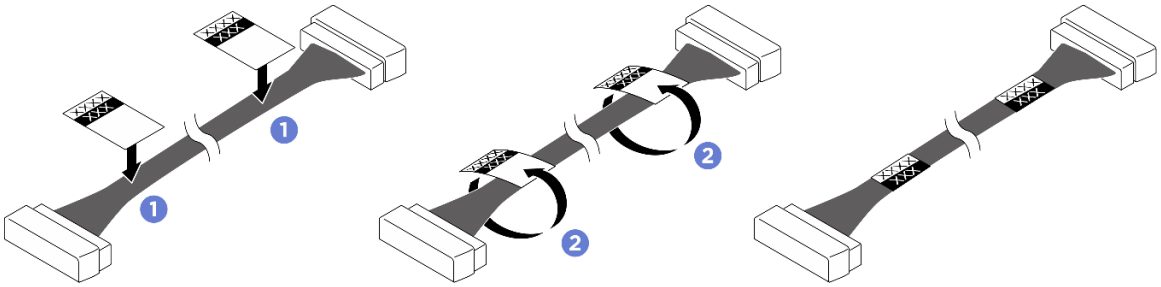


Figure 29. Label application

- Route the power cable under the compute tray as illustrated below.
- Route the power cable through the cable holder and sponge as illustrated below.

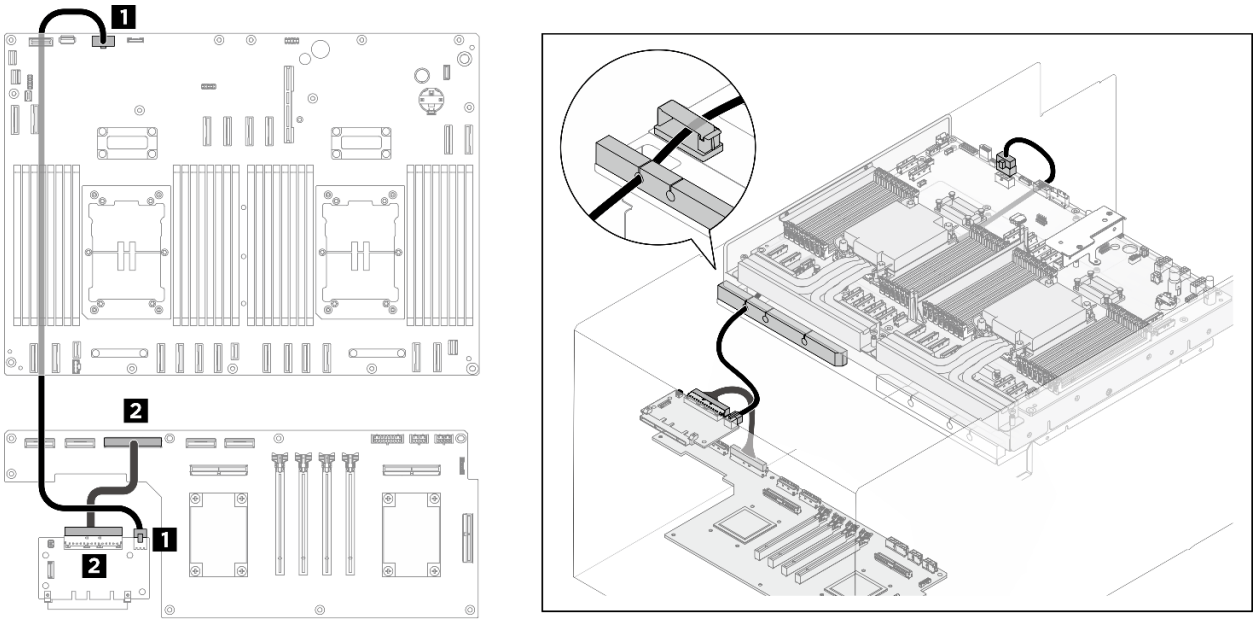


Figure 30. Power and signal cable routing

From	Label	To	Label
1 OCP interposer card: Power connector	OCP PWR 6P+6S	1 System board: OCP interposer card power connector	PWR OCP 12P+12S
2 OCP interposer card: MCIO connector	MCIO I OCP SIG	2 PCIe switch board: MCIO connector I	MCIO I OCP SIG

Network controller sideband interface cable routing

Note: Refer to Step 2 in “Install the OCP interposer card” in *User Guide* or *Hardware Maintenance Guide* and Step 3 in “Install the system I/O board” in *User Guide* or *Hardware Maintenance Guide* for detailed instructions on installing the FPC cable to the OCP interposer card and the system I/O board.

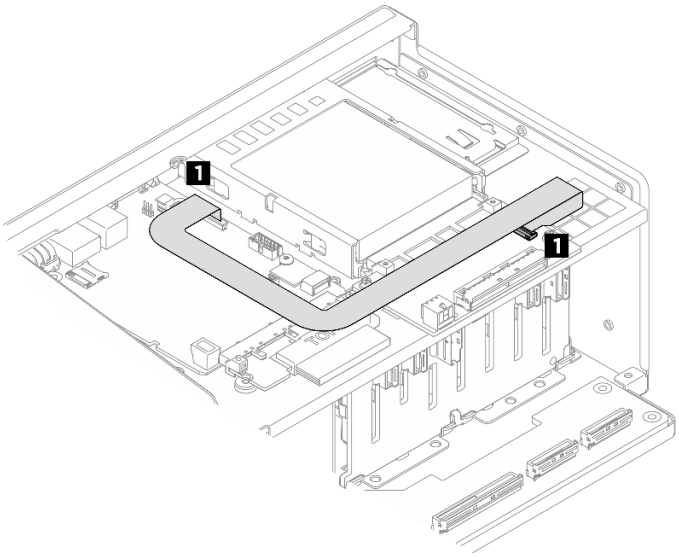


Figure 31. Network controller sideband interface cable routing

From	To
1 OCP interposer card: Network controller sideband interface connector	1 System I/O board: Second Lenovo XClarity Controller management connector

OSFP card cable routing

Use this section to understand the cable routing for the OSFP cards.

- “Power cable routing” on page 20
- “Sideband cable routing” on page 22
- “UltraPass cable routing” on page 23

Power cable routing

Blind mate – Female side

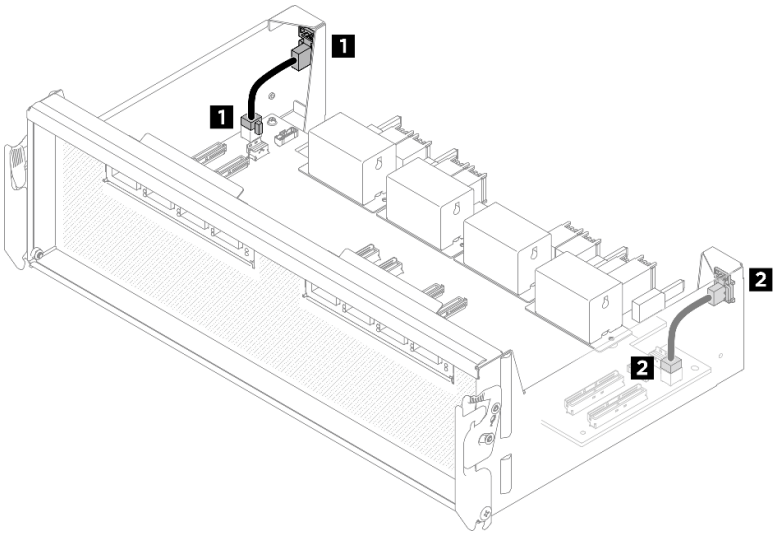


Figure 32. Power cable routing

From	To
1 Left blind mate	1 Retimer board: OSFP card 1 power connector
2 Right blind mate	2 Retimer board: OSFP card 2 power connector

Blind mate – Male side

Note: Route the cables through the cable holders as illustrated below.

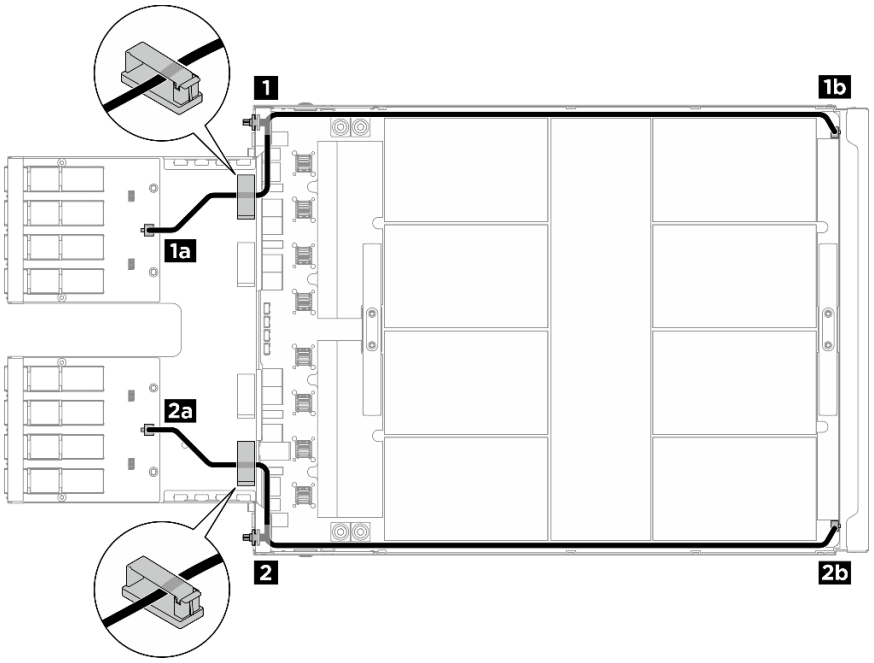


Figure 33. Power cable routing

From	To
1 Left blind mate	1a OSFP card 1 (left): Power connector
	1b GPU baseboard: OSFP card 1 power connector
2 Right blind mate	2a OSFP card 2 (right): Power connector
	2b GPU baseboard: OSFP card 2 power connector

Sideband cable routing

Notes:

- If necessary, attach the labels to both ends of the cables.
  1. ❶ Attach the white space portion of the label to one end of the cable.
  2. ❷ Wrap the label around the cable and attach it to the white space portion.
  3. Repeat to attach the other label to the opposite end of the cable.

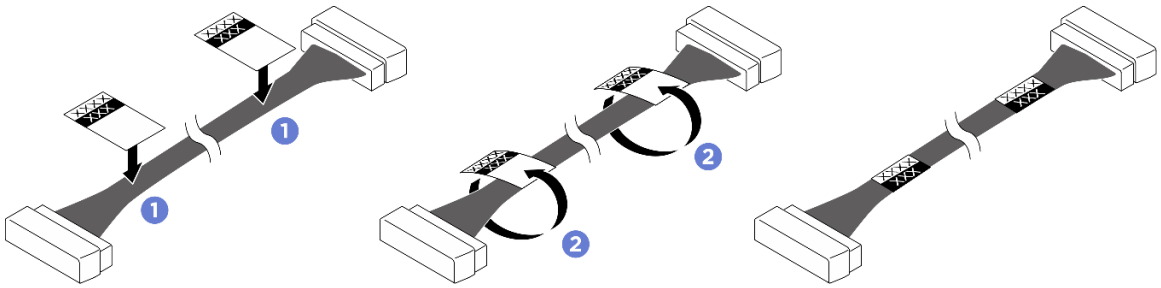


Figure 34. Label application

- Route the cables through the cable holders as illustrated below.

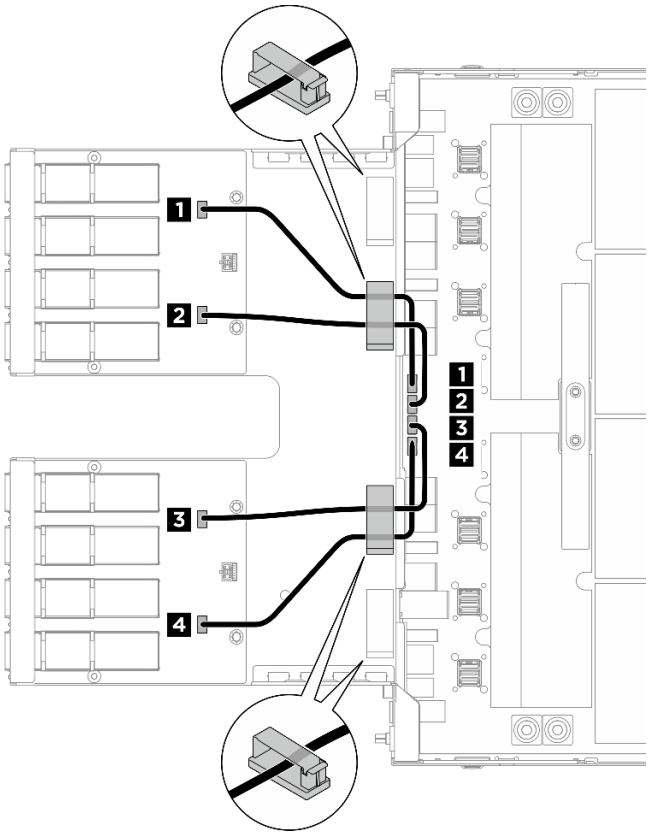


Figure 35. Sideband cable routing

From	To	Label
1 OSFP card 1 (left): Sideband connector 4/2	1 GPU baseboard: Sideband connector 4	UBB SB 4/2 SB 4
2 OSFP card 1 (left): Sideband connector 3/1	2 GPU baseboard: Sideband connector 3	UBB SB 3/1 SB 3
3 OSFP card 2 (right): Sideband connector 4/2	3 GPU baseboard: Sideband connector 2	UBB SB 4/2 SB 2
4 OSFP card 2 (right): Sideband connector 3/1	4 GPU baseboard: Sideband connector 1	UBB SB 3/1 SB 1

UltraPass cable routing

Notes:

- If necessary, attach the label to the end of the cable that connects to the GPU baseboard.
  1. ❶ Attach the white space portion of the label to one end of the cable.
  2. ❷ Wrap the label around the cable and attach it to the white space portion.

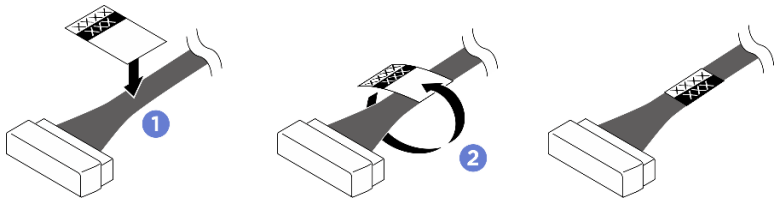


Figure 36. Label application

- Route the cables through the cable holders as illustrated below.

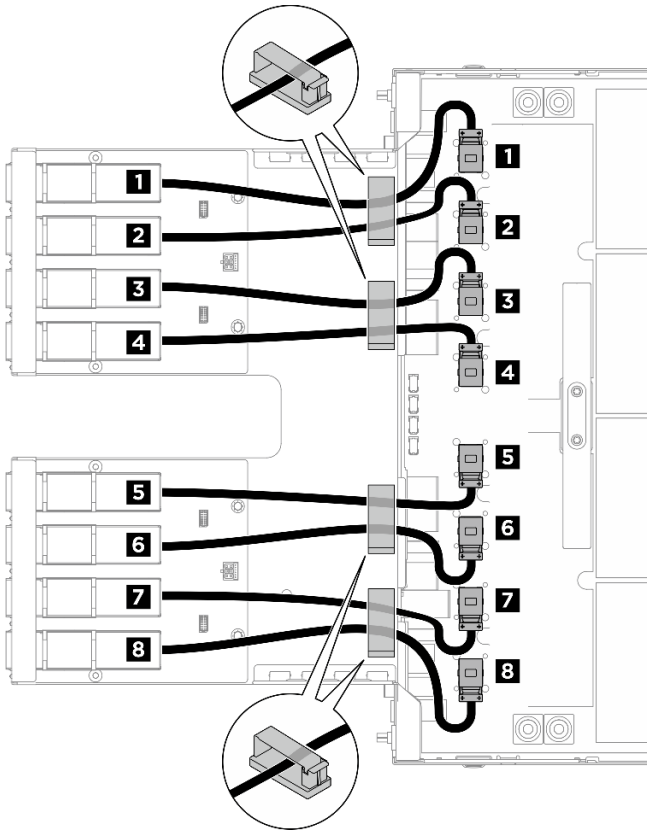


Figure 37. UltraPass cable routing

From	To	Label
1 OSFP card 1 (left): UltraPass cable 7	1 GPU baseboard: UltraPass connector 7	OSFP 7 UltraPass 7
2 OSFP card 1 (left): UltraPass cable 5	2 GPU baseboard: UltraPass connector 5	OSFP 5 UltraPass 5
3 OSFP card 1 (left): UltraPass cable 6	3 GPU baseboard: UltraPass connector 6	OSFP 6 UltraPass 6
4 OSFP card 1 (left): UltraPass cable 8	4 GPU baseboard: UltraPass connector 8	OSFP 8 UltraPass 8

From	To	Label
5 OSFP card 2 (right): UltraPass cable 1	5 GPU baseboard: UltraPass connector 1	OSFP 1 UltraPass 1
6 OSFP card 2 (right): UltraPass cable 3	6 GPU baseboard: UltraPass connector 3	OSFP 3 UltraPass 3
7 OSFP card 2 (right): UltraPass cable 4	7 GPU baseboard: UltraPass connector 4	OSFP 4 UltraPass 4
8 OSFP card 2 (right): UltraPass cable 2	8 GPU baseboard: UltraPass connector 2	OSFP 2 UltraPass 2

PCIe switch board cable routing

Use this section to understand the cable routing for the PCIe switch board.

Notes:

- If necessary, attach the labels to both ends of the cables.
  1. ❶ Attach the white space portion of the label to one end of the cable.
  2. ❷ Wrap the label around the cable and attach it to the white space portion.
  3. Repeat to attach the other label to the opposite end of the cable.

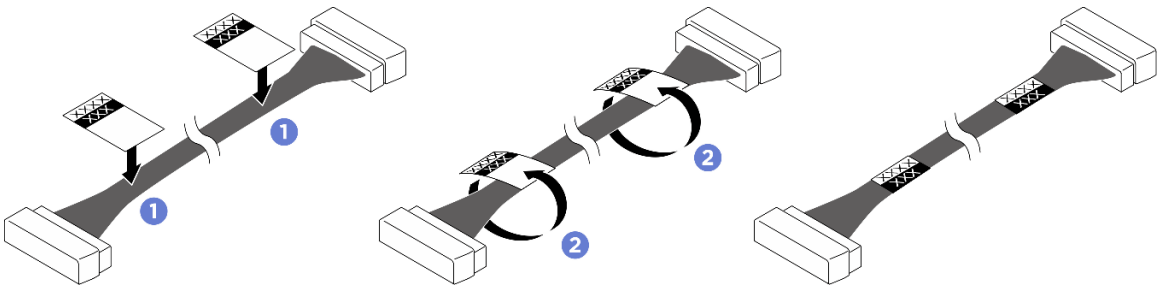


Figure 38. Label application

- Route the signal and sideband cables over the system board as illustrated below.
- Route the power cable under the compute tray as illustrated below.
- Route the cables through the cable holders and sponges as illustrated below.

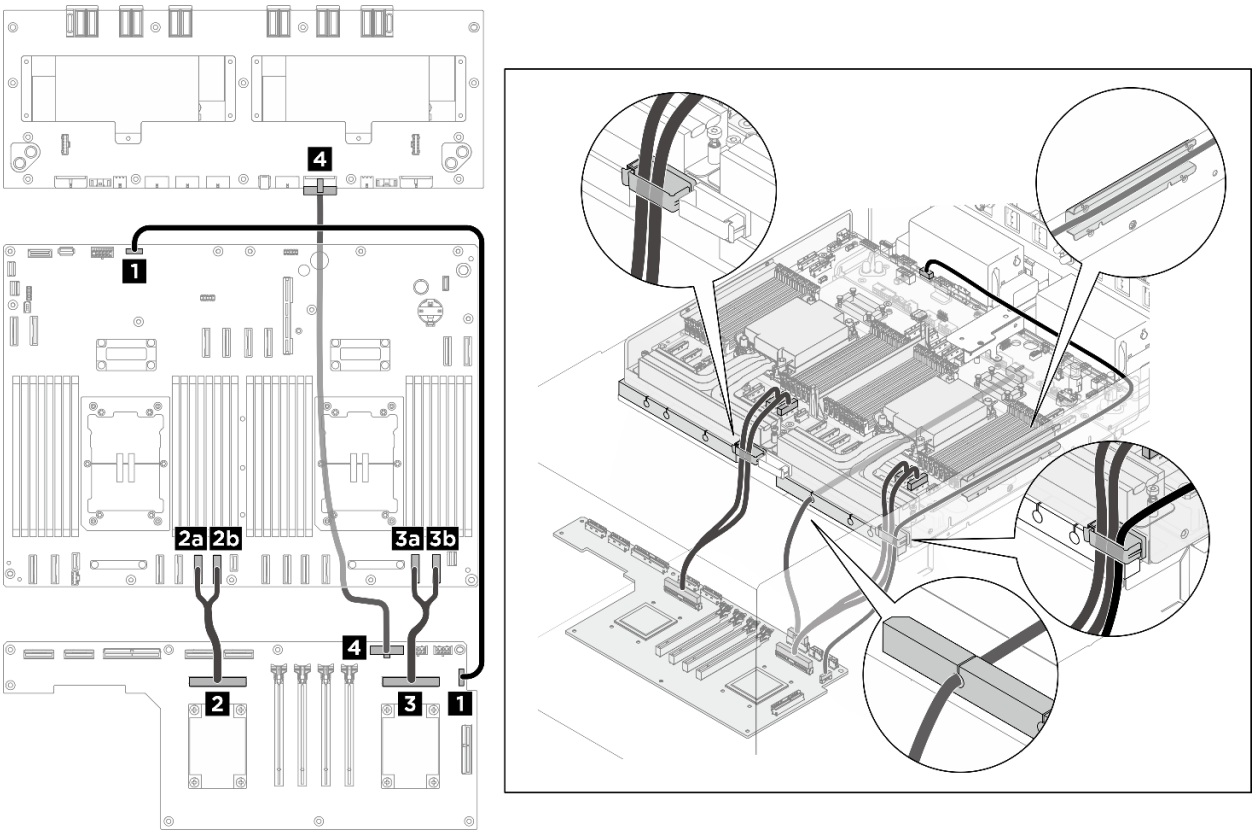


Figure 39. PCIe switch board cable routing

From	Label	To	Label
1 PCIe switch board: Sideband connector	SB SWT SB	1 System board: PCIe switch board sideband connector	SB SWT SB
2 PCIe switch board: MCIO connector J **Notes:** • Cable end P2 plugs into connector A. • Cable end P3 plugs into connector B.	MCIO J	2a System board: MCIO connector 3A	P2-3A MCIO J
		2b System board: MCIO connector 3B	P3-3B MCIO J

From	Label	To	Label
3 PCIe switch board: MCIO connector K **Notes:** • Cable end P2 plugs into connector A. • Cable end P3 plugs into connector B.	MCIO K	3a System board: MCIO connector 6A	P2-6A MCIO K
		3b System board: MCIO connector 6B	P3-6B MCIO K
4 PCIe switch board: Power connector	SW PWR RISER PWR 2	4 Power distribution board: PCIe switch board power connector	SW PWR RISER PWR 2

PSU interposer cable routing

Use this section to understand the cable routing for the PSU interposer.

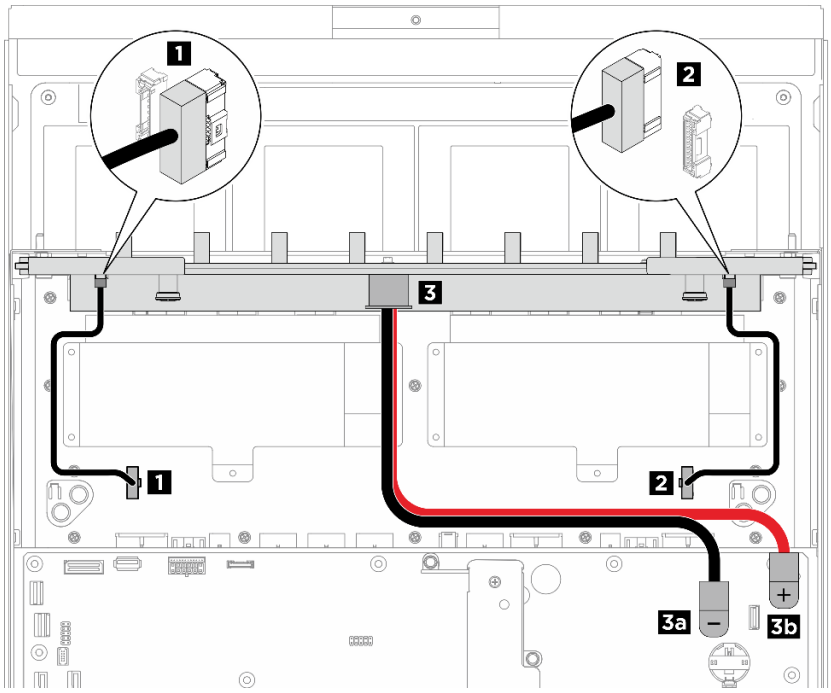


Figure 40. PSU interposer cable routing

From	To
1 PSU interposer: Power distribution board sideband connector 1	1 Power distribution board: PSU interposer sideband connector 1
2 PSU interposer: Power distribution board sideband connector 2	2 Power distribution board: PSU interposer sideband connector 2
3 PSU interposer: System board power connector	3a System board: Ground (-) connector (black cable)
	3b System board: 12V (+) connector (red cable)

Retimer board cable routing

Use this section to understand the cable routing for the retimer board.

- "Power and sideband cables" on page 28
- "Signal cables" on page 29
- "GPU management cables" on page 34

Power and sideband cables

Notes:

- If necessary, attach the labels to both ends of the cables.
  1. 1 Attach the white space portion of the label to one end of the cable.
  2. 2 Wrap the label around the cable and attach it to the white space portion.
  3. Repeat to attach the other label to the opposite end of the cable.

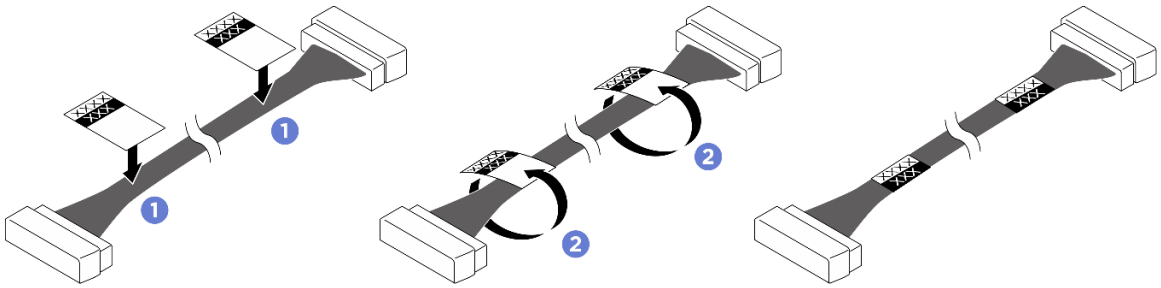
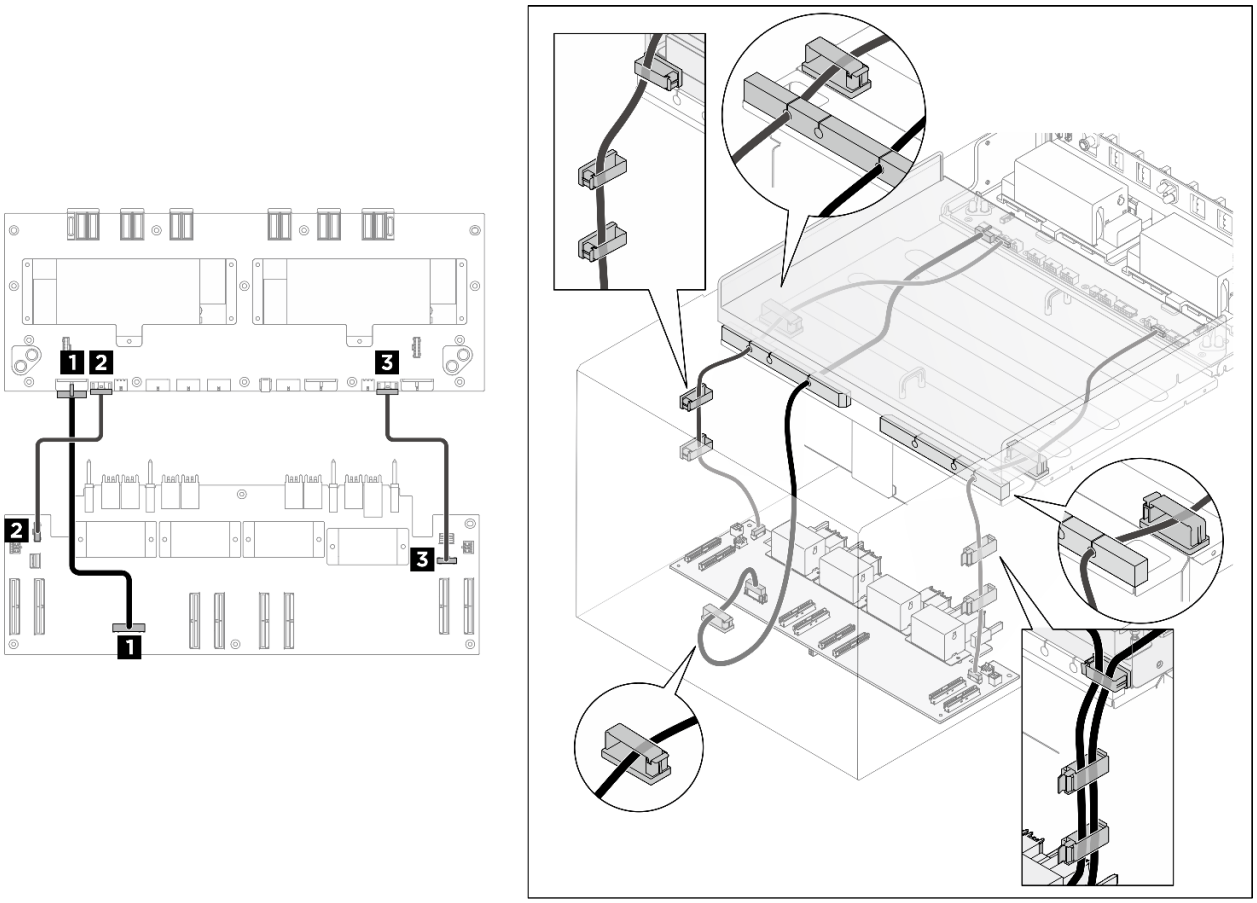


Figure 41. Label application

- Route the cables under the compute tray as illustrated below
- Route the cables through the cable holders and sponges as illustrated below.



From	To	Label
1 Retimer board: Power connector	1 Power distribution board: Retimer board power connector	PDB PWR RISER PWR 1A
2 Retimer board: Sideband connector 1	2 Power distribution board: Retimer board sideband connector 1	SB 1
3 Retimer board: Sideband connector 2	3 Power distribution board: Retimer board sideband connector 2	SB 2

Figure 42. Power and sideband cable routing

Signal cables

Notes:

- If necessary, attach the labels to both ends of the cables.
  1. ❶ Attach the white space portion of the label to one end of the cable.
  2. ❷ Wrap the label around the cable and attach it to the white space portion.
  3. Repeat to attach the other label to the opposite end of the cable.

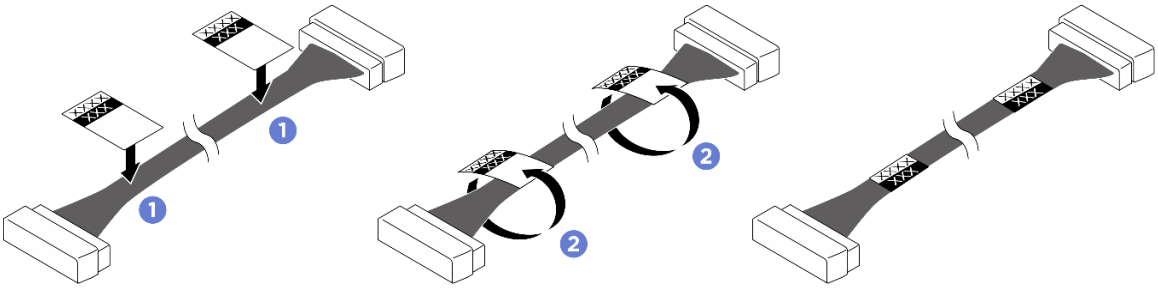
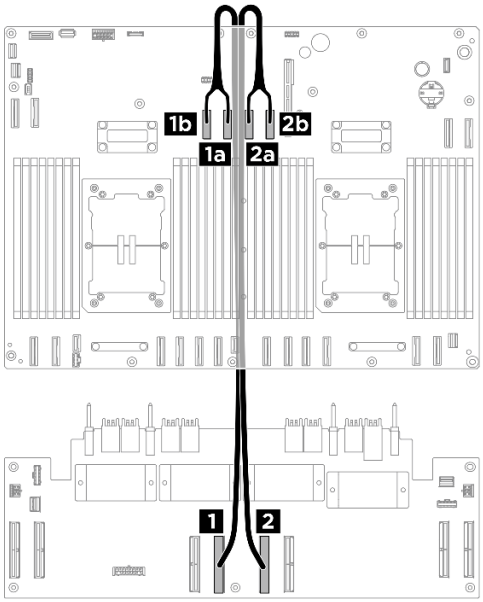
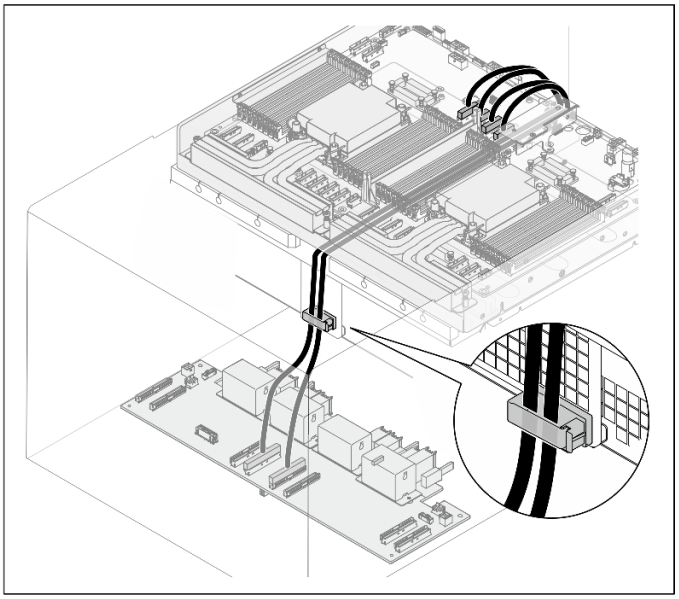


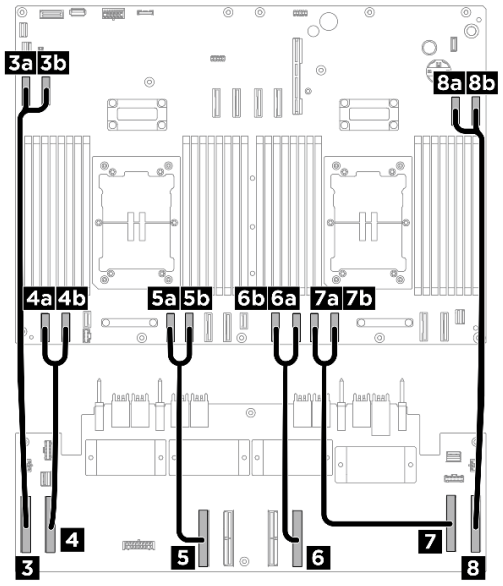
Figure 43. Label application

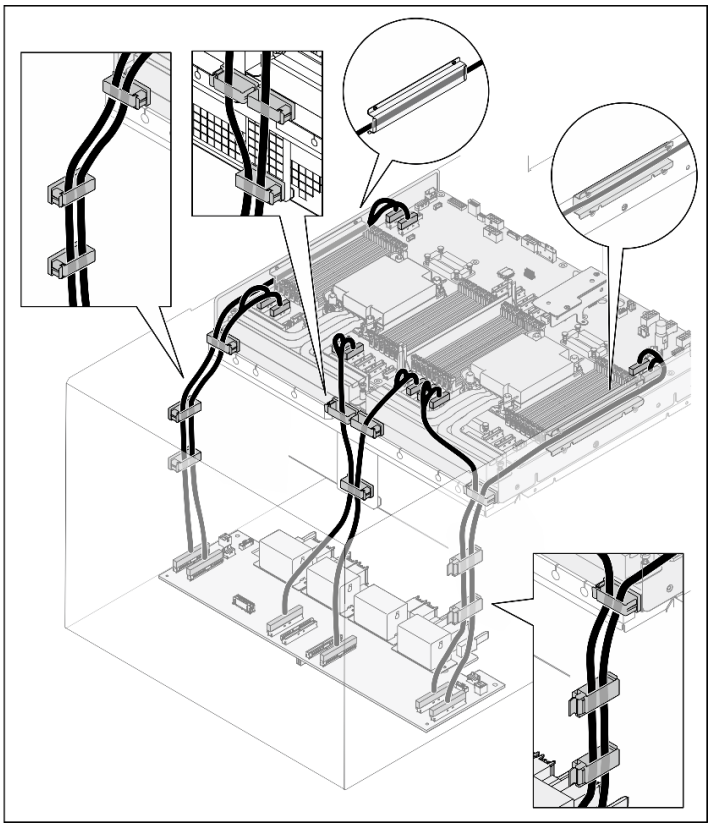
- Route the cables that connect to MCIO connectors 4A/4B and 8A/8B on the system board under the compute tray as illustrated below.
- Route the cables that connect to MCIO connectors 9A/9B and 7A/7B on the system board over the system board as illustrated below.
- Route the cables through the cable holders and cable guides as illustrated below.

Figure 44. Signal cable routing









From	Label	To	Label
1 Retimer board: MCIO connector D **Notes:** • Cable end P2 plugs into connector A. • Cable end P3 plugs into connector B.	MCIO D	1a System board: MCIO connector 4A	P2 - 4A MCIO D
		1b System board: MCIO connector 4B	P3 - 4B MCIO D
2 Retimer board: MCIO connector E **Notes:** • Cable end P2 plugs into connector A. • Cable end P3 plugs into connector B.	MCIO E	2a System board: MCIO connector 8A	P2 - 8A MCIO E
		2b System board: MCIO connector 8B	P3 - 8B MCIO E
3 Retimer board: MCIO connector A **Notes:** • Cable end P2 plugs into connector A. • Cable end P3 plugs into connector B.	MCIO A	3a System board: MCIO connector 9A	P2 - 9A MCIO A
		3b System board: MCIO connector 9B	P3 - 9B MCIO A
4 Retimer board: MCIO connector B **Notes:** • Cable end P2 plugs into connector A. • Cable end P3 plugs into connector B.	MCIO B	4a System board: MCIO connector 1A	P2 - 1A MCIO B

From	Label	To	Label
		4b System board: MCIO connector 1B	P3 - 1B MCIO B
5 Retimer board: MCIO connector C **Notes:** • Cable end P2 plugs into connector A. • Cable end P3 plugs into connector B.	MCIO C	5a System board: MCIO connector 2A	P2 - 2A MCIO C
		5b System board: MCIO connector 2B	P3 - 2B MCIO C
6 Retimer board: MCIO connector F **Notes:** • Cable end P2 plugs into connector A. • Cable end P3 plugs into connector B.	MCIO F	6a System board: MCIO connector 10A	P2 - 10A MCIO F
		6b System board: MCIO connector 10B	P3 - 10B MCIO F
7 Retimer board: MCIO connector G **Notes:** • Cable end P2 plugs into connector A. • Cable end P3 plugs into connector B.	MCIO G	7a System board: MCIO connector 5A	P2 - 5A MCIO G
		7b System board: MCIO connector 5B	P3 - 5B MCIO G

From	Label	To	Label
8 Retimer board: MCIO connector H **Notes:** • Cable end P2 plugs into connector A. • Cable end P3 plugs into connector B.	MCIO H	8a System board: MCIO connector 7A	P2 - 7A MCIO H
		8b System board: MCIO connector 7B	P3 - 7B MCIO H

GPU management cables

Notes:

- If necessary, attach the labels to both ends of the cables.
  1. ❶ Attach the white space portion of the label to one end of the cable.
  2. ❷ Wrap the label around the cable and attach it to the white space portion.
  3. Repeat to attach the other label to the opposite end of the cable.

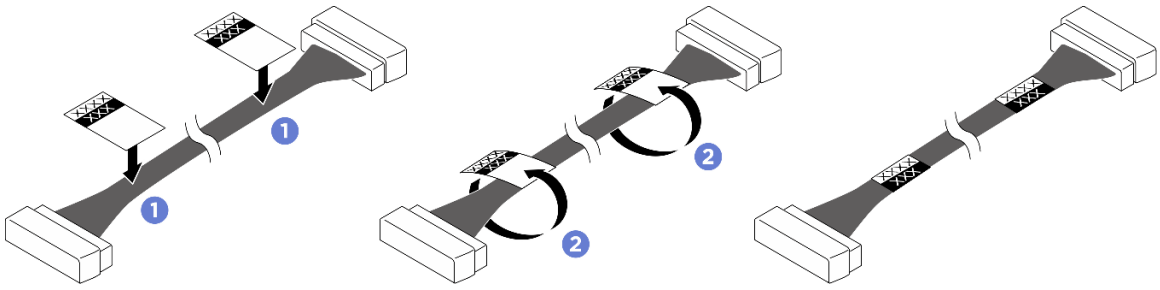
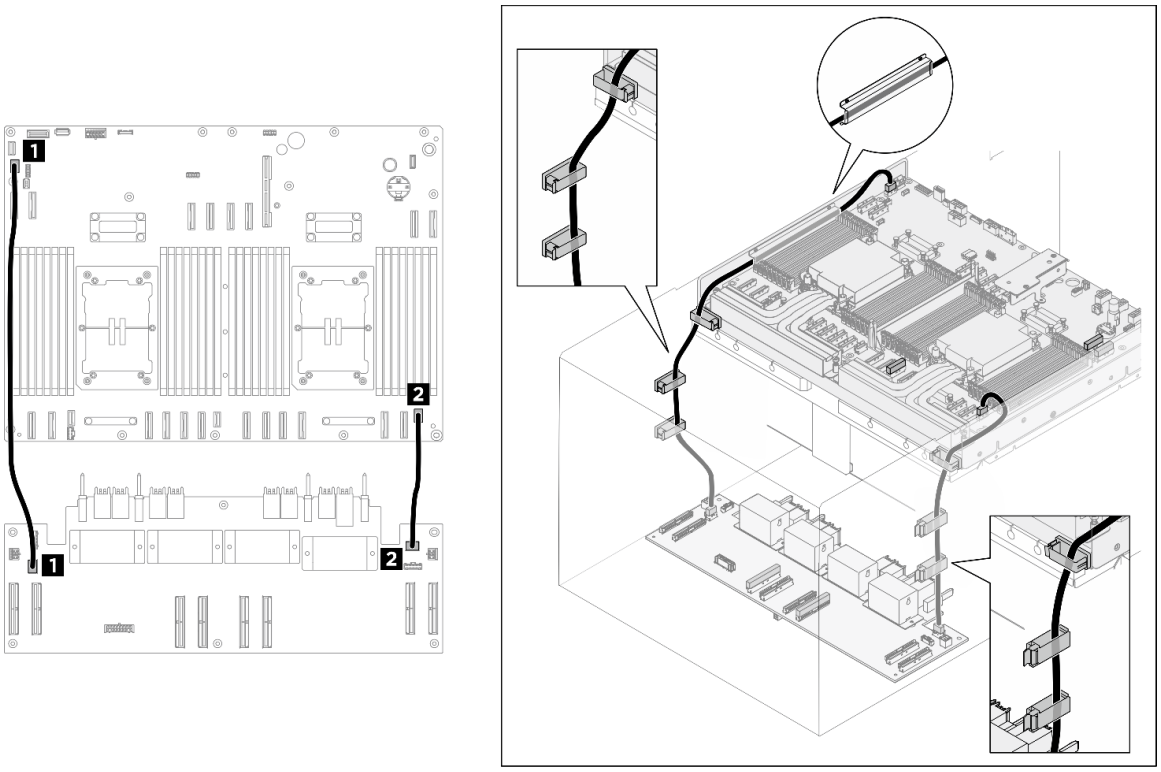


Figure 45. Label application

- Route the cables over the system board as illustrated below
- Route the cables through the cable holders and cable guide as illustrated below.



From	To	Label
1 Retimer board: EP management connector 1	1 System board: EP management connector 1	EP MGMT 1
2 Retimer board: EP management connector 2	2 System board: EP management connector 2	EP MGMT 2

Figure 46. GPU management cable routing

System I/O board cable routing

Use this section to understand the cable routing for the system I/O board.

Notes:

- If necessary, attach the labels to both ends of the cable.
  1. ❶ Attach the white space portion of the label.
  2. ❷ Wrap the label around the cable and attach it to the white space portion.
  3. Repeat to attach the other label to the opposite end of the cable.

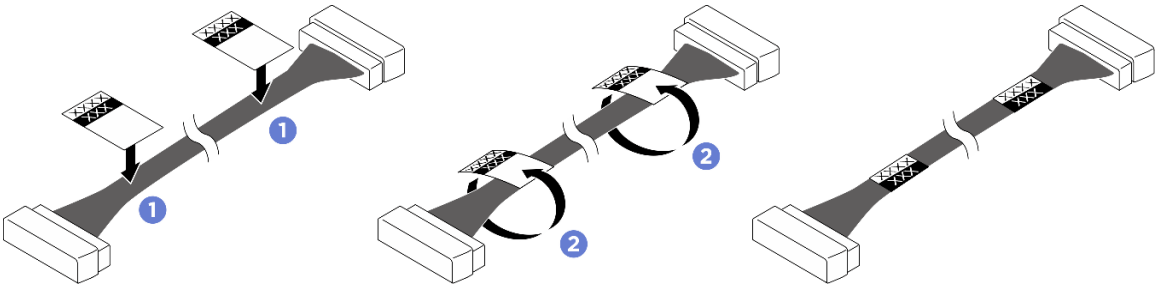


Figure 47. Label application

- Before connecting the cable that connects to the system I/O board connector on the system board, unfasten the two screws securing the middle cable guide cover, then remove it.
- After connecting the cable that connects to the system I/O board connector on the system board, fasten the two screws to secure the middle cable guide cover.

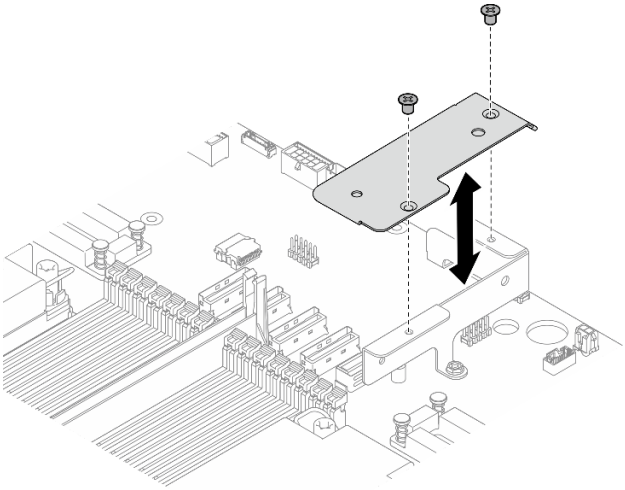


Figure 48. Middle cable guide cover removal and installation

- Route the cable connected to the rear of the system board under the compute tray as illustrated.

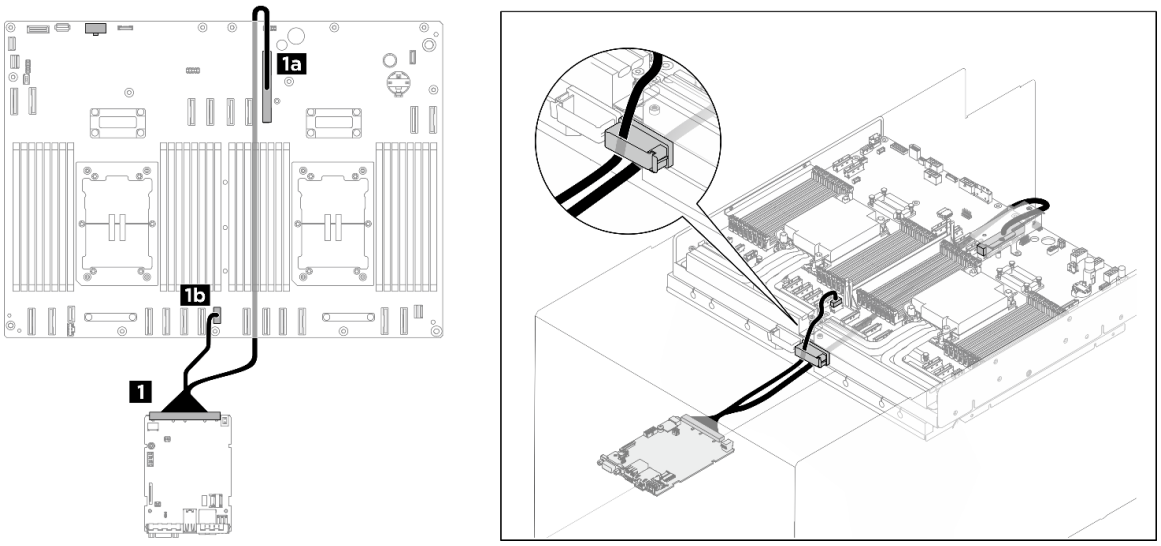


Figure 49. System I/O board cable routing

From	Label	To	Label
1 System I/O board: System board connector	DC-SCM	1a System board: System I/O board connector (DC-SCM	P2-DC-SCM DC-SCM
		1b System board: SPI/ eSPI connector	P3-SPI/eSPI DC-SCM

USB assembly cable routing

Use this section to understand the cable routing for the USB assembly.

Notes:

- If necessary, attach the label to the end of the cable that connects to the system board.
  1. ❶ Attach the white space portion of the label to one end of the cable.
  2. ❷ Wrap the label around the cable and attach it to the white space portion.

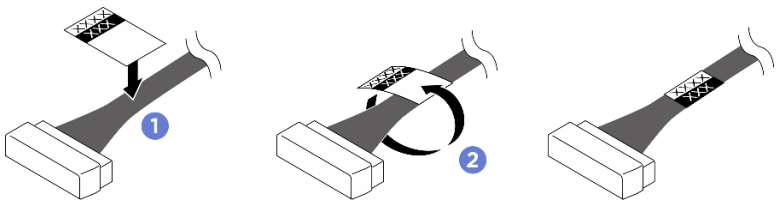


Figure 50. Label application

- Route the cable under the compute tray as illustrated below.
- Route the cable through the cable holder and sponge as illustrated below.

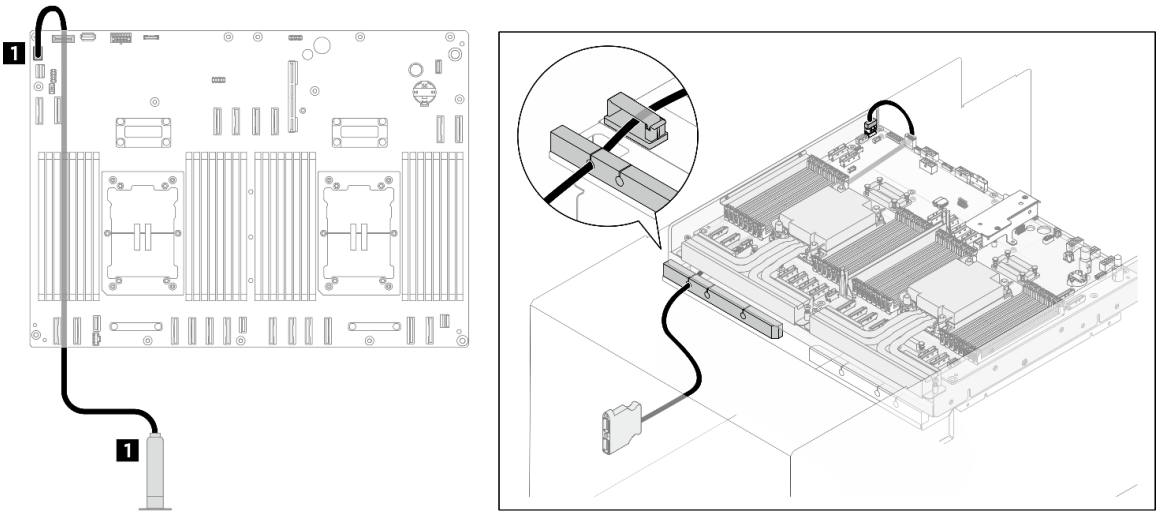


Figure 51. USB assembly cable routing

From	To	Label
1 USB assembly cable	1 System board: USB assembly (Front panel I/O) connector	USB 3.0 FRONT IO 1

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/sr680a-v4/pdf_files.html

- ***Rail Installation Guides***
  - Rail installation in a rack
- ***User Guide***
  - Complete overview, system configuration, hardware components replacing, and troubleshooting.

    Selected chapters from *User Guide*:
    - ***System Configuration Guide* :** Server overview, components identification, system LEDs and diagnostics display, product unboxing, setting up and configuring the server.
    - ***Hardware Maintenance Guide* :** Installing hardware components, cable routing, and troubleshooting.
- ***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 SR680a V4
  - https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/sr680av4/7dmk/downloads/driver-list/
- Lenovo Data Center Forum
  - https://forums.lenovo.com/t5/Datacenter-Systems/ct-p/sv_eg
- Lenovo Data Center Support for ThinkSystem SR680a V4
  - https://datacentersupport.lenovo.com/products/servers/thinksystem/sr680av3/7dm9
- Lenovo License Information Documents
  - https://datacentersupport.lenovo.com/documents/lnvo-eula

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

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Important notes

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

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

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

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

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

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

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

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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	–	○	○	○	○	○
圖形處理器模組	–	○	○	○	○	○
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.

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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
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