Dell PowerEdge XR7620

Installation and Service Manual

Regulatory Model: E89S
Regulatory Type: E89S001
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Rev. A01

DELL Technologies

Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your product.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

Contents

1

About this document

This document provides an overview about the system, information about installing and replacing components, diagnostic tools, and guidelines to be followed while installing certain components.

2

System overview

The Dell PowerEdge XR7620 is 2-socket, 2U server that supports:

- Rear Accessed Configuration (Normal Airflow) and Front Accessed Configuration (Reverse Airflow)
- Two 4th Generation Intel® Xeon® Scalable Processors with up to 32 cores per processor
- Up to 16 DDR5 DIMM slots
- Two redundant AC or DC power supply units
- Up to five PCIe slots (2 x16 Gen4/5, 2 x16 Gen4, 1 x16 LP Gen4) for networking, enabling flexible networking design
- Up to 4 x 2.5-inch SAS/SATA/NVMe Solid State Drives (SSDs), or 8 x E3.S NVMe drives

NOTE: Front-accessed configurations cannot be converted to Rear-accessed configurations, and vice versa.

NOTE: For more information about how to hot swap NVMe PCIe SSD U.2 device, see the *Dell Express Flash NVMe PCIe SSD User's Guide* at https://www.dell.com/support **> Browse all Products** > **Data Center Infrastructure** > **Storage Adapters & Controllers** > **Dell PowerEdge Express Flash NVMe PCIe SSD** > **Documentation** > **Manuals and Documents**.

NOTE: All instances of SAS, SATA drives are referred to as drives in this document, unless specified otherwise.

CAUTION: Do not install GPUs, network cards, or other PCIe devices on your system that are not validated and tested by Dell. Damage caused by unauthorized and invalidated hardware installation will null and void the system warranty.

Topics:

Front Accessed Configuration (Reverse Airflow) for XR7620

System configurations - front view for PowerEdge XR7620

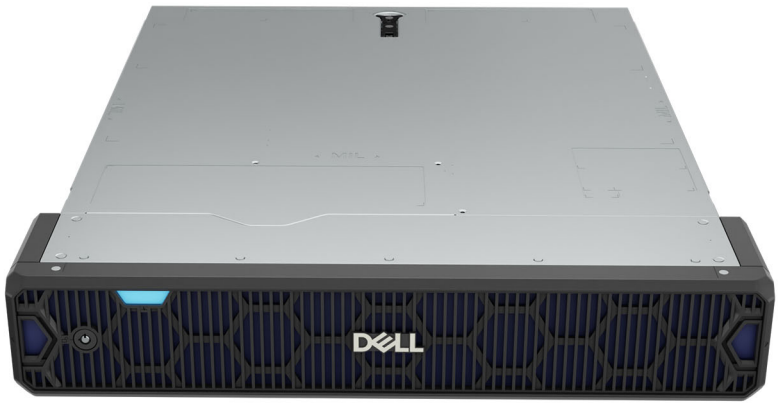


Figure 1. Front view of Front Accessed configuration with bezel

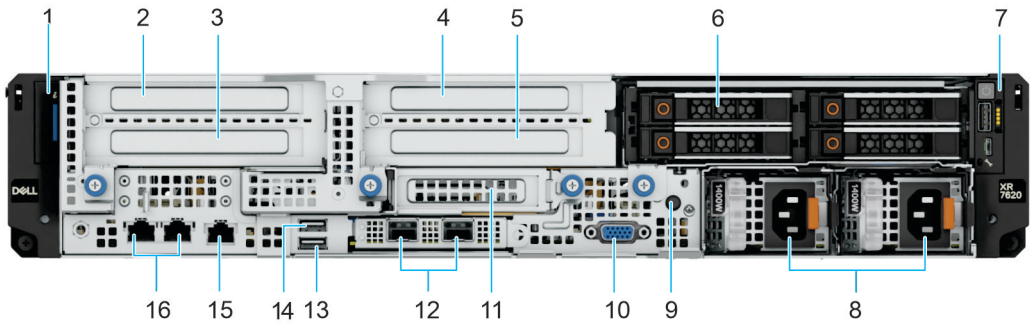


Figure 2. Front view of Front Accessed 4 x 2.5-inch drive configuration without bezel

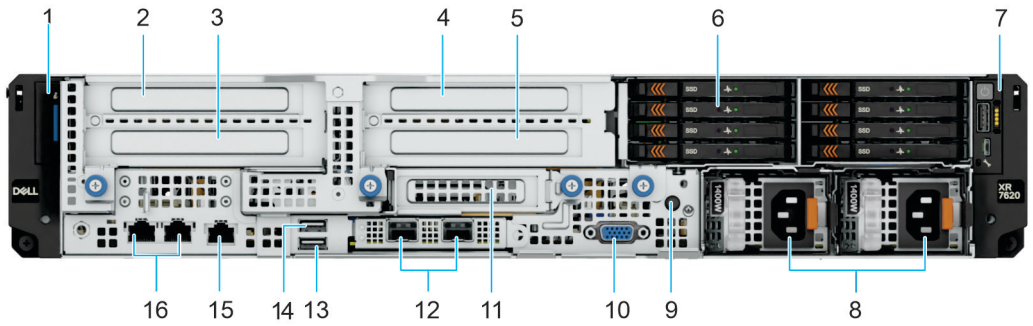


Figure 3. Front view of Front Accessed E3.S drive configuration without bezel

Table 1. Features available on the front view of Front Accessed E3.S configuration

Item	Ports, panels, or slots	Icon	Description
1	Status LED control panel	N/A	Contains the system health, system ID, status LED. ● Status LED: Enables you to identify any failed hardware components. There are five status LEDs and an overall system health LED (Chassis health and system ID) bar. For more information, see the Status LED indicators section.
2	PCIe expansion card riser 1 (slot 1)	N/A	Enables you to connect PCI Express expansion cards.
3	PCIe expansion card riser 1 (slot 2)	N/A	Enables you to connect PCI Express expansion cards.
4	PCIe expansion card riser 2 (slot 3)	N/A	Enables you to connect PCI Express expansion cards.
5	PCIe expansion card riser 2 (slot 4)	N/A	Enables you to connect PCI Express expansion cards.
6	Drive	N/A	Enables you to install up to 4 x 2.5-inch, or 8 x E3.S Solid-State Drives (SSDs)
7	Power button control panel	N/A	Contains the power button, USB port, iDRAC Direct micro USB port, and the iDRAC Direct status LED.
8	Power supply unit (PSU 2) and (PSU 1)	2 1	Indicates the PSU2 (redundant PSU) and PSU1 (primary PSU)
9	System identification button		Press the system ID button: ● To locate a particular system within a rack. ● To turn the system ID on or off. To reset iDRAC, press and hold the button for 16 seconds. **NOTE:** ● To reset iDRAC using system ID, ensure that the system ID button is enabled in the iDRAC setup. ● If the system stops responding during POST, press and hold the system ID button (for more than five seconds) to enter the BIOS progress mode.
10	VGA port		Enables you to connect a display device to the system.

Table 1. Features available on the front view of Front Accessed E3.S configuration (continued)

Item	Ports, panels, or slots	Icon	Description
11	PCIe expansion card riser 3 (Low profile slot 5)	N/A	Enables you to connect PCI Express expansion cards.
12	OCP NIC card (optional)	N/A	The OCP NIC card supports OCP 3.0. The NIC ports are integrated on the OCP card which is connected to the system board.
13	USB 2.0 port		This port is USB 2.0-compliant.
14	USB 3.0 port		This port is USB 3.0-compliant.
15	iDRAC dedicated port	iDRAC	It is an RJ-45 port. Enables you to remotely access iDRAC. For more information, see the *Integrated Dell Remote Access Controller User's Guide* at www.dell.com/poweredgemanuals.
16	2 x LOM ports		The LOM ports that are integrated on the system board provide network connectivity. These LOM ports can also be shared with iDRAC when iDRAC network settings is set to shared mode.

System configurations - rear view for PowerEdge XR7620

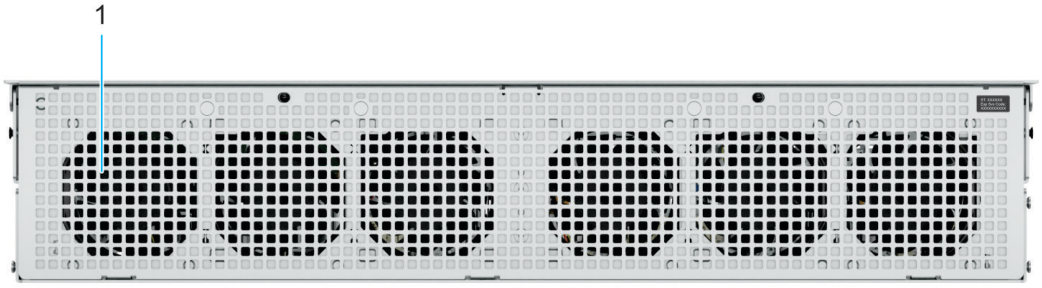


Figure 4. Rear view of Front Accessed configuration

Table 2. Features available on the Rear view of Front Accessed configuration

Item	Ports, panels, and slots	Icon	Description
1	Cooling fan	N/A	Supports 6 cooling fans **NOTE:** All 6 fans need to be installed in the system during operation.

System configurations - inside view for PowerEdge XR7620

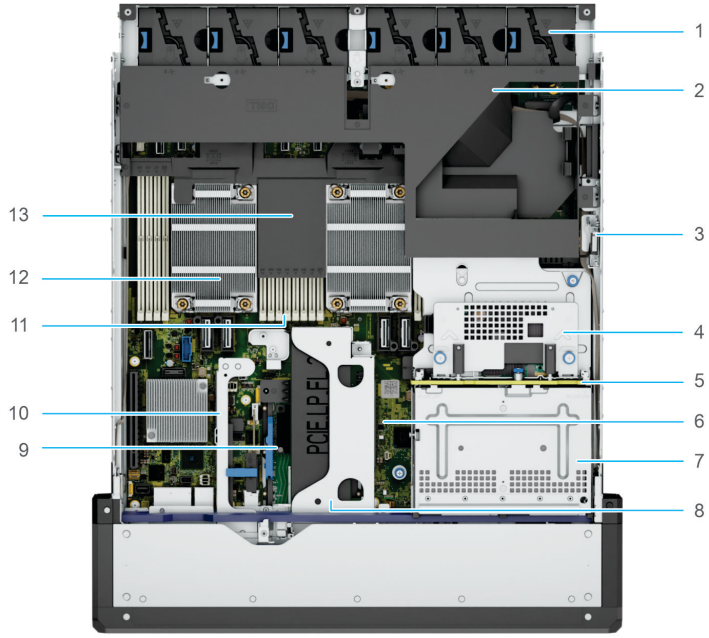


Figure 5. Inside the system - Front Accessed configuration

1. Cooling fan
2. 2U air shroud
3. Intrusion switch
4. Front PERC
5. SSD backplane
6. System board
7. Drive cage
8. Expansion card riser 3
9. OCP card
10. BOSS module
11. Memory slots
12. Processor heat sink module
13. 1U air shroud

Rear Accessed Configuration (Normal Airflow) for XR7620

System configurations - front view for PowerEdge XR7620

Figure 6. Front view of Rear Accessed configuration with bezel

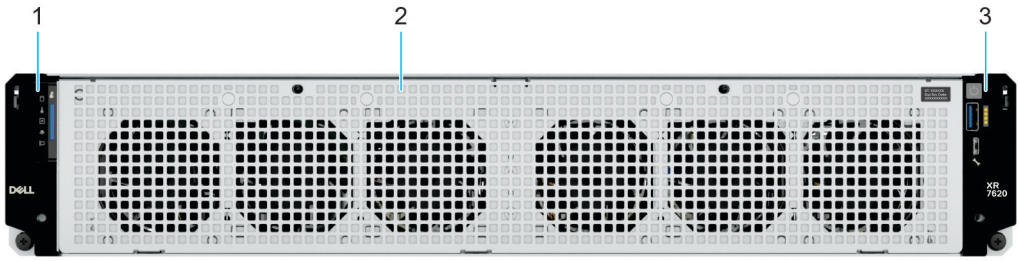


Figure 7. Front view of Rear Accessed configuration without bezel

Table 3. Features available on the front view of Rear Accessed configuration without bezel

Item	Ports, panels, and slots	Icon	Description
1	Status LED control panel	N/A	Contains the system health, system ID, status LED. • Status LED: Enables you to identify any failed hardware components. There are five status LEDs and an overall system health LED (Chassis health and system ID) bar. For more information, see the Status LED indicators section.
2	Cooling fan	N/A	Supports 6 cooling fans.

Table 3. Features available on the front view of Rear Accessed configuration without bezel (continued)

Item	Ports, panels, and slots	Icon	Description
			NOTE: All 6 fans need to be installed in the system during operation.
3	Power button control panel	N/A	Contains the power button, USB port, iDRAC Direct micro USB port, and the iDRAC Direct status LED.

System configurations - rear view for PowerEdge XR7620

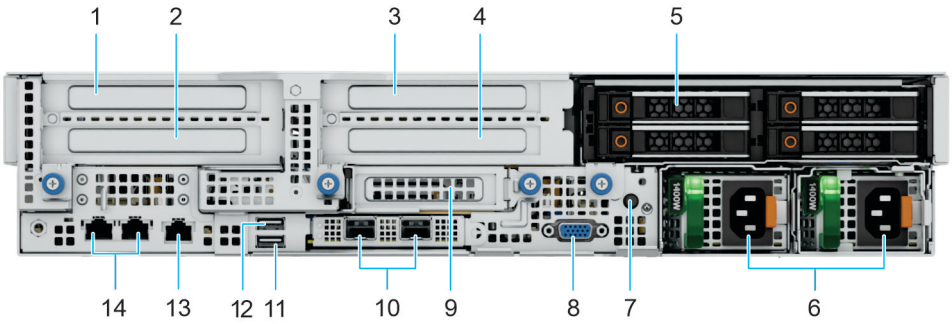


Figure 8. Rear view of Rear Accessed 4 x 2.5-inch drive configuration without bezel

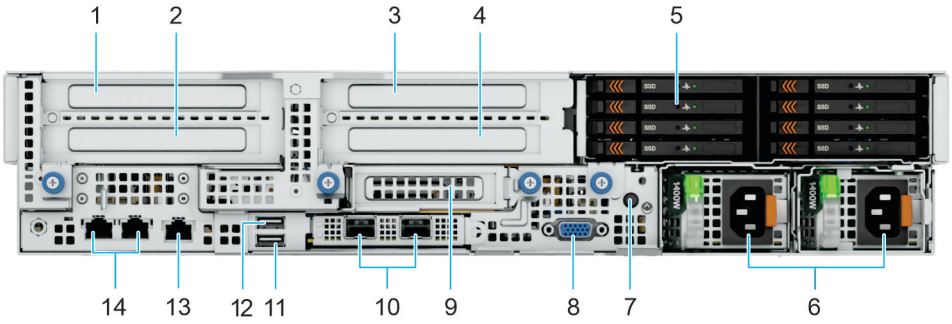


Figure 9. Rear view of Rear Accessed 8 x E3.S drive configuration without bezel

Table 4. Features available on the rear view of Rear Accessed configuration without bezel

Item	Ports, panels, or slots	Icon	Description
1	PCIe expansion card riser 1 (slot 1)	N/A	Enables you to connect PCI Express expansion cards.
2	PCIe expansion card riser 1 (slot 2)	N/A	Enables you to connect PCI Express expansion cards.
3	PCIe expansion card riser 2 (slot 3)	N/A	Enables you to connect PCI Express expansion cards.
4	PCIe expansion card riser 2 (slot 4)	N/A	Enables you to connect PCI Express expansion cards.
5	Drive	N/A	Enables you to install up to 4 x 2.5-inch, or 8 x E3.S Solid-State Drives (SSDs)

Table 4. Features available on the rear view of Rear Accessed configuration without bezel (continued)

Item	Ports, panels, or slots	Icon	Description
6	Power supply unit (PSU 2) and (PSU 1)	2 1	Indicates the PSU2 (redundant PSU) and PSU1 (primary PSU)
7	System identification button		Press the system ID button: • To locate a particular system within a rack. • To turn the system ID on or off. To reset iDRAC, press and hold the button for 16 seconds. **NOTE:** • To reset iDRAC using system ID, ensure that the system ID button is enabled in the iDRAC setup. • If the system stops responding during POST, press and hold the system ID button (for more than five seconds) to enter the BIOS progress mode.
8	VGA port		Enables you to connect a display device to the system.
9	PCIe expansion card riser 3 (Low profile slot 5)	N/A	Enables you to connect PCI Express expansion cards.
10	OCP NIC card (optional)	N/A	The OCP NIC card supports OCP 3.0. The NIC ports are integrated on the OCP card which is connected to the system board.
11	USB 2.0 port		This port is USB 2.0-compliant.
12	USB 3.0 port		This port is USB 3.0-compliant.
13	iDRAC dedicated port	iDRAC	It is an RJ-45 port. Enables you to remotely access iDRAC. For more information, see the Integrated *Dell Remote Access Controller User's Guide* at www.dell.com/poweredgemanuals.
14	2 x LOM ports		The LOM ports that are integrated on the system board provide network connectivity. These LOM ports can also be shared with iDRAC when iDRAC network settings is set to shared mode.

System configurations - inside view for PowerEdge XR7620

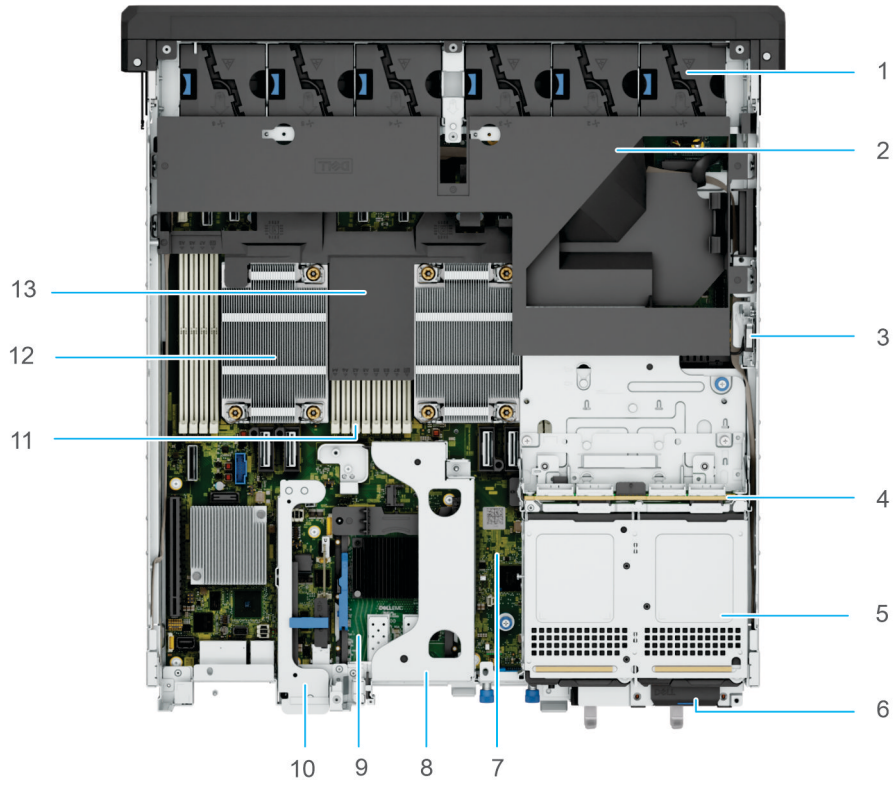


Figure 10. Inside the system - Rear Accessed configuration

1. Cooling fan
2. 2U air shroud
3. Intrusion switch
4. Backplane
5. Drive cage
6. Express Service Tag
7. System board
8. Expansion card riser 3
9. OCP card
10. BOSS module
11. Memory slots
12. Processor heat sink module
13. 1U air shroud

Bezel view

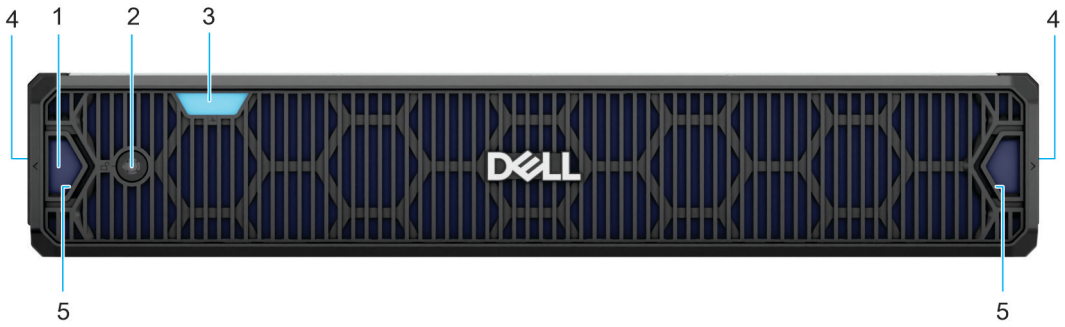


Figure 11. Bezel for the Rear Accessed configuration

Table 5. Bezel for the Rear Accessed configuration

Item	Indicator, button, or connector	Description
1	Bezel filter	Provides protection from sand and dust. **NOTE:** To maintain optimal system health, Dell recommends checking and changing the filter every three months. Filters can be ordered from Dell.
2	Bezel key lock	Locking mechanism for the bezel. The bezel comes with a key.
3	Bezel LED indicator	System health indicator.
4	Bezel release button	When pressed, the bezel will unlock from the system.
5	Bezel filter release button	Bezel filter button is pressed to release the bezel filter.

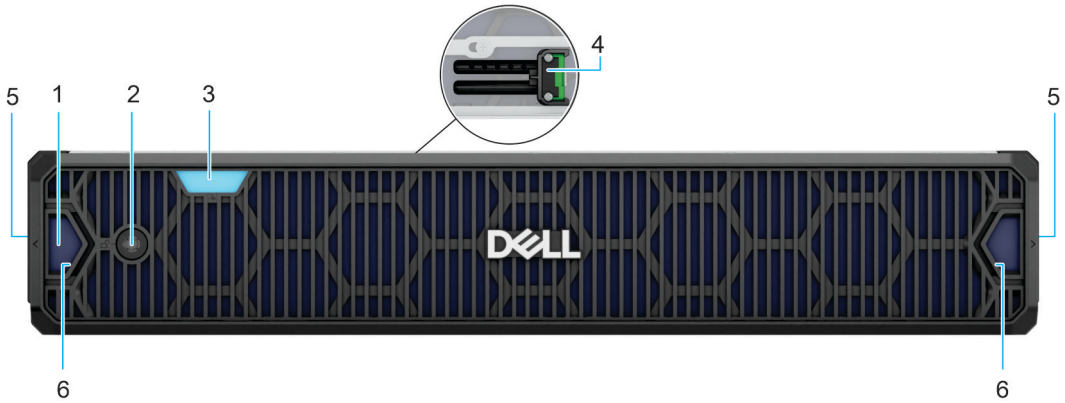


Figure 12. Bezel for the Front Accessed configuration

NOTE: Without the front bezel, Front Accessed configuration support racks with 80 mm spacing from rack ear of chassis to inside surface of rack door. With the front bezel installed, the Front Accessed configuration system support racks with 100 mm spacing from rack ear of chassis to inside surface of the rack door

Table 6. Bezel for the Front Accessed configuration

Item	Indicator, button, or connector	Description
1	Bezel filter	Provides protection from sand and dust. **NOTE:** To maintain optimal system health, Dell recommends checking and changing the filter every three months. Filters can be ordered from Dell.

Table 6. Bezel for the Front Accessed configuration (continued)

Item	Indicator, button, or connector	Description
2	Bezel key lock	Locking mechanism for the bezel. The bezel comes with a key.
3	Bezel LED indicator	System health indicator.
4	Pressure sensor	Indicates when to replace the filter. **NOTE:** The pressure sensor device is located behind the bezel.
5	Bezel release button	When pressed, the bezel will unlock from the system.
6	Bezel filter release button	Bezel filter button is pressed to release the bezel filter.

Bezel overview

Bezel filter

Figure 13. Bezel filter

The PowerEdge XR7620 has a front bezel that comes with a lock feature and a diagnostics LED. The bezel is designed with a filter that provides protection against sand and dust.

Pressure sensor

The pressure sensor device on the front bezel is only available on the Front Accessed configuration systems. The pressure sensor indicates when to replace the bezel filter in iDRAC. The connection between the pressure sensor with the XR7620 system is established through the POGO pin that connects the pressure sensor to the system chassis.

Filter modes

There are two filter modes available in the iDRAC when a bezel installed.

- Count Down mode
- Active Sensing mode

  NOTE: Only available for the Front Accessed configuration with pressure sensor.

Count Down mode and Active Sensing mode are mutually exclusive, thus the user can activate either the Count Down mode or the Active Sensing mode. Not both simultaneously in a single server. The sensor events can be enabled or disabled by using the "Air filter alert" option. In the Active Sensing mode, the sensor events are triggered when a physical bezel is installed. The "Air filter alert" option is disabled by default. When the option is disabled, iDRAC monitors the presence or absence of the filter. It monitors the status of the filter.

Count Down mode

The Count Down mode works as follows:

- The alerts are sent out based on the filter life expiry date. iDRAC provides the following data for users to manage the filter:

  NOTE: This mode can be used for passive or active bezel filters. It counts down when the system is switched on.

  - **Filter Change Interval** — This attribute is configurable in months and set to 3 months by default. This option allows users to configure the filter change interval from 1 to 24 months.
  - **Filter Life Remaining** — This attribute indicates the filter life span in days. The count down timer is activated when the server is switched on. Once the it counts down to zero, the filter status goes to a degraded state.
  - **Reset Filter Life** — Enable users to reset the filter life. This loads the Filter Life Remaining time with the current Filter Change Interval time. The count down starts when the system is switched on. Enabling this option activates a system log—BEZL0007.
- Readings and alerts:
  - BEZL0003 filter dirty—indicates that a filter replacement is required. Occurs when the count down mode has reached the time limit.

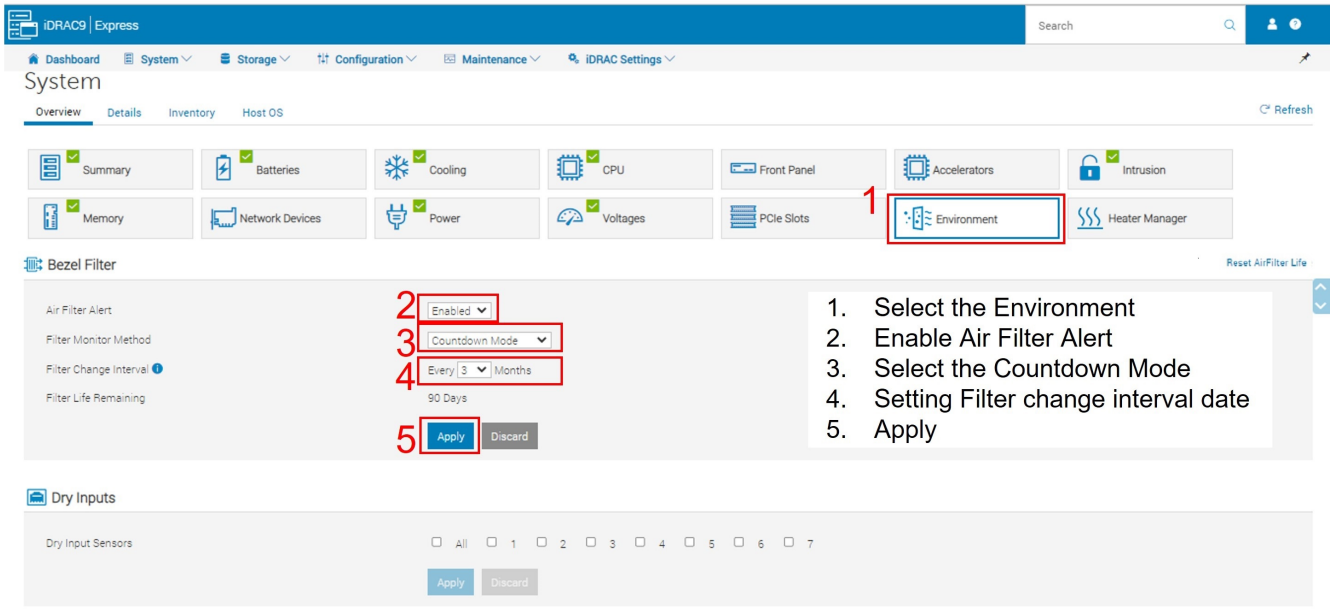


Figure 14. iDRAC interface of the Count Down mode

Active Sensing mode

The Active Sensing mode works as follows:

NOTE: This mode requires an active bezel filter. An unsupported configuration indicates that the filter baseline is not supported and generates an error log—BEZL0006.

- When enabled, the iDRAC monitors the filter pressure sensor to determine the filter status.
- **Reset Filter Life** — resets the filter reading and sets it as a baseline reading.

  NOTE: Resets the clean filter baseline against which degradation is measured. This activates system log—BEZL0007.

CAUTION: Make sure to reset the air filter life when and only when a new bezel filter is installed, the reset triggers a one-time maximum fan speed to establish a new baseline for air flow pressure in Active Sensing mode, failing to do so results in an incorrect thermal event.

- **Scheduling Active Filter Check** — Default Monday 3:00 AM. Fans run at full speed to get a viable airflow reading. This happens by default every Monday at 3.00am. The user may change to the preferred time.

Table 7. Readings and alerts

System logs	Description	Action	Severity
BEZL0001	The filtered bezel is removed from the server.	No response required	Severity -3 (Info)
BEZL0003	Air filter functionality in the bezel is degraded.	Replace the Air filter with a cleaner air inlet.	Severity -2 (Warning)
BEZL0005	The filtered bezel is installed in the chassis.	No response action required	Severity -3 (Info)
BEZL0006	Air filter system detected unsupported system configuration. Insufficient data to take air flow	Check that all nodes are installed and powered up. Reset filter life with new filter installed.	Severity -2 (Warning)

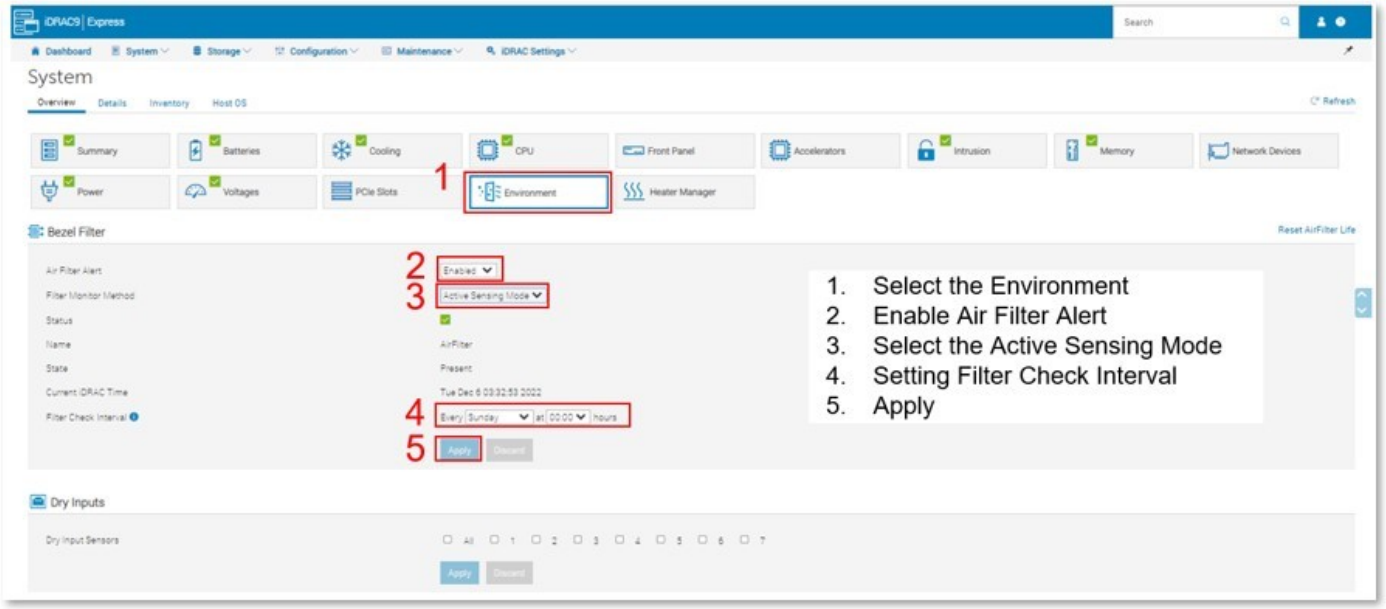


Figure 15. iDRAC interface of the Auto Sensing mode

Status LED control panel

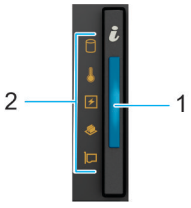


Figure 16. Status LED control panel

Table 8. Status LED control panel

Item	Indicator, button, or connector	Icon	Description
1	System health and system ID indicator		Indicates system health. For more information, see the System health and system ID indicator codes section.
2	Status LED indicators	NA	Indicates the status of the system. For more information, see the Status LED indicators section.

NOTE: For more information about the indicator codes, see the System diagnostics and indicator codes section.

Power button control panel

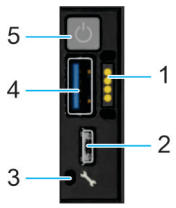


Figure 17. Power button control panel

Table 9. Power button control panel

Item	Indicator or button	Icon	Description
1	Pogo Pad	N/A	Pogo pad for bezel connection.
2	iDRAC Direct port (Micro-AB USB)		The iDRAC Direct port (Micro-AB USB) enables you to access the iDRAC direct features. For more information, see the idrac manuals. **NOTE:** You can configure iDRAC Direct by using a USB to micro USB (type AB) cable, which you can connect to your laptop or tablet. Cable length should not exceed 3 feet (0.91 meters). Performance could be affected by cable quality.
3	iDRAC Direct LED indicator	N/A	The iDRAC Direct LED indicator lights up to indicate that the iDRAC Direct port is actively connected to a device.
4	USB 2.0-compliant port		The USB port is a 2.0-compliant. This port enables you to connect USB devices to the system. **NOTE:** The USB 2.0 port is not available on Front Accessed configuration.
5	Power button		Indicates if the system is powered on or off. Press the power button to manually power on or off the system. **NOTE:** Press the power button to gracefully shut down an ACPI-compliant operating system.

NOTE: For more information about the indicator codes, see the Indicator codes section.

Locating the Express Service Code and Service Tag

The unique Express Service Code and Service Tag are used to identify the system.

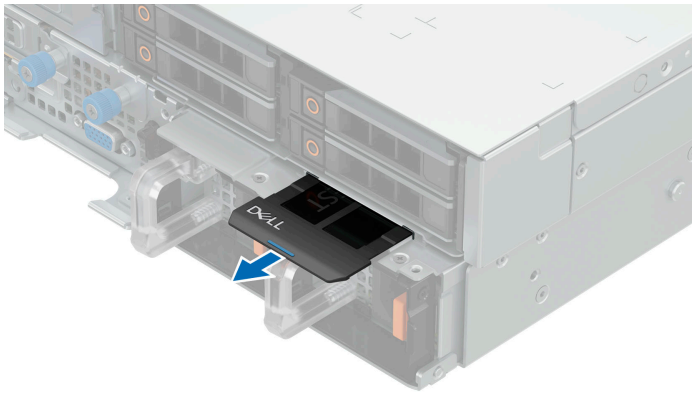


Figure 18. Locating the Express Service Tag

On the Rear Accessed configuration, the Express Service Tag is located on the rear of the system, in between the drives cage and PSU. On the Front Accessed configuration, it is located at the front of the system, in between the drives cage and PSU. The Express Service Tag includes system information such as the Service Tag, Express Service Code, Manufacture date, NIC, MAC address, QRL label, and so on. If you have opted for the secure default access to iDRAC, the Information tag also contains the iDRAC secure default password.

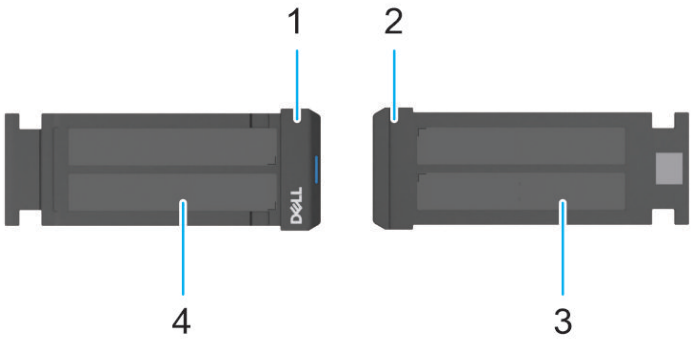


Figure 19. Locating the Express Service Code and Service tag

1. Express Service Tag (front view)
2. Express Service Tag (rear view)
3. iDRAC and LOM share MAC address, and iDRAC SECURE password label

   NOTE: Record the iDRAC MAC address, LOM MAC address and the iDRAC password before installing the server into a cabinet.
4. Service Tag, Express Service Code, QRL label

The Mini Enterprise Service Tag (MEST) label is located on the front of the Rear Accessed configuration and rear of the Front Accessed configurations. The MEST includes the Service Tag (ST), Express Service Code (Exp Svc Code), and Manufacture Date (Mfg. Date). The Exp Svc Code is used by Dell to route support calls to the appropriate personnel.

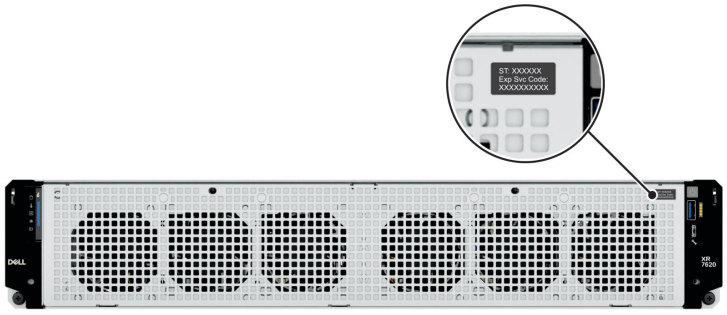


Figure 20. Locating the Mini Express Service Tag for Front accessed configuration

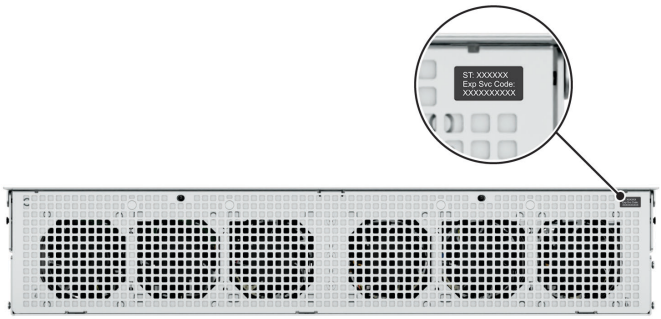


Figure 21. Locating the Mini Express Service Tag for Rear accessed configuration

System information labels

The system information label is located on the back side of the system cover.

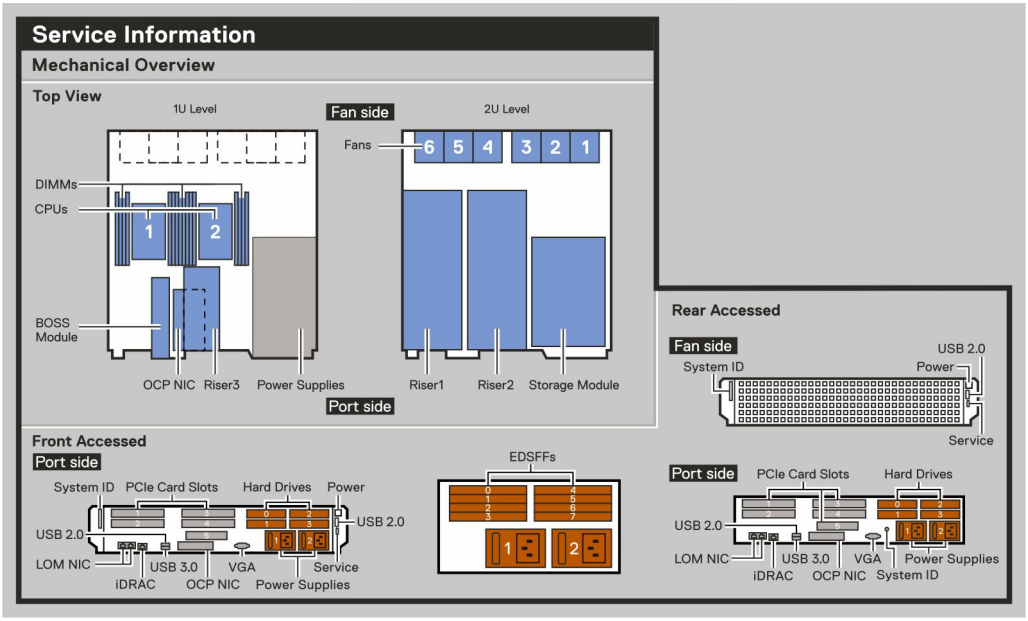


Figure 22. Service information

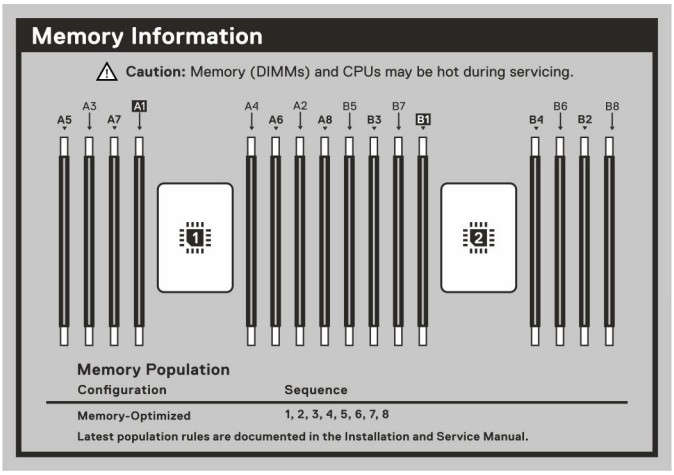


Figure 23. Memory information

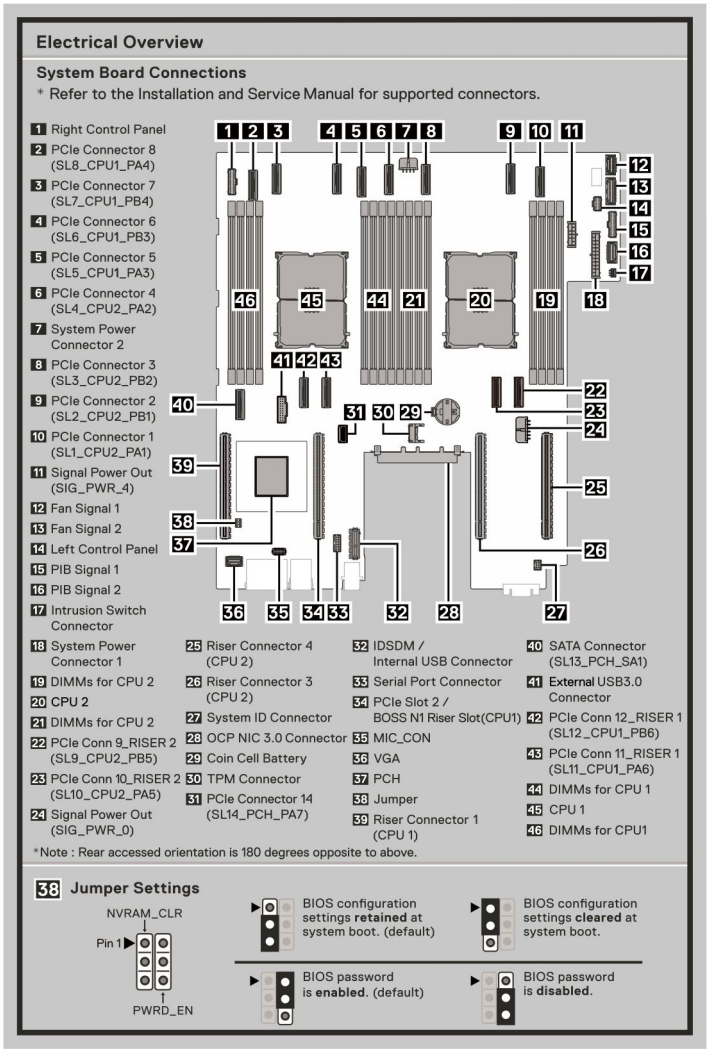


Figure 24. Electrical overview

NOTE: The following connectors are not supported:

- 25 - Riser Connector 4 (CPU 2)
- 31 - PCIe Connector 14 (SL14_PCH_PA7)
- 36 - VGA

- 39 - Riser Connector 1 (CPU 1)
- 40 - SATA Connector (SL13_PCH_SA1)
- 41 - External USB3.0 Connector

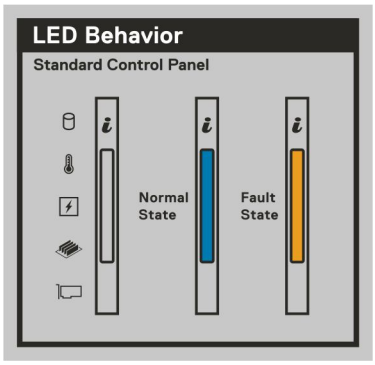


Figure 25. LED behavior

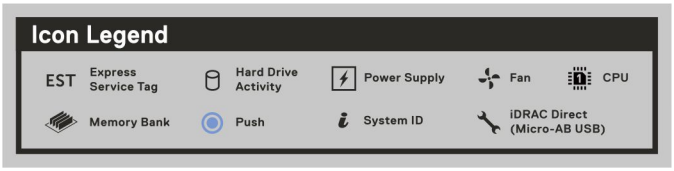


Figure 26. Icon legend

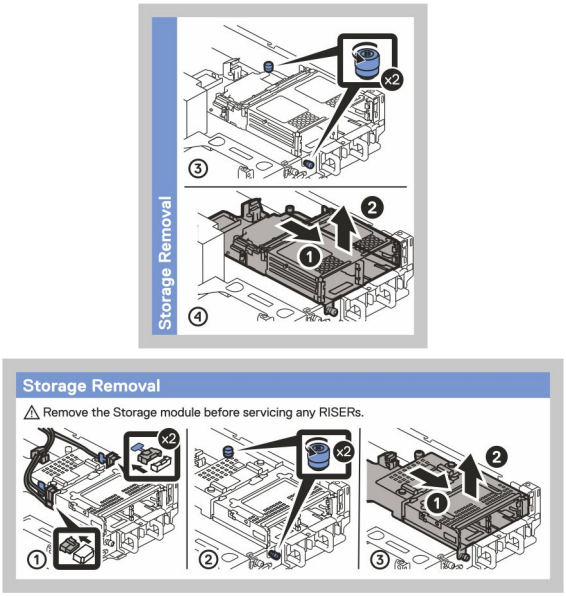


Figure 27. Storage removal

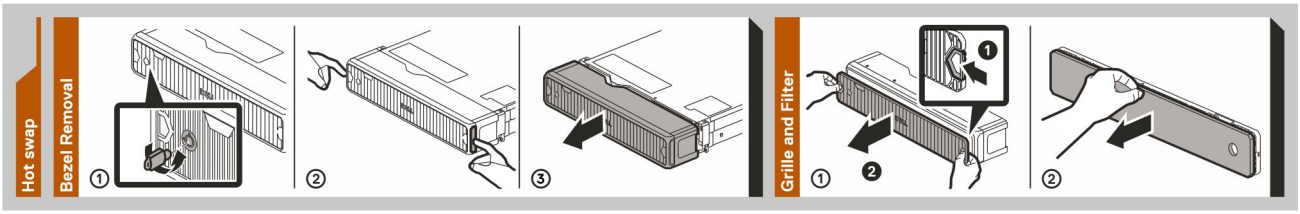


Figure 28. Bezel removal

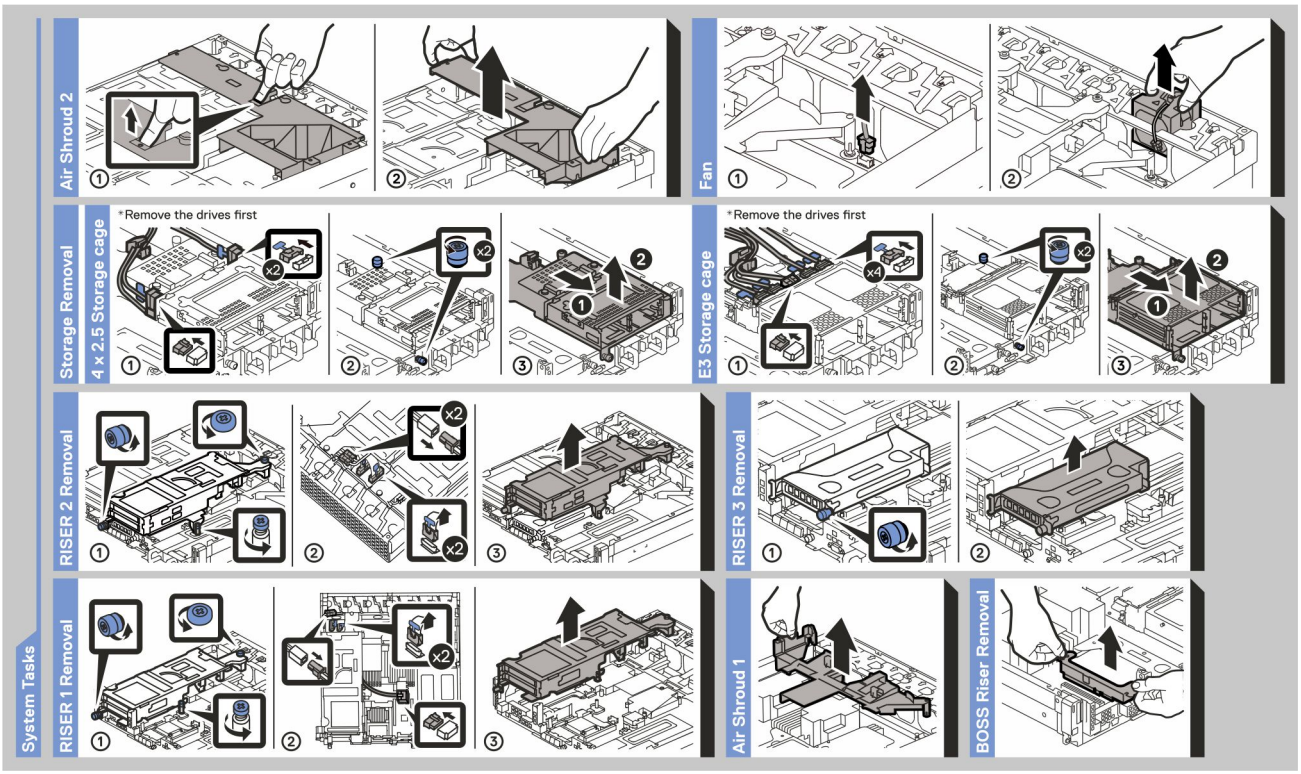


Figure 29. System tasks

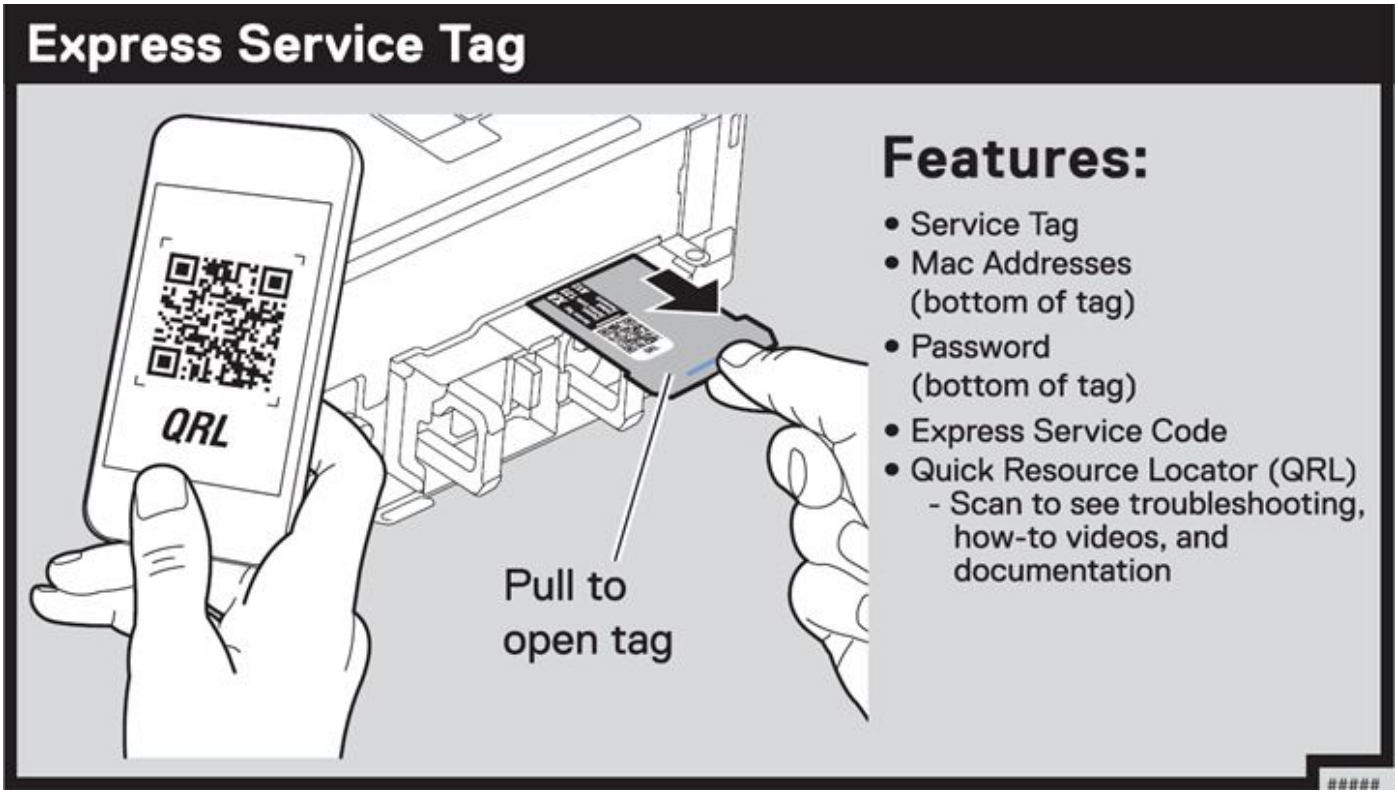


Figure 30. Express service tag

Rail sizing and rack compatibility matrix

For specific information about the rail solutions compatible with your system, see the *Dell Enterprise Systems Rail Sizing and Rack Compatibility Matrix* available at https://i.dell.com/sites/csdocuments/Business_solutions_engineering-Docs_Documents/en/rail-rack-matrix.pdf.

The document provides the information that is listed below:

- Specific details about rail types and their functionalities.
- Rail adjustability range for various types of rack mounting flanges.
- Rail depth with and without cable management accessories.
- Types of racks supported for various types of rack mounting flanges.

B29 sliding rails for 4-post and 2-post racks

- Support stab-in installation of the chassis to the rails.
- Support for tooled and tool-less installation in 19" EIA-310-E compliant square, unthreaded round hole and threaded round hole 4-post racks.
- Support for tolled installation in 2-post rack.
- Support full extension of the system out of the rack to allow serviceability of key internal components.
- Support for optional strain relief bar (SRB).
- Support for optional strain cable management arm (CMA).

  NOTE: The CMA is less useful if the rack is mixed with short depth server and long depth server

For situation where CMA support is not required, the outer CMA mounting brackets can be uninstalled from the sliding rails. This reduces the overall length of the rails and eliminates the potential interferences with rear mounted PDUs or the rear rack door

B30 sliding rails for Pelican custom racks

- Support stab-in installation of the chassis to the rails.
- Support for tooled installation in Pelican custom racks.
- Support full extension of the system our of the rack to allow serviceability of key internal components. Support for optional strain relief bar (SRB).
- Support for optional strain cable management arm (CMA).

  NOTE: The CMA is less useful if the rack is mixed with short depth server and long depth server

For situation where CMA support is not required, the outer CMA mounting brackets can be uninstalled from the sliding rails. This reduces the overall length of the rails and eliminates the potential interferences with rear mounted PDUs or the rear rack door

3

Technical specifications

The technical and environmental specifications of your system are outlined in this section.

Topics:

Chassis dimensions

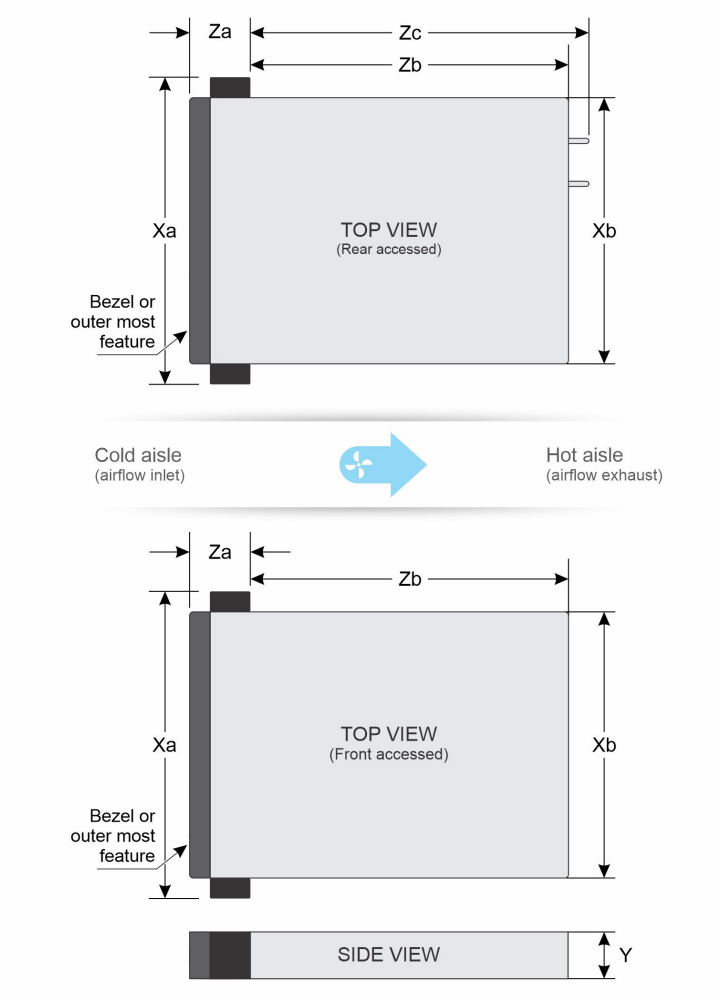


Figure 31. Chassis dimensions

Table 10. PowerEdge XR7620 chassis dimensions

Configuration	Xa	Xb	Y	Za	Zb	Zc
Rear Accessed configuration	482.6 mm (19 inches)	447 mm (17.59 inches)	86.8 mm (3.41 inches)	47.5 mm (1.87 inches) with bezel	448.8 mm (17.6 inches) Ear to rear wall	484.3 mm (19.06 inches) Ear to PSU handle)
Front Accessed configuration	482.6 mm (19 inches)	447 mm (17.59 inches)	86.8 mm (3.41 inches)	123 mm (4.84 inches) with bezel	449 mm (17.67) Ear to rear wall	NA

NOTE: Without the front bezel, Rear Accessed configuration support racks with 80 mm spacing from rack post to inside surface of rack door. With the front bezel installed, the Rear Accessed configuration system support racks with 100 mm spacing from rack post to inside surface of the rack door.

NOTE: Zb is the nominal rear wall external surface where the system board I/O connectors reside.

System weight

Table 11. PowerEdge XR7620 system weight for Rear accessed configuration

System configuration	Maximum weight for rear accessed configuration (with all drives/SSDs)
A server with fully populated drives	21.16 kg (46.64 pounds)
A server without drives and PSU installed	15.78 kg (34.78 pounds)

Table 12. PowerEdge XR7620 system weight for Front accessed configuration

System configuration	Maximum weight for front accessed configuration (with all drives/SSDs)
A server with fully populated drives	21.16 kg (46.64 pounds)
A server without drives and PSU installed	16.94 kg (37.34 pounds)

Processor specifications

Table 13. PowerEdge XR7620 processor specifications

Supported processor	Number of processor supported
4th Gen Intel® Xeon® Scalable Processors with up to 32 cores	Two

PSU specifications

The PowerEdge XR7620 system supports up to two AC or DC power supply units (PSUs).

Table 14. PSU specifications

PSU	Class	Heat dissipation (maximum) (BTU/hr)	Frequency (Hz)	Voltage	AC		DC	Current (A)
					High line wattage (200—240 V AC)	Low line wattage (100—120 V AC)		
1800 W Mixed Mode	Titanium	6610	50/60	200—240 V AC	1800	1050 W	N/A	10
	N/A	6610	N/A	240 V DC	N/A	N/A	1800 W	8.2
1400 W Mixed Mode	Platinum	5250	50/60	100—240 V AC	1400 W	1050 W	N/A	12—8
	N/A	5250	N/A	240 V DC	N/A	N/A	1400 W	6.6
1100 W Mixed Mode	Titanium	4125	50/60	100—240 V AC	1100 W	1050 W	N/A	12—6.3
	N/A	4125	N/A	240 V DC	N/A	N/A	1100 W	5.2
1100 W DC	N/A	4265	N/A	-48— -60 V DC	N/A	N/A	1100 W	27

NOTE: Heat dissipation is calculated using the PSU wattage rating.

NOTE: When selecting or upgrading the system configuration, to ensure optimum power utilization, verify the system power consumption with the Enterprise Infrastructure Planning Tool available at Dell.com/calc.

NOTE: For information about DC PSU cabling instructions, go to https://www.dell.com/poweredgemanuals > **XR Servers** > PowerEdge XR7620 > **Select This Product** > **Documentation** > **Manuals and Documents** > *Cabling instructions for – 48 – 60 V DC power supply*.

Figure 32. PSU power cords

Table 15. PSU power cords

Form factor	Output	Power cord
Redundant 60 mm	1100 W AC	C13
	1100 W -48 DC	DC inlet/input
	1400 W AC	C13
	1800 W AC	C15

NOTE: C13 power cord combined with C14 to C15 jumper power cord can be used to adapt 1800 W PSU.

Supported operating systems

The PowerEdge XR7620 system supports the following operating systems:

- Canonical Ubuntu Server LTS
- Microsoft Windows Server with Hyper-V
- Red Hat Enterprise Linux
- SUSE Linux Enterprise Server
- VMware ESXi

For more information, go to www.dell.com/ossupport.

Cooling fan specifications

The PowerEdge XR7620 system supports six cooling fans.

Table 16. Cooling fan specifications

Also known as	Label color	Label image
Rear accessed configuration	No label	
Front accessed configuration	No label	

Expansion card riser specifications

The PowerEdge XR7620 system supports up to five PCI express (PCIe) slots (four full lengths and one low profile) on the system board.

Table 17. Expansion card slots supported on the system board

PCIe slot	PCIe slot height and length	R1A	R1B	R2A	R2B	R3
Slot 1	Full height - Half/ Full length	x16	x16	-	-	-
Slot 2	Full height - Half/ Full length	x16 (Gen5)	x16 (Gen5)	-	-	-
Slot 3	Full heigh - Half/ Full length	-	-	x16	x16	-
Slot 4	Full height - Half/ Full length	-	-	x16 (Gen5)	x16 (Gen5)	-
Slot 5	Low Profile - Half length	-	-	-	-	x16

NOTE: PCIe length for R1A is Full Length and for R1B it is Half Length.

NOTE: Slot 2 and slot 4 of the five PCIe slots can support both Gen4 and Gen5. Slot 1, slot 3 and slot 5 supports only Gen4.

Memory specifications

The PowerEdge XR7620 system supports the following memory specifications for optimized operation.

Table 18. Memory specifications

DIMM type	DIMM rank	DIMM capacity	Dual processor	
			Minimum system capacity	Maximum system capacity
DDR5 RDIMM	Single rank	16 GB	32 GB	256 GB
	Dual rank	32 GB	64 GB	512 GB
	Dual rank	64 GB	128 GB	1 TB
	Quad rank	128 GB	256 GB	2 TB

NOTE: Do not mix DIMM module types within a memory channel. All must be RDIMM, RDIMM 3DS module types, with same ECC configuration.

NOTE: Do not mix x4 and x8 DIMMs within a memory channel.

Table 19. Memory module sockets

Memory module sockets	Speed
16, 288-pin	4800 MT/s

NOTE: Memory DIMM slots are not hot pluggable.

NOTE: The processor may reduce the performance of the rated DIMM speed.

Storage controller specifications

The PowerEdge XR7620 system supports the following controller card:

Table 20. Storage controller cards

Supported storage controller card
Software RAID • S160
Internal controllers • PERC H965i • PERC H755 • PERC H355 • HBA355i
Internal Boot • Boot Optimized Storage Subsystem (BOSS-N1): HWRAID 1, 2 x M.2 NVMe SSDs (cold swap) or • Optional internal USB 2.0
SAS Host Bus Adapters • HBA355i

NOTE: BOSS-N1 and Internal USB are mutually exclusive.

Drives

The PowerEdge XR7620 system supports:

- 8 x E3.s NVMe direct
- 8 x E3.s NVMe RAID
- 4 x 2.5-inch SAS\SATA RAID or U.2 NVMe direct
- 4 x 2.5-inch U.2 NVMe direct

NOTE: The system with E3.S and U.2 NVMe drives can support up to Gen4 only.

NOTE: For more information about how to hot swap NVMe PCIe SSD U.2 device, see the *Dell Express Flash NVMe PCIe SSD User's Guide* at https://www.dell.com/support >**Browse all Products** > **Data Center Infrastructure** > **Storage Adapters & Controllers** > **Dell PowerEdge Express Flash NVMe PCIe SSD** > **Documentation** > **Manuals and Documents**.

GPU specifications

The PowerEdge XR7620 system supports up to 5 x 75 W (Single Width Full Height/Half Length, Low Profile) GPU or up to 2 x 300 W (Double Width Full Height/Full Length) GPU based on riser configuration.

NOTE: Systems that are configured with GPUs have higher fan acoustics.

NOTE: Each 300 W GPU requires one additional GPU power cable, GPU power cables are available in SKUs that are GPU ready, or it must be ordered separately as an upgrade kit, kindly contact a sales representative.

NOTE: Riser Configuration 2 offers the XR7620 GPU Ready option.

NOTE: In order to maintain system thermal health, install the GPU blank if the GPU card is not installed.

System battery specifications

The PowerEdge XR7620 system uses one CR 2032 3.0-V lithium coin cell battery.

Ports and connectors specifications

USB ports specifications

Table 21. PowerEdge XR7620 USB ports specifications for Rear Accessed configuration

Front		Rear		Internal (optional)	
USB port type	**No. of ports**	**USB port type**	**No. of ports**	**USB port type**	**No. of ports**
USB 2.0-compliant port	One	USB 2.0-compliant port	One	Internal USB 3.0	One
Micro-USB 2.0-compliant port for iDRAC Direct	One	USB 3.0-compliant ports	One		

NOTE: The micro USB 2.0 compliant port can only be used as an iDRAC Direct or a management port.

NOTE: BOSS-N1 and Internal USB are mutually exclusive.

Table 22. PowerEdge XR7620 USB ports specifications for Front Accessed configuration

Front		Internal (optional)	
USB port type	**No. of ports**	**USB port type**	**No. of ports**
USB 2.0-compliant port	Two	Internal USB 3.0	One
USB 3.0-compliant ports	One		
Micro-USB 2.0-compliant port for iDRAC Direct	One		

NOTE: The micro USB 2.0 compliant port can only be used as an iDRAC Direct or a management port.

NOTE: BOSS-N1 and Internal USB are mutually exclusive.

NIC port specifications

The PowerEdge XR7620 system supports two 10/100/1000 Mbps Network Interface Controller (NIC) ports embedded on the LAN on Motherboard (LOM) and up to four ports integrated on the Open Compute Project (OCP) cards.

Table 23. NIC port specification for the system

Feature	Specifications
LOM	1 Gb x 2
(Optional) OCP card (OCP 3.0)	1GbE x 4, 10 GbE x 2, 10 GbE x 4, 25 GbE x 2 SFP28, 25 GbE x 4 SFP28

NOTE: On the system board, the supported OCP PCIe width is x8; when x16 PCIe width is installed, it is downgraded to x8.

Serial connector specifications

The PowerEdge XR7620 system supports one optional card type serial connector, which is a 9-pin connector, Data Terminal Equipment (DTE), 16550-compliant .

The optional serial connector card is installed similar to an expansion card filler bracket.

VGA ports specifications

The PowerEdge XR7620 system supports One DB-15 VGA port on the rear of the Rear Accessed configuration and one DB-15 VGA port on the front of the Front Accessed configuration.

Video specifications

The PowerEdge XR7620 system supports integrated Matrox G200 graphics controller with 16 MB of video frame buffer.

Table 24. Supported video resolution options

Resolution	Refresh rate (Hz)	Color depth (bits)
1024 x 768	60	8, 16, 32
1280 x 800	60	8, 16, 32
1280 x 1024	60	8, 16, 32
1360 x 768	60	8, 16, 32
1440 x 900	60	8, 16, 32
1600 x 900	60	8, 16, 32
1600 x 1200	60	8, 16, 32
1680 x 1050	60	8, 16, 32
1920 x 1080	60	8, 16, 32
1920 x 1200	60	8, 16, 32

Environmental specifications

The PowerEdge XR7620 system operates in these environmental categories: ASHRAE A2/A3/A4 and Edge1 (50°C) and Edge2 (55°C).

NOTE: For additional information about environmental certifications, refer to the Product Environmental Datasheet located with the Documentation > Regulatory Information on www.dell.com/support/home.

Table 25. Continuous operation specifications for ASHRAE A2

-	Allowable continuous operations
Temperature range for altitudes <= 900 m (<= 2953 ft)	10–35°C (50–95°F) with no direct sunlight on the equipment
Humidity percent range (non-condensing at all times)	8% RH with -12°C minimum dew point to 80% RH with 21°C (69.8°F) maximum dew point
Operational altitude de-rating	Maximum temperature is reduced by 1°C/300 m (33.8°F/984 Ft) above 900 m (2953 Ft)

Table 26. Continuous operation specifications for ASHRAE A3

-	Allowable continuous operations
Temperature range for altitudes <= 900 m (<= 2953 ft)	5–40°C (41–104°F) with no direct sunlight on the equipment
Humidity percent range (non-condensing at all times)	8% RH with -12°C minimum dew point to 85% RH with 24°C (75.2°F) maximum dew point
Operational altitude de-rating	Maximum temperature is reduced by 1°C/175 m (33.8°F/574 Ft) above 900 m (2953 Ft)

Table 27. Continuous operation specifications for ASHRAE A4

-	Allowable continuous operations
Temperature range for altitudes <= 900 m (<= 2953 ft)	5–45°C (41–113°F) with no direct sunlight on the equipment
Humidity percent range (non-condensing at all times)	8% RH with -12°C minimum dew point to 90% RH with 24°C (75.2°F) maximum dew point
Operational altitude de-rating	Maximum temperature is reduced by 1°C/125 m (33.8°F/410 Ft) above 900 m (2953 Ft)

Table 28. Continuous operation specifications for Edge1 (50°C) and Edge2 (55°C)

-	Allowable continuous operations
Temperature range for altitudes <= 900 m (<= 2953 ft)	(-5)–55°C (23–131°F) with no direct sunlight on the equipment
Humidity percent range (non-condensing at all times)	8% RH with -12°C minimum dew point to 90% RH with 24°C (75.2°F) maximum dew point
Operational altitude de-rating	Maximum temperature is reduced by 1°C/80 m (33.8°F/410 Ft) above 900 m (2953 Ft)

NOTE: Do not perform a cold startup below 5°C.

Table 29. Common environmental specifications for ASHRAE A2, A3, A4, Edge1 (50°C) and Edge2 (55°C)

-	Allowable continuous operations
Maximum temperature gradient (applies to both operation and non-operation)	20°C in an hour* (36°F in an hour) and 5°C in 15 minutes (41°F in 15 minutes), 5°C in an hour* (41°F in an hour) for tape **NOTE:** * - Per ASHRAE thermal guidelines for tape hardware, these are not instantaneous rates of temperature change.
Non-operational temperature limits	-40 to 65°C (-104 to 149°F)
Non-operational humidity limits	5% to 95% RH with 27°C (80.6°F) maximum dew point
Maximum non-operational altitude	12,000 meters (39,370 feet)
Maximum operational altitude	3,048 meters (10,000 feet)

NOTE: Do not perform a cold startup below 5°C

Table 30. Maximum vibration specifications for the system

Maximum vibration	Specifications
Operating	• 0.21 Grms at 5 Hz to 500 Hz (all operation orientations) • For Military (with Military tool kit), ○ Method 514.8; Category 20(Marine Vehicles) Annex D 2.9a (Wheeled vehicles) Procedure I, 5 Hz to 500 Hz

Table 30. Maximum vibration specifications for the system (continued)

Maximum vibration	Specifications
	○ Method 514.8; Category 21(Ground Vehicles) Annex D 2.10, procedure I, 10 Hz to 100 Hz
Storage	● 1.88 Grms at 10 Hz to 500 Hz for 15 minutes (all six sides tested) ● For Military (with Military tool kit), ○ Method 514.6; Category 4. 1 Hour per axis, 3 axes, 5-500 Hz, X@0.76 Grms, Y@0.21 Grms, Z@1.08 Grms , 60 minutes/axis

Table 31. Maximum shock pulse specifications for the system

Maximum shock pulse	Specifications
Operating	● Six consecutively executed shock pulses in the positive and negative x, y, and z axes of 6 G for up to 11 ms.(4 pulse on each side of the system) ● For Military (with Military tool kit) ○ Method 516.8 Procedure I, 40G, 11ms, 3 shocks, +-per direction, 3 axes
Operating (Navy)	MIL-STD-901E, Grade A, Class 2, Type A, in approved military transit case
Storage	● Six consecutively executed shock pulses in the positive and negative x, y, and z axis (one pulse on each side of the system) of 71 G for up to 2 ms. ● For Military (with Military tool kit) ○ Method 516.8 Procedure V, 40G, 11ms, 3 shocks, +-per direction, 3 axes

Particulate and gaseous contamination specifications

The following table defines the limitations that help avoid any equipment damage or failure from particulates and gaseous contamination. If the levels of particulates or gaseous pollution exceed the specified limitations and result in equipment damage or failure, you may need to rectify the environmental conditions. Remediation of environmental conditions is the responsibility of the customer.

Table 32. Particulate contamination specifications

Particulate contamination	Specifications
Air filtration	Data center air filtration as defined by ISO Class 8 per ISO 14644-1 with a 95% upper confidence limit **NOTE:** This condition applies to data center environments only. Air filtration requirements do not apply to IT equipment designed to be used outside a data center, in environments such as an office or factory floor. **NOTE:** Air entering the data center must have MERV11 or MERV13 filtration.
Conductive dust	Air must be free of conductive dust, zinc whiskers, or other conductive particles **NOTE:** This condition applies to data center and non-data center environments.
Corrosive dust	● Air must be free of corrosive dust ● Residual dust present in the air must have a deliquescent point less than 60% relative humidity **NOTE:** This condition applies to data center and non-data center environments.

Table 32. Particulate contamination specifications (continued)

Particulate contamination	Specifications
Walk-Up Edge Data Center or Cabinet (sealed, closed loop environment)	Filtration is not required for cabinets that are anticipated to be opened 6 times or less per year. Class 8 per ISO 1466-1 filtration as defined above is required otherwise **NOTE:** In environments commonly above ISA-71 Class G1 or that may have known challenges, special filters may be required.

Table 33. Gaseous contamination specifications

Gaseous contamination	Specifications
Copper coupon corrosion rate	<300 Å/month per Class G1 as defined by ANSI/ISA71.04-2013
Silver coupon corrosion rate	<200 Å/month as defined by ANSI/ISA71.04-2013

Thermal restriction matrix

Thermal restriction for Front accessed configuration

NOTE: Minimum cold boot temperature at ≥ 5°C.

Table 34. Thermal restriction without full-length cards - Front accessed configuration

Chassis configuration	TDP	XR7620 Front accessed configuration - Without full-length cards				
		ASHARE A2 (Max 35°C)	ASHARE A3 (Max 40°C)	ASHARE A4 (Max 45°C)	Edge1 (Max 50°C)	Edge2 (Max 55°C)
CPU	225 W	Supported	Not supported			
	185 W		Supported			
	165 W					
	150 W					
Memory	DDR5 RDIMM 16 GB					
	DDR5 RDIMM 32 GB					
	DDR5 RDIMM 64 GB					
	DDR5 RDIMM 128 GB		Not supported			

Table 35. Thermal restrictions without full-length cards - Front accessed configuration

Chassis configuration		XR7620 Front accessed configuration - Without full-length cards				
Ambient temperature		ASHARE A2 (Max 35°C)	ASHARE A3 (Max 40°C)	ASHARE A4 (Max 45°C)	Edge1 (Max 50°C)	Edge2 (Max 55°C)
Nvidia GPU A2		Support up to 45°C.			Not supported.	
Nvidia GPU L4		Support up to 45°C.			Not supported.	
M.2 NVMe (BOSS-N1)	Micron 7400	960 GB support up to 50°C. Only 480 GB can support up to 55°C.				
	Micron 7450					
	Hynix PE8010	1.92 TB/960 GB only support up to 50°C. 480 GB can support up to 55°C.				
	Hynix PE9010					

Table 35. Thermal restrictions without full-length cards - Front accessed configuration (continued)

Chassis configuration		XR7620 Front accessed configuration - Without full-length cards				
Ambient temperature		**ASHARE A2 (Max 35°C)**	**ASHARE A3 (Max 40°C)**	**ASHARE A4 (Max 45°C)**	**Edge1 (Max 50°C)**	**Edge2 (Max 55°C)**
	Hynix PE9030	800 GB support up to 50°C.				
EDSFF E3.S		Support up to 45°C.			Not supported.	
2.5-inch U.2 NVMe SSD		Support up to 40°C. Hynix PE8010 only supports up to 35°C.		Not supported.		
PCIe COMM Card		Non-Dell qualified PCIe card is not supported.				
OCP COMM Card		Non-Dell qualified PCIe card is not supported.				
Active Optical Cables/Transceivers		• QSFP optic cables or transceivers with 70C spec support only up to 50°C. • QSFP optic cables or transceivers with 85°C spec support up to 55°C. • SFP optic cables or transceivers support up to 55°C.				

Table 36. Thermal restriction with full-length cards - Front accessed configuration

Chassis configuration	TDP	XR7620 Front accessed configuration - With full-length cards		
		ASHARE A2 (Max 35°C)	**ASHARE A3 (Max 40°C)**	**ASHARE A4 (Max 45°C)**
CPU	225 W	Not supported		
	185 W	Supported	Supported	Not supported
	165 W			Supported
	150 W			
Memory	DDR5 RDIMM 16 GB			
	DDR5 RDIMM 32 GB			
	DDR5 RDIMM 64 GB			
	DDR5 RDIMM 128 GB		Not supported	

Table 37. Thermal restrictions with full-length cards - Front accessed configuration

Chassis configuration	XR7620 Front accessed configuration - With full-length cards		
Ambient temperature	**ASHARE A2 (Max 35°C)**	**ASHARE A3 (Max 40°C)**	**ASHARE A4 (Max 45°C)**
Nvidia GPU A2	Only support up to 35°C with CPU ≤ 185 W.	Not supported.	
Nvidia GPU L4	Only support up to 35°C with CPU ≤ 185 W.	Not supported.	
Nvidia GPU A100 80G	Support up to 45°C.		
Nvidia GPU A30			
Nvidia GPU A800			
Intel Ponte Vecchio (PVC) 300 W			
2.5-inch U.2 NVMe SSD	Support up to 40°C. Hynix PE8010 only supports up to 35°C.		Not supported.
PCIe COMM Card	Non-Dell qualified PCIe card is not supported.		
OCP COMM Card			

Thermal restriction for Rear accessed configuration

NOTE: Minimum cold boot temperature at ≥ 5°C.

Table 38. Thermal restriction without full-length cards - Rear accessed configuration

Chassis configuration	TDP	XR7620 Rear accessed configuration - Without full-length cards		
		ASHARE A2 (Max 35°C)	ASHARE A3 (Max 40°C)	ASHARE A4 (Max 45°C)
CPU	225 W	Supported	Not supported	
	185 W		Supported	
	165 W			
	150 W			
Memory	DDR5 RDIMM 16 GB			
	DDR5 RDIMM 32 GB			
	DDR5 RDIMM 64 GB			
	DDR5 RDIMM 128 GB		Not supported	

Table 39. Thermal restriction without full-length cards - Rear accessed configuration

Chassis configuration		XR7620 Rear accessed configuration - Without full-length cards		
Ambient temperature		ASHARE A2 (Max 35°C)	ASHARE A3 (Max 40°C)	ASHARE A4(Max 45°C)
Nvidia GPU A2		Only support up to 35°C with CPU ≤ 205 W	Not supported.	
Nvidia GPU L4		Only support up to 35°C with CPU ≤ 205 W		
M.2 NVMe (BOSS-N1)	Micron 7400	Max 960 GB support up to 35°C.		
	Micron 7450			
	Hynix PE8010	Max 1.2 TB support up to 35°C.		
	Hynix PE9010			
	Hynix PE9030	Max 800 GB support up to 50°C.		
2.5-inch NVMe SSD		Support up to 35°C.		
PCIe COMM Card		Above 35°C, PCIe cards support Extended OperatingTemperature (EOT 65°C) Range is required. Above 35°C PCIe card power > 25 W is not supported. Non-Dell qualified PCIe card is not supported.		
OCP COMM Card		Non-Dell qualified PCIe card is not supported.		
Active Optical Cables/Transceivers		Not support optic cables or transceivers with 70°C spec. Optic cables or transceivers with 85C spec support up to 45°C.		

Table 40. Thermal restriction with full-length cards - Rear accessed configuration

Chassis configuration	TDP	XR7620 Rear accessed configuration - With full-length cards		
		ASHARE A2 (Max 35°C)	ASHARE A3 (Max 40°C)	ASHARE A4 (Max 45°C)
CPU	225 W	Not supported		

Table 40. Thermal restriction with full-length cards - Rear accessed configuration (continued)

Chassis configuration	TDP	XR7620 Rear accessed configuration - With full-length cards		
		ASHARE A2 (Max 35°C)	ASHARE A3 (Max 40°C)	ASHARE A4 (Max 45°C)
	185 W	Supported	Supported	Not supported
	165 W			Supported
	150 W			
Memory	DDR5 RDIMM 16 GB			
	DDR5 RDIMM 32 GB			
	DDR5 RDIMM 64 GB			
	DDR5 RDIMM 128 GB		Not supported	

Table 41. Thermal restrictions with full-length cards - Rear accessed configuration

Chassis configuration	XR7620 Rear accessed configuration - With full-length cards		
Ambient temperature	ASHARE A2 (Max 35°C)	ASHARE A3 (Max 40°C)	ASHARE A4 (Max 45°C)
Nvidia GPU A2	Not supported.		
Nvidia GPU L4			
Nvidia GPU A30	Support up to 40°C.		Not supported.
Nvidia GPU A100 80G			
Nvidia GPU A800			
Intel Ponte Vecchio (PVC) 300 W	PVC support up to 40°C.		
BOSS M.2	Support up to 35°C.	Not supported.	
2.5-inch NVMe SSD			
PCIe COMM Card	Above 35°C, PCIe cards support Extended OperatingTemperature (EOT 65°C) Range is required. Above 35°C PCIe card power > 25 W is not supported. Non-Dell qualified PCIe card is not supported.		
OCP COMM Card	Non-Dell qualified PCIe card is not supported.		
Active Optical Cables/ Transceivers	Not support optic cables or transceivers with 70°C spec. Optic cables or transceivers with 85°C spec support up to 45°C.		

Other Thermal Restrictions

- Rear accessed configuration supports only up to 45°C.
- On Front accessed configuration chassis, when 1U CPU HSK XTCC1 is installed, above 45°C ambient is not supported.
- Full-length cards and half-length cards cannot be mixed on PCIe slot 1~4 in configuration.
- At least 1x full-length card is needed for 1U HS configuration, no cards configuration only support with 2U height CPU Heat sink.
- Minimum cold boot temperature at ≥ 5°C.
- SAS/SATA SSD minimum operating temperature ≥ 0°C
- Two PSUs are needed in redundancy mode over 50°C ambient. In the event of a PSU failure, system performance may be reduced.
- Hot swap fan is not supported.
- DIMM Blank is required for any empty slot.
- HDD blank is required for any empty slot.
- E3.S blank is required for any empty slot.
- PSU blank is required for any empty slot.

- OCP blank is required for any empty slot.
- GPU internal blank is required for any empty slot on full-length configuration.
- Full-height PCIe blank is required for any empty slot (PCIe slot 1~4).
- Low profile PCIe blank is required for any empty slot (PCIe slot 5).

NOTE: Fan speed may increase at ambient < 0°C with SAS/SATA SSD. This indicates that the fan is working as design for overall system stability.

4

Initial system setup and configuration

This section describes the tasks for initial setup and configuration of the Dell system. The section also provides general steps to set up the system and the reference guides for detailed information.

Topics:

Setting up the system

Perform the following steps to set up the system:

Steps

1. Unpack the system.
2. Install the system into the rack. For more information, see the rail installation and cable management accessory guides relevant to your rail and cable management solution at dell.com/poweredgemanuals.
3. Connect the peripherals to the system and the system to the electrical outlet.
4. Power on the system.

   For more information about setting up the system, see the *Getting Started Guide* that is shipped with your system.

   NOTE: For information about managing the basic settings and features of the system, see the Pre-operating system management applications chapter.

iDRAC configuration

The Integrated Dell Remote Access Controller (iDRAC) is designed to make you more productive as a system administrator and improve the overall availability of Dell servers. iDRAC alerts you to system issues, helps you to perform remote management, and reduces the need for physical access to the system.

Options to set up iDRAC IP address

To enable communication between your system and iDRAC, you must first configure the network settings based on your network infrastructure. The network settings option is set to **DHCP**, by default.

NOTE: For static IP configuration, you must request for the settings at the time of purchase.

You can set up the iDRAC IP address using one of the interfaces in the table below. For information about setting up iDRAC IP address, see the documentation links provided in the table below.

Table 42. Interfaces to set up iDRAC IP address

Interface	Documentation links
iDRAC Settings utility	*Integrated Dell Remote Access Controller User's Guide* at https://www.dell.com/idracmanuals or for system specific *Integrated Dell Remote Access Controller User's Guide*, go to https://www.dell.com/poweredgemanuals > **Product Support** page of your system > **Documentation**.

Table 42. Interfaces to set up iDRAC IP address (continued)

Interface	Documentation links
	NOTE: To determine the most recent iDRAC release for your platform and for latest documentation version, see KB article https://www.dell.com/support/article/sln000178115.
OpenManage Deployment Toolkit	*Dell OpenManage Deployment Toolkit User's Guide* available at https://www.dell.com/openmanagemanuals > Open Manage Deployment Toolkit.
iDRAC Direct	*Integrated Dell Remote Access Controller User's Guide* at https://www.dell.com/idracmanuals or for system specific *Integrated Dell Remote Access Controller User's Guide*, go to https://www.dell.com/poweredgemanuals > **Product Support** page of your system > **Documentation**. **NOTE:** To determine the most recent iDRAC release for your platform and for latest documentation version, see KB article https://www.dell.com/support/article/sln000178115.
Lifecycle Controller	*Dell Lifecycle Controller User's Guide* at https://www.dell.com/idracmanuals or for system specific *Dell Lifecycle Controller User's Guide*, go to https://www.dell.com/poweredgemanuals > **Product Support** page of your system > **Documentation**. **NOTE:** To determine the most recent iDRAC release for your platform and for latest documentation version, see KB article https://www.dell.com/support/article/sln000178115.

NOTE: To access iDRAC, ensure that you connect the ethernet cable to the iDRAC dedicated network port or use the iDRAC Direct port by using the micro USB (type AB) cable. You can also access iDRAC through the shared LOM mode, if you have opted for a system that has the shared LOM mode enabled.

Options to log in to iDRAC

To log in to the iDRAC Web User Interface, open a browser and enter the IP address.

You can log in to iDRAC as:

- iDRAC user
- Microsoft Active Directory user
- Lightweight Directory Access Protocol (LDAP) user

In the login screen displayed, if you have opted for secure default access to iDRAC, the default username is `root` and enter the iDRAC secure default password available on back of the Information Tag. If you opted for legacy password, use the iDRAC legacy username and password - `root` and `calvin`, the iDRAC default password will be blank on the information tag. Then you will be prompted and required to create a password of your choice before proceeding. You can also log in by using your Single Sign-On or Smart Card.

NOTE: Ensure that you change the default username and password after setting up the iDRAC IP address.

For more information about logging in to the iDRAC and iDRAC licenses, see the latest *Integrated Dell Remote Access Controller User's Guide* available at https://www.dell.com/idracmanuals.

NOTE: To determine the most recent iDRAC release for your platform and for latest documentation version, see KB article https://www.dell.com/support/article/sln000178115.

You can also access iDRAC using command-line protocol - RACADM. For more information, see the *Integrated Dell Remote Access Controller RACADM CLI Guide* available at https://www.dell.com/idracmanuals.

You can also access iDRAC using automation tool - Redfish API. For more information, see the *Integrated Dell Remote Access Controller User's Guide Redfish API Guide* available at https://developer.dell.com.

Resources to install operating system

If the system is shipped without an operating system, you can install a supported operating system by using one of the resources provided in the table below. For information about how to install the operating system, see the documentation links provided in the table below.

Table 43. Resources to install the operating system

Resource	Documentation links
iDRAC	*Integrated Dell Remote Access Controller User's Guide* available at https://www.dell.com/idracmanuals.or for system specific INtegrated Dell Remote Access Controller User's Guide, go to https://www.dell.com/poweredgemanuals > **Product Support** page of your system > **Documentation**. **NOTE:** To determine the most recent iDRAC release for your platform and for latest documentation version, see KB article at https://www.dell.com/support/article/sln000178115.
Lifecycle Controller	Dell Lifecycle Controller User's Guide at https://www.dell.com/idracmanualsor for system specific Dell Lifecycle Controller User's Guide , go to https://www.dell.com/poweredgemanuals > **Product Support** page of your system > **Documentation**. Dell recommends using Lifecycle Controller to install the OS, since all required drivers are installed on the system. **NOTE:** To determine the most recent iDRAC release for your platform and for latest documentation version, see KB article at https://www.dell.com/support/article/sln000178115.
OpenManage Deployment Toolkit	https://www.dell.com/openmanagemanuals > OpenManage Deployment Toolkit
Dell certified VMware ESXi	www.dell.com/virtualizationsolutions

NOTE: For more information about installation and how-to videos for operating systems supported on PowerEdge systems, see Supported Operating Systems for Dell PowerEdge systems.

Options to download drivers and firmware

You can download firmware from the Dell support site. For information about downloading firmware, see the Downloading drivers and firmware section.

You can also choose any one of the following options to download the firmware. For information about how to download the firmware, see the documentation links provided in the table below.

Table 44. Options to download firmware

Option	Documentation link
Using Integrated Dell Remote Access Controller Lifecycle Controller (iDRAC with LC)	www.dell.com/idracmanuals
Using Dell Repository Manager (DRM)	www.dell.com/openmanagemanuals > Repository Manager
Using Dell Server Update Utility (SUU)	www.dell.com/openmanagemanuals > Server Update Utility
Using Dell OpenManage Deployment Toolkit (DTK)	www.dell.com/openmanagemanuals > OpenManage Deployment Toolkit
Using iDRAC virtual media	www.dell.com/idracmanuals

Options to download and install OS drivers

You can choose any one of the following options to download and install OS drivers. For information about how to download or install OS drivers, see the documentation links provided in the table below.

Table 45. Options to download and install OS drivers

Option	Documentation
Dell support site	Downloading drivers and firmware section.
iDRAC virtual media	Integrated Dell Remote Access Controller User's Guide or for system specific, go to Integrated Dell Remote Access Controller User's Guide > **Product Support** page of your system > **Documentation** . **NOTE:** To determine the most recent iDRAC release for your platform and for latest documentation version, see www.dell.com/support/article/sln000178115.

Downloading drivers and firmware

It is recommended that you download and install the latest BIOS, drivers, and systems management firmware on the system.

Prerequisites

Ensure that you clear the web browser cache before downloading the drivers and firmware.

Steps

1. Go to www.dell.com/support/drivers.
2. Enter the Service Tag of the system in the **Enter a Dell Service Tag, Dell Product ID or Model** field, and then press Enter.

   NOTE: If you do not have the Service Tag, click **Browse all products**, and navigate to your product.

3. On the displayed product page, click **Drivers & Downloads**.
   On the **Drivers & Downloads** page, all drivers that are applicable to the system are displayed.
4. Download the drivers to a USB drive, CD, or DVD.

5

Pre-operating system management applications

You can manage basic settings and features of a system without booting to the operating system by using the system firmware.

Options to manage the pre-operating system applications

You can use any one of the following options to manage the pre-operating system applications:

- System Setup
- Dell Lifecycle Controller
- Boot Manager
- Preboot Execution Environment (PXE)

Topics:

System Setup

Using the **System Setup** option, you can configure the BIOS settings, iDRAC settings, and device settings of the system.

You can access system setup by using any one of the following interfaces:

- Graphical User interface — To access go to iDRAC Dashboard, click **Configurations** > **BIOS Settings**.
- Text browser — To enable the text browser, use the Console Redirection.

To view **System Setup**, power on the system, press F2, and click **System Setup Main Menu**.

NOTE: If the operating system begins to load before you press F2, wait for the system to finish booting, and then restart the system and try again.

The options on the **System Setup Main Menu** screen are described in the following table:

Table 46. System Setup Main Menu

Option	Description
System BIOS	Enables you to configure the BIOS settings.
iDRAC Settings	Enables you to configure the iDRAC settings. The iDRAC settings utility is an interface to set up and configure the iDRAC parameters by using UEFI (Unified Extensible Firmware Interface). You can enable or disable various iDRAC parameters by using the iDRAC settings utility. For more information about this utility, see *Integrated Dell Remote Access Controller User's Guide* available at https://www.dell.com/idracmanuals.

Table 46. System Setup Main Menu (continued)

Option	Description
Device Settings	Enables you to configure device settings for devices such as storage controllers or network cards.
Service Tag Settings	Enables you to configure the System Service Tag.

System BIOS

To view the **System BIOS** screen, power on the system, press F2, and click **System Setup Main Menu** > **System BIOS**.

Table 47. System BIOS details

Option	Description
System Information	Provides information about the system such as the system model name, BIOS version, and Service Tag.
Memory Settings	Specifies information and options related to the installed memory.
Processor Settings	Specifies information and options related to the processor such as speed and cache size.
SATA Settings	Specifies options to enable or disable the embedded SATA controller and ports.
NVMe Settings	Specifies options to change the NVMe settings. If the system contains the NVMe drives that you want to configure in a RAID array, you must set both this field and the **Embedded SATA** field on the **SATA Settings** menu to **RAID** mode. You might also need to change the **Boot Mode** setting to **UEFI**. Otherwise, you should set this field to **Non-RAID** mode.
Boot Settings	Specifies options to specify the Boot mode (BIOS or UEFI). Enables you to modify UEFI and BIOS boot settings.
Network Settings	Specifies options to manage the UEFI network settings and boot protocols. Legacy network settings are managed from the **Device Settings** menu. **NOTE:** Network Settings are not supported in BIOS boot mode.
Integrated Devices	Specifies options to manage integrated device controllers and ports, specifies related features, and options.
Serial Communication	Specifies options to manage the serial ports, its related features, and options.
System Profile Settings	Specifies options to change the processor power management settings, memory frequency.
System Security	Specifies options to configure the system security settings, such as system password, setup password, Trusted Platform Module (TPM) security, and UEFI secure boot. It also manages the power button on the system.
Redundant OS Control	Sets the redundant OS information for redundant OS control.
Miscellaneous Settings	Specifies options to change the system date and time.

System Information

To view the **System Information** screen, power on the system, press F2, and click **System Setup Main Menu** > **System BIOS** > **System Information**.

Table 48. System Information details

Option	Description
System Model Name	Specifies the system model name.

Table 48. System Information details (continued)

Option	Description
System BIOS Version	Specifies the BIOS version installed on the system.
System Management Engine Version	Specifies the current version of the Management Engine firmware.
System Service Tag	Specifies the system Service Tag.
System Manufacturer	Specifies the name of the system manufacturer.
System Manufacturer Contact Information	Specifies the contact information of the system manufacturer.
System CPLD Version	Specifies the current version of the system Complex Programmable Logic Device (CPLD) firmware.
UEFI Compliance Version	Specifies the UEFI compliance level of the system firmware.

Memory Settings

To view the **Memory Settings** screen, power on the system, press F2, and click **System Setup Main Menu** > **System BIOS** > **Memory Settings**.

Table 49. Memory Settings details

Option	Description
System Memory Size	Specifies the size of the system memory.
System Memory Type	Specifies the type of memory that is installed in the system.
System Memory Speed	Specifies the speed of the system memory.
Video Memory	Specifies the size of video memory.
System Memory Testing	Specifies whether the system memory tests are run during system boot. The two options available are **Enabled** and **Disabled**. This option is set to **Disabled** by default.
Memory Operating Mode	This field selects the memory operating mode. This feature is active only if a valid memory configuration is detected. When **Optimizer Mode** is enabled, the DRAM controllers operate independently in 64-bit mode and provide optimized memory performance. When this **Dell Fault Resilient Mode (FRM)** is enabled, some the total installed memory is configured to create a fault resilient zone starting from the lowest system memory address for use by select hypervisors for host virtualization resilience. Specify the FRM percentage by using the Fault Resilient Mode Memory Size[%] feature. When **Dell NUMA Fault Resilient Mode (FRM)** is enabled, some the installed memory in every NUMA node is configured to create a fault resilient zone for use by select hypervisors for host virtualization resilience. Specify the FRM percentage by using the Fault Resilient Mode Memory Size[%] feature.
Current State of Memory Operating Mode	Specifies the current state of the memory operating mode.
Fault Resilient Mode Memory Size[%]	Select to define the percent of total memory size that must be used by the fault resilient mode, when selected in the Memory Operating mode. When Fault Resilient Mode is not selected, this option is grayed out and not used by Fault Resilient Mode.
Node Interleaving	Enables or disables the Node interleaving option. Specifies if the Non-Uniform Memory Architecture (NUMA) is supported. If this field is set to **Enabled**, memory interleaving is supported if a symmetric memory configuration is installed. If the field is set to **Disabled**, the system supports NUMA (asymmetric) memory configurations. This option is set to **Disabled** by default.
ADDDC Settings	Enables or disables the ADDDC Setting feature. When Adaptive Double DRAM Device Correction (ADDDC) is enabled, failing DRAMs are

Table 49. Memory Settings details (continued)

Option	Description
	dynamically mapped out. When set to **Enabled** it can impact the system performance under certain workloads. This feature is applicable for x4 DIMMs only. This option is set to **Enabled** by default.
Memory training	When the option is set to **Fast** and memory configuration is not changed, the system uses previously saved memory training parameters to train the memory subsystems and system boot time is also reduced. If memory configuration is changed, the system automatically enables **Retrain at Next boot** to force one-time full memory training steps, and then go back to **Fast** afterward. When option is set to **Retrain at Next boot**, the system performs the force one-time full memory training steps at next power on and boot time is slowed on next boot. When option is set to **Enable**, the system performs the force full memory training steps on every power on and boot time is slowed on every boot.
DIMM Self Healing (Post Package Repair) on Uncorrectable Memory Error	Enables or disables Post Packing Repair (PPR) on uncorrectable memory error. This option is set to **Enabled** by default.
Correctable Error Logging	Enables or disables correctable error logging. This option is set to **Disabled** by default.
Memory Paging Policy	This option is used for latency fine-tuning. Two options are available: **Adaptive Paging** and **Closed Paging**. The option is set to **Closed Paging** by default.
Memory Map Out	This option controls DIMMs slots on the system. This option is set to **Enabled** by default. It allows to disable system installed DIMMs.

Processor Settings

To view the **Processor Settings** screen, power on the system, press F2, and click **System Setup Main Menu** > **System BIOS** > **Processor Settings**.

Table 50. Processor Settings details

Option	Description
Logical Processor	Each processor core supports up to two logical processors. If this option is set to **Enabled**, the BIOS displays all the logical processors. If this option is set to **Disabled**, the BIOS displays only one logical processor per core. This option is set to **Enabled** by default.
CPU Interconnect Speed	Enables you to govern the frequency of the communication links among the processors in the system. **NOTE:** The standard and basic bin processors support lower link frequencies. The options available are **Maximum data rate**, **16 GT/s**, **14.4 GT/s**, and **12.8 GT/s**. This option is set to **Maximum data rate** by default. Maximum data rate indicates that the BIOS runs the communication links at the maximum frequency supported by the processors. You can also select specific frequencies that the processors support, which can vary. For best performance, you should select **Maximum data rate**. Any reduction in the

Table 50. Processor Settings details (continued)

Option	Description
	communication link frequency affects the performance of non-local memory access and cache coherency traffic. In addition, it can slow access to non-local I/O devices from a particular processor. However, if power saving considerations outweigh performance, reduce the frequency of the processor communication links. Before reducing the frequency, you must localize the memory and I/O access to the nearest NUMA node to minimize the impact to system performance.
Virtualization Technology	Enables or disables the virtualization technology for the processor. This option is set to **Enabled** by default.
Kernel DMA Protection	This option is set to **Disabled** by default. When option is set to **Enabled**, BIOS and Operating System will enable direct memory access protection for DMA capable peripheral devices using virtualization technology.
Directory Mode	Enables or disables the directory mode. This option is set to **Enabled** by default.
Adjacent Cache Line Prefetch	Optimizes the system for applications that need high utilization of sequential memory access. This option is set to **Enabled** by default. You can disable this option for applications that need high utilization of random memory access.
Hardware Prefetcher	Enables or disables the hardware prefetcher. This option is set to **Enabled** by default.
DCU Streamer Prefetcher	Enables or disables the Data Cache Unit (DCU) streamer prefetcher. This option is set to **Enabled** by default.
DCU IP Prefetcher	Enables or disables the Data Cache Unit (DCU) IP prefetcher. This option is set to **Enabled** by default.
Sub NUMA Cluster	Enables or disables the Sub NUMA Cluster. This option is set to **Disabled** by default.
MADT Core Enumeration	Specifies the MADT Core Enumeration. This option is set to default in **Round Robin**. Linear option supports industry core enumeration whereas, Round Robin option supports Dell optimized core enumeration.
UMA Based Clustering	It is a read-only field and displays as **Quadrant** , when Sub NUMA Cluster is disabled or displays as **Disabled**, when Sub NUMA Cluster is either 2-way or 4-way.
UPI Prefetch	Enables you to get the memory read started early on DDR bus. The Ultra Path Interconnect (UPI) Rx path spawns the speculative memory that is read to Integrated Memory Controller (iMC) directly. This option is set to **Enabled** by default.
XPT Prefetch	This option is set to **Enabled** by default.
LLC Prefetch	Enables or disables the LLC Prefetch on all threads. This option is set to **Enabled** by default.
Dead Line LLC Alloc	Enables or disables the Dead Line LLC Alloc. This option is set to **Enabled** by default. You can enable this option to enter the dead lines in LLC or disable the option to not enter the dead lines in LLC.
Directory AtoS	Enables or disables the Directory AtoS. AtoS optimization reduces remote read latencies for repeat read accesses without intervening writes. This option is set to **Disabled** by default.

Table 50. Processor Settings details (continued)

Option	Description
AVX P1	Enables you to reconfigure the processor Thermal Design Power (TDP) levels during POST based on the power and thermal delivery capabilities of the system. TDP verifies the maximum heat the cooling system is must dissipate. This option is set to **Normal** by default. **NOTE:** This option is only available on certain stock keeping units (SKUs) of the processors.
Dynamic SST-Performance Profile	Enables you to reconfigure the processor using Dynamic or Static Speed Select Technology. This option is set to **Disabled** by default.
	Operating Point n | P1:1.8 Ghz, TDP:185w, Core Count:32
SST-Performance Profile	Enables you to reconfigure the processor using Speed Select Technology.
Intel SST-BF	Enables Intel SST-BF. This option is displayed if Performance Per Watt (operating system) or Custom (when OSPM is enabled) system profiles are selected. This option is set to **Disabled** by default.
Intel SST-CP	Enables Intel SST-CP. This option is displayed if Performance Per Watt (operating system) or Custom (when OSPM is enabled) system profiles are selected. This option is displayed and selectable for each system profile mode. This option is set to **Disabled** by default.
x2APIC Mode	Enables or disables x2APIC mode. This option is set to **Enabled** by default. **NOTE:** For two processors 64 cores configuration, x2APIC mode is not switchable if 256 threads are enabled (BIOS settings: All CCD, cores, and logical processors enabled).
AVX ICCP Pre-Grant License	Enables or disables AVX ICCP Pre-Grant License. This option is set to **Disabled** by default.
AVX ICC Pre-Grant Level	Enables you to select between the different AVX ICC transition levels offered by Intel. This option is set to **128 heavy** by default. **NOTE:** AVX ICC Pre-Grant Level is showed after enabling AVX ICCP Pre-Grant License
Opportunistic Snoop Broadcast	Opportunistic Snoop Broadcast (OSB) is a feature within the PCIe protocol that enhances system performance by reducing latency and improving data transfer efficiency. This option is set to **Auto** by default.
Dell Controlled Turbo	
Dell Controlled Turbo Setting	Controls the turbo engagement. Enable this option only when System Profile is set to **Performance** or **Custom**, and CPU Power Management is set to **Performance**. This item can be selected for each system profile mode. This option is set to **Disabled** by default. **NOTE:** Depending on the number of installed processors, there might be up to two processor listings.
Dell AVX Scaling Technology	Enables you to configure the Dell AVX scaling technology. This option is set to **0** by default. Enter the value from 0 to 12 bins. The value that is entered decreases the Dell AVX Scaling Technology frequency when the Dell-controlled Turbo feature is enabled.

Table 50. Processor Settings details (continued)

Option	Description
Number of Cores per Processor	Controls the number of enabled cores in each processor. This option is set to **All** by default.
CPU Physical Address Limit	Limit CPU physical address to 46 bits to support older Hyper-V. If enabled, automatically disables TME-MT. This option is set to **Enabled** by default.
AMP Prefetch	This option enables one of the Mid-Level Cache (MLC) AMP hardware Prefetcher. This option is set to **Disabled** by default.
Homeless Prefetch	This option allows L1 Data Cache Unit (DCU) to prefetech, when the Fill Buffers (FB) is full. Auto maps to hardware default setting. This option is set to **Auto** by default.
Uncore Frequency RAPL	This setting controls whether the Running Average Power Limit (RAPL) balancer is enabled or not. If enabled, it activates the uncore power budgeting. This option is set to **Enabled** by default.
Processor Core Speed	Specifies the maximum core frequency of the processor.
Processor Bus Speed	Specifies the bus speed of the processor. **NOTE:** The processor bus speed option displays only when both processors are installed.
Local Machine Check Exception	Enables or disables the local machine check exception. This is an extension of the MCA Recovery mechanism providing the capability to deliver Uncorrected Recoverable (UCR) Software Recoverable Action Required (SRAR) errors to one or more specific logical processors threads receiving previously poisoned or corrupted data. When enabled, the UCR SRAR Machine Check Exception is delivered only to the affected thread rather than broadcast to all threads in the system. The feature supports operating system recovery for cases of multiple recoverable faults that are detected close, which would otherwise result in a fatal machine check event. The feature is available only on Advanced RAS processors. This option is set to **Enabled** by default.
CPU Crash Log Support	This field controls Intel CPU Crash Log feature for collection of previous crash data from shared SRAM of Out-of -Band Management Service Module at post reset. This option is set to **Disabled** by default.
PROCESSOR n	**NOTE:** Depending on the number of processors, there might be up to n processors listed. The following settings are displayed for each processor:

Table 51. Processor n details

Option	Description
Family-Model-Stepping	Specifies the family, model, and stepping of the processor as defined by Intel.
Brand	Specifies the brand name.
Level 2 Cache	Specifies the total L2 cache.
Level 3 Cache	Specifies the total L3 cache.
Number of Cores	Specifies the number of cores per processor.
Microcode	Specifies the processor microcode version.

SATA Settings

To view the **SATA Settings** screen, power on the system, press F2, and click **System Setup Main Menu** > **System BIOS** > **SATA Settings**.

Table 52. SATA Settings details

Option	Description
Embedded SATA	Enables the embedded SATA option to be set to **Off**, **AHCI mode** , or **RAID modes**. This option is set to **AHCI Mode** by default. **NOTE:** 1. You might also need to change the Boot Mode setting to UEFI. Otherwise, you should set the field to Non-RAID mode. 2. No ESXi and Ubuntu OS support under RAID mode.
Security Freeze Lock	Sends **Security Freeze Lock** command to the embedded SATA drives during POST. This option is applicable only for AHCI Mode. This option is set to **Enabled** by default.
Write Cache	Enables or disables the command for the embedded SATA drives during POST. This option is applicable only for AHCI Mode. This option is set to **Disabled** by default.
Port n	Sets the drive type of the selected device. For **AHCI Mode**, BIOS support is always enabled.

Table 53. Port n

Options	Descriptions
Model	Specifies the drive model of the selected device.
Drive Type	Specifies the type of drive attached to the SATA port.
Capacity	Specifies the total capacity of the drive. This field is undefined for removable media devices such as optical drives.

NVMe Settings

This option sets the NVMe drive mode. If the system contains NVMe drives that you want to configure in a RAID array, you must set both this field and the Embedded SATA field on the SATA settings menu to RAID Mode. You may also need to change the Boot Mode setting to UEFI.

To view the **NVMe Settings** screen, power on the system, press F2, and click **System Setup Main Menu** > **System BIOS** > **NVMe Settings**.

Table 54. NVMe Settings details

Option	Description
NVMe mode	The option is set to **Non RAID** mode by default.
BIOS NVMe Driver	Sets the drive type to boot the NVMe driver. The available options are **Dell Qualified Drives** and **All Drives**. This option is set to **Dell Qualified Drives** by default.

Boot Settings

You can use the **Boot Settings** screen to set the boot mode to either **BIOS** or **UEFI**. It also enables you to specify the boot order. The **Boot Settings** only support **UEFI** mode.

- **UEFI**: The Unified Extensible Firmware Interface (UEFI) is a new interface between operating systems and platform firmware. The interface consists of data tables with platform related information, boot and runtime service calls that are available to the operating system and its loader. The following benefits are available when the **Boot Mode** is set to **UEFI**:
  - Support for drive partitions larger than 2 TB.
  - Enhanced security (e.g., UEFI Secure Boot).

- Faster boot time.

NOTE: You must use only the UEFI boot mode in order to boot from NVMe drives.

- **BIOS**: The **BIOS Boot Mode** is the legacy boot mode. It is maintained for backward compatibility.

To view the **Boot Settings** screen, power on the system, press F2, and click **System Setup Main Menu** > **System BIOS** > **Boot Settings**.

Table 55. Boot Settings details

Option	Description
Boot Mode	Enables you to set the boot mode of the system. If the operating system supports UEFI, you can set this option to UEFI. Setting this field to BIOS allows compatibility with non-UEFI operating systems. This option is set to **UEFI** by default. CAUTION: **Switching the boot mode may prevent the system from booting if the operating system is not installed in the same boot mode.** NOTE: Setting this field to UEFI disables the **BIOS Boot Settings** menu.
Boot Sequence Retry	Enables or disables the Boot sequence retry feature or resets the system. When this option is set to **Enabled** and the system fails to boot, the system re-attempts the boot sequence after 30 seconds. When this option is set to **Reset** and the system fails to boot, the system reboots immediately. This option is set to **Enabled** by default.
Hard-disk Failover	Enables or disables the Hard-disk failover. This option is set to **Disabled** by default.
Generic USB Boot	Enables or disables the generic USB boot placeholder. This option is set to **Disabled** by default.
Hard-disk Drive Placeholder	Enables or disables the Hard-disk drive placeholder. This option is set to **Disabled** by default.
Clean all SysPrep variables and order	This option is set to **None** by default. When this option is set to **None**, BIOS will do nothing. When set to **Yes**, BIOS will delete variables of SysPrep #### and SysPrepOrder this option is a onetime option, will reset to none when deleting variables. This setting is only available in **UEFI Boot Mode**.
UEFI Boot Settings	Specifies the UEFI boot sequence. Enables or disables UEFI Boot options. NOTE: This option controls the UEFI boot order. The first option in the list will be attempted first.

Table 56. UEFI Boot Settings

Option	Description
UEFI Boot Sequence	Enables you to change the boot device order.
Boot Option Enable/Disable	Enables you to select the enabled or disabled boot devices

Boot Settings

You can use the **Boot Settings** screen to set the boot mode to either **BIOS** or **UEFI**. It also enables you to specify the boot order.

- **UEFI**: The Unified Extensible Firmware Interface (UEFI) is a new interface between operating systems and platform firmware. The interface consists of data tables with platform related information, boot and runtime service calls that are available to the operating system and its loader. The following benefits are available when the **Boot Mode** is set to **UEFI**:
  - Support for drive partitions larger than 2 TB.
  - Enhanced security (e.g., UEFI Secure Boot).
  - Faster boot time.

  NOTE: You must use only the UEFI boot mode in order to boot from NVMe drives.
- **BIOS**: The **BIOS Boot Mode** is the legacy boot mode. It is maintained for backward compatibility.

To view the **Boot Settings** screen, power on the system, press F2, and click **System Setup Main Menu** > **System BIOS** > **Boot Settings**.

Table 57. Boot Settings details

Option	Description
Boot Mode	Enables you to set the boot mode of the system. If the operating system supports UEFI, you can set this option to UEFI. Setting this field to BIOS allows compatibility with non-UEFI operating systems. This option is set to **UEFI** by default. **CAUTION: Switching the boot mode may prevent the system from booting if the operating system is not installed in the same boot mode.** **NOTE:** Setting this field to UEFI disables the **BIOS Boot Settings** menu.
Boot Sequence Retry	Enables or disables the Boot sequence retry feature or resets the system. When this option is set to **Enabled** and the system fails to boot, the system re-attempts the boot sequence after 30 seconds. When this option is set to **Reset** and the system fails to boot, the system reboots immediately. This option is set to **Enabled** by default.
Hard-disk Failover	Enables or disables the Hard-disk failover. This option is set to **Disabled** by default.
Generic USB Boot	Enables or disables the generic USB boot placeholder. This option is set to **Disabled** by default.
Hard-disk Drive Placeholder	Enables or disables the Hard-disk drive placeholder. This option is set to **Disabled** by default.
Clean all Sysprep variables and order	When this option is set to **None**, BIOS will do nothing. When set to **Yes**, BIOS will delete variables of SysPrep #### and SysPrepOrder this option is a onetime option, will reset to none when deleting variables. This setting is only available in **UEFI Boot Mode**. This option is set to **None** by default.
UEFI Boot Settings	Specifies the UEFI boot sequence. Enables or disables UEFI Boot options. **NOTE:** This option controls the UEFI boot order. The first option in the list will be attempted first.

Table 58. UEFI Boot Settings

Option	Description
UEFI Boot Sequence	Enables you to change the boot device order.
Boot Options Enable/Disable	Enables you to select the enabled or disabled boot devices

Choosing system boot mode

System Setup enables you to specify one of the following boot modes for installing your operating system:

- UEFI boot mode (the default), is an enhanced 64-bit boot interface. If you have configured your system to boot to UEFI mode, it replaces the system BIOS.

1. From the **System Setup Main Menu**, click **Boot Settings**, and select **Boot Mode**.
2. Select the UEFI boot mode you want the system to boot into.
   CAUTION: Switching the boot mode may prevent the system from booting if the operating system is not installed in the same boot mode.
3. After the system boots in the specified boot mode, proceed to install your operating system from that mode.

NOTE: Operating systems must be UEFI-compatible to be installed from the UEFI boot mode. DOS and 32-bit operating systems do not support UEFI and can only be installed from the BIOS boot mode.

NOTE: For the latest information about supported operating systems, go to www.dell.com/ossupport.

Changing boot order

About this task

You may have to change the boot order if you want to boot from a USB key or an optical drive. The following instructions may vary if you have selected **BIOS** for **Boot Mode**.

NOTE: Changing the drive boot sequence is only supported in BIOS boot mode.

Steps

1. On the **System Setup Main Menu** screen, click **System BIOS** > **Boot Settings** > **UEFI Boot Settings** > **UEFI Boot Sequence**.
2. Use the arrow keys to select a boot device, and use the plus (+) and minus (-) sign keys to move the device down or up in the order.
3. Click **Exit**, and then click **Yes** to save the settings on exit.

   NOTE: You can also enable or disable boot order devices as needed.

Network Settings

To view the **Network Settings** screen, power on the system, press F2, and click **System Setup Main Menu** > **System BIOS** > **Network Settings**.

NOTE: Network Settings are not supported in BIOS boot mode.

Table 59. Network Settings details

Option	Description
UEFI PXE Settings	Enables you to control the configuration of the UEFI PXE device.
Number of PXE Devices	This field specifies the number of PXE devices. This option is set to **4** by default.
PXE Devicen (n = 1 to 4)	Enables or disables the device. When enabled, a UEFI PXE boot option is created for the device.
PXE Devicen Settings(n = 1 to 4)	Enables you to control the configuration of the PXE device.
UEFI HTTP Settings	Enables you to control the configuration of the UEFI HTTP device.
HTTP Devicen (n = 1 to 4)	Enables or disables the device. When enabled, a UEFI HTTP boot option is created for the device.
HTTP Devicen Settings (n = 1 to 4)	Enables you to control the configuration of the HTTP device.
UEFI ISCSI Settings	Enables you to control the configuration of the iSCSI device.
ISCSI Initiator Name	Specifies the name of the iSCSI initiator in IQN format.
ISCSI Device1	Enables or disables the iSCSI device. When disabled, a UEFI boot option is created for the iSCSI device automatically. This is set to **Disabled** by default.
ISCSI Device1 Settings	Enables you to control the configuration of the iSCSI device.
UEFI NVMe-oF Settings	Enables you to control the configuration of the NVMe-oF devices.
NVMe-oF	Enables or disables the NVMe-oF feature. When enabled, it allows to configure the host and target parameters needed for fabric connection. This is set to **Disabled** by default.
NVMe-oF Host NQN	This field specifies the name of the NVMe-oF host NQN. Allowed input is in the following format: nqn.yyyy-mm.<Reserved Domain Name>:<Unique String>. Leave it empty to use system generated value with following format: nqn.1988-11.com.dell:<Model name>.<Model number>.<Service Tag>.
NVMe-oF Host Id	This field specifies a 16 bytes value of the NVMe-oF host identifier that uniquely identifies this host with the controller in the NVM subsystem. Allowed input is a hexadecimal-encoded string in this format: 00112233-4455-6677-8899-aabbccddeeff. Leave it empty to use system generated value. A value of all FF is not allowed.

Table 59. Network Settings details (continued)

Option	Description
Host Security Key Path	This field specifies the Host security key path.
NVMe-oF SubSystem Settings	This field controls the parameters for the NVMe-oF subsystem n connections.

Table 60. PXE Device n Settings details

Option	Description
Interface	Specifies NIC interface used for the PXE device.
Protocol	Specifies Protocol used for PXE device. This option is set to **IPv4** or **IPv6**. This option is set to **IPv4** by default.
VLAN	Enables VLAN for PXE device. This option is set to **Enabled** or **Disabled**. This option is set to **Disabled** by default.
VLAN ID	Shows the VLAN ID for the PXE device
VLAN Priority	Shows the VLAN Priority for the PXE device.

Table 61. HTTP Device n Settings details

Option	Description
Interface	Specifies NIC interface used for the HTTP device.
Protocol	Specifies Protocol used for HTTP device. This option is set to **IPv4** or **IPv6**. This option is set to **IPv4** by default.
VLAN	Enables VLAN for HTTP device. This option is set to **Enable** or **Disable**. This option is set to **Disable** by default.
VLAN ID	Shows the VLAN ID for the HTTP device
VLAN Priority	Shows the VLAN Priority for the HTTP device.
DHCP	Enables or disables DHCP for this HTTP device. This option is set to **Enabled** by default.
IP Address	Specifies IP address for the HTTP device.
Subnet Mask	Specifies subnet mask for the HTTP device.
Gateway	Specifies gateway for the HTTP device.
DNS info via DHCP	Enables or disables DNS Information from DHCP. This option is set to **Enabled** by default.
Primary DNS	Specifies the primary DNS server IP address for the HTTP Device.
Secondary DNS	Specifies the secondary DNS server IP address for the HTTP Device.
URI	URI (will obtain from DHCP server if not specified)
TLS Authentication Configuration	Specifies the option for TLS authentication configuration.

Table 62. ISCSI Device1 Settings screen details

Option	Description
Connection 1	Enables or disables the iSCSI connection. This option is set to **Disabled** by default.
Connection 2	Enables or disables the iSCSI connection. This option is set to **Disabled** by default.
Connection 1 Settings	Enables you to control the configuration for the iSCSI connection.
Connection 2 Settings	Enables you to control the configuration for the iSCSI connection.
Connection Order	Enables you to control the order for which the iSCSI connections will be attempted.

Table 63. TLS Authentication Configuration screen details

Option	Description
TLS Authentication Mode	View or modify the device's boot TLS Authentication Mode. This option is set to **One Way** by default. **None** means the HTTP server and the client will not authenticate each other for this boot.
Root Certificate Configuration	Import, delete, or export the root certificate.

Table 64. NVMe-oF SubSystem Settings screen details

Option	Description
NVMe-oF SubSystemn (n = 1 to 4)	Enables or disables NVMe-oF SubSystem. This option is set to **Disabled** by default.
NVMe-oF SubSystemn Settings (n = 1 to 4)	Enables you to control the configuration of the NVMe-oF SubSystem, if **Enabled**.

Table 65. NVMe-oF SubSystem n Settings

Option	Description
Interface	NIC interface used for NVMe-oF connections. This option is set to **Embedded NIC 1 Port 1 Partition 1** by default.
Transport Type	This field sets the value of transport type for NVMe-oF connection. This option is set to **TCP** by default.
Protocol	This field sets the value of protocol type for NVMe-oF connection. This option is set to **IPv4** by default.
VLAN	Enables or disables VLAN for this NVMe-oF connections. This option is set to **Disabled** by default.
VLAN ID	Specifies the VLAN ID for this NVMe-oF connection. This option is set to **1** by default.
VLAN Priority	Specifies the VLAN priority for this NVMe-oF connection. This option is set to **0** by default.
Retry Count	Specifies the retry count for this NVMe-oF connection. This option is set to **3** by default.
Timeout	Specifies the time out for this NVMe-oF connection. This option is set to **10000** by default.
DHCP	Enables and disables the DHCP for this NVMe-oF connection. This option is set to **Disabled** by default.
Host IP Address	Specifies the Host IP Address for this NVMe-oF connection.
Host Subnet Mask	Specifies the Host Subnet Mask for this NVMe-oF connection.
Host Gateway	Specifies the Host Gateway for this NVMe-oF connection.
NVMe-oF Subsystem info via DHCP	Enables and disables the NVMe-oF subsystem's DHCP for this connection. This option is set to **Disabled** by default.
NVMe-oF Subsystem NQN	Specifies the NVMe-oF subsystem's NQN for this connection.
NVMe-oF Subsystem Address	Specifies the NVMe-oF subsystem's IP address for this connection.
NVMe-oF Subsystem Port	Specifies the NVMe-oF subsystem's port for this connection. This option is set to **4420** by default.
NVMe-oF Subsystem NID	Specifies the NamespaceID (NID) for this NVMe-oF connection.
NVMe-oF Subsystem Controller ID	Specifies the NVMe-oF subsystem's Controller ID for this connection. This option is set to **0** by default.

Table 65. NVMe-oF SubSystem n Settings (continued)

Option	Description
Security	Enables or disables the security option for this NVMe-oF connection. This option is set to **Disabled** by default.
Authentication Type	Specifies the authentication type for this NVMe-oF connection. This option is set to **None** by default.
SecurityKeyPath	Specifies the SecurityKeyPath for this NVMe-oF connection.

Integrated Devices

To view the **Integrated Devices** screen, power on the system, press F2, and click **System Setup Main Menu** > **System BIOS** > **Integrated Devices**.

Table 66. Integrated Devices details

Option	Description
User Accessible USB Ports	Configures the user accessible USB ports. Selecting **Only Back Ports On** disables the front USB ports; selecting **All Ports Off** disables all front and back USB ports.; selecting **All Ports Off (Dynamic)** disables all front and back USB ports during POST. and front ports can be enabled or disabled dynamically by authorized user without resetting the system. This option is set to **All Ports On** by default. **NOTE:** All Ports Off (Dynamic) function works dynamically with the USB 2.0 port at the right rack ear only.
	The USB keyboard and mouse still function in certain USB ports during the boot process, depending on the selection. After the boot process is complete, the USB ports will be enabled or disabled as per the setting.
Internal USB Port	Enables or disables the Internal USB Port. Install the internal USB module, and the **Internal USB Port** will be shown. This option is set to On by default.
iDRAC Direct USB Port	The iDRAC Direct USB port is managed by iDRAC exclusively with no host visibility. This option is set to **ON** or **OFF**. When set to **OFF**, iDRAC does not detect any USB devices that are installed in this managed port. This option is set to **On** by default.
Integrated Network Card 1	Enables or disables the Integrated Network Card 1.Install the OCP card, and the **Integrated Network Card 1** will be shown. This option is set to Enabled by default.
Embedded NIC1 and NIC2	Enables or disables the OS interface of the Embedded NIC1 and NIC2 controller. If set to **Disabled (OS)**, the NIC may still be available for shared network access by the embedded management controller. Configure the **Embedded NIC1 and NIC2** option by using the NIC management utilities of the system. This option is set to **Enabled** by default.
I/OAT DMA Engine	Enables or disables the I/O Acceleration Technology (I/OAT) option. I/OAT is a set of DMA features designed to accelerate network traffic and lower CPU utilization. Enable only if the hardware and software support the feature. This option is set to **Disabled** by default.
Embedded Video Controller	Enables or disables the use of the Embedded Video Controller as the primary display. When set to **Enabled**, the Embedded Video Controller will be the primary display even if add-in graphic cards are installed. When set to **Disabled**, an add-in graphics card is used as the primary display. BIOS will output displays to both the primary add-in video and the embedded video during the POST and preboot environment. The embedded video will then be disabled right before the operating system boots. This option is set to **Enabled** by default. **NOTE:** When there are multiple add-in graphic cards that are installed in the system, the first card that is discovered during PCI enumeration is

Table 66. Integrated Devices details (continued)

Option	Description
	selected as the primary video. You might have to rearrange the cards in the slots in order to control which card is the primary video.
I/O Snoop HoldOff Response	Selects the number of cycles PCI I/O can withhold snoop requests, from the CPU, to allow time to complete its own write to LLC. This setting can help improve performance on workloads where throughput and latency are critical. The options available are **256 Cycles**, **512 Cycles**, **1K Cycles**, **2K Cycles**, **4K Cycles**, **8K Cycles**, **16K Cycles**, **32K Cycles**, **64K Cycles** and **128K Cycles**.This option is set to **2K Cycles** by default.
Current State of Embedded Video Controller	Displays the current state of the embedded video controller. The **Current State of Embedded Video Controller** option is a read-only field. If the Embedded Video Controller is the only display capability in the system (that is, no add-in graphics card is installed), then the Embedded Video Controller is automatically used as the primary display even if the **Embedded Video Controller** setting is set to **Disabled**.
SR-IOV Global Enable	Enables or disables the BIOS configuration of Single Root I/O Virtualization (SR-IOV) devices. This option is set to **Disabled** by default.
Internal SD Card Port	Enables or disables the **Internal SD Card Port** of the Internal Dual SD Module (IDSDM). This option is set to On by default.
Internal SD Card Redundancy	Configures the redundancy mode of the Internal Dual SD Module (IDSDM). When set to Mirror Mode, data is written on both SD cards. After failure of either card and replacement of the failed card, the data of the active card is copied to the offline card during the system boot. When **Internal SD Card Redundancy** is set to Disabled, only the primary SD card is visible to the operating system. This option is set to Disabled by default.
Internal SD Primary Card	By default, the primary SD card is selected to be SD Card 1. If SD Card 1 is not present, then the controller selects SD Card 2 to be the primary SD card.
OS Watchdog Timer	If your system stops responding, this watchdog timer aids in the recovery of your operating system. When this option is set to **Enabled**, the operating system initializes the timer. When this option is set to **Disabled** (the default), the timer does not have any effect on the system.
Empty Slot Unhide	Enables or disables the root ports of all the empty slots that are accessible to the BIOS and operating system. This option is set to **Disabled** by default.
IIO PCIe Data Link Feature Exchange	This option allows globally disabling PCIe Data Link Feature Exchange. This may be needed to support certain legacy hardware. This option is set to **Enabled** by default.
Slot Disablement	Enables or disables or boot driver disables the available PCIe slots on your system. The slot disablement feature controls the configuration of the PCIe cards installed in the specified slot. Slots must be disabled only when the installed peripheral card prevents booting into the operating system or causes delays in system startup. If the slot is disabled, both the Option ROM and UEFI drivers are disabled. Only slots that are present on the system will be available for control. When this option is set to boot driver disabled, both the Option ROM and UEFI driver from the slot will not run during POST. The system will not boot from the card and its pre-boot services will not be available. However, the card is available to the operating system.
	Slot n: Enables or disables or only the boot driver is disabled for the PCIe slot n. This option is set to **Enabled** by default.
Slot Bifurcation	**Auto Discovery Bifurcation Settings** allows **Platform Default Bifurcation**, **Auto Discovery of Bifurcation**, and **Manual bifurcation Control**.
	This option is set to **Platform Default Bifurcation** by default. The slot bifurcation field is accessible when set to **Manual bifurcation Control** and

Table 66. Integrated Devices details (continued)

Option	Description
	is disabled when set to **Platform Default Bifurcation** and **Auto Discovery of Bifurcation**. **NOTE:** The slot bifurcation supports on PCIe slot only, does not support slot types from Paddle card to Riser and Slimline connector to Riser.

Serial Communication

To view the **Serial Communication** screen, power on the system, press F2, and click **System Setup Main Menu** > **System BIOS** > **Serial Communication**.

NOTE: The serial port is optional for the PowerEdge XR7620 system. The Serial Communication option is applicable only if the serial COM port is installed in the system.

Table 67. Serial Communication details

Option	Description
Serial Communication	Enables the serial communication options. Selects serial communication devices (Serial Device 1 and Serial Device 2) in BIOS. BIOS console redirection can also be enabled, and the port address can be specified. The options available for System without serial COM port (DB9) are **On without Console Redirection**, **On with Console Redirection**, **Off**, **Auto**. This option is set to **Auto** if the external serial connector is available (connected to the rear I/O board). Else the default will be **Off**.
Serial Port Address	Enables you to set the port address for serial devices. This option is set to either **COM1** or **COM2** for the serial device **(COM1=0x3F8,COM2=0x2F8)**and set to **COM1** by default. **NOTE:** You can use only Serial Device 2 for the Serial Over LAN (SOL) feature. To use console redirection by SOL, configure the same port address for console redirection and the serial device. **NOTE:** Every time the system boots, the BIOS syncs the serial MUX setting that is saved in iDRAC. The serial MUX setting can independently be changed in iDRAC. Loading the BIOS default settings from within the BIOS setup utility may not always revert the serial MUX setting to the default setting of Serial Device 1.
External Serial Connector	Enables you to associate the External Serial Connector to **Serial Device 1**, **Serial Device 2**, or the **Remote Access Device** by using this option. This option is set to **Serial Device 1** by default. **NOTE:** Only Serial Device 2 can be used for Serial Over LAN (SOL). To use console redirection by SOL, configure the same port address for console redirection and the serial device. **NOTE:** Every time the system boots, the BIOS syncs the serial MUX setting saved in iDRAC. The serial MUX setting can independently be changed in iDRAC. Loading the BIOS default settings from within the BIOS setup utility may not always revert this setting to the default setting of Serial Device 1.
Failsafe Baud Rate	Specifies the failsafe baud rate for console redirection. The BIOS attempts to determine the baud rate automatically. This failsafe baud rate is used only if the attempt fails, and the value must not be changed. This option is set to **115200** by default.

Table 67. Serial Communication details (continued)

Option	Description
Remote Terminal Type	Sets the remote console terminal type. This option is set to **VT100/VT220** by default.
Redirection After Boot	Enables or disables the BIOS console redirection when the operating system is loaded. This option is set to **Enabled** by default.

System Profile Settings

To view the **System Profile Settings** screen, power on the system, press F2, and click **System Setup Main Menu** > **System BIOS** > **System Profile Settings**.

Table 68. System Profile Settings details

Option	Description
System Profile	Sets the system profile. If you set the System Profile option to a mode other than **Performance Per Watt (DAPC)**, the BIOS automatically sets the rest of the options. You can only change the rest of the options if the mode is set to **Custom**. This option is set to **Performance Per Watt (DAPC)** by default. Other options include **Custom**, **Performance**, **Performance Per Watt (OS)** and **Workstation Performnce**. **NOTE:** All the parameters on the system profile setting screen are available only when the **System Profile** option is set to **Custom**.
Optimized Power Mode	Enables or disables **Optimized Power Mode**. When set to **Enabled**, processor is tuned for lower power consumption.
CPU Power Management	Sets the CPU power management. This option is set to **System DBPM (DAPC)** by default. Other option includes **Maximum Performance**, **OS DBPM**.
Memory Frequency	Sets the speed of the system memory. You can select **Maximum Performance**, **Maximum Reliability** or a specific speed. This option is set to **Maximum Performance** by default.
Turbo Boost	Enables or disables the processor to operate in the turbo boost mode. This option is set to **Enabled** by default.
Enery Efficient Turbo	Energy Efficient Turbo (EET) is a mode of operation where a processor's core frequency is adjusted within the turbo range based on workload. This option is set to **Enabled** by default.
C1E	Enables or disables the processor to switch to a minimum performance state when it is idle. This option is set to **Enabled** by default.
C-States	Enables or disables the processor to operate in all available power states. C States allow the processor to enter lower power states when idle. When set to **Enabled** (operating system controlled) or when set to **Autonomous** (if hardware controlled is supported), the processor can operate in all available Power States to save power, but may increase memory latency and frequency jitter. This option is set to **Enabled** by default.
Memory Patrol Scrub	Sets the memory patrol scrub mode. This option is set to **Standard** by default.
Memory Refresh Rate	Sets the memory refresh rate to either 1x or 2x. This option is set to **1x** by default.
Uncore Frequency	Enables you to select the **Uncore Frequency** option. **Dynamic mode** enables the processor to optimize power resources across cores and uncores during runtime. The optimization of the uncore frequency to either save power or optimize performance is influenced by the setting of the **Energy Efficiency Policy** option.
Energy Efficient Policy	Enables you to select the **Energy Efficient Policy** option. The CPU uses the setting to manipulate the internal behavior of the processor and determines whether to target higher performance or better power savings. This option is set to **Balanced Performance** by default.
Monitor/Mwait	Enables the Monitor/Mwait instructions in the processor. This option is set to **Enabled** for all system profiles, except **Custom** by default.

Table 68. System Profile Settings details (continued)

Option	Description
	NOTE: This option can be disabled when System Profile is set to **Custom**. **NOTE:** When C States is set to Enabled in the Custom mode, changing the Monitor/Mwait setting does not impact the system power or performance.
Workload Profile	This option allows the user to specify the targeted workload of a server. It allows optimization of performance based on the workload type. This option is set to **Not Configured** by default.
CPU Interconnect Bus Link Power Management	Enables or disables the CPU Interconnect Bus Link Power Management. This option is set to **Enabled** by default.
PCI ASPM L1 Link Power Management	Enables or disables the PCI **ASPM L1 Link Power Management**. This option is set to **Enabled** by default.

System Security

To view the **System Security** screen, power on the system, press F2, and click **System Setup Main Menu** > **System BIOS** > **System Security**.

Table 69. System Security details

Option	Description
CPU AES-NI	Improves the speed of applications by performing encryption and decryption by using the Advanced Encryption Standard Instruction Set (AES-NI). This option is set to **Enabled** by default.
Strong Password Status	This option is set to **Disabled**. When **Enabled**, you must set up a password that has at least one character in lowercase, uppercase, digit, and a special character. When **Disabled**, you can set a password that has any character in it but the password must not have more than 32 characters. Changes made by enabling or disabling this feature take effect right away.
System Password	Sets the system password. This option is set to **Enabled** by default and is read-only if the password jumper is not installed in the system.
Setup Password	Sets the setup password. This option is read-only if the password jumper is not installed in the system.
Password Status	Locks the system password. This option is set to **Unlocked** by default.
TPM Information	Indicates the type of Trusted Platform Module, if present.

Table 70. TPM 2.0 security information

Option	Description
TPM Information	
TPM Security	**NOTE:** The TPM menu is available only when the TPM module is installed. Enables you to control the reporting mode of the TPM. When set to Off, the presence of the TPM is not reported to the OS. When set to On, the presence of the TPM is reported to the OS. The **TPM Security** option is set to **Off** by default.
	When TPM 2.0 is installed, the **TPM Security** option is set to **On** or **Off**. This option is set to **Off** by default.
TPM Information	Indicates the type of Trusted Platform Module, if present.
TPM Firmware	Indicates the firmware version of the TPM.
TPM Hierarcy	Enables, disables, or clears the storage and endorsement hierarchies. When set to **Enabled**, the storage and endorsement hierarchies can be used.

Table 70. TPM 2.0 security information (continued)

Option		Description
		When set to **Disabled**, the storage and endorsement hierarchies cannot be used.
		When set to **Clear**, the storage and endorsement hierarchies are cleared of any values, and then reset to **Enabled**.
TPM Advanced Settings	**TPM PPI Bypass Provision**	When set to **Enabled**, allows the Operating System to bypass Physical Presence Interface (PPI) prompts when issuing PPI Advanced Configuration and Power interface (ACPI) provisioning operations. This option is set to **Disabled** by default.
	TPM PPI Bypass Clear	When set to **Enabled** allows the Operating System to bypass Physical Presence Interface (PPI) prompts when issuing PPI Advanced Configuration and Power Interface (ACPI) clear operations. This option is set to **Disabled** by default
	TPM2 Algorithm Selection	Allows the user to change the cryptographic algorithms used in the Trusted Platform Module (TPM). The available options are dependent on the TPM firmware. To enable TPM2 Algorithm Selection, Intel(R) TXT technology must be disabled. The TPM2 Algorithm Selection option supports SHA1, SHA128, SHA256, SHA512 and SM3 by detecting the TPM module. This option is set to SHA256 by default.

Table 71. System Security details

Option	Description
Intel(R) TXT	Enables you to set the Intel Trusted Execution Technology (TXT) option. To enable the **Intel TXT** option, virtualization technology and TPM Security must be enabled with Preboot measurements. This option is set to **Off** by default. It is set **On** for Secure Launch (Firmware Protection) support on Windows 2022.
Memory Encryption	Enables or disables the Intel Total Memory Encryption (TME) and MultiTenant (Intel® TME-MT). When the option is set to **Disabled**, BIOS disables both TME and MK-TME technology. When the option is set to **Single Key** BIOS enables the TME technology. When the option is set to **Multiple Keys**, BIOS enables the TME-MT technology. This option is set to **Disabled** by default.
TME Encryption Bypass	Allows the option to bypass the Intel Total Memory Encryption. This option is set to **Disabled** by default.
Intel(R) SGX	Enables you to set the Intel Software Guard Extension (SGX) option. To enable the **Intel SGX** option, the processor must be SGX capable, memory population must be compatible (minimum x8 identical DIMM1 to DIMM8 per CPU socket, not support on persistent memory configuration), memory operating mode must be set at optimizer mode, memory encryption must be enabled and node interleaving must be disabled. This option is set to **Off** by default. When this option is to **Off**, BIOS disables the SGX technology. When this option is to **On**, BIOS enables the SGX technology.
SGX Package Info In-Band Access	Enables you to access the Intel Software Guard Extension (SGX) package info in-band option. This option is set to **Off** by default.
PPMRR Size	Sets the PPMRR size.
SGX QoS	Enables or disables the SGX quality of service. This option is set to **Enabled** by default.
Select Owner EPOCH input type	Enables you to select **Change to New random Owner EPOCHs** or **Manual User Defined Owner EPOCHs**. Each EPOCH is 64-bit. After generating a new EPOCH by selecting **Change to New random Owner EPOCHs**, the selection reverts to **Manual User Defined Owner EPOCHs**.
	Software Guard Extensions Epoch n: Sets the Software Guard Extensions Epoch values.
Enable writes to SGXLEPUBKEYHASH[3..0] from OS/SW	Enables or disables the Enable writes to SGXLEPUBKEYHASH[3:0] from OS/SW. This option is set to **Enabled** by default.

Table 71. System Security details (continued)

Option	Description
	SGX LE Public Key Hash0: Sets the bytes from 0-7 for SGX Launch Enclave Public Key Hash.
	SGX LE Public Key Hash1: Sets the bytes from 8-15 for SGX Launch Enclave Public Key Hash.
	SGX LE Public Key Hash2: Sets the bytes from 16-23 for SGX Launch Enclave Public Key Hash.
	SGX LE Public Key Hash3: Sets the bytes from 24-31 for SGX Launch Enclave Public Key Hash.
Enable/Disable SGX Auto MP Registration Agent	Enables are disabled the SGX Auto MP Registration. The MP registration agent is responsible to register the platform.
SGX Factory Reset	Enables you to reset the SGX option to factory settings. This option is set to **Off** by default.
Power Button	Enables or disables the power button on the front of the system. This option is set to **Enabled** by default.
AC Power Recovery	Sets how the system behaves after AC power is restored to the system. This option is set to **Last** by default. **NOTE:** The host system will not power on until iDRAC Root of Trust (RoT) is completed, host power on will be delayed by minimum 90 s after the AC applied.
AC Power Recovery Delay	Sets the time delay for the system to power on after AC power is restored to the system. This option is set to **Immediate** by default. When this option is set to **Immediate**, there is no delay for power on. When this option is set to **Random**, the system creates a random delay for power on. When this option is set to **User Defined**, the system delay time is manually to power on.
User Defined Delay (120s to 600s)	Sets the **User Defined Delay** option when the **User Defined** option for **AC Power Recovery Delay** is selected. The actual AC recovery time needs to add iDRAC root of trust time (around 50 seconds).
UEFI Variable Access	Provides varying degrees of securing UEFI variables. When set to **Standard** (the default), UEFI variables are accessible in the operating system per the UEFI specification. When set to **Controlled**, selected UEFI variables are protected in the environment and new UEFI boot entries are forced to be at the end of the current boot order.
In-Band Manageability Interface	When set to **Disabled** , this setting hides the Management Engine's (ME), HECI devices, and the system's IPMI devices from the operating system. This prevents the operating system from changing the ME power capping settings, and blocks access to all in-band management tools. All management should be managed through out-of-band. This option is set to **Enabled** by default. **NOTE:** BIOS update requires HECI devices to be operational, and DUP updates require IPMI interface to be operational. This setting needs to be set to Enabled to avoid updating errors.
SMM Security Mitigation	Enables or disables the UEFI SMM security mitigation protections. It is set to **Disabled** by default.
Secure Boot	Enables Secure Boot, where the BIOS authenticates each preboot image by using the certificates in the Secure Boot Policy. Secure Boot is set to **Disabled** by default.
Secure Boot Policy	When the Secure Boot policy is set to **Standard**, the BIOS uses the system manufacturer's key and certificates to authenticate preboot images. When the Secure Boot policy is set to **Custom**, the BIOS uses the user-defined key and certificates. The secure Boot policy is set to **Standard** by default. Predefined Secure Boot Policies available are Linux(R) Boot, VMware(R) Boot, Microsoft(R) Boot. For example, when the Secure Boot Policy is set to Windows(R) Boot, the Secure Boot policy includes only those certificates necessary to boot Windows(R) operating systems. These predefined

Table 71. System Security details (continued)

Option	Description
	policies help reduce the system's attack surface by removing certificates in the Secure Boot Policy that are not needed for the chosen operating system.
Secure Boot Mode	Configures how the BIOS uses the Secure Boot Policy Objects (PK, KEK, db, dbx).
	If the current mode is set to **Deployed Mode**, the available options are **User Mode** and **Deployed Mode**. If the current mode is set to **User Mode**, the available options are **User Mode**, **Audit Mode**, and **Deployed Mode**.
	Below are the details of different boot modes available in the **Secure Boot Mode** option. **User Mode** — In **User Mode**, PK must be installed, and BIOS performs signature verification on programmatic attempts to update policy objects. The BIOS allows unauthenticated programmatic transitions between modes. **Audit mode** — In **Audit Mode**, PK is not present. BIOS does not authenticate programmatic update to the policy objects and transitions between modes. The BIOS performs a signature verification on preboot images and logs the results in the image Execution Information Table, but runs the images whether they pass or fail verification. **Audit Mode** is useful for programmatic determination of a working set of policy objects. **Deployed Mode** — **Deployed Mode** is the most secure mode. In **Deployed Mode**, PK must be installed and the BIOS performs signature verification on programmatic attempts to update policy objects. **Deployed Mode** restricts the programmatic mode transitions.
Secure Boot Policy Summary	Specifies the below list of certificates and hashes that secure boot uses to authenticate images:
	Platform Key (PK)
	Key Exchange Key (KEK) Database Entries
	Authorized Signature Database (db) Entries
	Forbidden Signature Database (dbx) Entries
Secure Boot Custom Policy Settings	Configures the Secure Boot Custom Policy. To enable this option, set the Secure Boot Policy to **Custom** option. The following options are available once we enter **Secure Boot Custom Policy Settings**:
	Platform Key (PK)
	Key Exchange Key Database (KEK)
	Authorized Signature Database (db)
	Forbidden Signature Database (dbx)
	Delete All Policy Entries (PK, KEK, db, and dbx)
	Restore Default Policy Entries (PK, KEK, db, and dbx)
	Export Firmware Hash Values
UEFI CA Certificate Scope	This setting controls how the Secure Boot feature uses the industry standard UEFI CA certificate in the Authorized Signature Database (db). For example, system administrators can configure this setting to use the UEFI CA certificate only for verifying boot device firmware (such as RAID controller firmware or NIC firmware) and not for verifying operating system loaders. This is useful in preventing attacks that exploit vulnerable operating system loaders that are signed by the UEFI CA certificate.

Creating a system and setup password

Prerequisites

Ensure that the password jumper is enabled. The password jumper enables or disables the system password and setup password features. For more information, see the section.

NOTE: If the password jumper setting is disabled, the existing system password and setup password are deleted and you need not provide the system password to boot the system.

Steps

1. To enter System Setup, press F2 immediately after turning on or rebooting your system.
2. On the **System Setup Main Menu** screen, click **System BIOS** > **System Security**.
3. On the **System Security** screen, verify that **Password Status** is set to **Unlocked**.
4. In the **System Password** field, type your system password, and press Enter or Tab.

   Use the following guidelines to assign the system password:

   - A password can have up to 32 characters.

   A message prompts you to reenter the system password.
5. Reenter the system password, and click **OK**.
6. In the **Setup Password** field, type your setup password and press Enter or Tab.
   A message prompts you to reenter the setup password.
7. Reenter the setup password, and click **OK**.
8. Press Esc to return to the System BIOS screen. Press Esc again.

   A message prompts you to save the changes.

   NOTE: Password protection does not take effect until the system reboots.

Using your system password to secure your system

About this task

If you have assigned a setup password, the system accepts your setup password as an alternate system password.

Steps

1. Turn on or reboot your system.
2. Type the system password and press Enter.

Next steps

When **Password Status** is set to **Locked**, type the system password and press Enter when prompted at reboot.

NOTE: If an incorrect system password is typed, the system displays a message and prompts you to reenter your password. You have three attempts to type the correct password. After the third unsuccessful attempt, the system displays an error message that the system has stopped functioning and must be turned off. Even after you turn off and restart the system, the error message is displayed until the correct password is entered.

Deleting or changing system and setup password

Prerequisites

NOTE: You cannot delete or change an existing system or setup password if the **Password Status** is set to **Locked**.

Steps

1. To enter System Setup, press F2 immediately after turning on or restarting your system.
2. On the **System Setup Main Menu** screen, click **System BIOS** > **System Security**.
3. On the **System Security** screen, ensure that **Password Status** is set to **Unlocked**.

4. In the **System Password** field, alter or delete the existing system password, and then press Enter or Tab.
5. In the **Setup Password** field, alter or delete the existing setup password, and then press Enter or Tab.

   If you change the system and setup password, a message prompts you to reenter the new password. If you delete the system and setup password, a message prompts you to confirm the deletion.
6. Press Esc to return to the **System BIOS** screen. Press Esc again, and a message prompts you to save the changes.
7. Select **Setup Password**, change, or delete the existing setup password and press Enter or Tab.

   NOTE: If you change the system password or setup password, a message prompts you to reenter the new password. If you delete the system password or setup password, a message prompts you to confirm the deletion.

Operating with setup password enabled

If **Setup Password** is set to **Enabled**, type the correct setup password before modifying the system setup options.

If you do not type the correct password in three attempts, the system displays the following message:

```
Invalid Password! Number of unsuccessful password attempts: <x> System Halted! Must
power down.
```

Even after you power off and restart the system, the error message is displayed until the correct password is typed. The following options are exceptions:

- If **System Password** is not set to **Enabled** and is not locked through the **Password Status** option, you can assign a system password. For more information, see the System Security Settings screen section.
- You cannot disable or change an existing system password.

NOTE: You can use the password status option with the setup password option to protect the system password from unauthorized changes.

Redundant OS Control

To view the **Redundant OS Control** screen, power on the system, press F2, and click **System Setup Main Menu** > **System BIOS** > **Redundant OS Control**.

Table 72. Redundant OS Control details

Option	Description
Redundant OS Location	Enables you to select a backup disk from the following devices:
Redundant OS State	**NOTE:** This option is disabled if **Redundant OS Location** is set to **None**. When set to **Visible**, the backup disk is visible to the boot list and OS. When set to **Hidden**, the backup disk is disabled and is not visible to the boot list and OS. This option is set to **Visible** by default. **NOTE:** BIOS disables the device in hardware, so it is not accessed by the OS.
Redundant OS Boot	**NOTE:** This option is disabled if **Redundant OS Location** is set to **None** or if **Redundant OS State** is set to **Hidden**. When set to **Enabled**, BIOS boots to the device specified in **Redundant OS Location**. When set to **Disabled**, BIOS preserves the current boot list settings. This option is set to **Disabled** by default.

Miscellaneous Settings

To view the **Miscellaneous Settings** screen, power on the system, press F2, and click **System Setup Main Menu** > **System BIOS** > **Miscellaneous Settings**.

Table 73. Miscellaneous Settings details

Option	Description
System Time	Enables you to set the time on the system.
System Date	Enables you to set the date on the system.
Time Zone	Enables you to select required Time Zone.
Daylight Savings Time	Enables or disables Daylight Savings Time. This option is set to **Disabled** by default.
Asset Tag	Specifies the asset tag and enables you to modify it for security and tracking purposes.
Keyboard NumLock	Enables you to set whether the system boots with the NumLock enabled or disabled. This option is set to **On** by default. **NOTE:** This option does not apply to 84-key keyboards.
F1/F2 Prompt on Error	Enables or disables the F1/F2 prompt on error. This option is set to **Enabled** by default. The F1/F2 prompt also includes keyboard errors.
Load Legacy Video Option ROM	This option determines whether th system BIOS will load legacy video (INT 10h) option ROM from the video controller. This option is set to **Disabled** by default. **NOTE:** This option cannot be set to Enabled, when the Boot mode is UEFI and Secure Boot is enabled.
Dell Wyse P25/P45 BIOS Access	Enables or disables the Dell Wyse P25/P45 BIOS Access. This option is set to **Enabled** by default.
Power Cycle Request	Enables or disables the Power Cycle Request. This option is set to **None** by default.

iDRAC Settings

The iDRAC settings is an interface to set up and configure the iDRAC parameters by using UEFI. You can enable or disable various iDRAC parameters by using the iDRAC settings.

NOTE: Accessing some of the features on the iDRAC settings needs the iDRAC Enterprise License upgrade.

For more information about using iDRAC, see *Dell Integrated Dell Remote Access Controller User's Guide* at https://www.dell.com/idracmanuals.

Device Settings

Device Settings enables you to configure device parameters such as storage controllers or network cards.

Service Tag Settings

Service Tag Settings enables you to configure the System Service Tag.

Dell Lifecycle Controller

Dell Lifecycle Controller (LC) provides advanced embedded systems management capabilities including system deployment, configuration, update, maintenance, and diagnosis. LC is delivered as part of the iDRAC out-of-band solution and Dell system embedded Unified Extensible Firmware Interface (UEFI) applications.

Embedded system management

The Dell Lifecycle Controller provides advanced embedded system management throughout the lifecycle of the system. The Dell Lifecycle Controller is started during the boot sequence and functions independently of the operating system.

NOTE: Certain platform configurations may not support the full set of features provided by the Dell Lifecycle Controller.

For more information about setting up the Dell Lifecycle Controller, configuring hardware and firmware, and deploying the operating system, see the Dell Lifecycle Controller documentation at https://www.dell.com/idracmanuals.

Boot Manager

The **Boot Manager** option enables you to select boot options and diagnostic utilities.

To enter **Boot Manager**, power on the system and press F11.

Table 74. Boot Manager details

Option	Description
Continue Normal Boot	The system attempts to boot to devices starting with the first item in the boot order. If the boot attempt fails, the system continues with the next item in the boot order until the boot is successful or no more boot options are found.
One-shot UEFI Boot Menu	Enables you to access boot menu, where you can select a one-time boot device to boot from.
Launch System Setup	Enables you to access System Setup.
Launch Lifecycle Controller	Exits the Boot Manager and invokes the Dell Lifecycle Controller program.
System Utilities	Enables you to launch System Utilities menu such as Launch Diagnostics, BIOS update File Explorer, Reboot System.

PXE boot

You can use the Preboot Execution Environment (PXE) option to boot and configure the networked systems remotely.

To access the **PXE boot** option, boot the system and then press F12 during POST instead of using standard Boot Sequence from BIOS Setup. It does not pull any menu or allows managing of network devices.

6

Minimum to POST and system management configuration validation

This section describes the minimum to POST system requirement and system management configuration validation of the Dell system.

Topics:

Minimum configuration to POST

The components listed below are the minimum configuration to POST:

- One processor in processor socket 1 and heat sink
- One memory modules (DIMM) in slot A1
- One power supply unit
- System board + Power Interposer board + cables + RCP cable

NOTE: The system may generate errors during POST when in a "Minimum to POST" configuration. This is expected as a "Minimum to POST" configuration is not validated for operational uses, and is only to be used for troubleshooting or diagnostic purposes.

Configuration validation

The new generation of Dell systems have added interconnect flexibility and advanced iDRAC management features to collect precise system configuration information and report configuration errors.

When the system is powered on, information about installed cables, risers, backplanes, power supplies, floating card (fPERC, adapter PERC , BOSS), and processor is obtained from the CPLD and backplane memory maps are analyzed. This information forms a unique configuration, which is compared with one of the qualified configurations that are stored in a table that is maintained by iDRAC.

One or more sensors are assigned to each of the configuration elements. During POST, any configuration validation error is logged in the System Event Log (SEL)/LifeCycle (LC) log. The reported events are categorized in the configuration validation error table.

Table 75. Configuration validation error

Error	Description	Possible cause and recommendations	Example
Config Error	A configuration element within the closest match contains something that is unexpected and does not match any Dell qualified configuration.	Wrong configuration	Config Error: Backplane cable CTRS_SRC_SA1 and BP-DST_SA1
		The element reported in HWC8010 errors are assembled incorrectly. Verify element (cable, risers, etc) placement in the system.	Config Error : SL Cable PLANAR_SL7 and CTRL_DST_PA1
Config Missing	iDRAC found a configuration element missing within the closest match detected.	Missing or damaged cable, device, or part	Config Missing: Float card front PERC/HBAadapter PERC/HBA

Table 75. Configuration validation error (continued)

Error	Description	Possible cause and recommendations	Example
		Missing element or cable is reported in HWC8010 error logs. Install the missing element (cable, risers, etc).	Config Missing : SL cable PLANAR_SL8 and CTRL_DST_PA1
Comm Error	A configuration element is not responding to iDRAC using the management interface while running an inventory check.	System management sideband communication	Comm Error: Backplane 2
		Unplug AC Power, reseat the element and replace the element if the problem persists.	

Error messages

This section describes the error messages that are displayed on the screen during POST or captured in the system event log (SEL)/LifeCycle (LC) log.

Table 76. Error message HWC8010

Error code	HWC8010
Message	The System Configuration Check operation that is resulted in the following issue involving the indicated component type
Arguments	Riser, floating card (fPERC, adapter PERC, BOSS), backplane, processor, cable, or other components
Detailed Description	The issue that is identified in the message is observed in the System Configuration Check operation.
Recommended Response Action	Do the following and retry the operation: 1. Disconnect the input power. 2. Check for proper cable connection and component placement. If the issue persists, contact the service provider.
Category	System Health (HWC = Hardware Config)
Severity	Critical
Trap/EventID	2329

Table 77. Error message HWC8011

Error code	HWC8011
Message	The System Configuration Check operation that is resulted in multiple issues involving the indicated component type
Arguments	Riser, floating card (fPERC, adapter PERC, BOSS), backplane, processor, cable, or other components
Detailed Description	Multiple issues are observed in the System Configuration Check operation.
Recommended Response Action	Do the following and retry the operation: 1. Disconnect the input power. 2. Check for proper cable connection and component placement. If the issue persists, contact the service provider.
Category	System Health (HWC = Hardware Config)
Severity	Critical

7

Installing and removing system components

Topics:

Safety instructions

NOTE: Whenever you need to lift the system, get others to assist you. To avoid injury, do not attempt to lift the system by yourself.

CAUTION: Ensure that two or more people lift the system horizontally from the box and place it on a flat surface, rack lift, or into the rails.

WARNING: Opening or removing the system cover while the system is powered on may expose you to a risk of electric shock.

WARNING: Do not operate the system without the cover for a duration exceeding five minutes. Operating the system without the system cover can result in component damage.

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or

telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that are shipped with your product.

NOTE: It is recommended that you always use an antistatic mat and antistatic strap while working on components inside the system.

CAUTION: To ensure proper operation and cooling, all system bays and fans must always be populated with a component or a blank.

NOTE: While replacing the hot swappable PSU, after next server boot, the new PSU automatically updates to the same firmware and configuration of the replaced one. For updating to the latest firmware and changing the configuration, see the *Lifecycle Controller User's Guide* at https://www.dell.com/idracmanuals.

NOTE: While replacing faulty storage controller, FC, or NIC card with the same type of card, after you power on the system, the new card automatically updates to the same firmware and configuration of the faulty one. For updating to the latest firmware and changing the configuration, see the *Lifecycle Controller User's Guide* at https://www.dell.com/idracmanuals.

Before working inside your system

Prerequisites

Follow the safety guidelines listed in the Safety instructions.

Steps

1. Power off the system and all attached peripherals.
2. Disconnect the system from the electrical outlet and disconnect the peripherals.
3. If applicable, remove the system from the rack.
   For more information, see the *Rail Installation Guide* relevant to your rail solutions at www.dell.com/poweredgemanuals.
4. Remove the system cover.

After working inside your system

Prerequisites

Follow the safety guidelines listed in Safety instructions.

Steps

1. Replace the system cover.
2. If applicable, install the system into the rack.
   For more information, see the *Rail Installation Guide* relevant to your system at www.dell.com/poweredgemanuals.
3. Reconnect the peripherals and connect the system to the electrical outlet, and then power on the system.

Recommended tools

You may need some or all of the following tools to perform the removal and installation procedures:

- Phillips 1 screwdriver
- Phillips 2 screwdriver
- Torx T30 screwdriver
- 5 mm hex nut screwdriver
- Plastic scribe
- 1/4-inch flat blade screwdriver
- Wrist grounding strap connected to the ground
- ESD mat

- Needle-nose pliers

You need the following tools to assemble the cables for a DC power supply unit:

- AMP 90871-1 hand-crimping tool or equivalent
- Tyco Electronics 58433-3 or equivalent
- Wire-stripper pliers to remove insulation from size 10 AWG solid or stranded, insulated copper wire

  NOTE: Use alpha wire part number 3080 or equivalent (65/30 stranding).

NOTE: For information about DC PSU cabling instructions, go to https://www.dell.com/poweredgemanuals > **XR Servers** > PowerEdge XR7620 > **Select This Product** > **Documentation** > **Manuals and Documents** > *Cabling instructions for – 48 – 60 V DC power supply*.

Optional front bezel

Removing the front bezel

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Keep the bezel key handy.

   NOTE: The bezel key is part of the LED bezel package.

Steps

1. Pressing the bezel at its edges, remove the bezel.
2. Remove the left and right hook holder from the ears.

Figure 33. Removing the front bezel for Rear Accessed configuration

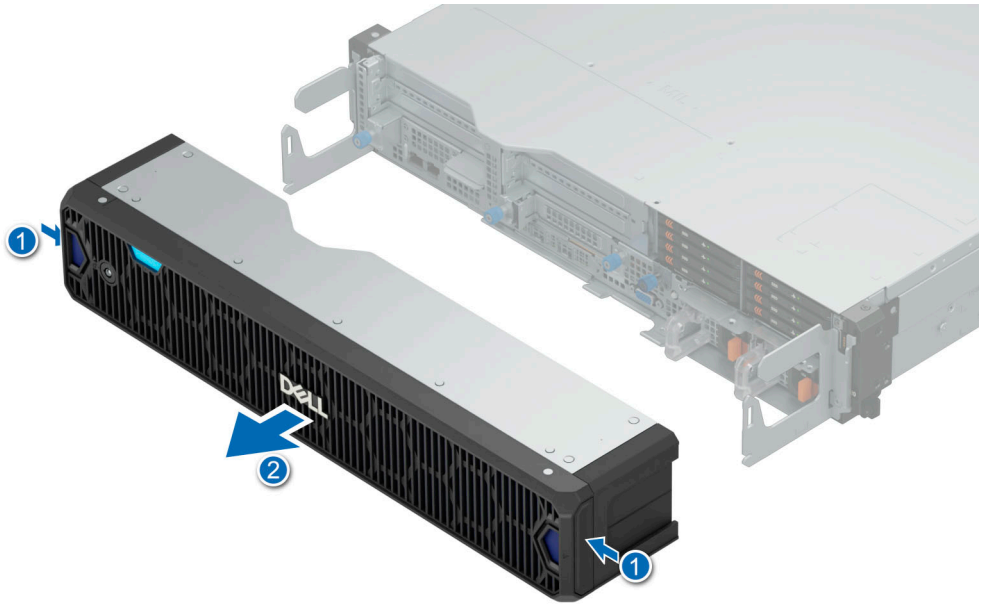


Figure 34. Removing the front bezel for Front Accessed configuration

Next steps

Replace front bezel.

Installing the front bezel

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Locate and remove the bezel key.

   NOTE: The bezel key is part of the LED bezel package.

Steps

1. Assemble the left and right hook holder on both the ears.
2. Align the screws on the sides of the bezel with the holes on the system rack ears.
3. Tighten the screws that secure the bezel on both sides of the system rack ears.

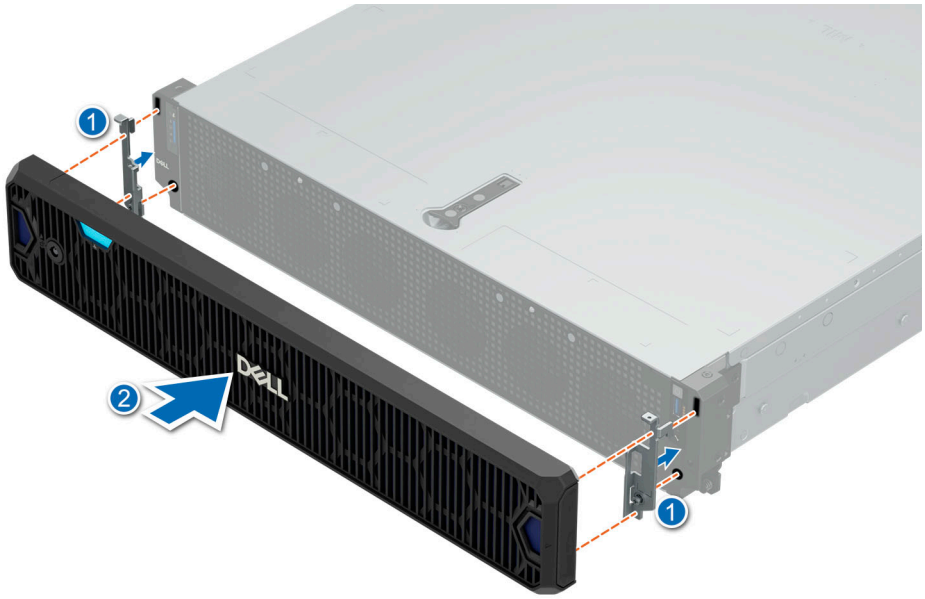


Figure 35. Installing the front bezel for Rear Accessed configuration

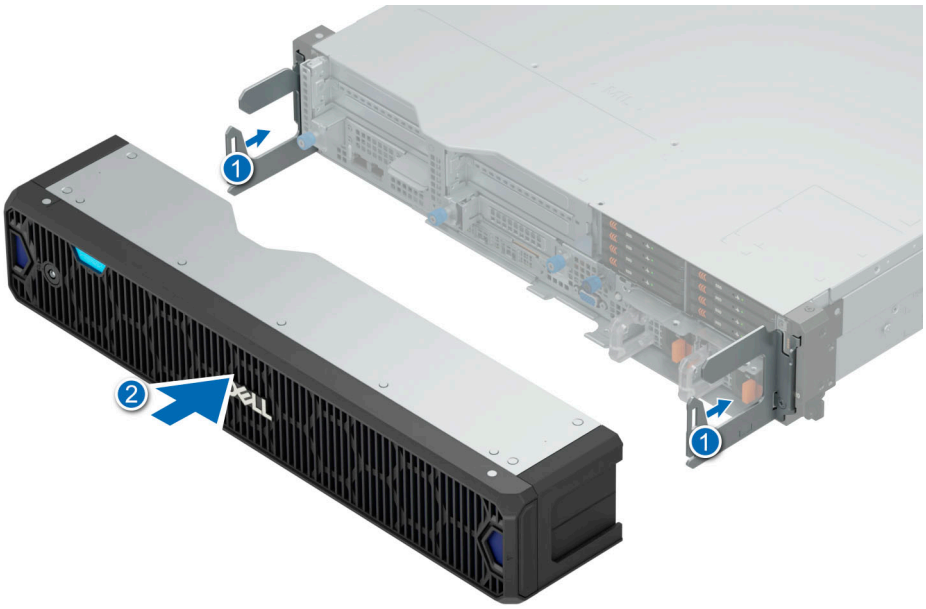


Figure 36. Installing the front bezel for Front Accessed configuration

Bezel filter

Bezel filter service guide

Cleaning air filters is not recommended by major telecommunication carriers and service providers, the governing NEBS Standards have stated air filters should be replaced. NEBS GR-63-CORE, Section 4.1.5.2 Fan-Cooled Equipment Criteria, Requirement R4-27, states the following:

"Equipment fan filters shall be single use and not the types that require cleaning."

General guidelines

Based on network equipment environmental criteria, telecommunications industry standards, thermal management concerns, and fiscal assessments, it is recommended air filters are to be replaced every three to six months, or within the recommended preventive maintenance schedule.

Storing air filters for more than 6 months is not recommended. Instead, purchase cost-effective quantities and keep sufficient inventories based on your replacement cycle. Telecom air filters have improved permanence (service life) in an operating situation with air movement and ventilation.

NOTE: To maintain optimal system health, Dell Technologies recommends checking and changing the filter every three months. Filters can be ordered from Dell.

CAUTION: Make sure to reset the air filter life when and only when a new bezel filter is installed, the reset triggers a one-time maximum fan speed to establish a new baseline for air flow pressure in Active Sensing mode, failing to do so results in an incorrect thermal event.

Removing the bezel filter

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the bezel.

Steps

Press the release tab on both the sides of the bezel filer and lift the filter away from the bezel.

NOTE: To maintain optimal system health, Dell Technologies recommends checking and changing the filter every three months. Filters can be ordered from Dell Technologies.

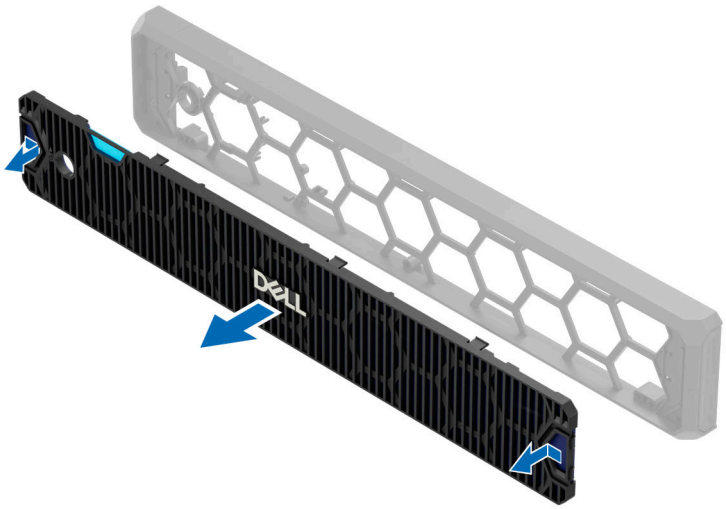


Figure 37. Removing the bezel filter for Rear Accessed configuration

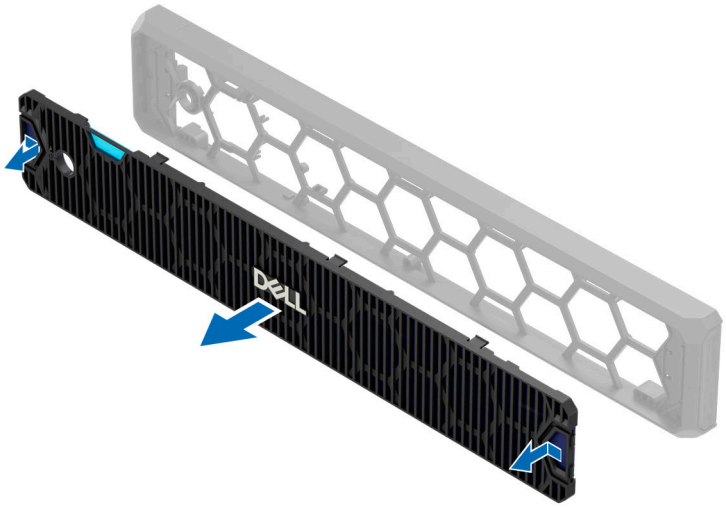


Figure 38. Removing the bezel filter for Front Accessed configuration

Next steps

1. Replace the bezel filter.
2. Install the bezel.

Installing the bezel filter

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the bezel.

Steps

Align the tabs on the bezel filter with the guide slots on the bezel.

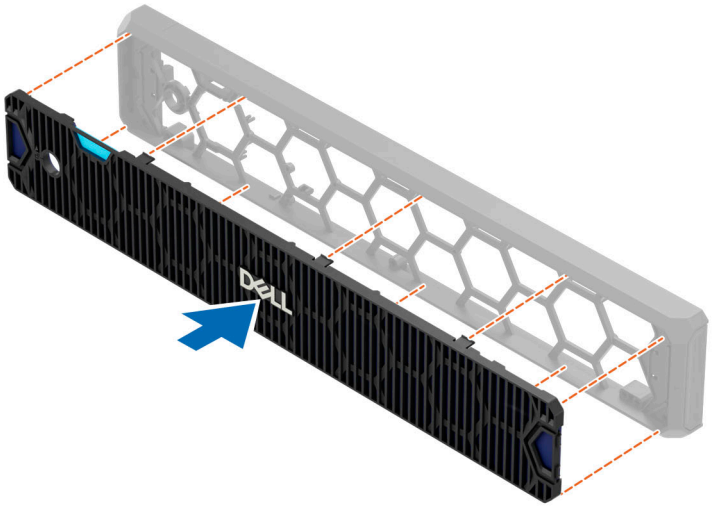


Figure 39. Installing the bezel filter for Rear Accessed configuration

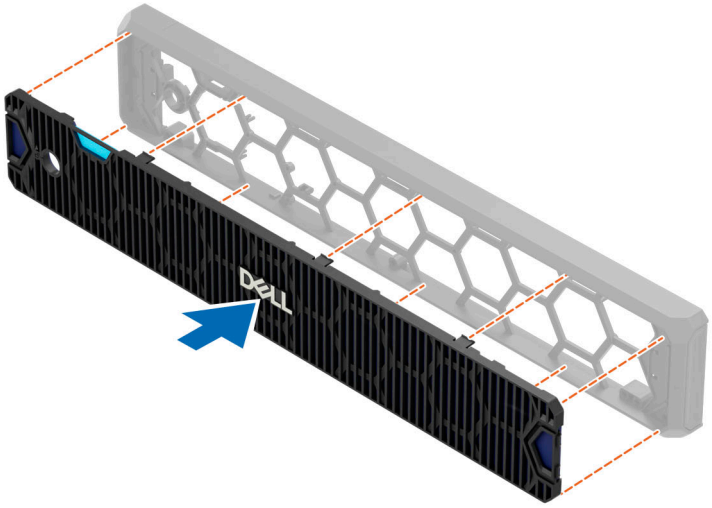


Figure 40. Installing the bezel filter for Front Accessed configuration

Next steps

1. Install the bezel.

System cover

Removing the system cover

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.

2. Power off the system, and any attached peripherals.
3. Disconnect the system from the electrical outlet and peripherals.

Steps

1. Using a 1/4-inch flat head or a Phillips 2 screwdriver, rotate the lock counterclockwise to the unlock position.
2. Lift the release latch until the system cover slides back.
3. Lift the cover from the system.

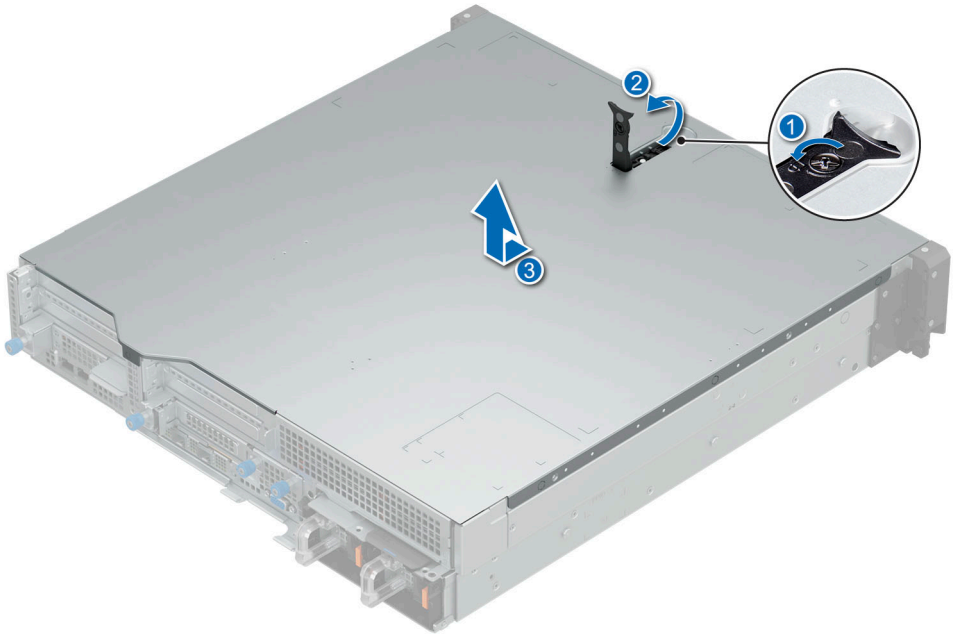


Figure 41. Removing the system cover for Rear Accessed configuration

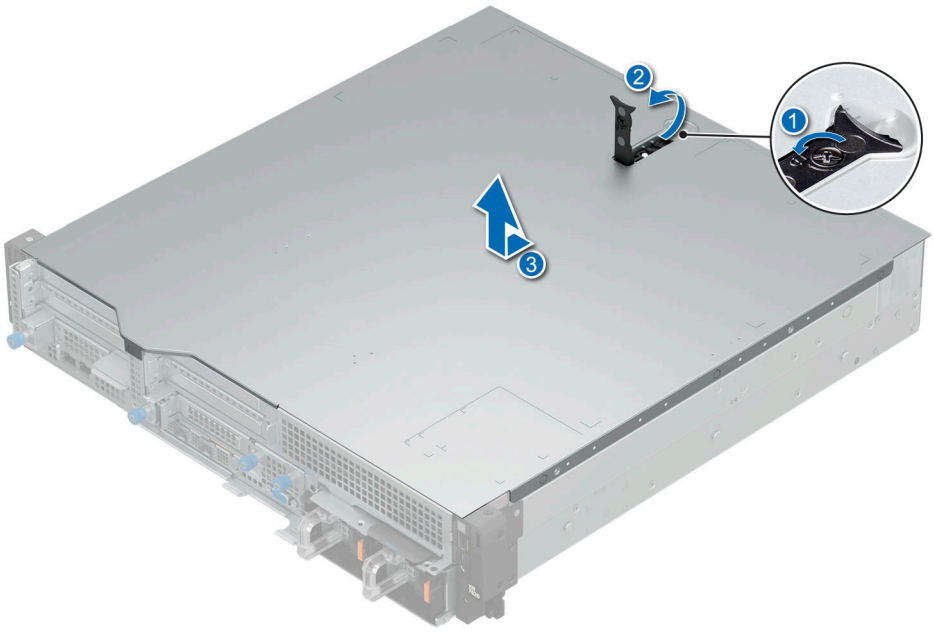


Figure 42. Removing the system cover for Front Accessed configuration

Next steps

1. Replace the system cover.

Installing the system cover

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in Before working inside your system.
3. Ensure that all internal cables are connected and routed properly, and no tools or extra parts are left inside the system.

Steps

1. Align the tabs on the system cover with the guide slots on the system and slide the system cover.
2. Close the system cover release latch.
3. Using a 1/4-inch flat head or Phillips 2 screwdriver, rotate the lock clockwise to the lock position.

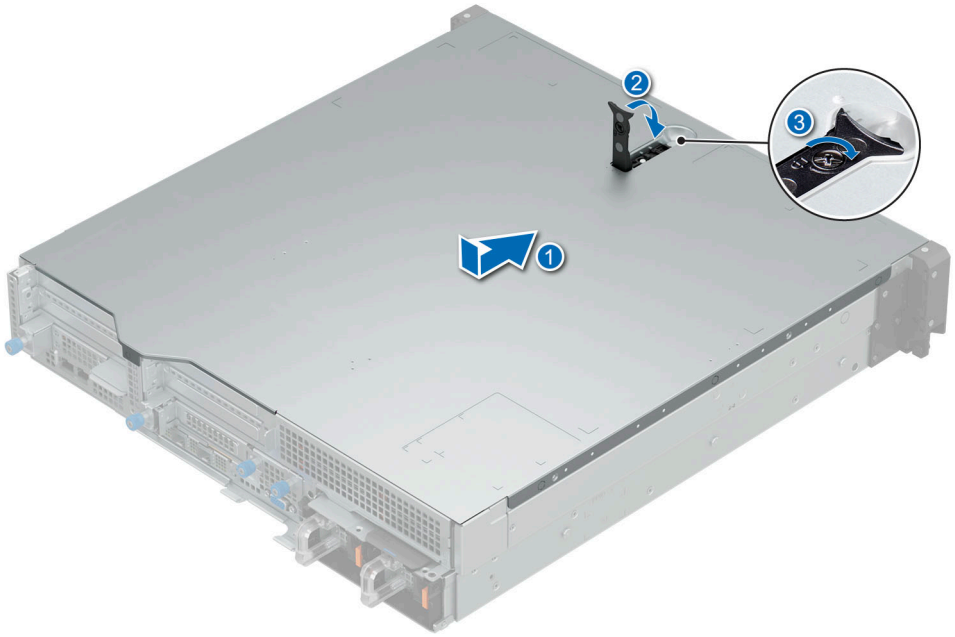


Figure 43. Installing the system cover for Rear Accessed configuration

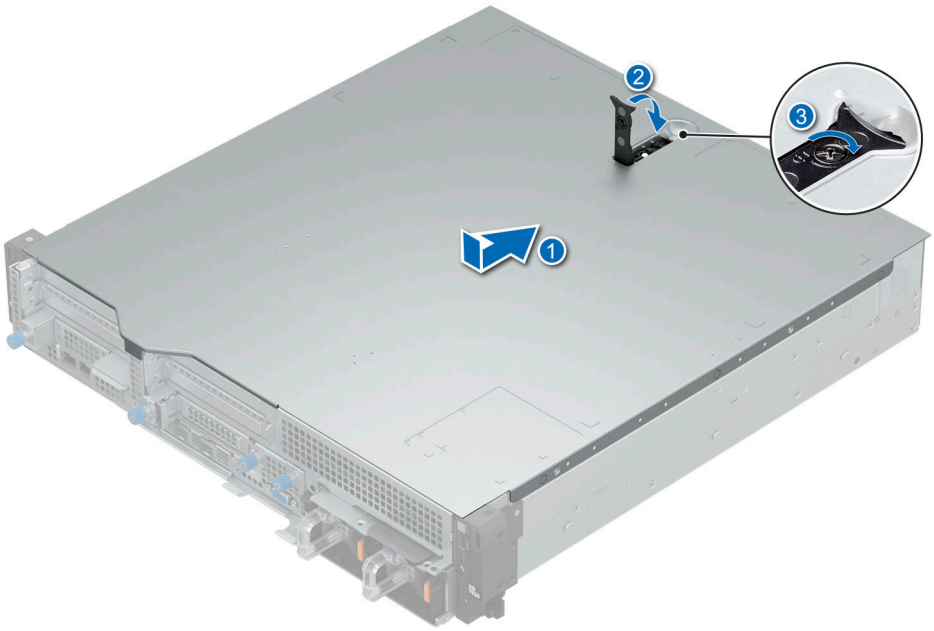


Figure 44. Installing the system cover for Front Accessed configuration

Next steps

1. Follow the procedure listed in After working inside your system.

Air shrouds

Removing the 2U air shroud

Prerequisites

NOTE: Never operate your system with the air shroud removed. The system may get overheated quickly, resulting in shutdown of the system and loss of data.

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in Before working inside your system.

Steps

Hold the edges of the air shroud, and lift the air shroud out of the system.

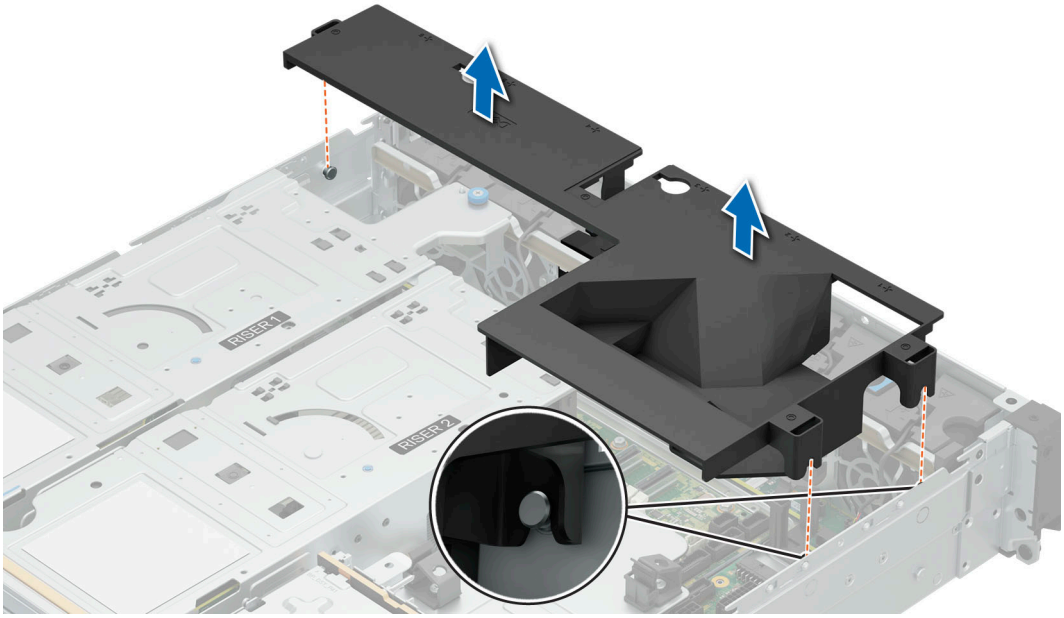


Figure 45. Removing the 2U air shroud

Next steps

1. Replace the 2U air shroud.

Installing the 2U air shroud

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in Before working inside your system.

Steps

1. Align the air shroud tabs with the system slots.
2. Lower the air shroud into the system until it is firmly seated.

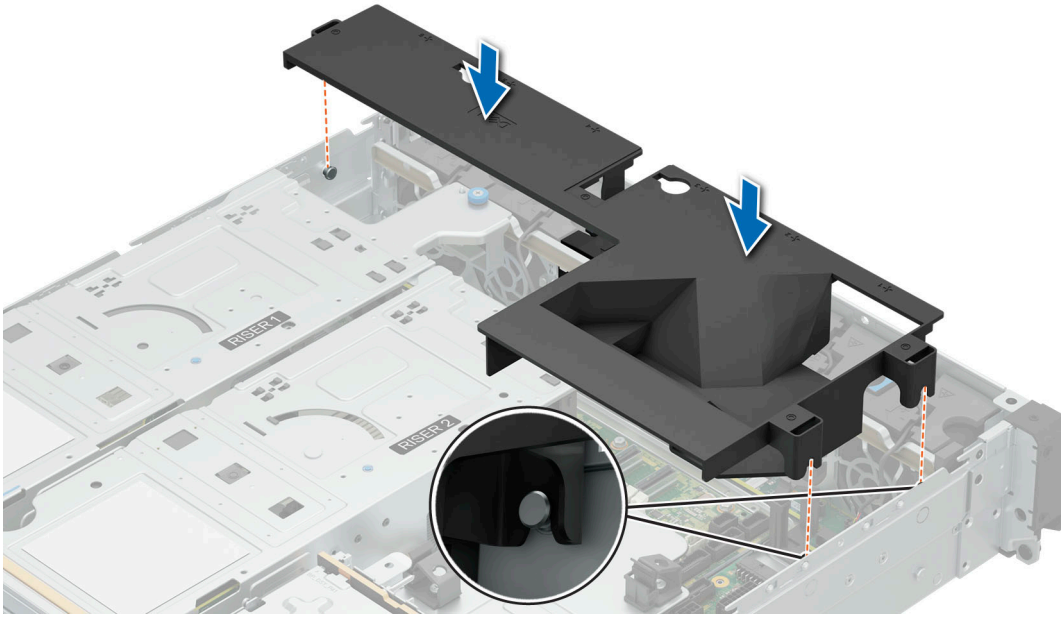


Figure 46. Installing the 2U air shroud

Next steps

1. Follow the procedure listed in After working inside your system.

Removing the 1U air shroud

Prerequisites

NOTE: Never operate your system with the air shroud removed. The system may get overheated quickly, resulting in shutdown of the system and loss of data.

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the Expansion card riser 2.
5. Remove the Expansion card riser 1.
6. If applicable, disconnect the cables from the expansion card or system board.

NOTE: The procedure to remove the air shroud is the same for Rear Accessed and Front Accessed configurations.

Steps

Hold the edges of the air shroud, and lift the air shroud out of the system.

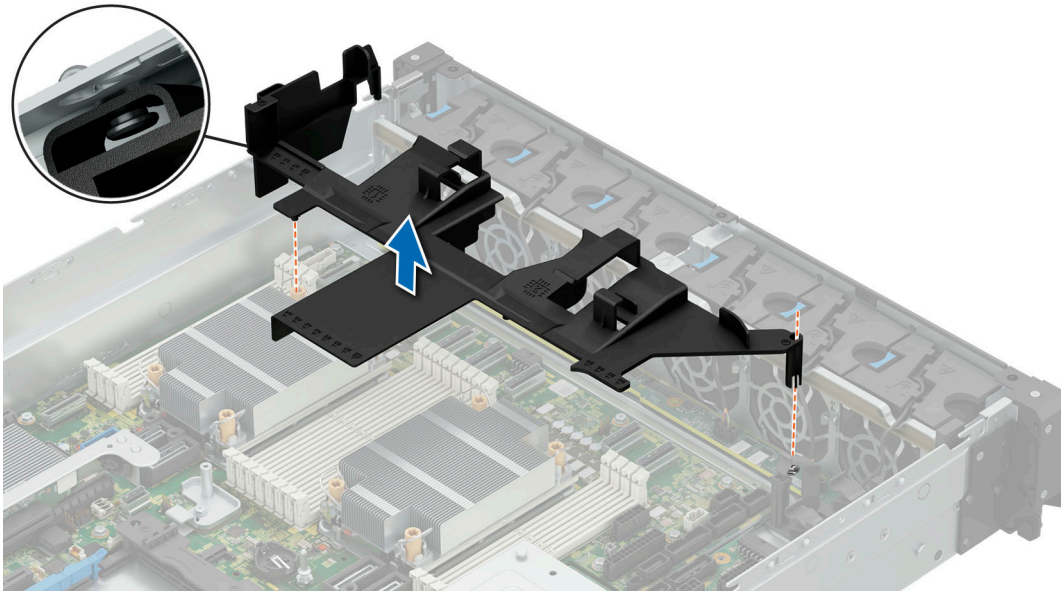


Figure 47. Removing the 1U air shroud

Next steps

1. Replace the 1U air shroud.

Installing the 1U air shroud

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the Expansion card riser 2.
5. Remove the Expansion card riser 1.
6. If applicable, disconnect the cables from the expansion card or system board.

Steps

1. Align the air shroud tabs with the system slots.
2. Lower the air shroud into the system until it is firmly seated.

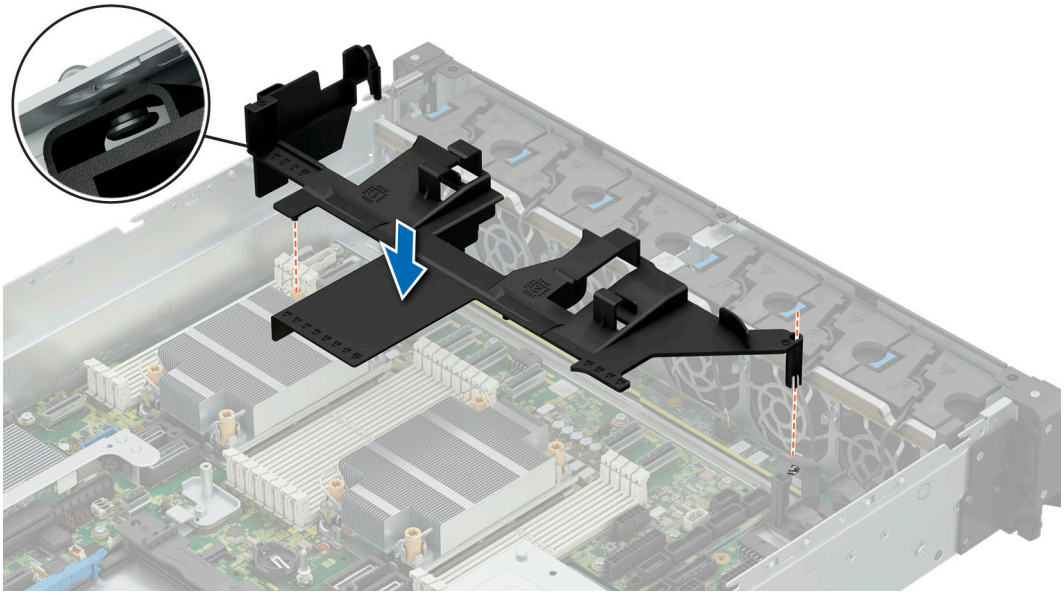


Figure 48. Installing the 1U air shroud

Next steps

1. If required, reconnect the cables to the expansion card or system board.
2. Install the Expansion card riser 1.
3. Install the Expansion card riser 2.
4. Install the 2U air shroud.
5. Follow the procedure listed in After working inside your system.

Drives

Removing a drive blank

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. If installed, remove the front bezel

CAUTION: To maintain proper system cooling, drive blanks must be installed in all empty drive slots.

Steps

Press the release button, and slide the drive blank out of the drive slot.

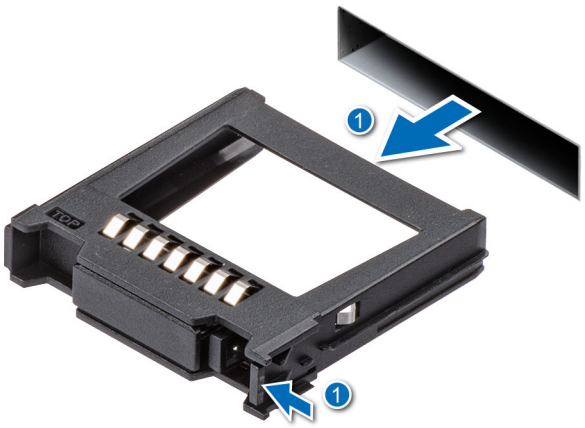


Figure 49. Removing a drive blank

Figure 50. Removing E3.S dummy

Next steps

1. Replace the drive blank.

Installing a drive blank

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. If installed, remove the front bezel.

Steps

Slide the drive blank into the drive slot until the release button clicks into place.

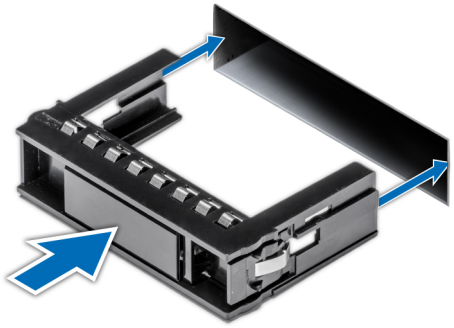


Figure 51. Installing a drive blank

Figure 52. Installing a E3.S dummy

Next steps

1. If removed, install the front bezel.

Removing a drive carrier

Prerequisites

1. Follow the safety guidelines listed in Safety instructions.
2. If installed, remove the front bezel.
3. Using the management software, prepare the drive for removal. If the drive is online, the green activity or fault indicator flashes while the drive is turning off. When the drive indicators are off, the drive is ready for removal. For more information, see the storage controller documentation.

   CAUTION: Before attempting to remove or install a drive while the system is running, see the documentation for the storage controller card to ensure that the host adapter is configured correctly to support drive removal and insertion.

   CAUTION: To prevent data loss, ensure that your operating system supports drive installation. See the documentation supplied with your operating system.

Steps

1. Press the release button to open the drive carrier release handle.
2. Holding the drive carrier release handle, slide the drive carrier out of the drive slot.

NOTE: If you are not replacing the drive immediately, install a drive blank in the empty drive slot to maintain proper system cooling.

Figure 53. Removing a drive carrier

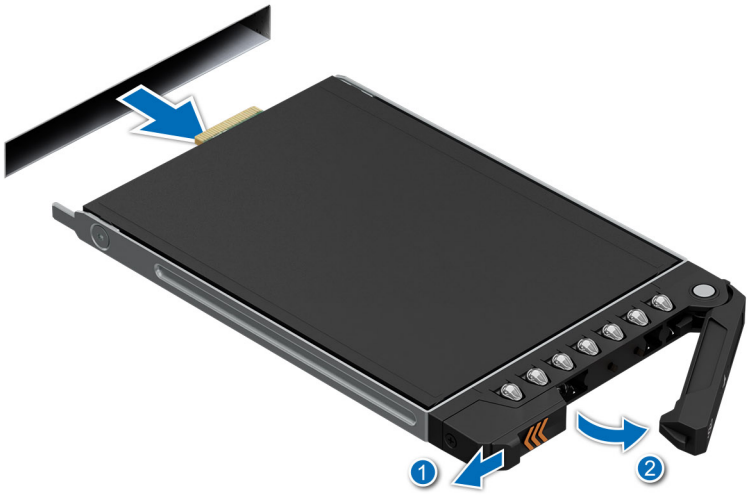


Figure 54. Removing a E3.S drive

Next steps

Replace the drive or a drive blank.

Installing the drive carrier

Prerequisites

CAUTION: Before removing or installing a drive while the system is running, see the www.dell.com/storagecontrollermanuals documentation for the storage controller card to ensure that the host adapter is configured correctly to support drive removal and insertion.

CAUTION: Combining SAS and SATA drives in the same RAID volume is not supported.

CAUTION: When installing a drive, ensure that the adjacent drives are fully installed. Inserting a drive carrier and attempting to lock its handle next to a partially installed carrier can damage the partially installed carrier's shield spring and make it unusable.

NOTE: Ensure that the drive carrier's release handle is in the open position before inserting the carrier into the slot.

CAUTION: To prevent data loss, ensure that your operating system supports hot-swap drive installation. See the documentation supplied with your operating system.

CAUTION: When a replacement hot swappable drive is installed and the system is powered on, the drive automatically begins to rebuild. Ensure that the replacement drive is blank or contains data that you wish to overwrite. Any data on the replacement drive is immediately lost after the drive is installed.

1. Follow the safety guidelines listed in Safety instructions.
2. remove the front bezel.
3. Remove the drive carrier or remove the drive blank when you want to assemble the drives into the system.

Steps

1. Slide the drive carrier into the drive slot and push until the drive connects with the backplane.
2. Close the drive carrier release handle to lock the drive in place.

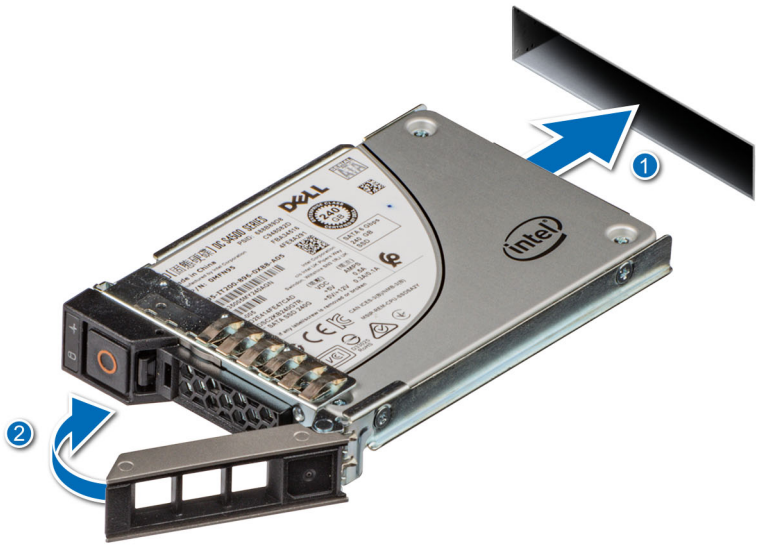


Figure 55. Installing a drive carrier

Figure 56. Installing a E3.S drive

Next steps

Install the front bezel.

Removing the drive from the drive carrier

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Remove the drive carrier.

Steps

1. Using a Phillips #1 screwdriver, remove the screws from the slide rails on the drive carrier.

   NOTE: If the drive carrier has Torx screw, use Torx 6 (for 2.5-inch drive) screwdriver to remove the drive.

2. Lift the drive out of the drive carrier.

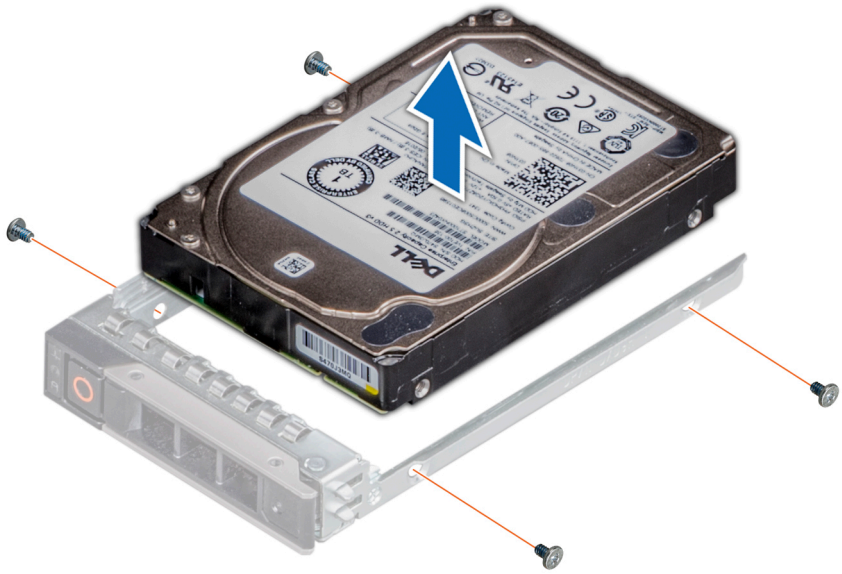


Figure 57. Removing the drive from the drive carrier

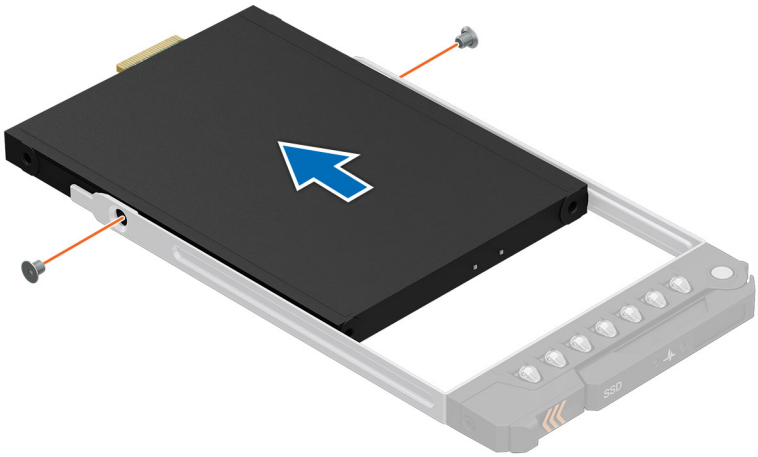


Figure 58. Removing the E3.S drive from the drive carrier

Next steps

Install the drive into the drive carrier.

Installing the drive into the drive carrier

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Remove the drive blank.

Steps

1. Insert the drive into the drive carrier with the drive connector facing towards the rear of the carrier.
2. Align the screw holes on the drive with the screws holes on the drive carrier.
3. Using a Phillips #1 screwdriver, secure the drive to the drive carrier with the screws.

NOTE: When installing a drive into the drive carrier, ensure that the screws are torqued to 4 lbf-in.

NOTE: If the drive carrier has Torx screw, use Torx 6 (for 2.5-inch drive) or Torx 8 (for 3.5-inch drive) screwdriver to install the drive.

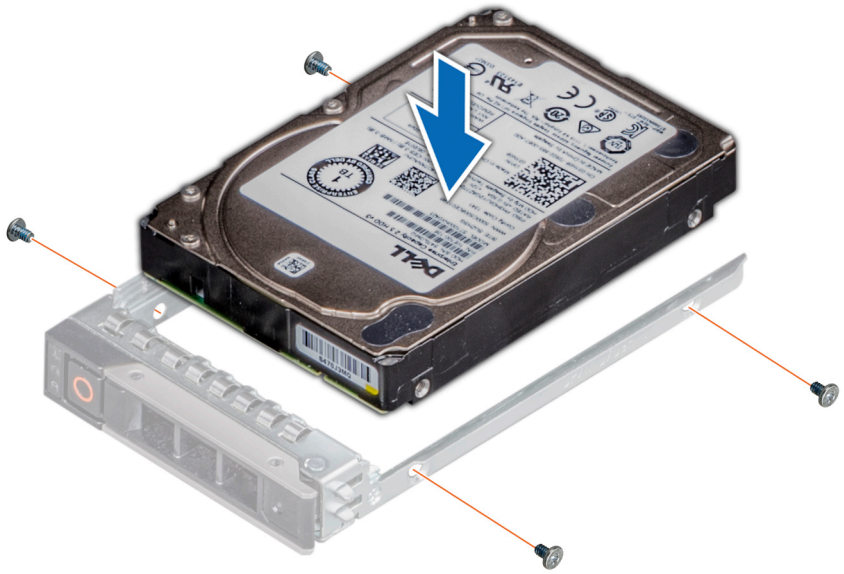


Figure 59. Installing a drive into the drive carrier

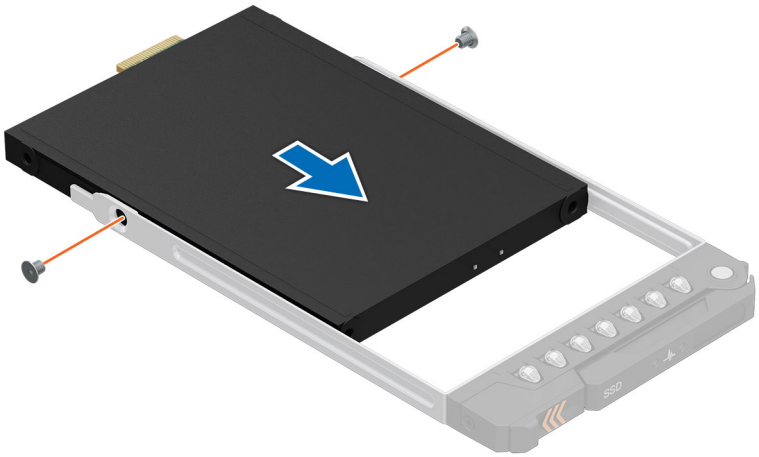


Figure 60. Installing the E3.S drive into the drive carrier

Next steps

1. Install the drive carrier.

Drive cage

Removing the drive cage

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the drives.
4. Remove the fPERC module.
5. Remove the drive backplane.

NOTE: The procedure to remove the drive cage is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Using the Phillips 2 screwdriver, loosen the blue thumbscrews.
2. Slide and lift the drive cage out of the system.

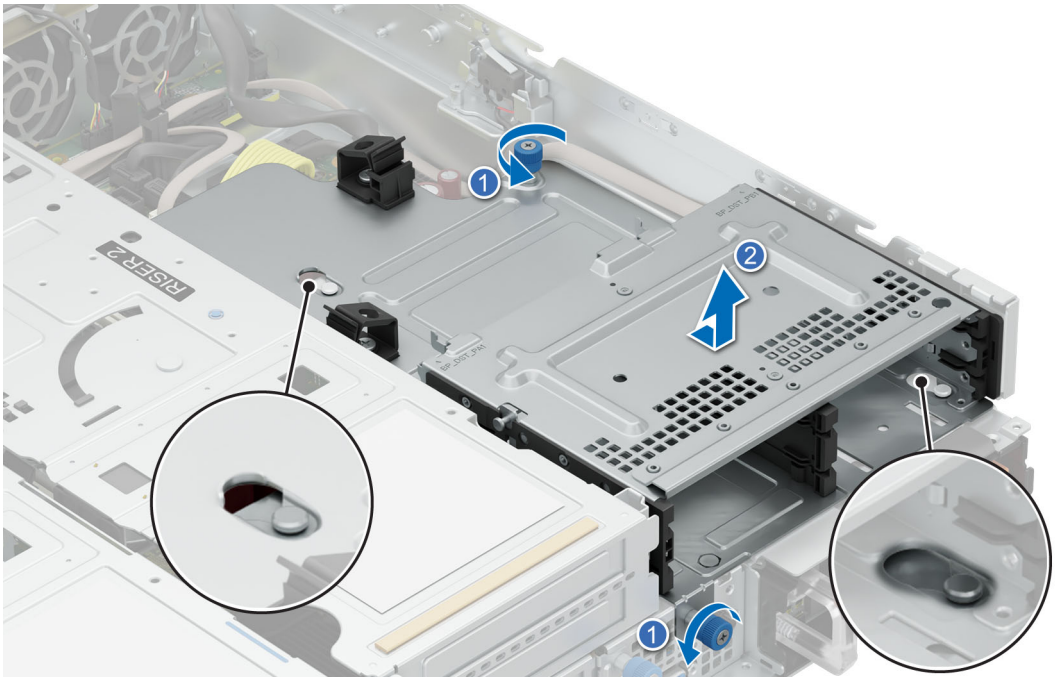


Figure 61. Removing the 4 x 2.5-inch drive cage

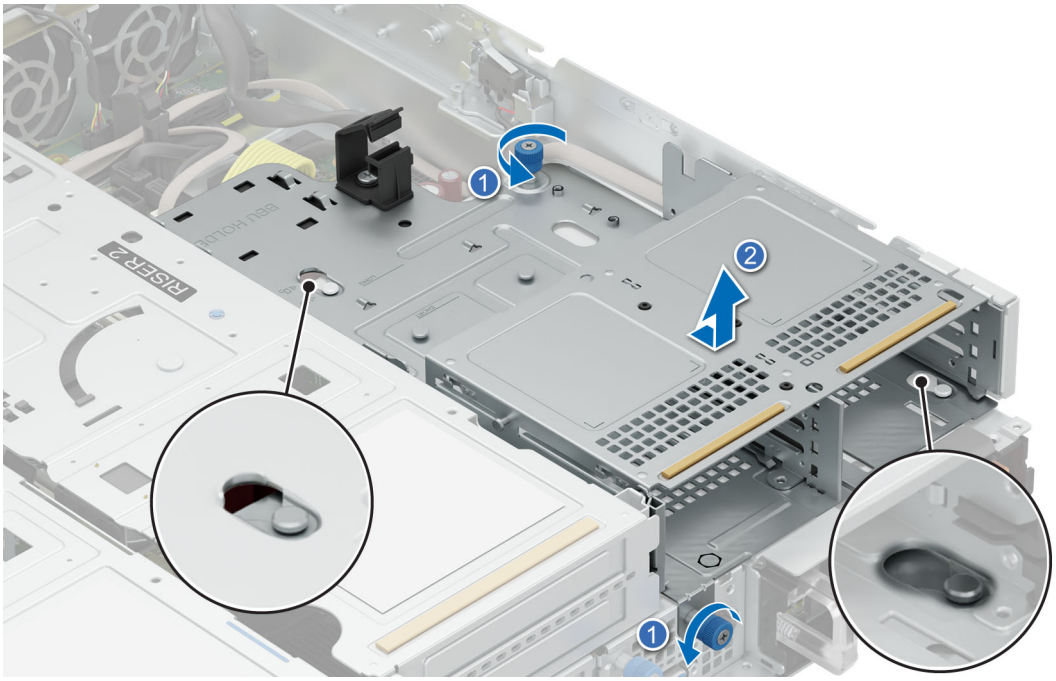


Figure 62. Removing the E3.S drive cage

Next steps

Replace the drive cage.

Installing the drive cage

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the drives.
4. Remove the fPERC module.
5. Remove the drive backplane.

NOTE: The procedure to install the drive cage is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Align the drive cage with the guide pins on the system and lower it until fully seated.
2. Using Phillips 2 screwdriver, tighten the blue thumbscrews securing the drive cage into the chassis.

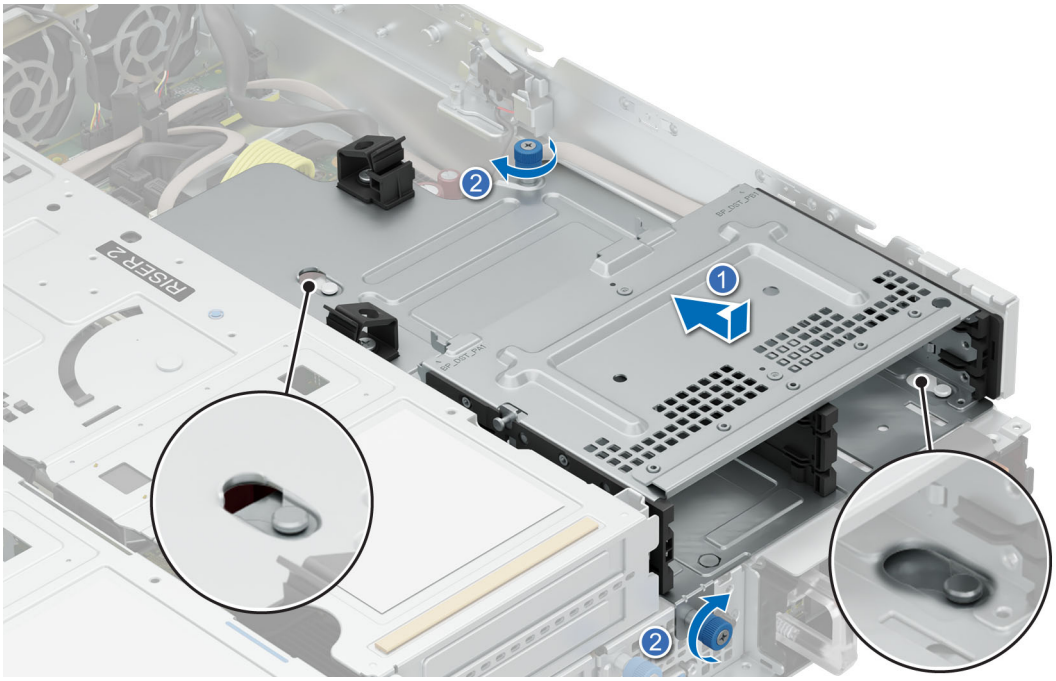


Figure 63. Installing the 4 x 2.5-inch drive cage

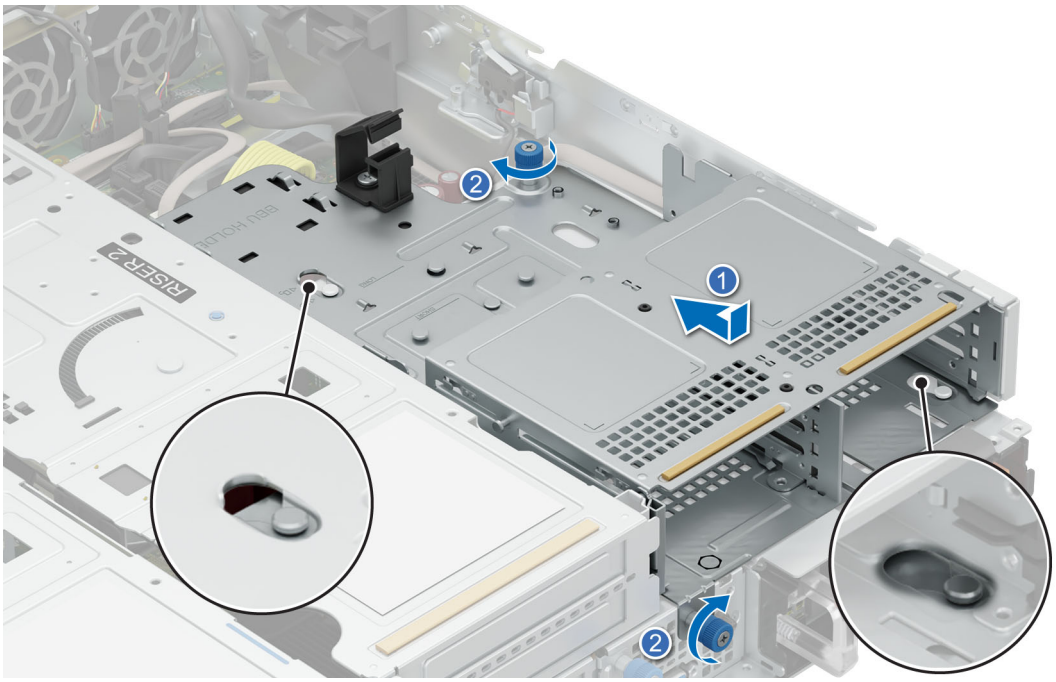


Figure 64. Installing the E3.S drive cage

Next steps

1. Install the drive backplane.
2. Install fPERC module.
3. Install all the drives.
4. Follow the procedure listed in After working inside your system.

PERC module

This is a service technician replaceable part only.

Removing the fPERC module

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Disconnect all the cables, observe the cable routing.

NOTE: Refer to cable routing section for more information.

NOTE: The procedure to remove the fPERC module is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Using a Phillips 2 screwdriver, loosen the captive screws on the fPERC module.
2. Slide the fPERC module to disengage from the connector on the drive backplane.

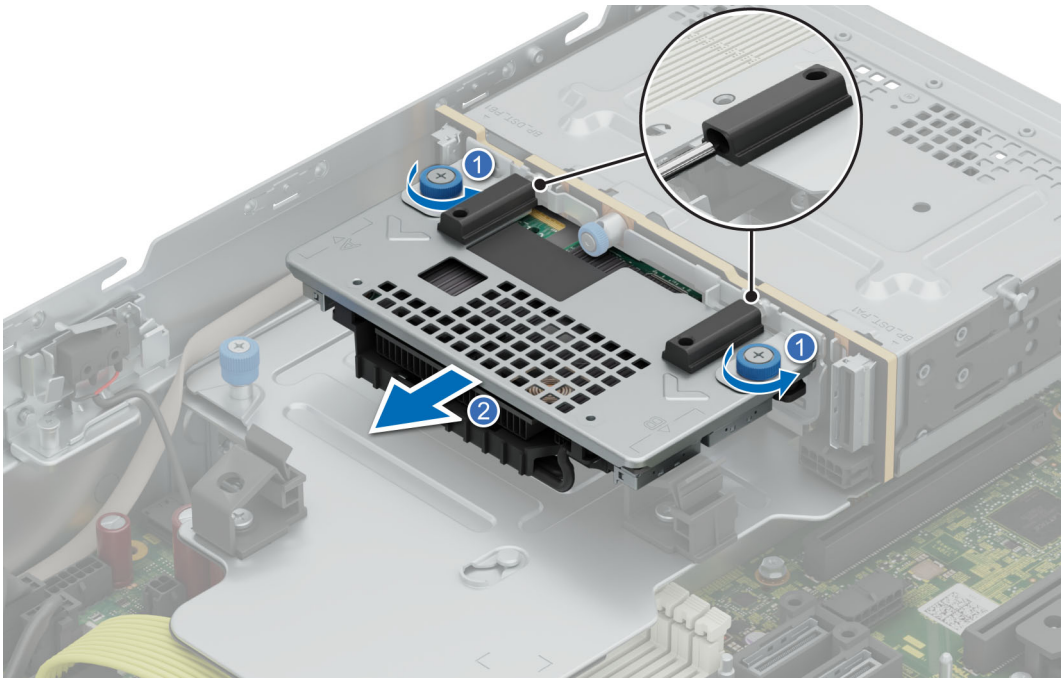


Figure 65. Removing the fPERC module

Next steps

1. Replace the fPERC module.

Installing the fPERC module

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in Before working inside your system.
3. Route the cable properly to prevent the cable from being pinched or crimped.

NOTE: Refer to cable routing section for more information.

Steps

1. Align the connectors and guide slots on the fPERC module with the connectors and guide pins on the drive backplane.
2. Slide the fPERC module until the module is connected to the drive backplane.
3. Using a Phillips 2 screwdriver, tighten the captive screws on the fPERC module.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

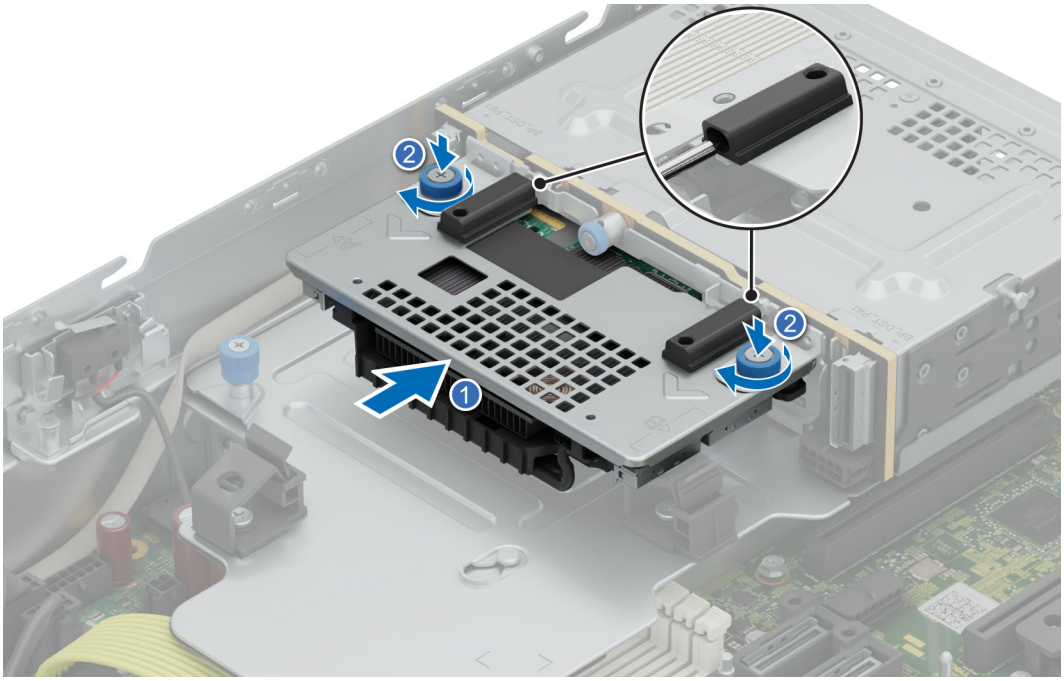


Figure 66. Installing the fPERC module

Next steps

1. Connect all the cables, observe the cable routing.
2. Follow the procedure listed in After working inside your system.

Drive backplane

This is a service technician replaceable part only.

Drive backplane

Depending on your system configuration, the drive backplanes that are supported are listed here:

Table 78. Supported backplane options

System	Supported hard drives options
PowerEdge XR7620	2.5-inch (x 8) E3.S backplane
	2.5-inch (x 4) SAS, or SATA or NVMe backplane

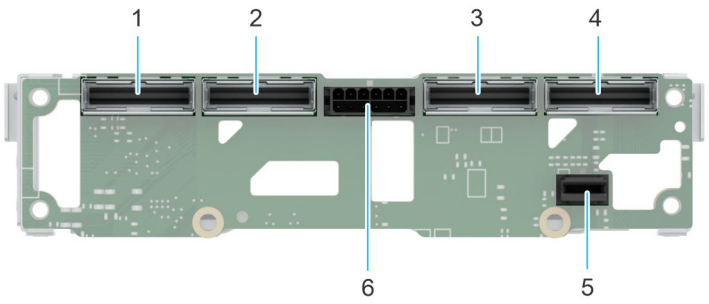


Figure 67. E3.S drive backplane

1. PCIE connector (BP_DST_PB2)
2. PCIE connector(BP_DST_PA2)
3. PCIE connector(BP_DST_PB1)
4. PCIE connector(BP_DST_PA1)
5. PERC Power connector (BP_PWR_CTRL)
6. Power connector (BP_PWR_1)

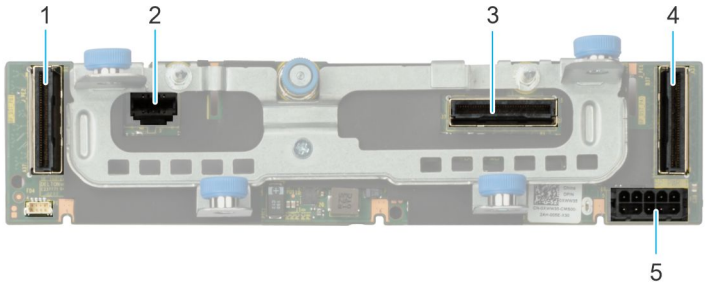


Figure 68. 4 x 2.5-inch drive backplane

1. PCIE connector (BP_DST_PB1)
2. PERC Power connector (BP_PWR_CTRL)
3. SATA connector (BP_DST_SA1)
4. PCIE connector (BP_DST_PA1)
5. Power connector (BP_PWR_1)

Removing the drive backplane

Prerequisites

CAUTION: To prevent damage to the drives and backplane, remove the drives from the system before removing the backplane.

CAUTION: Note the number of each drive and temporarily label them before you remove the drive so that you can reinstall them in the same location. The drive slot numbers are printed next to each drive slot respectively.

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the drives.
4. Remove the fPERC.
5. Disconnect the drive backplane cables from the connectors on the system board..

NOTE: The procedure to remove the drive backplane is the same for Rear Accessed and Front Accessed configurations.

Steps

1. For 4 x 2.5-inch drive backplane, using the Philip 2 screwdriver loosen the blue thumbscrews on the drive cage. Pull the plunger and hold the drive backplane and lift it upwards to disengage the backplane from the guide pins. Lift the drive backplane out of the system.

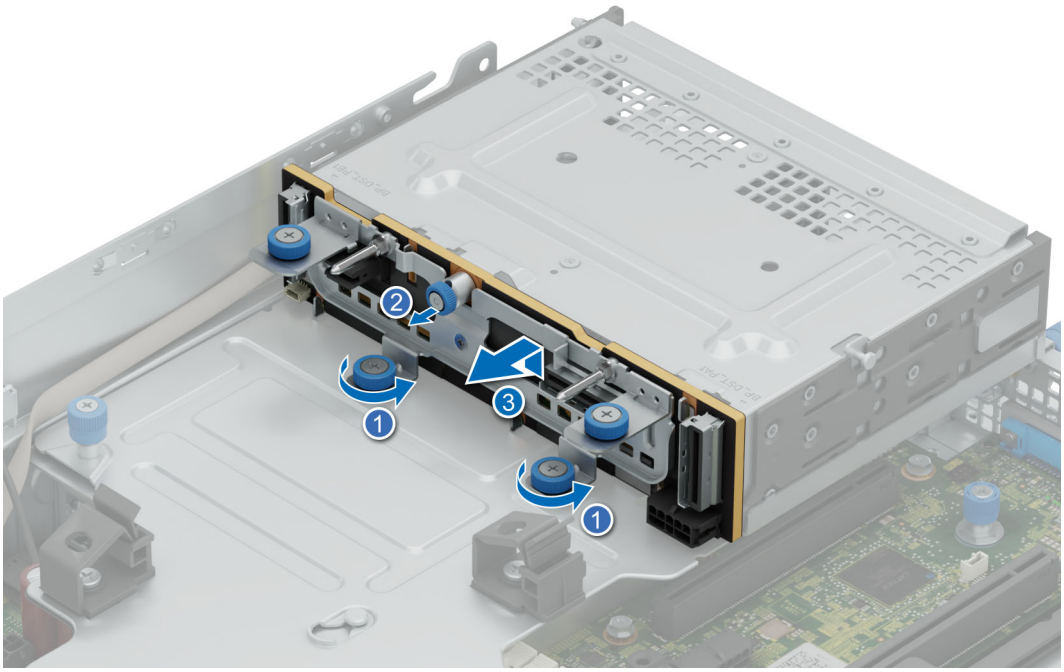


Figure 69. Removing the 4 x 2.5-inch drive backplane

2. For 8 x E3.S drive backplane module, using the Philip 2 screwdriver loosen the metallic thumbscrews on the drive cage. Slide the module towards the drive cage and lift it upwards to disengage the backplane from the guide pins. Lift the drive backplane out of the system.

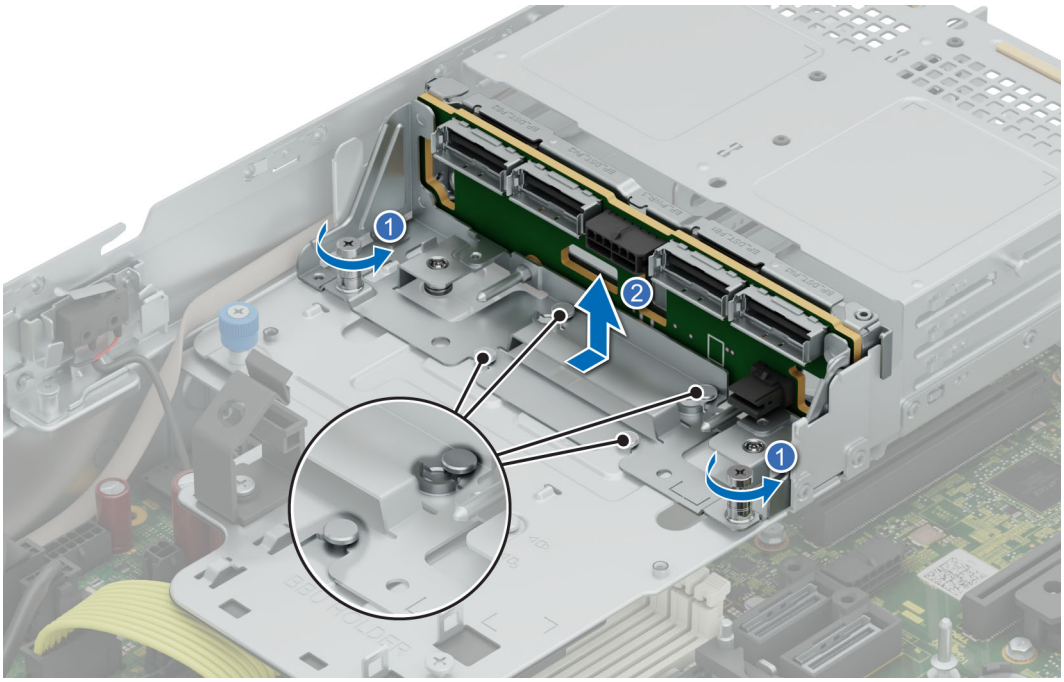


Figure 70. Removing the 8 x E3.S drive backplane module

Next steps

Replace the drive backplane.

Installing the drive backplane

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the drives.
4. Remove the fPERC module.
5. Remove the drive backplane.

NOTE: Route the cables properly when you replace them to prevent the cable from being pinched or crimped.

NOTE: The procedure to install the drive backplane is the same for Rear Accessed and Front Accessed configurations.

Steps

1. For 4 x 2.5-inch drive backplane, align the guide pins on the backplane with the guides on the system. Insert the backplane into the guides and lower the backplane firmly until it is fully seated. Using the Phillip 2 screwdriver, tighten the blue thumb screws on the drive cage.

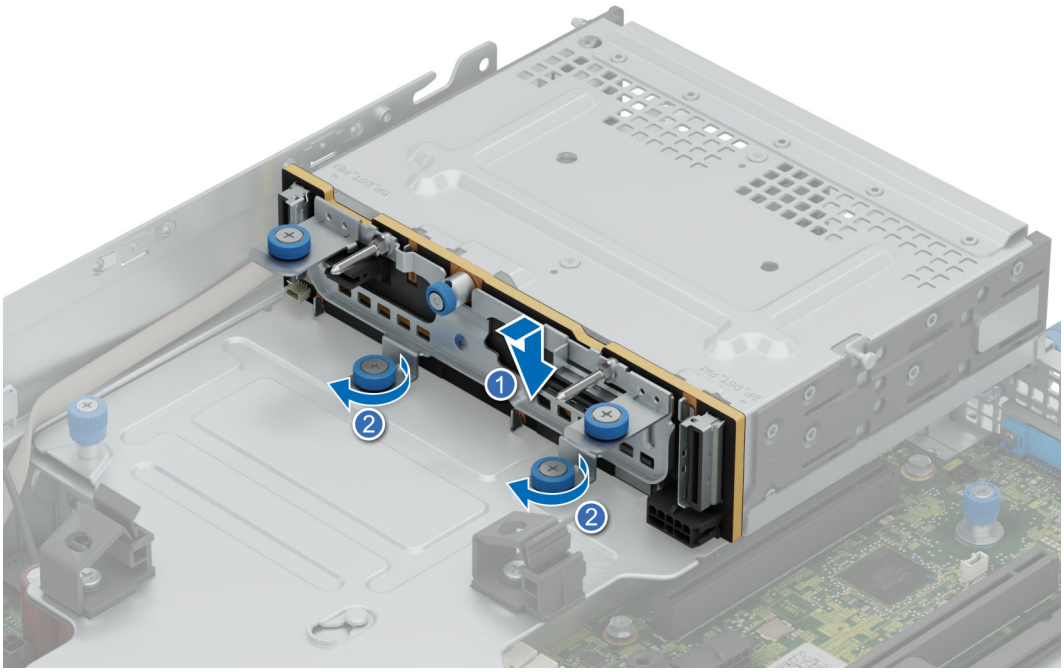


Figure 71. Installing the 4 x 2.5-inch drive backplane

2. For the 8 x E3.S drive backplane, align the guide pins on the backplane with the guides on the system. Insert the backplane into the guides and slide the backplane module toward the drives until it is fully seated. Using the Phillip 2 screwdriver, tighten the metallic thumb screws on the drive cage.

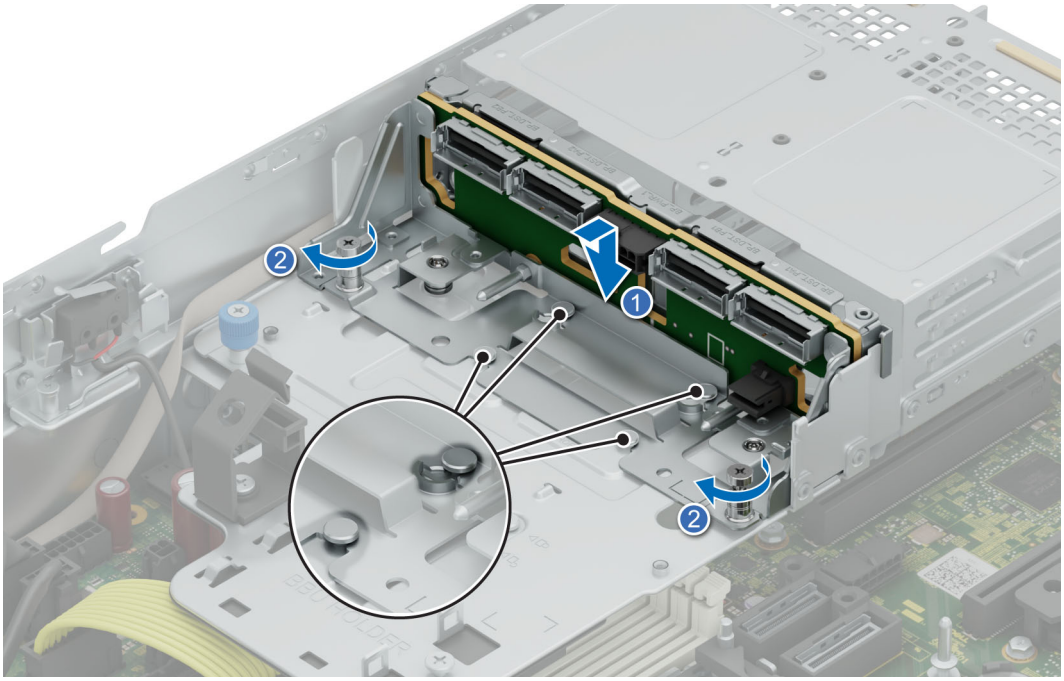


Figure 72. Installing the 8 x E3.S drive backplane

Next steps

1. Reconnect all the disconnected cables to the backplane.
2. Install fPERC module.
3. Install all the drives.
4. Follow the procedure listed in After working inside your system.

Cable routing

Rear accessed configuration cable routing

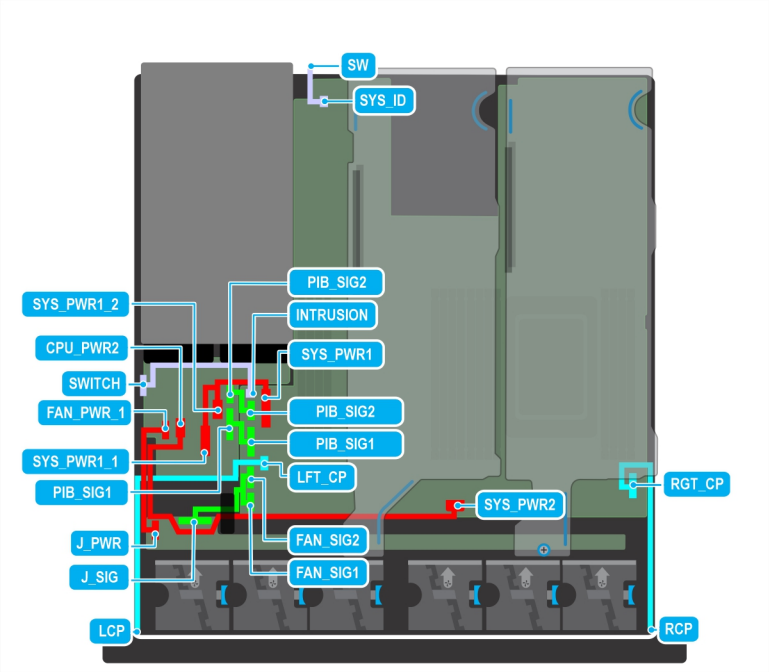


Figure 73. Rear accessed components cabling

Table 79. Rear accessed components cabling

From	To
CPU_PWR2 connector on PIB	SYS_PWR2 connector on system board
SYS_PWR1_2 connector on PIB	SYS_PWR1_1 connector on system board
FAN BOARD(J_PWR)	FAN_PWR_1 connector on PIB
PIB_SIG2 connector on system board	PIB_SIG2 connector on PIB
PIB_SIG1 connector on system board	PIB_SIG1 connector on PIB
J_PWR FAN BOARD connector	FAN_PWR_1 Connector on PIB
LFT_CP connector on system board	LCP (Left Control Panel)
RCP connector on system board	RCP (Right Control Panel)
INTRUSION connector on system board	INTRUSION Switch
SYS_ID connector on system board	ID SW
J_SIG	FAN_SIG1 / FAN_SIG2

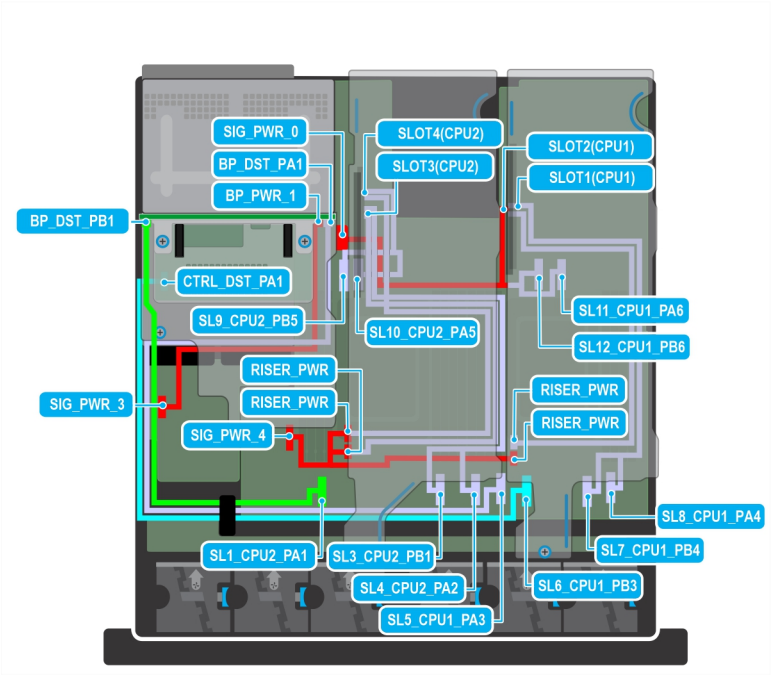


Figure 74. Rear accessed FHHL and 4 x 2.5-inch w fPERC11

Table 80. Rear accessed FHHL and 4 x 2.5-inch w fPERC11

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
CTRL_DST_PA1 (fPERC connector)	SL6_CPU1_PB3 (signal connector on the system board)
BP_DST_PA1 (backplane connector)	SL5_CPU1_PA3 (signal connector on the system board)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	SL2_CPU2_PB1 (signal connector on the system board)
BP_DST_PB1 (backplane connector)	SL1_CPU2_PA1 (signal connector on the system board)
SIG_PWR_3 (signal power connector)	BP_PWR_1 (backplane power connector)
SL9_CPU2_PB5 / SL10_CPU2_PA5 (signal power connectors)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)

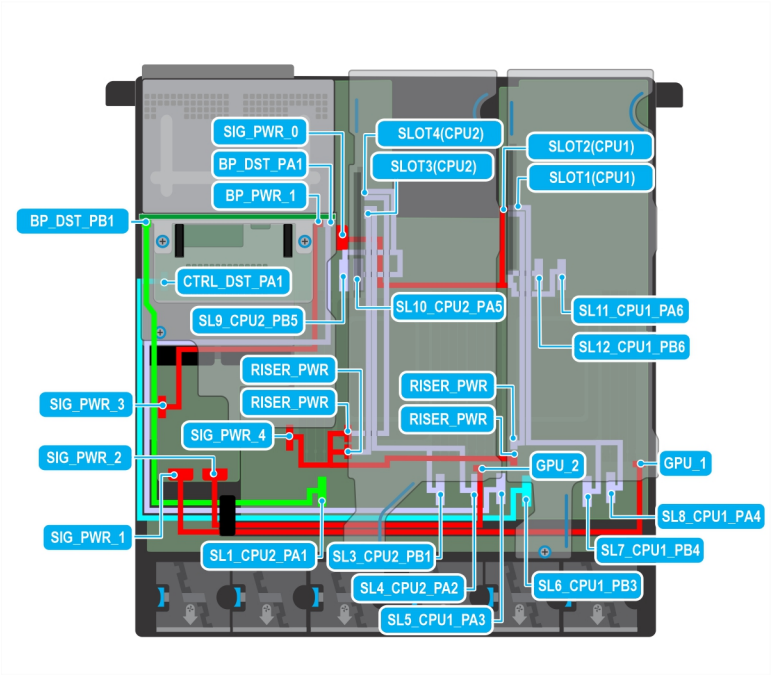


Figure 75. Rear accessed FHFL GPUs and 4 x 2.5-inch w fPERC11

Table 81. Rear accessed FHFL GPUs and 4 x 2.5-inch w fPERC11

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
CTRL_DST_PA1 (fPERC connector)	SL6_CPU1_PB3 (signal connector on the system board)
BP_DST_PA1 (backplane connector)	SL5_CPU1_PA3 (signal connector on the system board)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	SL2_CPU2_PB1 (signal connector on the system board)
BP_DST_PB1 (backplane connector)	SL1_CPU2_PA1 (signal connector on the system board)
SIG_PWR_3 (signal power connector)	BP_PWR_1 (backplane power connector)
SL9_CPU2_PB5 / SL10_CPU2_PA5 (signal power connectors)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)
SIG_PWR_1 (signal power connector)	GPU_1
SIG_PWR_2 (signal power connector)	GPU_2

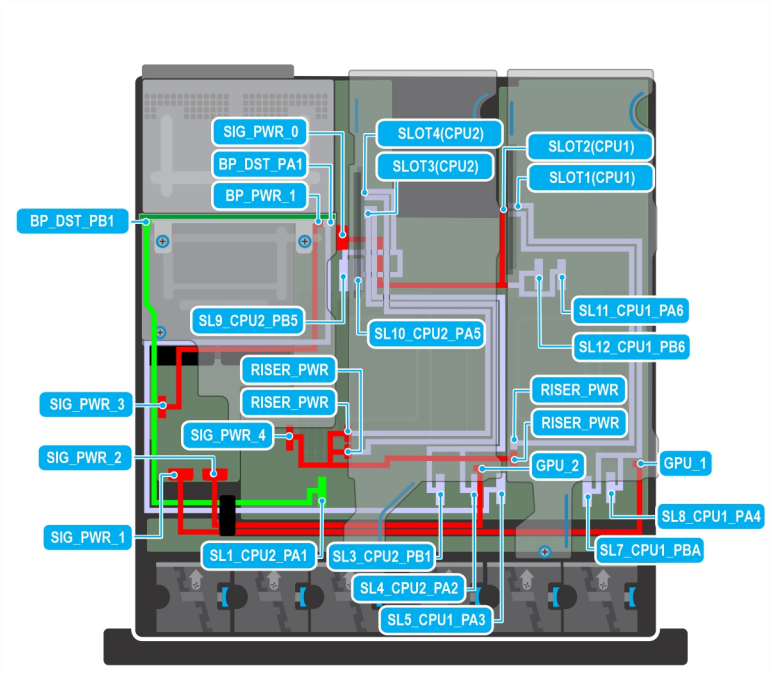


Figure 76. Rear accessed FHHL and 4 x 2.5-inch w/o fPERC11

Table 82. Rear accessed FHHL and 4 x 2.5-inch w/o fPERC11

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
BP_DST_PA1 (backplane connector)	SL5_CPU1_PA3 (signal connector on the system board)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	SL2_CPU2_PB1 (signal connector on the system board)
BP_DST_PB1 (backplane connector)	SL1_CPU2_PA1 (signal connector on the system board)
SIG_PWR_3 (signal power connector)	BP_PWR_1 (backplane power connector)
SL9_CPU2_PB5 / SL10_CPU2_PA5 (signal power connectors)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)

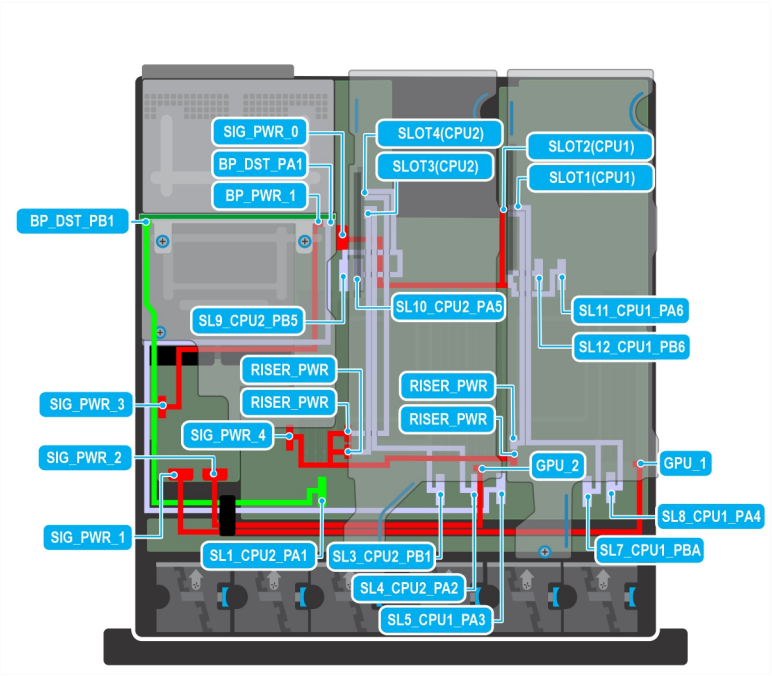


Figure 77. Rear accessed FHFL GPUs and 4 x 2.5-inch w/o fPERC11

Table 83. Rear accessed FHFL GPUs and 4 x 2.5-inch w/o fPERC11

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
BP_DST_PA1 (backplane connector)	SL5_CPU1_PA3 (signal connector on the system board)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	SL2_CPU2_PB1 (signal connector on the system board)
BP_DST_PB1 (backplane connector)	SL1_CPU2_PA1 (signal connector on the system board)
SIG_PWR_3 (signal power connector)	BP_PWR_1 (backplane power connector)
SL9_CPU2_PB5 / SL10_CPU2_PA5 (signal power connectors)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)
SIG_PWR_1 (signal power connector)	GPU_1
SIG_PWR_2 (signal power connector)	GPU_2

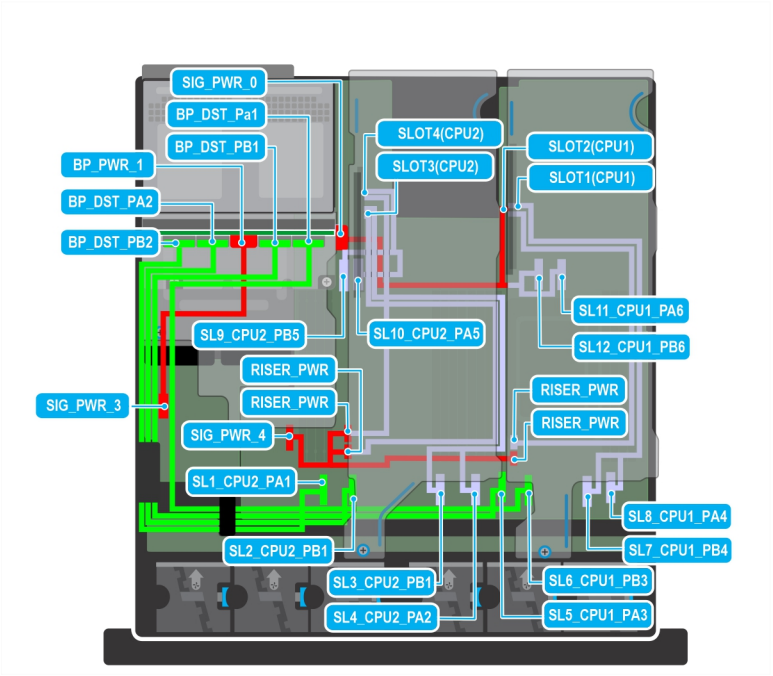


Figure 78. Rear accessed FHHL and E3 w/o fPERC12

Table 84. Rear accessed FHHL and E3 w/o fPERC12

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
BP_DST_PA1 (backplane connector)	SL6_CPU1_PB3 (signal connector on the system board)
BP_DST_PB1 (backplane connector)	SL5_CPU1_PA3 (signal connector on the system board)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	SL2_CPU2_PB1 (signal connector on the system board)
BP_DST_PB2 (backplane connector)	SL1_CPU2_PA1 (signal connector on the system board)
SIG_PWR_3 (signal power connector)	BP_PWR_1 (backplane power connector)
SL9_CPU2_PB5 (signal power connector)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)

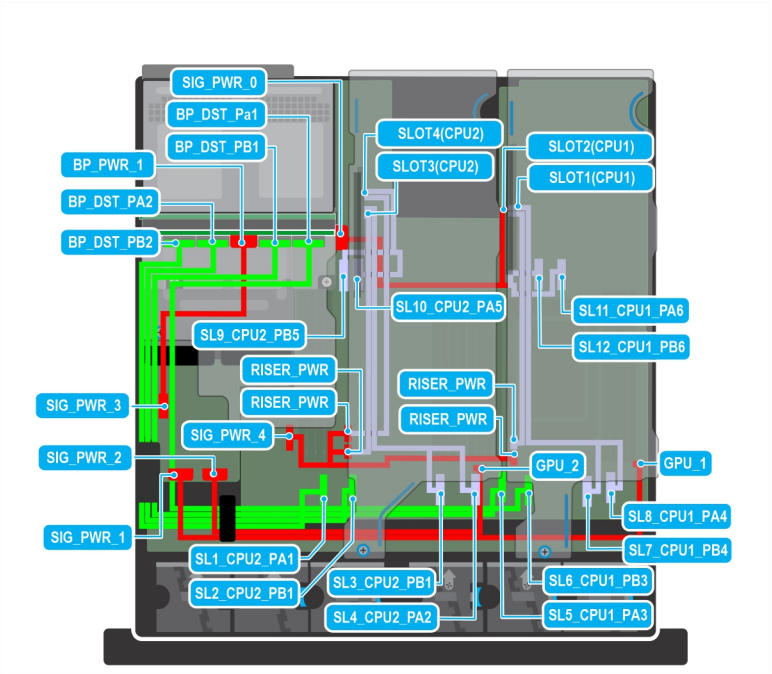


Figure 79. Rear accessed FHFL GPUs and E3 w/o fPERC12

Table 85. Rear accessed FHFL GPUs and E3 w/o fPERC12

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
BP_DST_PA1 (backplane connector)	SL6_CPU1_PB3 (signal connector on the system board)
BP_DST_PB1 (backplane connector)	SL5_CPU1_PA3 (signal connector on the system board)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	SL2_CPU2_PB1 (signal connector on the system board)
BP_DST_PB2 (backplane connector)	SL1_CPU2_PA1 (signal connector on the system board)
SIG_PWR_3 (signal power connector)	BP_PWR_1(backplane power connector)
SL9_CPU2_PB5 (signal power connector)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)
SIG_PWR_1 (signal power connector)	GPU_1
SIG_PWR_2 (signal power connector)	GPU_2

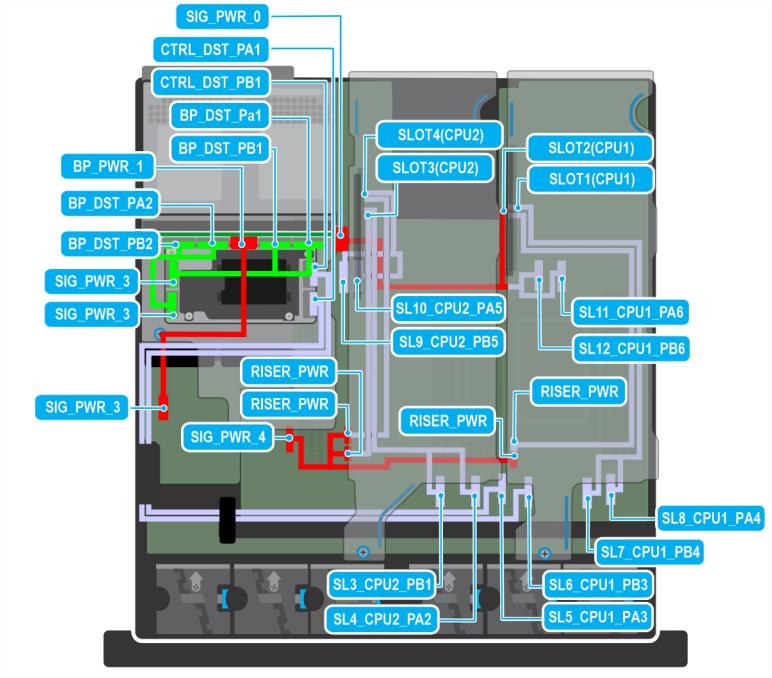


Figure 80. Rear accessed FHHL and E3 w fPERC12

Table 86. Rear accessed FHHL and E3 w fPERC12

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
BP_DST_PA1 (backplane connector)	CTRL_SRC_SA1_PA1 (fPERC connector)
BP_DST_PB1 (backplane connector)	CTRL_SRC_SA1_PA1 (fPERC connector)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	CTRL_SRC_SB1_PB1 (fPERC connector)
BP_DST_PB2 (backplane connector)	CTRL_SRC_SA1_PA1 (fPERC connector)
SIG_PWR_3 (signal power connector)	BP_PWR_1(backplane power connector)
SL9_CPU2_PB5 (signal power connector)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)
SL5_CPU1_PA3 (signal power connector)	CTRL_DST_PB1 (fPERC)
SL6_CPU1_PB3 (signal power connector)	CTRL_DST_PA1 (fPERC)

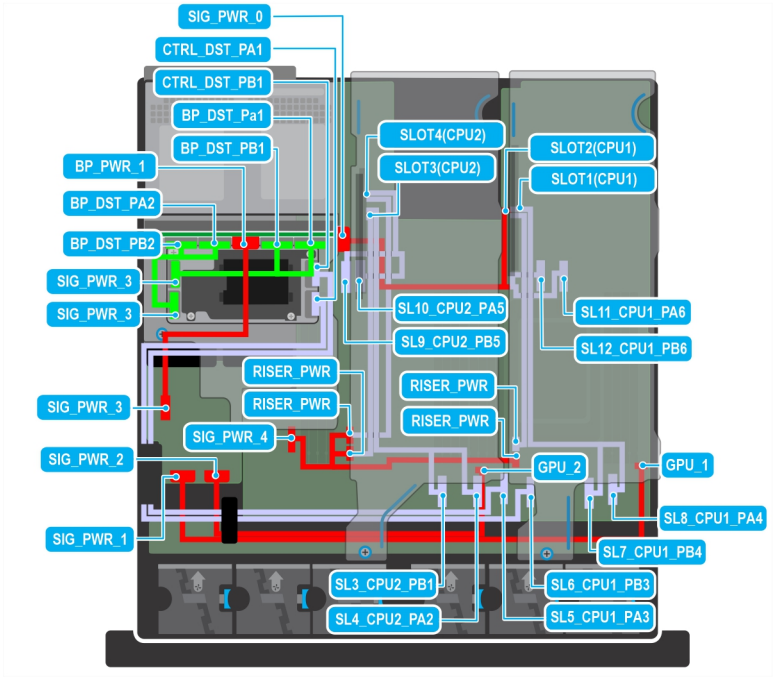


Figure 81. Rear accessed FHFL GPUs and E3 w fPERC12

Table 87. Rear accessed FHFL GPUs and E3 w fPERC12

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
BP_DST_PA1 (backplane connector)	CTRL_SRC_SA1_PA1 (fPERC connector)
BP_DST_PB1 (backplane connector)	CTRL_SRC_SA1_PA1 (fPERC connector)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	CTRL_SRC_SB1_PB1 (fPERC connector)
BP_DST_PB2 (backplane connector)	CTRL_SRC_SA1_PA1 (fPERC connector)
SIG_PWR_3 (signal power connector)	BP_PWR_1(backplane power connector)
SL9_CPU2_PB5 / SL10_CPU2_PA5 (signal power connectors)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)
SL5_CPU1_PA3 (signal power connector)	CTRL_DST_PB1 (fPERC)
SL6_CPU1_PB3 (signal power connector)	CTRL_DST_PA1 (fPERC)
SIG_PWR_1 (signal power connector)	GPU 1
SIG_PWR_2 (signal power connector)	GPU 2

Front accessed configuration cable routing

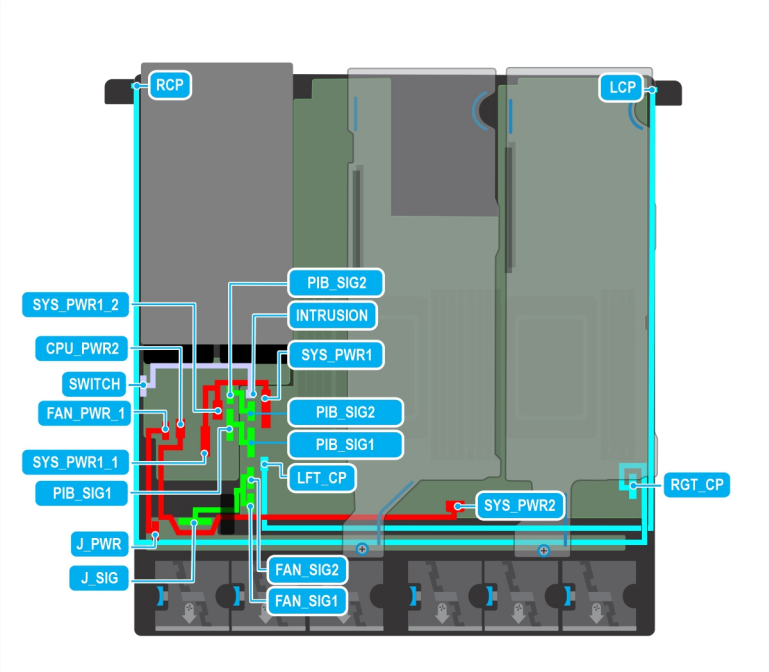


Figure 82. Front accessed components cabling

Table 88. Front accessed components cabling

From	To
CPU_PWR2 connector on PIB	SYS_PWR2 connector on system board
SYS_PWR1_2 connector on PIB	SYS_PWR1_1 connector on system board
FAN BOARD(J_PWR)	FAN_PWR_1 connector on PIB
PIB_SIG2 connector on system board	PIB_SIG2 connector on PIB
PIB_SIG1 connector on system board	PIB_SIG1 connector on PIB
J_PWR FAN BOARD connector	FAN_PWR_1 Connector on PIB
LFT_CP connector on system board	LCP (Left Control Panel)
RCP connector on system board	RCP (Right Control Panel)
INTRUSION connector on system board	INTRUSION Switch
SYS_ID connector on system board	ID SW
J_SIG	FAN_SIG1 / FAN_SIG2

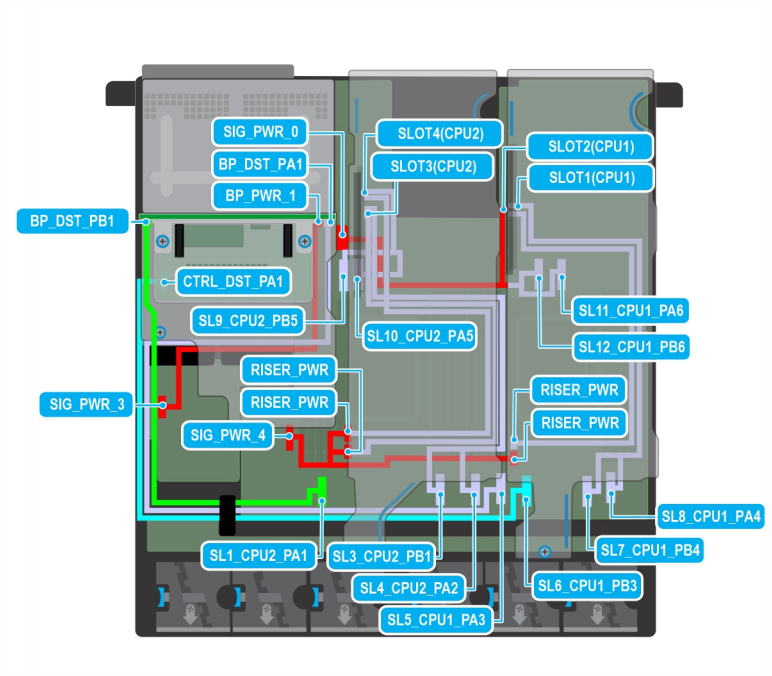


Figure 83. Front accessed FHHL and 4 x 2.5-inch w fPERC11

Table 89. Rear accessed FHHL and 4 x 2.5-inch w fPERC11

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
CTRL_DST_PA1 (fPERC connector)	SL6_CPU1_PB3 (signal connector on the system board)
BP_DST_PA1 (backplane connector)	SL5_CPU1_PA3 (signal connector on the system board)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	SL2_CPU2_PB1 (signal connector on the system board)
BP_DST_PB1 (backplane connector)	SL1_CPU2_PA1 (signal connector on the system board)
SIG_PWR_3 (signal power connector)	BP_PWR_1 (backplane power connector)
SL9_CPU2_PB5 / SL10_CPU2_PA5 (signal power connectors)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)

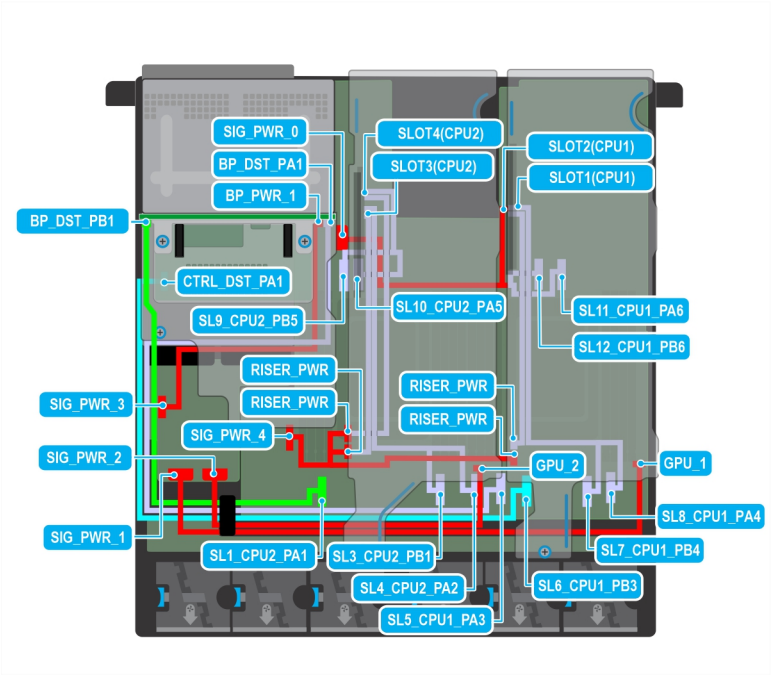


Figure 84. Front accessed FHFL GPUs and 4 x 2.5-inch w fPERC11

Table 90. Front accessed FHFL GPUs and 4 x 2.5-inch w fPERC11

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
CTRL_DST_PA1 (fPERC connector)	SL6_CPU1_PB3 (signal connector on the system board)
BP_DST_PA1 (backplane connector)	SL5_CPU1_PA3 (signal connector on the system board)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	SL2_CPU2_PB1 (signal connector on the system board)
BP_DST_PB1 (backplane connector)	SL1_CPU2_PA1 (signal connector on the system board)
SIG_PWR_3 (signal power connector)	BP_PWR_1 (backplane power connector)
SL9_CPU2_PB5 / SL10_CPU2_PA5 (signal power connectors)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)
SIG_PWR_1 (signal power connector)	GPU_1
SIG_PWR_2 (signal power connector)	GPU_2

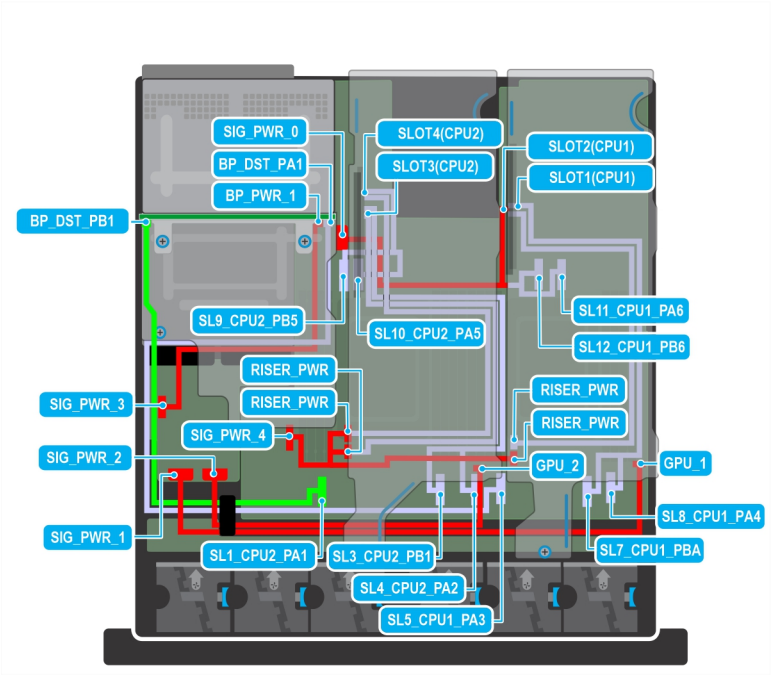


Figure 85. Front accessed FHHL and 4 x 2.5-inch w/o fPERC11

Table 91. Front accessed FHHL and 4 x 2.5-inch w/o fPERC11

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
BP_DST_PA1 (backplane connector)	SL5_CPU1_PA3 (signal connector on the system board)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	SL2_CPU2_PB1 (signal connector on the system board)
BP_DST_PB1 (backplane connector)	SL1_CPU2_PA1 (signal connector on the system board)
SIG_PWR_3 (signal power connector)	BP_PWR_1 (backplane power connector)
SL9_CPU2_PB5 / SL10_CPU2_PA5 (signal power connectors)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)

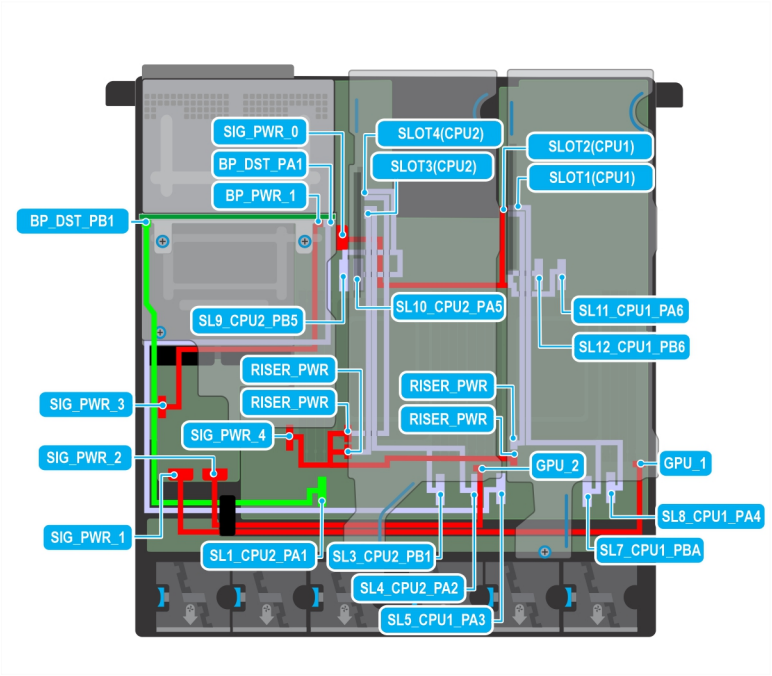


Figure 86. Rear accessed FHFL GPUs and 4 x 2.5-inch w/o fPERC11

Table 92. Front accessed FHFL GPUs and 4 x 2.5-inch w/o fPERC11

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
BP_DST_PA1 (backplane connector)	SL5_CPU1_PA3 (signal connector on the system board)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	SL2_CPU2_PB1 (signal connector on the system board)
BP_DST_PB1 (backplane connector)	SL1_CPU2_PA1 (signal connector on the system board)
SIG_PWR_3 (signal power connector)	BP_PWR_1 (backplane power connector)
SL9_CPU2_PB5 / SL10_CPU2_PA5 (signal power connectors)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)
SIG_PWR_1 (signal power connector)	GPU_1
SIG_PWR_2 (signal power connector)	GPU_2

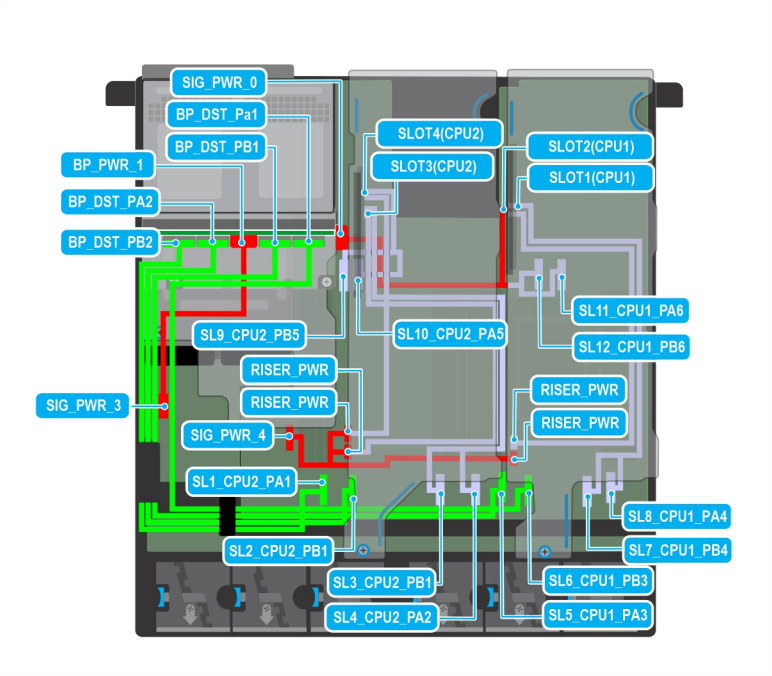


Figure 87. Front accessed FHHL and E3 w/o fPERC12

Table 93. Front accessed FHHL and E3 w/o fPERC12

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
BP_DST_PA1 (backplane connector)	SL6_CPU1_PB3 (signal connector on the system board)
BP_DST_PB1 (backplane connector)	SL5_CPU1_PA3 (signal connector on the system board)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	SL2_CPU2_PB1 (signal connector on the system board)
BP_DST_PB2 (backplane connector)	SL1_CPU2_PA1 (signal connector on the system board)
SIG_PWR_3 (signal power connector)	BP_PWR_1 (backplane power connector)
SL9_CPU2_PB5 (signal power connector)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)

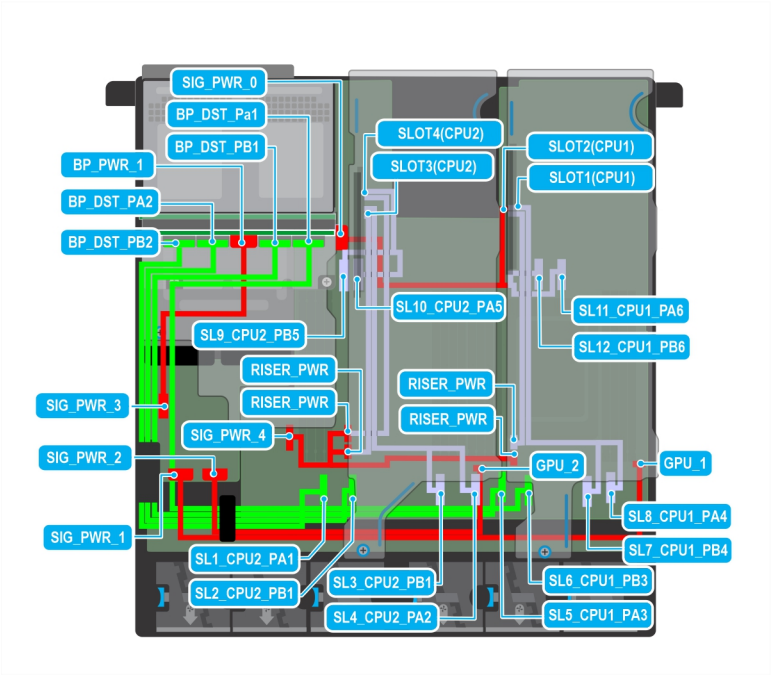


Figure 88. Front accessed FHFL GPUs and E3 w/o fPERC12

Table 94. Front accessed FHFL GPUs and E3 w/o fPERC12

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
BP_DST_PA1 (backplane connector)	SL6_CPU1_PB3 (signal connector on the system board)
BP_DST_PB1 (backplane connector)	SL5_CPU1_PA3 (signal connector on the system board)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	SL2_CPU2_PB1 (signal connector on the system board)
BP_DST_PB2 (backplane connector)	SL1_CPU2_PA1 (signal connector on the system board)
SIG_PWR_3 (signal power connector)	BP_PWR_1(backplane power connector)
SL9_CPU2_PB5 (signal power connector)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)
SIG_PWR_1 (signal power connector)	GPU_1
SIG_PWR_2 (signal power connector)	GPU_2

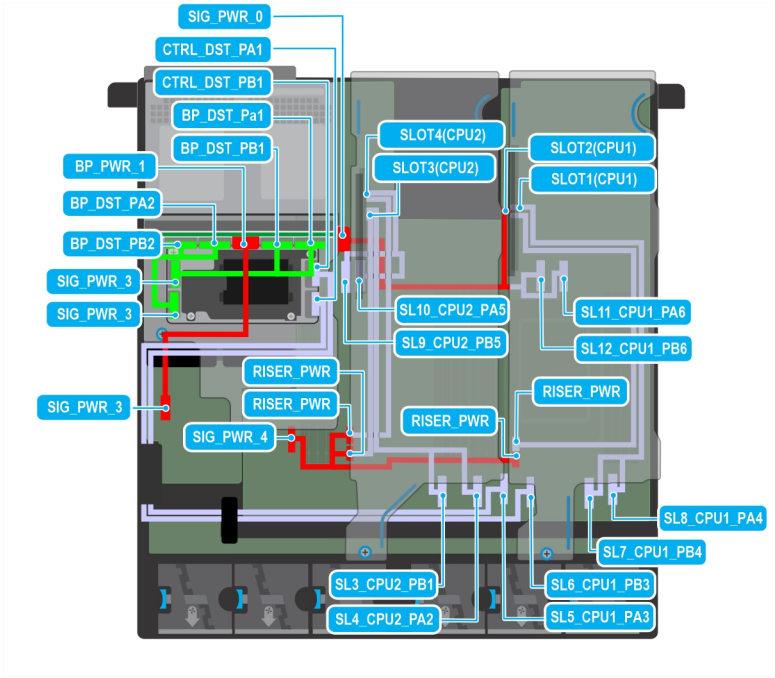


Figure 89. Front accessed FHHL and E3 w fPERC12

Table 95. Front accessed FHHL and E3 w fPERC12

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
BP_DST_PA1 (backplane connector)	CTRL_SRC_SA1_PA1 (fPERC connector)
BP_DST_PB1 (backplane connector)	CTRL_SRC_SA1_PA1 (fPERC connector)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	CTRL_SRC_SB1_PB1 (fPERC connector)
BP_DST_PB2 (backplane connector)	CTRL_SRC_SA1_PA1 (fPERC connector)
SIG_PWR_3 (signal power connector)	BP_PWR_1(backplane power connector)
SL9_CPU2_PB5 (signal power connector)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)
SL5_CPU1_PA3 (signal power connector)	CTRL_DST_PB1 (fPERC)
SL6_CPU1_PB3 (signal power connector)	CTRL_DST_PA1 (fPERC)

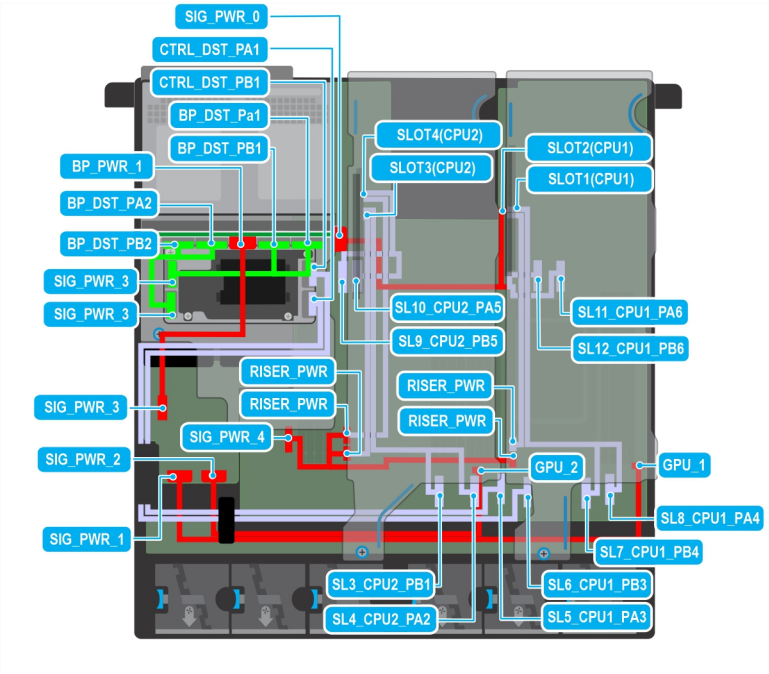


Figure 90. Front accessed FHFL GPUs and E3 w fPERC12

Table 96. Front accessed FHFL GPUs and E3 w fPERC12

From	To
SIG_PWR_0 (signal power connector)	IO_RISER2 (CPU1) (Riser power connector)
BP_DST_PA1 (backplane connector)	CTRL_SRC_SA1_PA1 (fPERC connector)
BP_DST_PB1 (backplane connector)	CTRL_SRC_SA1_PA1 (fPERC connector)
BP_PWR_1 (backplane power connector)	SIG_PWR_3 (PIB power connector)
BP_DST_PA2 (backplane connector)	CTRL_SRC_SB1_PB1 (fPERC connector)
BP_DST_PB2 (backplane connector)	CTRL_SRC_SA1_PA1 (fPERC connector)
SIG_PWR_3 (signal power connector)	BP_PWR_1(backplane power connector)
SL9_CPU2_PB5 / SL10_CPU2_PA5 (signal power connectors)	Slot4 (CPU2)
SIG_PWR_4 (signal power connector)	RISER_PWR (Riser power connector)
SL3_CPU2_PB2 / SL4_CPU2_PA2 (signal power connectors)	Slot3 (CPU2)
SL11_CPU1_PA6 / SL12_CPU1_PB6 (signal power connectors)	Slot2 (CPU1)
SL7_CPU1_PB4 / SL8_CPU1_PA4 (signal power connectors)	Slot1 (CPU1)
SL5_CPU1_PA3 (signal power connector)	CTRL_DST_PB1 (fPERC)
SL6_CPU1_PB3 (signal power connector)	CTRL_DST_PA1 (fPERC)
SIG_PWR_1 (signal power connector)	GPU 1
SIG_PWR_2 (signal power connector)	GPU 2

Expansion cards and expansion card risers

NOTE: When an expansion card is not supported or missing, the iDRAC and Lifecycle Controller logs an event. This does not prevent your system from booting. However, if a F1/F2 pause occurs with an error message, see *Troubleshooting expansion cards* section in the *PowerEdge Servers Troubleshooting Guide* at www.dell.com/poweredgemanuals.

Expansion card installation guidelines

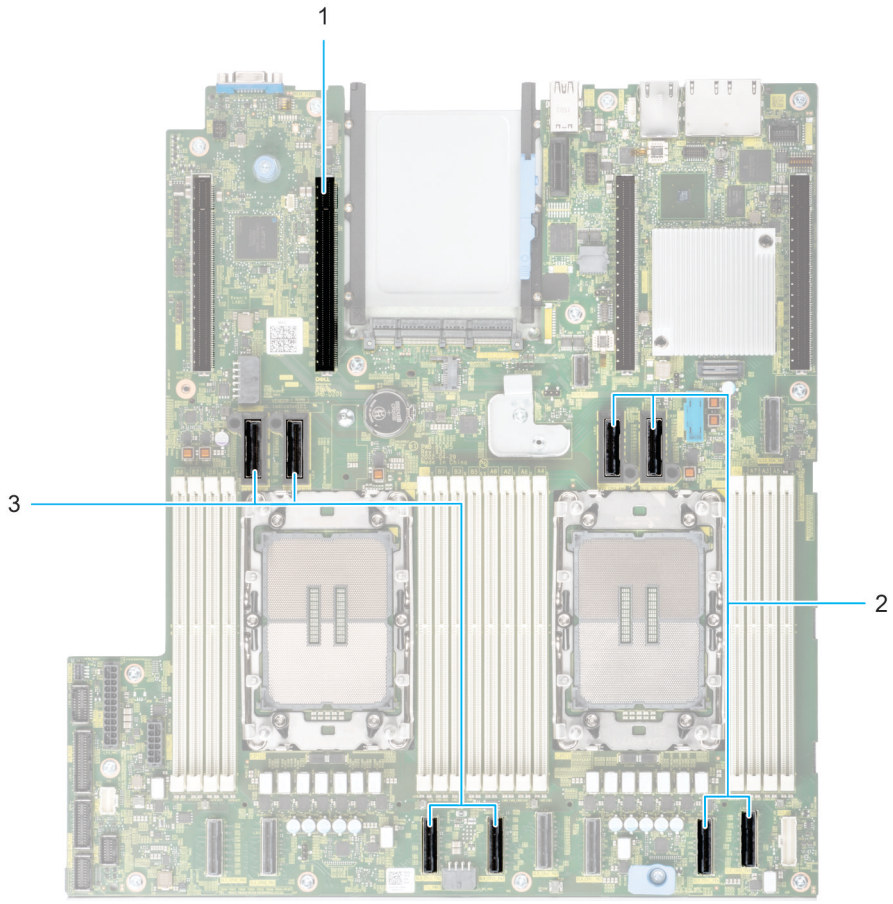


Figure 91. Expansion card riser slot connectors

1. Expansion card riser 3 connector
2. Expansion card riser 1 connectors
3. Expansion card riser 2 connectors

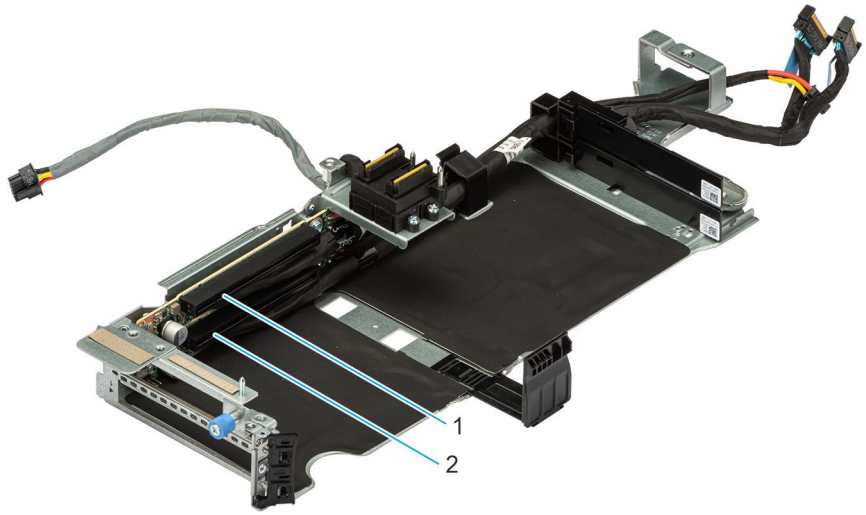


Figure 92. Expansion card riser 1

1. Slot 2
2. Slot 1

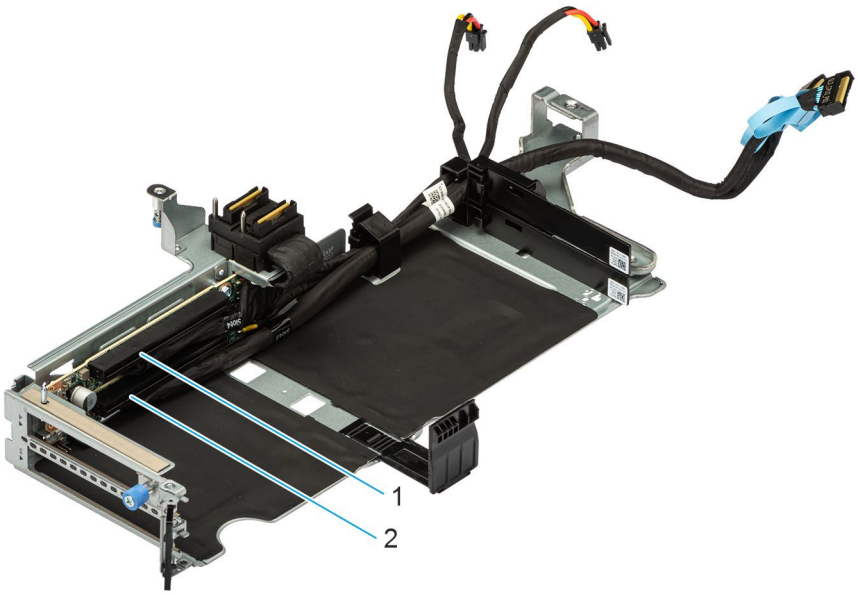


Figure 93. Expansion card riser 2

1. Slot 4
2. Slot 3

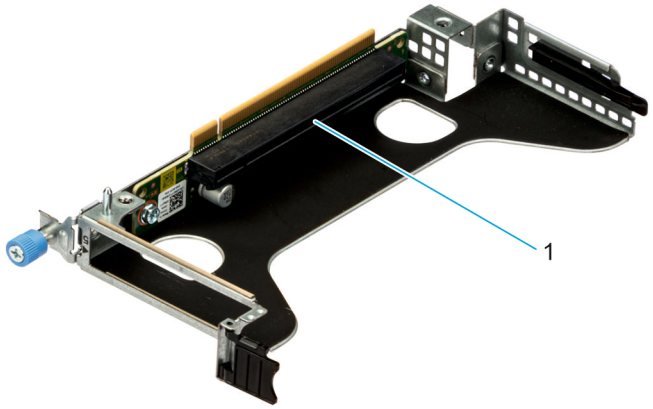


Figure 94. Expansion card riser 3

1. Slot 5

NOTE: The expansion-card slots are not hot-swappable.

The following table provides guidelines for installing expansion cards to ensure proper cooling and mechanical fit. The expansion cards with the highest priority should be installed first using the slot priority indicated. All the other expansion cards should be installed in the card priority and slot priority order.

Table 97. Expansion card riser configurations

Configurations	Expansion card risers	PCIe Slots	Form factor	Controlling processor	Slot's electrical bandwidth/ physical connector
Config1. R1B+R2B+R3	R1B	1	Full height/Half length/SW	Processor 1	PCIe Gen4 x16 (x16 connector)
		2	Full height/Half length/SW	Processor 1	PCIe Gen5 x16 (x16 connector)
	R2B	3	Full height/Half length/SW	Processor 2	PCIe Gen4 x16 (x16 connector)
		4	Full height/Half length/SW	Processor 2	PCIe Gen5 x16 (x16 connector)
	R3	5	Half length/Low profile/SW	Processor 2	PCIe Gen4 x16 (x16 connector)
Config2. R1A+R2A+R3	R1A	1	Full Length/Full height/SW	Processor 1	PCIe Gen4 x16 (x16 connector)
		2	Full Length/Full height/SW / DW	Processor 1	PCIe Gen5 x16 (x16 connector)
	R2A	3	Full Length/Full height/SW	Processor 2	PCIe Gen4 x16 (x16 connector)
		4	Full Length/Full height/SW / DW	Processor 2	PCIe Gen5 x16 (x16 connector)
	R3	5	Half length/Low profile/SW	Processor 2	PCIe Gen4 x16 (x16 connector)

Table 98. Configuration 1: R1B + R2B + R3

Configuration	Slot location	Width	Length	Height	Processor 1		Processor 2		Processor 2
					R1B		R2B		R3
R1B + R2B + R3	PCIe Slot-1	SW	Half length	Full height	x16	-	-	-	-
	PCIe Slot-2	SW	Half length	Full height	-	x16	-	-	-
	PCIe Slot-3	SW	Half length	Full height	-	-	x16	-	-
	PCIe Slot-4	SW	Half length	Full height	-	-	-	x16	-
	PCIe Slot-5	SW	Half length	Low profile	-	-	-	-	x16

Table 99. Configuration 1: R1B + R2B + R3

Card type	Slot priority	Maximum number of cards
NVIDIA A2 GPU	1,2,3,4	4
NVIDIA A2 GPU	5	1
NVIDIA L4 GPU	1,2,3,4	4
NVIDIA L4 GPU	5	1
FOXCONN H965 Front PERC	INT	1
FOXCONN H755 Front PERC	INT	1
FOXCONN H355 Front PERC	INT	1
FOXCONN HBA355I, Front HBA	INT	1
Broadcom (NIC: 100 Gb)	1,2,3,4	4
Broadcom (NIC: 100 Gb)	5	1
Mellanox (NIC: 100 Gb)	1,2,3,4	4
Mellanox (NIC: 100 Gb)	5	1
Intel (NIC: 25 Gb)	1,2,3,4	4
Broadcom (NIC: 25 Gb)	1,2,3,4	4
Broadcom (NIC: 25 Gb)	5	1
Intel (NIC: 25 Gb)	5	1
Broadcom (NIC: 10 Gb)	1,2,3,4	4
Broadcom (NIC: 10 Gb)	5	1
Intel (NIC: 10 Gb)	1,2,3,4	4
Intel (NIC: 10 Gb)	5	1
Broadcom (NIC: 1 Gb)	1,2,3,4	4
Broadcom (NIC: 1 Gb)	5	1
Intel (NIC: 1 Gb)	1,2,3,4	4
Intel (NIC: 1 Gb)	5	1
Inventec (Serial Port)	5	1
BOSS-N1	Integrated slot	1

Table 99. Configuration 1: R1B + R2B + R3 (continued)

Card type	Slot priority	Maximum number of cards
Broadcom (OCP: 25 Gb)	Integrated slot	1
Intel (OCP: 25 Gb)	Integrated slot	1
Broadcom (OCP: 10 Gb)	Integrated slot	1
Intel (OCP: 10 Gb)	Integrated slot	1
Broadcom (OCP: 1 Gb)	Integrated slot	1
Intel (OCP: 1 Gb)	Integrated slot	1

Table 100. Configuration 2: R1A + R2A + R3

Configuration	Slot location	Width	Length	Height	Processor 1		Processor 2		Processor 2
					R1A		R2A		R3
R1A + R2A + R3	PCIe Slot-1	SW	Full length	Full height	x16	-	-	-	-
	PCIe Slot-2	SW/DW	Full length	Full height	-	x16	-	-	-
	PCIe Slot-3	SW	Full length	Full height	-	-	x16	-	-
	PCIe Slot-4	SW/DW	Full length	Full height	-	-	-	x16	-
	PCIe Slot-5	SW	Half length	Low profile	-	-	-	-	x16

Table 101. Configuration 2: R1A + R2A + R3

Card type	Slot priority	Maximum number of cards
NVIDIA A100 GPU	2,4	2
NVIDIA A800 GPU	2,4	2
NVIDIA A2 GPU	5	2
NVIDIA A30 GPU	2,4	2
Intel PVC 300 W GPU	2,4	2
NVIDIA L4 GPU	5	2
FOXCONN H965 Front PERC	Integrated slot	1
FOXCONN H755 Front PERC	Integrated slot	1
FOXCONN H355 Front PERC	Integrated slot	1
FOXCONN H355I HBA	Integrated slot	1
Broadcom (NIC: 100 Gb)	5	1
Mellanox (NIC: 100 Gb)	5	1
Broadcom (NIC: 25 Gb)	5	1
Intel (NIC: 25 Gb)	5	1
Broadcom (NIC: 10 Gb)	5	1
Intel (NIC: 10 Gb)	5	1
Broadcom (NIC: 1 Gb)	5	1
Intel (NIC: 1 Gb)	5	1

Table 101. Configuration 2: R1A + R2A + R3 (continued)

Card type	Slot priority	Maximum number of cards
Inventec Serial Port	5	1
Foxconn BOSS-N1	Integrated slot	1
Broadcom (OCP: 25 Gb)	Integrated slot	1
Intel (OCP: 25 Gb)	Integrated slot	1
Broadcom (OCP: 10 Gb)	Integrated slot	1
Intel (OCP: 10 Gb)	Integrated slot	1
Broadcom (OCP: 1 Gb)	Integrated slot	1
Intel (OCP: 1 Gb)	Integrated slot	1

Removing the Expansion card riser 2

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the drive cage.
5. Disconnect the expansion card riser cables from the connectors on the system board.
6. If applicable, disconnect the cables from the expansion card or system board.

NOTE: The procedure to remove the riser 2 is the same for Rear Accessed and Front Accessed configurations.

Steps

Using the Phillips 2 screwdriver loosen the blue thumb screws. Holding the edges lift the expansion card riser .

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

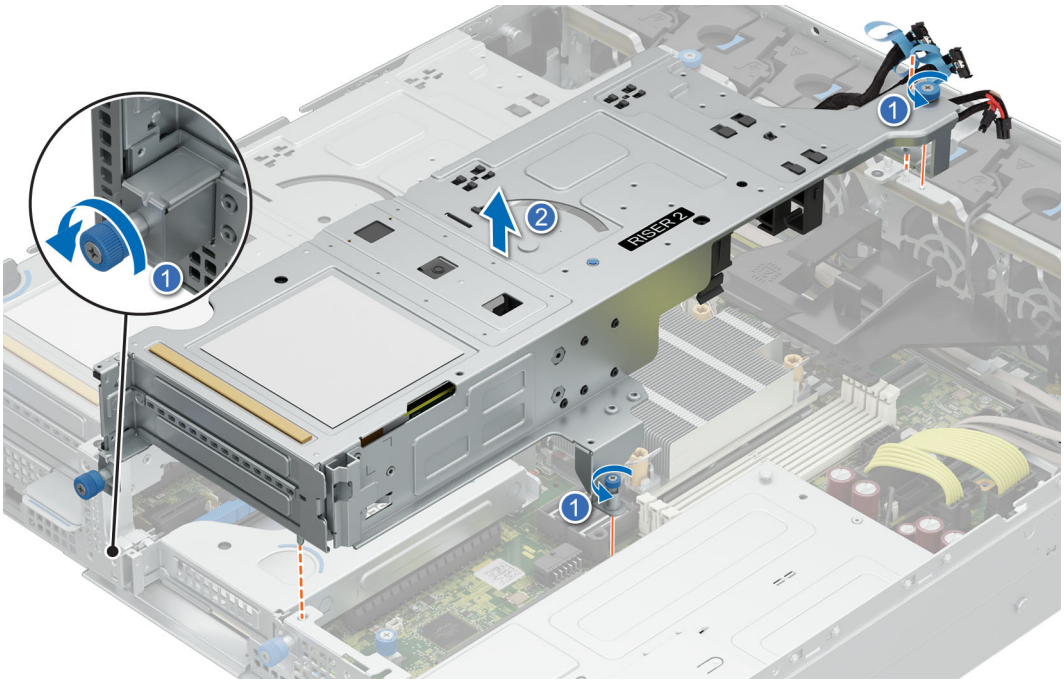


Figure 95. Removing the expansion card riser 2

Next steps

1. Replace the Expansion card riser 2

Installing the Expansion card riser 2

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the drive cage.
5. If removed, install the expansion cards/GPU into the Expansion card riser 2.

CAUTION: Do not install GPUs, network cards, or other PCIe devices on your system that are not validated and tested by Dell. Damage caused by unauthorized and invalidated hardware installation will null and void the system warranty.

NOTE: The procedure to install the Expansion card riser 2 is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Holding the edges, align the expansion card riser with the guides on the system board. Lower the expansion card riser into place and connect the riser cables to the signal cable connectors on the system board.
2. Using the Philips 2 screwdriver, tighten the blue thumb screws.

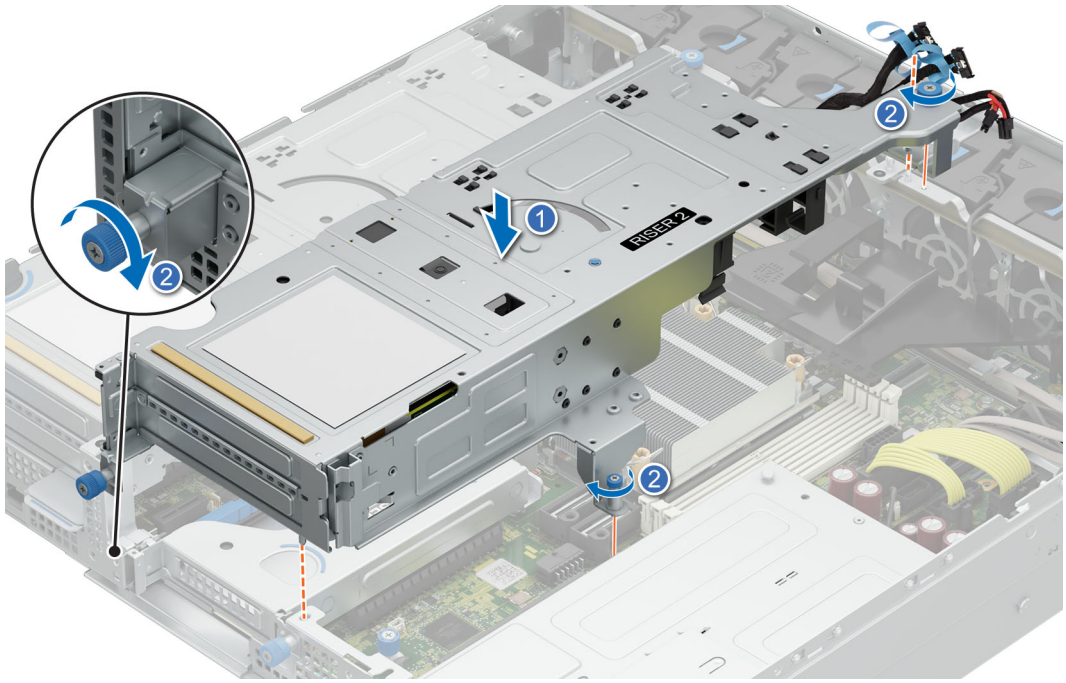


Figure 96. Installing the Expansion card riser 2

Next steps

1. If required, reconnect the cables to the expansion card or system board.

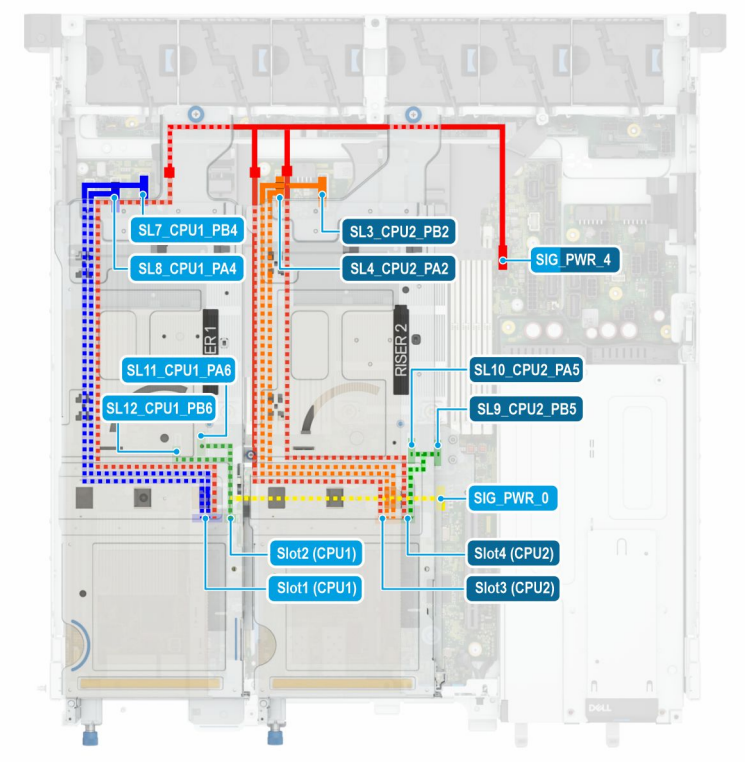


Figure 97. Riser 1 and 2 cabling

2. Install the drive cage.
3. Install the 2U air shroud.
4. Follow the procedure listed in After working inside your system.
5. Install any device drivers required for the card as described in the documentation for the card.

Removing the Expansion card riser 1

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the drive cage
5. Remove the Expansion card riser 2.
6. Remove the Expansion card riser 3.
7. Disconnect the expansion card riser cables from the connectors on the system board routed under riser 3.

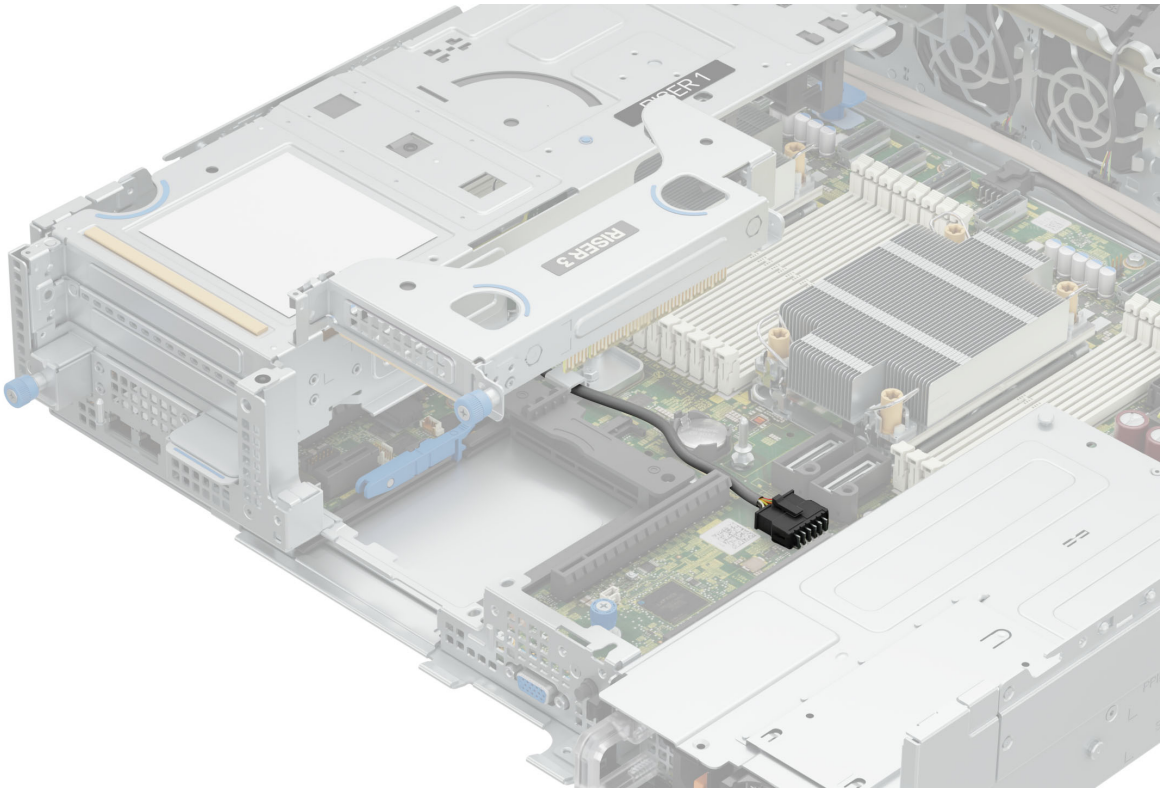


Figure 98. Power cable from Riser 1 under Riser 3

8. If applicable, disconnect the cables from the expansion card or system board.

NOTE: The procedure to remove the Expansion card riser 1 is the same for Rear Accessed and Front Accessed configurations.

Steps

Using the Phillips 2 screwdriver loosen the blue thumb screws. Holding the edges lift the expansion card riser.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

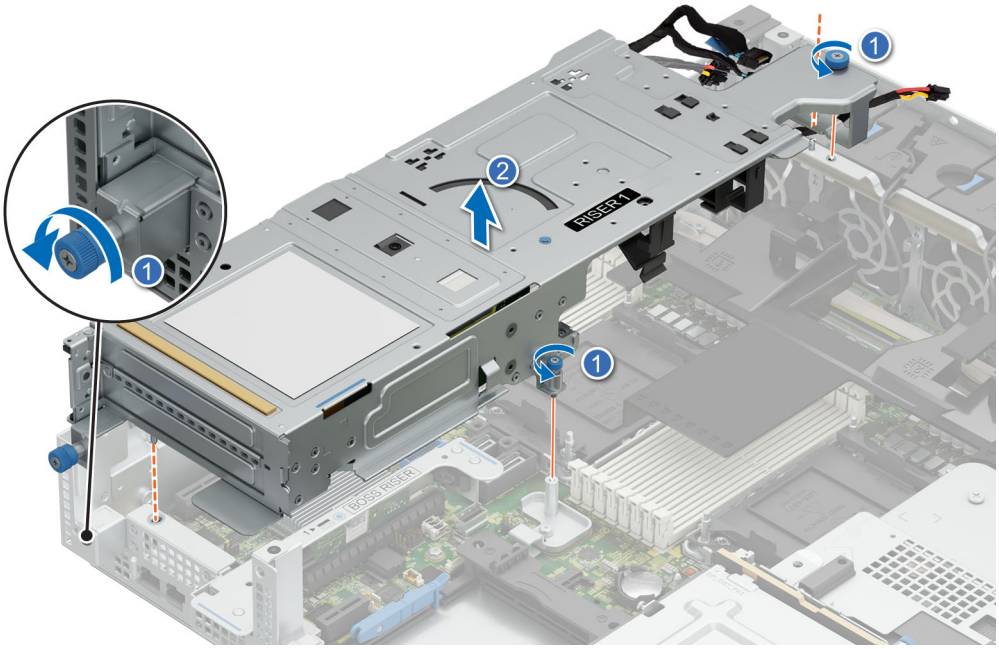


Figure 99. Removing the expansion card riser 1

Next steps

1. Replace the Expansion card riser 1.

Installing the expansion card riser 1

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the drive cage.
5. Remove the expansion card riser 2.
6. If removed, install the expansion cards or GPU into the Expansion card riser 1.

NOTE: The procedure to install the Expansion card riser 1 is the same for Rear Accessed and Front Accessed configurations.

CAUTION: Do not install GPUs, network cards, or other PCIe devices on your system that are not validated and tested by Dell. Damage caused by unauthorized and invalidated hardware installation will null and void the system warranty.

Steps

1. Holding the edges, align the expansion card riser with the guides on the system board. Lower the expansion card riser into place and connect the riser cables to the signal cable connectors on the system board.
2. Using the Philips 2 screwdriver, tighten the blue thumbscrews.

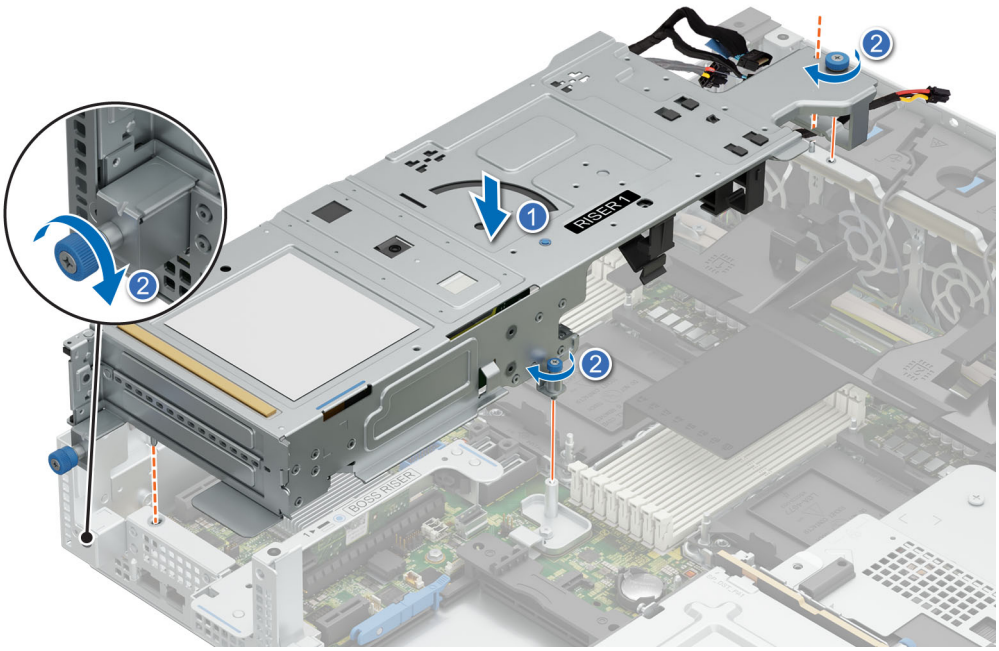


Figure 100. Installing the Expansion card riser 1

Next steps

1. Route the riser 1 cables carefully under expansion card riser 3.

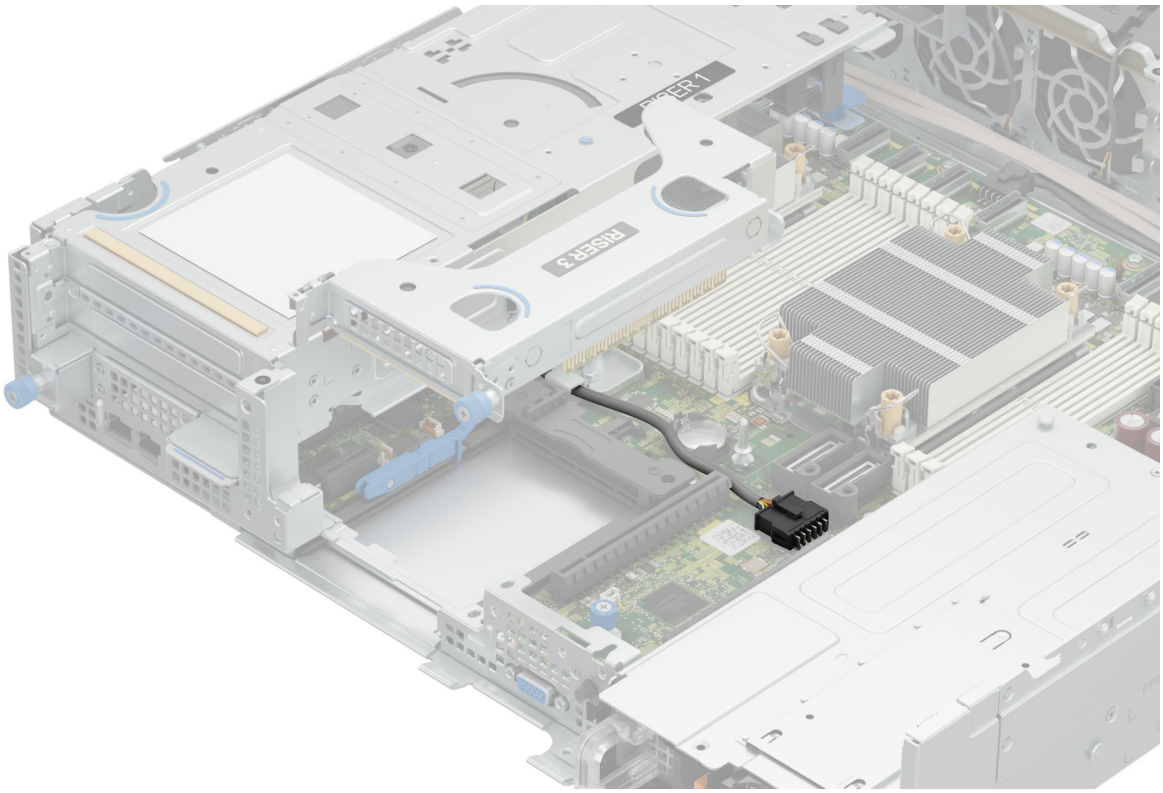


Figure 101. Power cable from Riser 1 under Riser 3

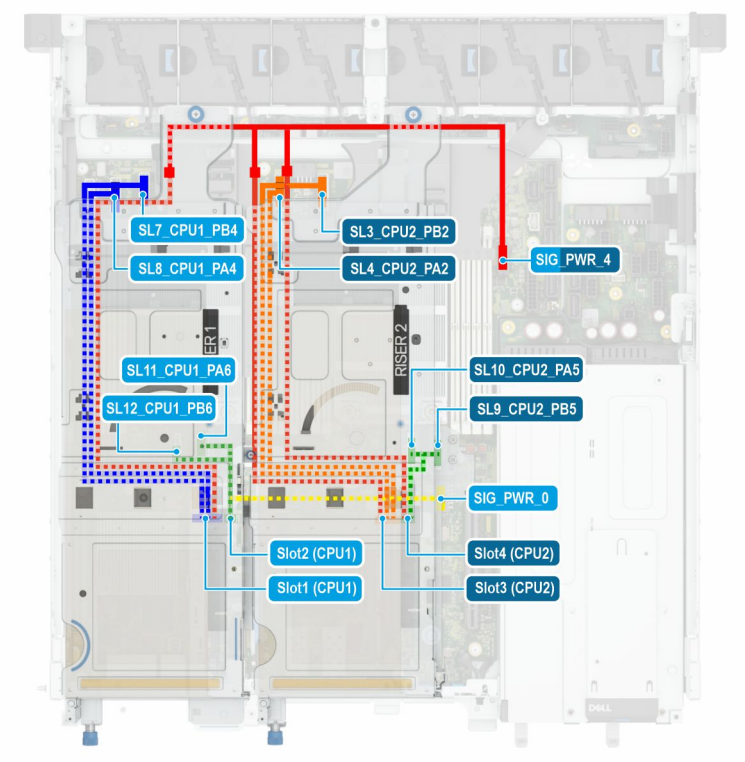


Figure 102. Riser 1 and 2 cabling

NOTE: Riser 1 call-outs have blue background text, whereas Riser 2 call-outs have dark blue background text.

2. Install the Expansion card riser 3.
3. Install the Expansion card riser 2.
4. Install the drive cage.
5. Install the 2U air shroud.
6. Follow the procedure listed in After working inside your system.
7. Install any device drivers required for the card as described in the documentation for the card.

Removing the expansion card riser 3

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the drive cage.
5. Remove the Expansion card riser 2.
6. If applicable, disconnect the cables from the expansion card or system board.

NOTE: The procedure to remove the Expansion card riser 3 is the same for Rear Accessed and Front Accessed configurations.

Steps

Using the Phillips 2 screwdriver loosen the blue thumb screw. Holding the blue touch points lift the expansion card riser from the riser connector on the system board.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

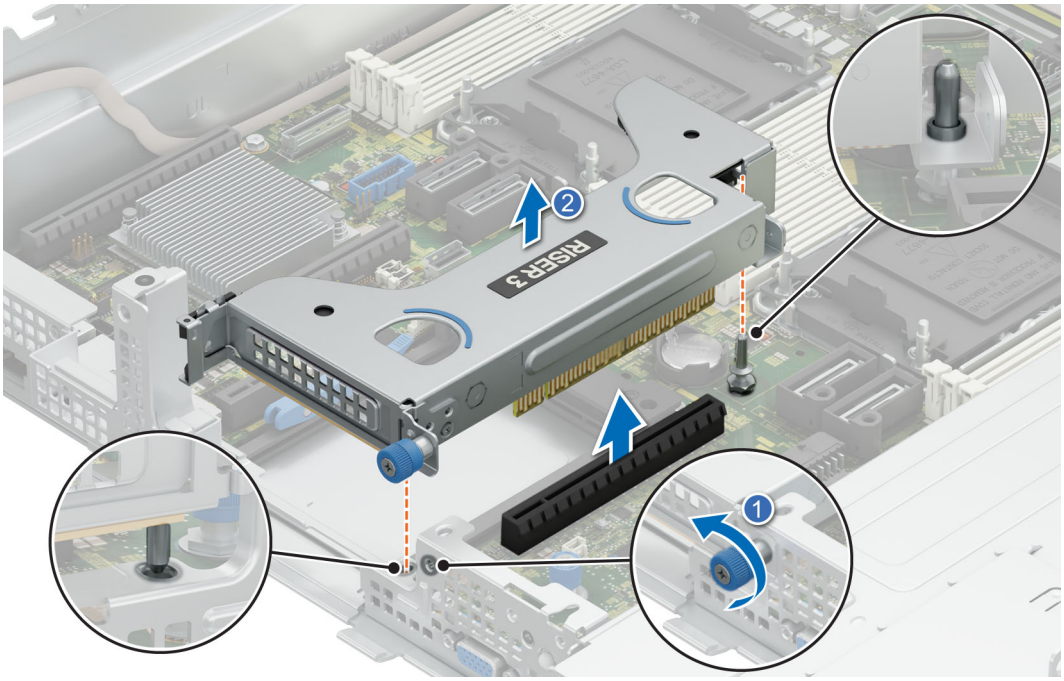


Figure 103. Removing the expansion card riser 3

Next steps

1. Replace the expansion card riser 3.

Installing the expansion card riser 3

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the drive cage.
5. Remove the Expansion card riser 2.
6. Remove the Expansion card riser 1.
7. If removed, install the expansion cards into the expansion card risers.

CAUTION: Do not install GPUs, network cards, or other PCIe devices on your system that are not validated and tested by Dell. Damage caused by unauthorized and invalidated hardware installation will null and void the system warranty.

NOTE: The procedure to install the riser 3 is the same for Rear Accessed and Front Accessed configurations.

Steps

Holding the edges or the touch points, align the holes on the expansion card riser with the guides on the system board. Lower the expansion card riser into place and press the touch points until the expansion card riser connector is fully seated on the system board connector. Using the Philips 2 screwdriver, tighten the blue thumb screw.

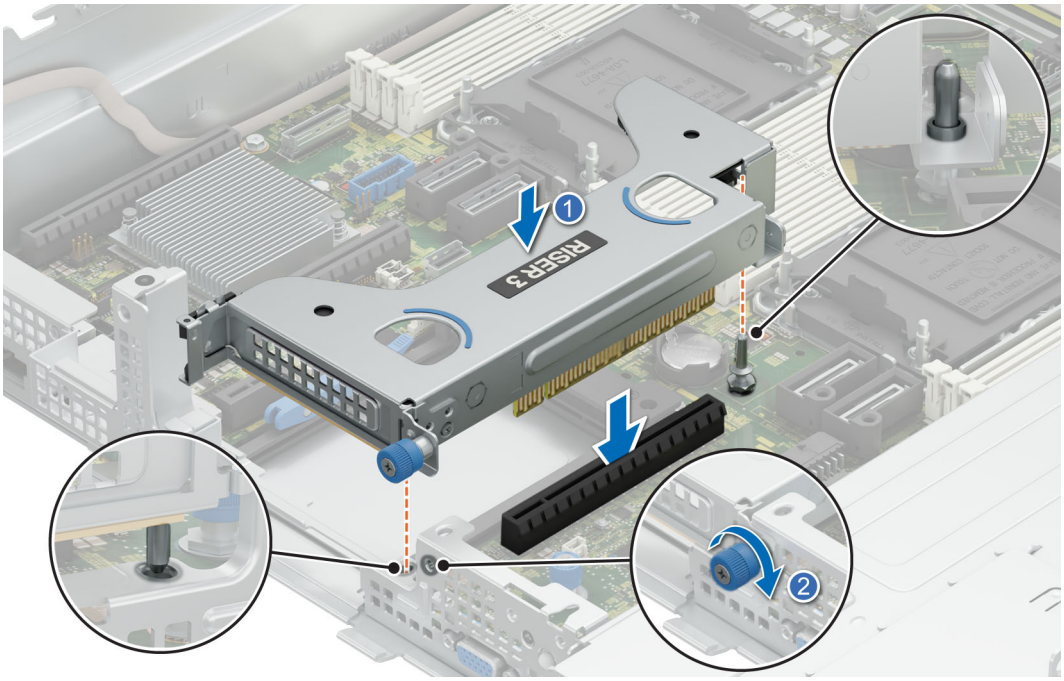


Figure 104. Installing the expansion card riser 3

Next steps

1. If required, reconnect the cables to the expansion card or system board.

   NOTE: Route the riser 1 cables carefully under expansion card riser 3.
2. Install the Expansion card riser 2.
3. Install the drive cage.
4. Install the 2U air shroud.
5. Follow the procedure listed in After working inside your system.
6. Install any device drivers required for the card as described in the documentation for the card.

Removing expansion card or GPU from the Expansion card riser 2

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the drive cage.
5. Remove the Expansion card riser 2.
6. If applicable, disconnect the internal cables that are connected to expansion card.

NOTE: The procedure to remove the expansion card or GPU is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Pull and lift the expansion card retention latch locks to open. Pull the release black latch away from the riser. Hold the expansion card by its edges and pull the card until the card edge connector disengages from the expansion card connector on the riser.

   NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

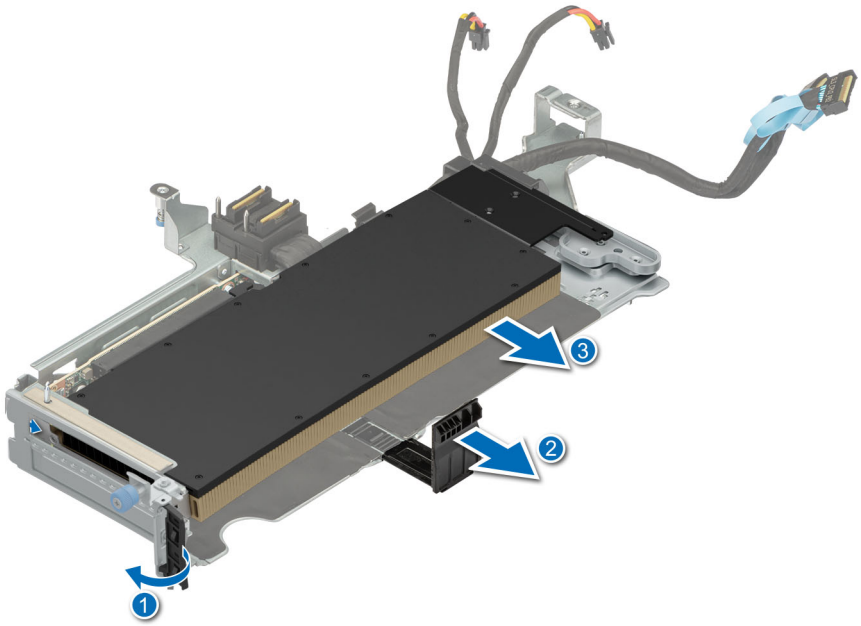


Figure 105. Removing a expansion single-width Full-height GPU from expansion card riser 2

2. Pull and lift the expansion card retention latch locks to open. Pull the release black latch away from the riser. Hold the expansion card by its edges and pull the card until the card edge connector disengages from the expansion card connector on the riser.

   NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

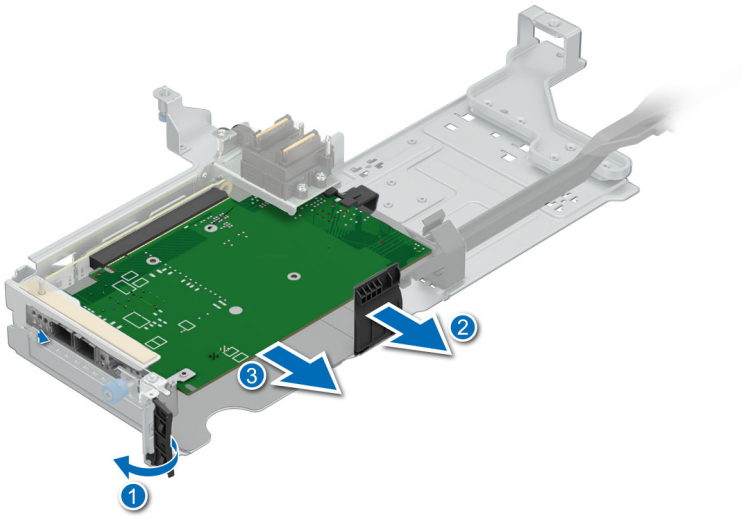


Figure 106. Removing a half-length expansion card from expansion card riser 2

3. If the expansion card is not going to be replaced, install the GPU blank until it clicks into place and then install the filler bracket and close the card retention latch.

   NOTE: In order to maintain system thermal health, install the GPU blank if the GPU or PCIe card is not installed.

NOTE: You must install a filler bracket over an empty expansion card slot to maintain Federal Communications Commission (FCC) certification of the system. The brackets also keep dust and dirt out of the system and aid in proper cooling and airflow inside the system.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

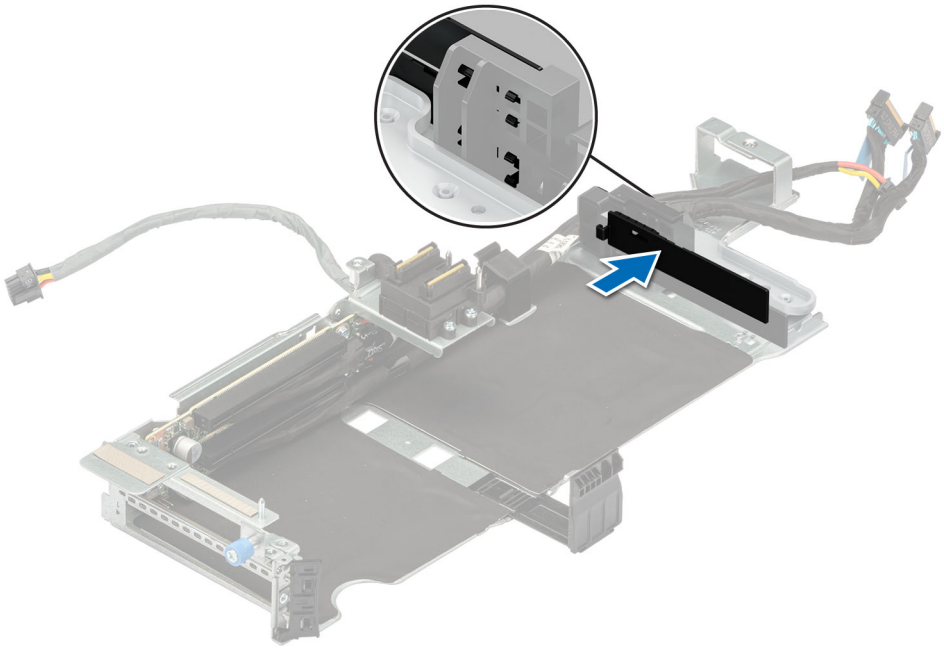


Figure 107. Installing the GPU blank on riser 1

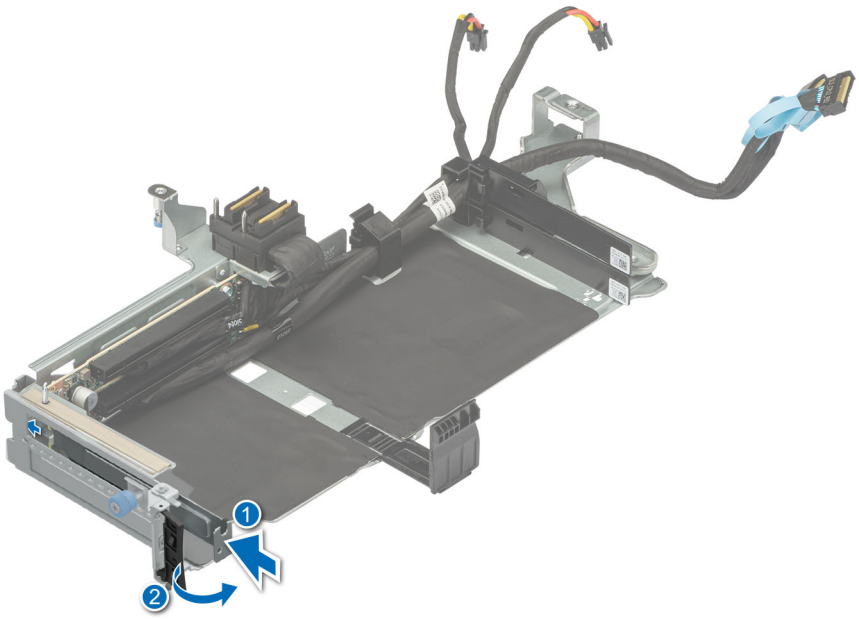


Figure 108. Installing the riser blank

Next steps

If applicable, Install an expansion card into the expansion card riser 2 or Install the expansion card riser 2.

Installing an expansion card or GPU into the Expansion card riser 2

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. If installing a new expansion card, unpack it and prepare the card for installation.

   NOTE: For instructions, see the documentation accompanying the card.
4. Remove the 2U air shroud.
5. Remove the drive cage.

NOTE: The procedure to install the expansion card or GPU is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Push the blank near the marked area and remove the GPU blank.
   a. Pull and lift the expansion card retention latch locks to open. If installed, remove the filler bracket.

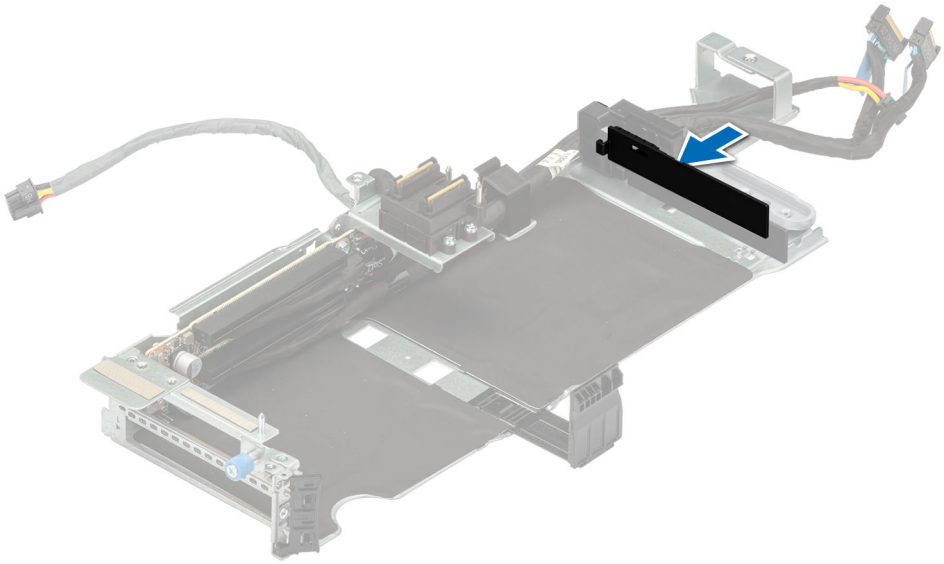


Figure 109. Removing the riser blank

NOTE: Store the riser blanks for future use. Filler brackets must be installed in empty expansion card slots to maintain Federal Communications Commission (FCC) certification of the system. The brackets also keep dust and dirt out of the system and aid in proper cooling and airflow inside the system.

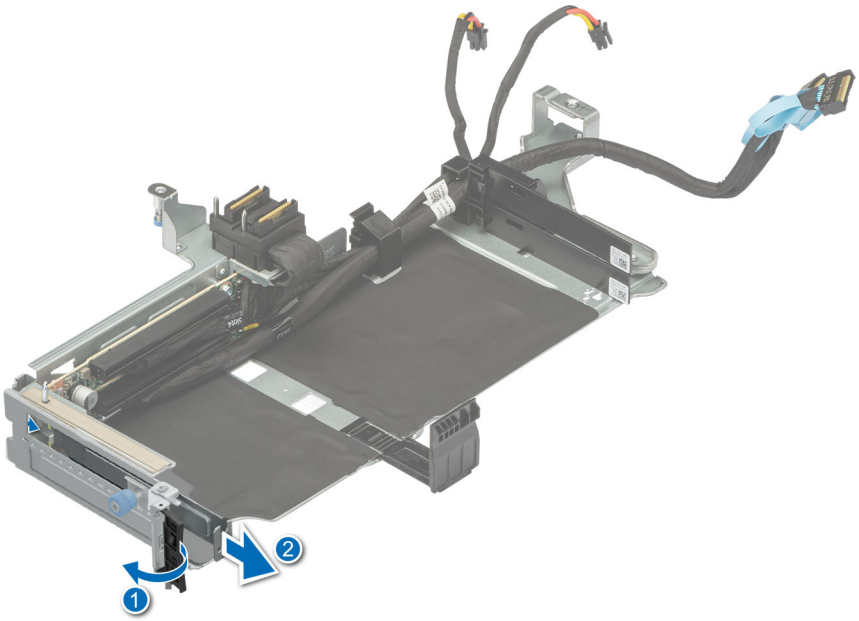


Figure 110. Removing the riser blank

2. Hold the expansion card by the edges, and align the card edge connector with the expansion card connector on the riser. Insert the card edge connector firmly into the expansion card connector until the card is fully seated. Push the black release latch toward the GPU and close the expansion card retention latch.

   NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

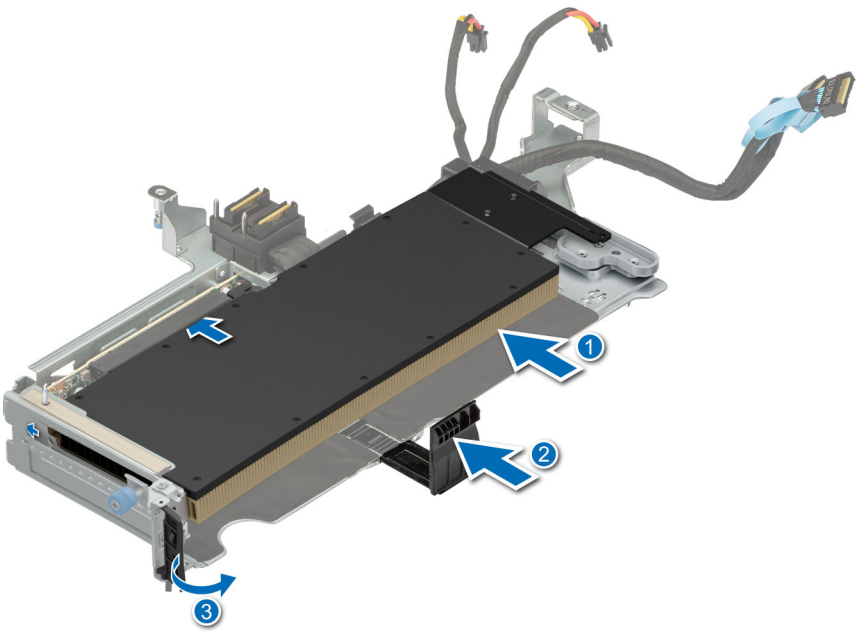


Figure 111. Installing an expansion single-width Full-height GPU from expansion card riser 2

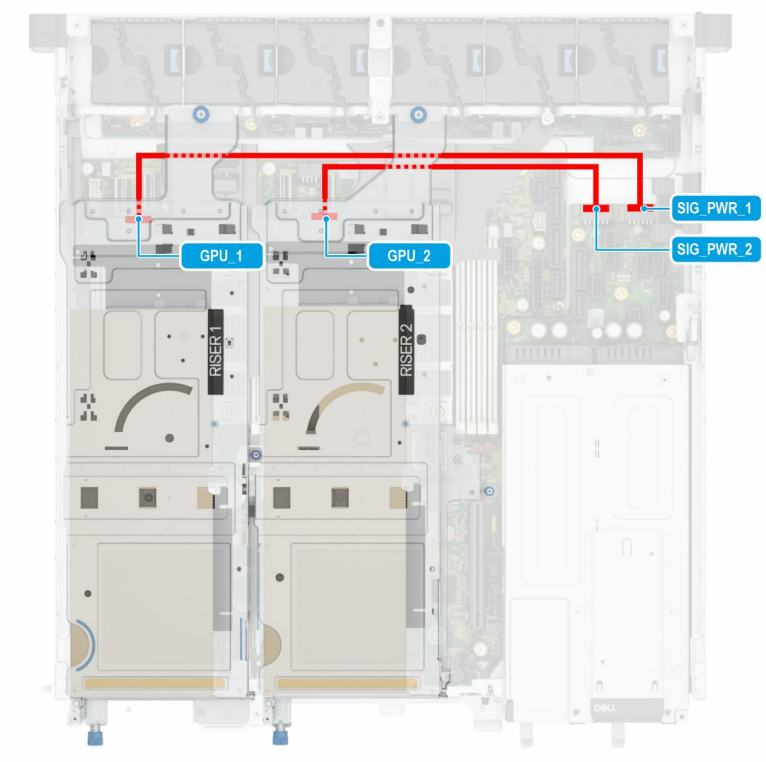


Figure 112. GPU to PIB cabling

3. Hold the expansion card by the edges, and align the card edge connector with the expansion card connector on the riser. Insert the card edge connector firmly into the expansion card connector until the card is fully seated. Push the black release latch on two sides of the expansion card and close the expansion card retention latch.

   NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

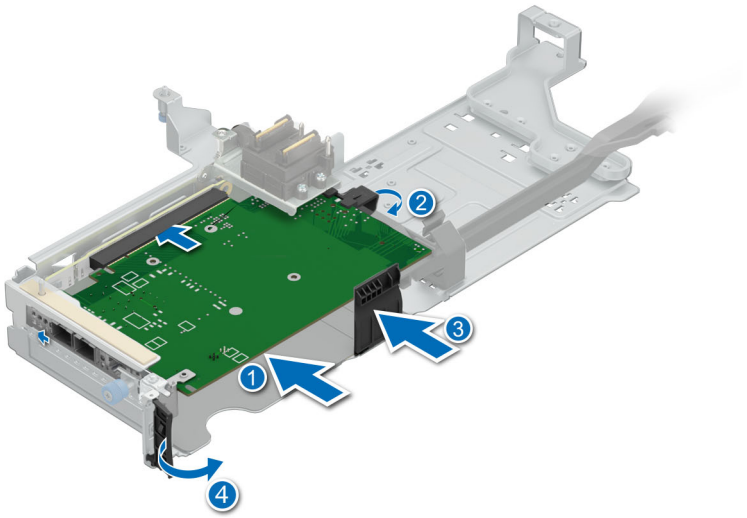


Figure 113. Installing a half-length expansion card from expansion card riser 2

Next steps

1. If applicable, connect the internal cables to the expansion card.
2. Install the expansion card riser 2.
3. Install the drive cage.
4. Install the 2U air shroud.
5. Follow the procedure listed in After working inside your system.
6. Install any device drivers required for the card as described in the documentation for the card.

NOTE: While replacing a faulty storage controller or NIC card or GPU with the same type of card, after you power on the system; the new card automatically updates to the same firmware and configuration of the faulty one. For more information about the Part replacement configuration, see the *Dell Lifecycle Controller User's Guide* available at https://www.dell.com/idracmanuals

CAUTION: Do not install GPUs, network cards, or other PCIe devices on your system that are not validated and tested by Dell. Damage caused by unauthorized and invalidated hardware installation will null and void the system warranty.

Removing expansion card or GPU from the Expansion card riser 1

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the drive cage.
5. Remove the Expansion card riser 2.
6. Remove the Expansion card riser 3
7. Remove the Expansion card riser 1.
8. If applicable, disconnect the internal cables that are connected to the expansion card.

NOTE: The procedure to remove the expansion card or GPU is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Pull and lift up the expansion card retention latch locks to open. Pull the release black latch away from the riser. Hold the expansion card by its edges and pull the card until the card edge connector disengages from the expansion card connector on the riser.

   NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

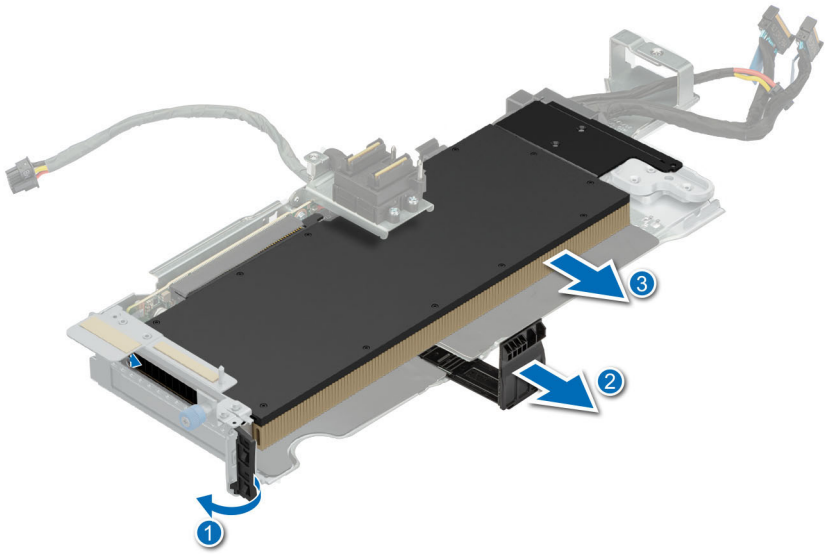


Figure 114. Removing a expansion single-width Full-height GPU from expansion card riser 1

2. Pull and lift up the expansion card retention latch locks to open. Pull the release black latch away from the riser. Hold the expansion card by its edges and pull the card until the card edge connector disengages from the expansion card connector on the riser.

   NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

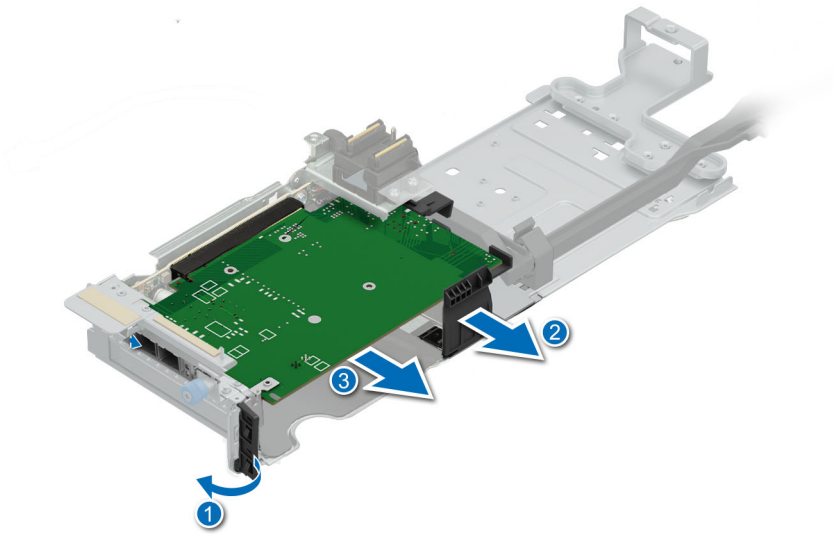


Figure 115. Removing a half-length expansion card from expansion card riser 1

3. If the expansion card is not going to be replaced, install the GPU blank until it clicks into place and then install the filler bracket and close the card retention latch.

   NOTE: In order to maintain system thermal health, install the GPU blank if the GPU or PCIe card is not installed.

NOTE: You must install a filler bracket over an empty expansion card slot to maintain Federal Communications Commission (FCC) certification of the system. The brackets also keep dust and dirt out of the system and aid in proper cooling and airflow inside the system.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

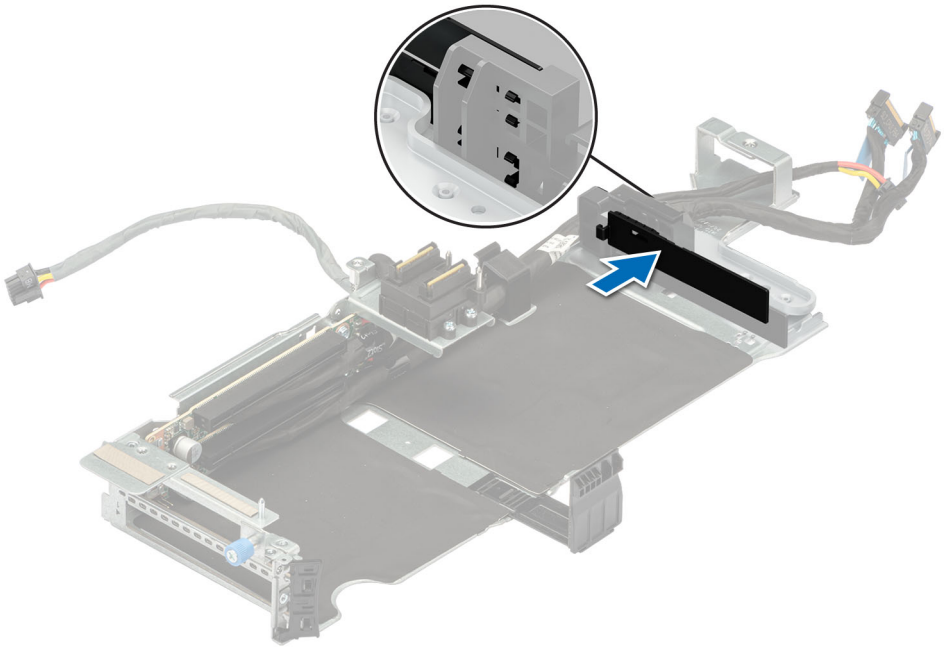


Figure 116. Installing the GPU blank on riser 1

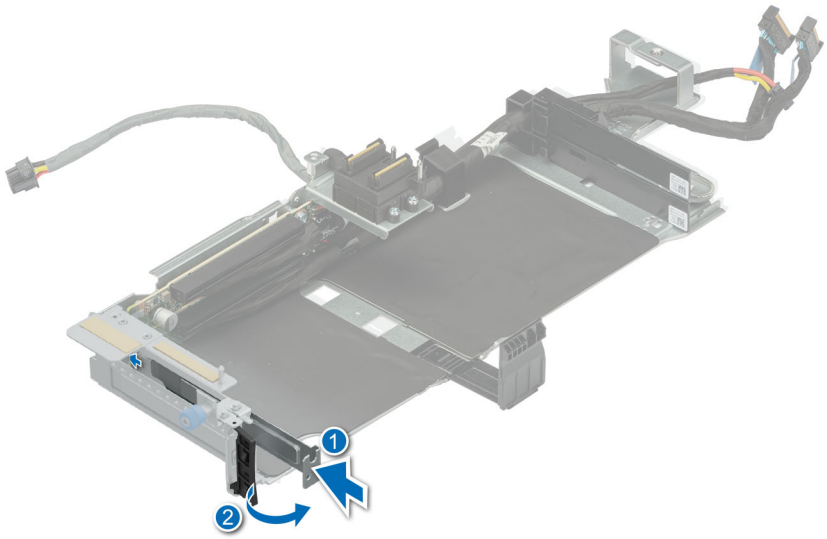


Figure 117. Installing the riser blank

Next steps

If applicable, Install an expansion card into the expansion card riser 1 or Install the Expansion card riser 1.

Installing an expansion card or GPU into the expansion card riser 1

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. If installing a new expansion card, unpack it and prepare the card for installation.

   NOTE: For instructions, see the documentation accompanying the card.
4. Remove the 2U air shroud.
5. Remove the drive cage.
6. Remove the Expansion card riser 1.
7. Remove the expansion card or GPU from the expansion card riser 1.

NOTE: The procedure to install the expansion card or GPU card is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Push the blank near the marked area and remove the GPU blank.
   a. Pull and lift the expansion card retention latch locks to open. If installed, remove the filler bracket.

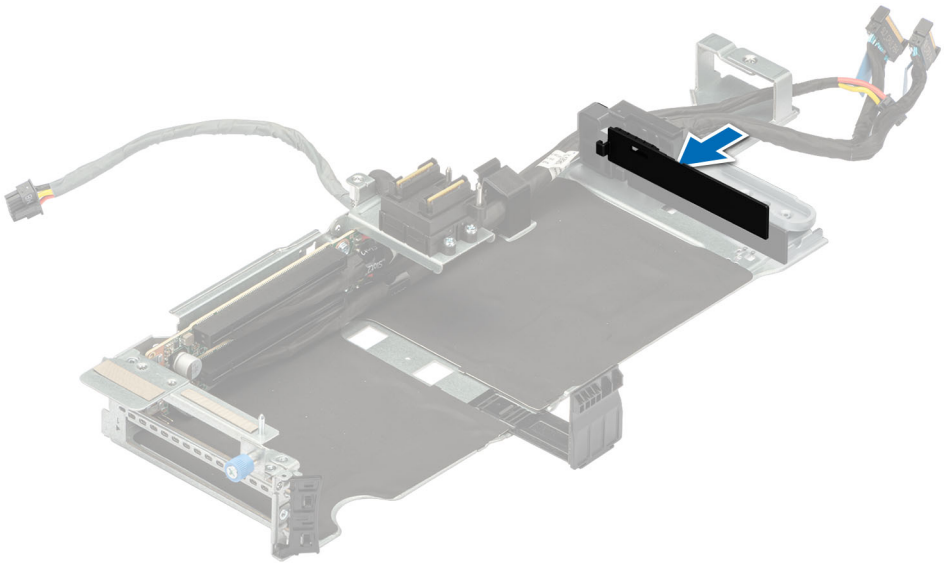


Figure 118. Removing the riser blank

NOTE: Store the riser blanks for future use. Filler brackets must be installed in empty expansion card slots to maintain Federal Communications Commission (FCC) certification of the system. The brackets also keep dust and dirt out of the system and aid in proper cooling and airflow inside the system.

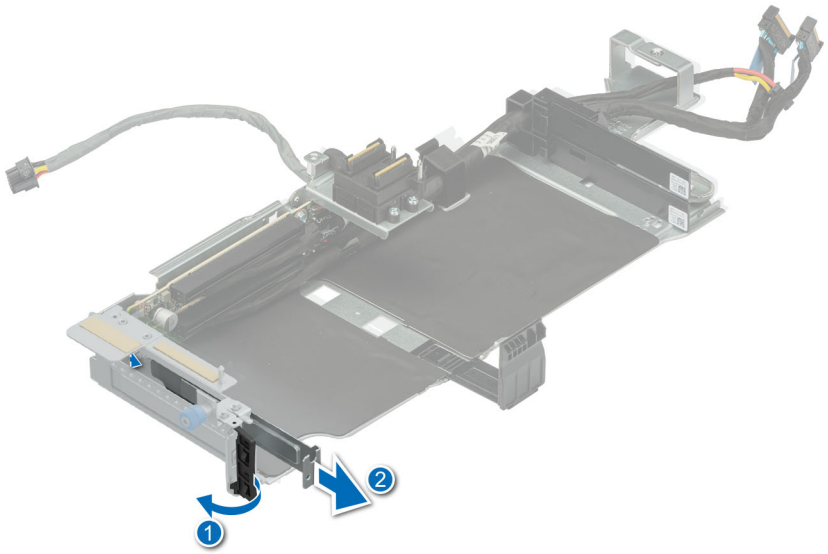


Figure 119. Removing the riser blank

2. Hold the expansion card by the edges, and align the card edge connector with the expansion card connector on the riser. Insert the card edge connector firmly into the expansion card connector until the card is fully seated. Push the black release latch toward the GPU and close the expansion card retention latch.

   NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

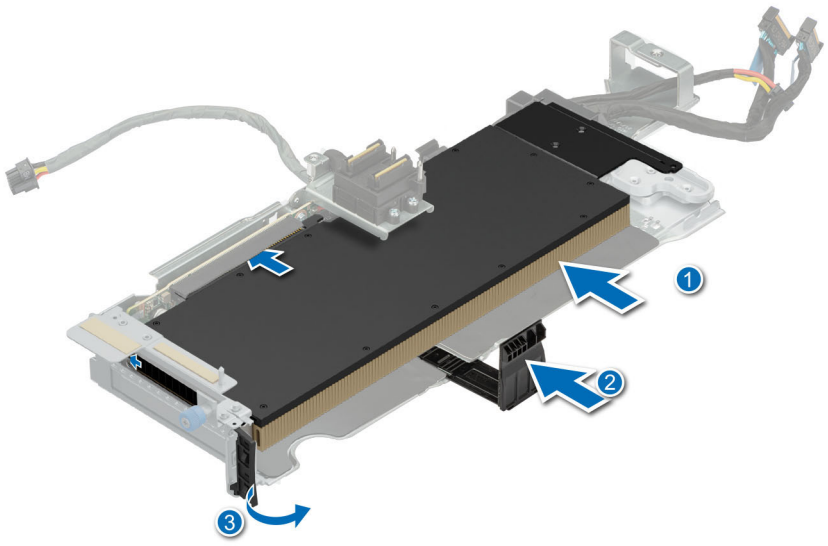


Figure 120. Installing an expansion single-width Full-height GPU from Expansion card riser 1

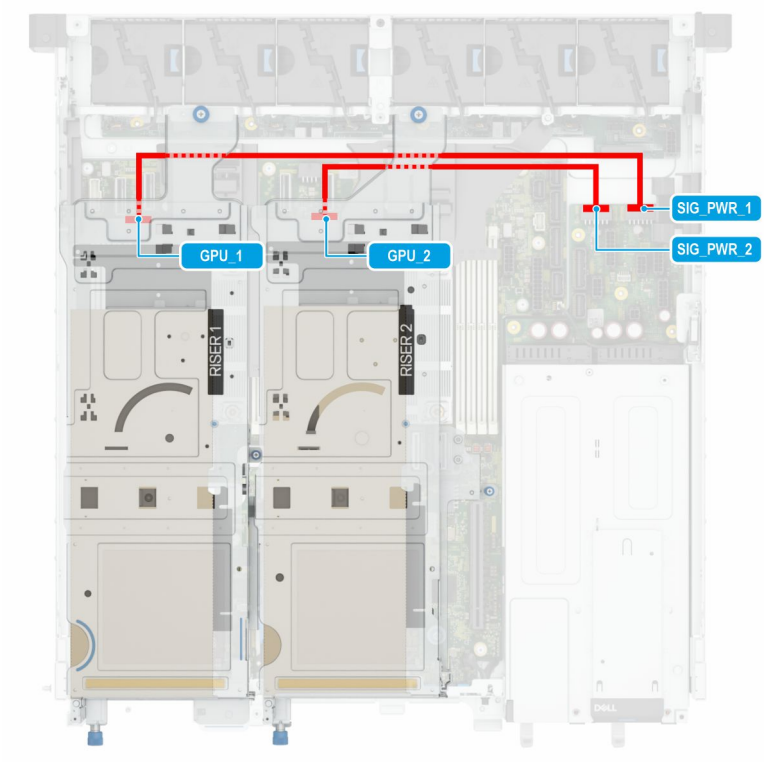


Figure 121. GPU to PIB cabling

3. Hold the expansion card by the edges, and align the card edge connector with the expansion card connector on the riser. Insert the card edge connector firmly into the expansion card connector until the card is fully seated. Push the black release latch on two sides of the expansion card and close the expansion card retention latch.

   NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

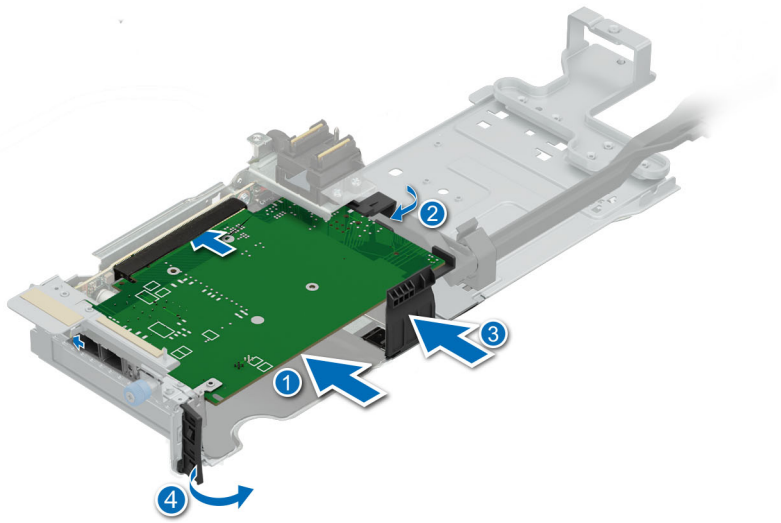


Figure 122. Installing a half-length expansion card from Expansion card riser 1

Next steps

1. If applicable, connect the internal cables to the expansion card.
2. Install the expansion card or GPU into the expansion card riser 1.
3. Install the expansion card riser 1.
4. Install the drive cage.
5. Install the 2U air shroud.
6. Follow the procedure listed in After working inside your system.
7. Install any device drivers required for the card as described in the documentation for the card.

NOTE: While replacing a faulty storage controller or NIC card or GPU card with the same type of card, after you power on the system; the new card automatically updates to the same firmware and configuration of the faulty one. For more information about the Part replacement configuration, see the *Dell Lifecycle Controller User's Guide* available at https://www.dell.com/idracmanuals

CAUTION: Do not install GPUs, network cards, or other PCIe devices on your system that are not validated and tested by Dell. Damage caused by unauthorized and invalidated hardware installation will null and void the system warranty.

Removing expansion card from the expansion card riser 3

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the drive cage
5. Remove the Expansion card riser 2.
6. If applicable, disconnect the internal cables that are connected to expansion card.

NOTE: The procedure to remove the expansion card is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Pull and lift up the expansion card retention latch locks to open.
2. Hold the expansion card by its edges and pull the card until the card edge connector disengages from the expansion card connector on the riser.

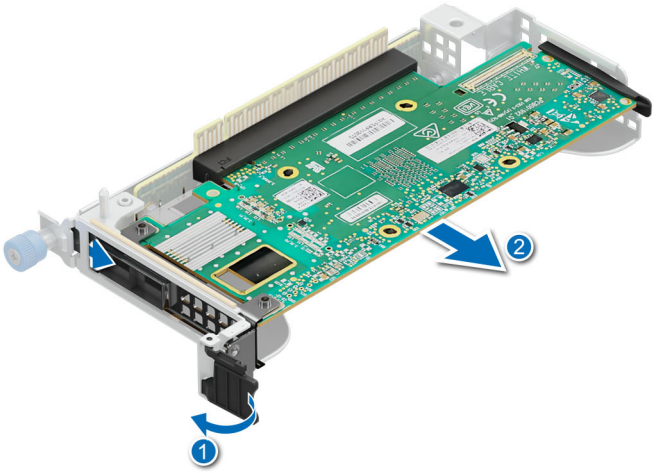


Figure 123. Removing a full-height expansion card from Riser 3

3. If the expansion card is not going to be replaced, install a filler bracket and close the card retention latch.

NOTE: You must install a filler bracket over an empty expansion card slot to maintain Federal Communications Commission (FCC) certification of the system. The brackets also keep dust and dirt out of the system and aid in proper cooling and airflow inside the system.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

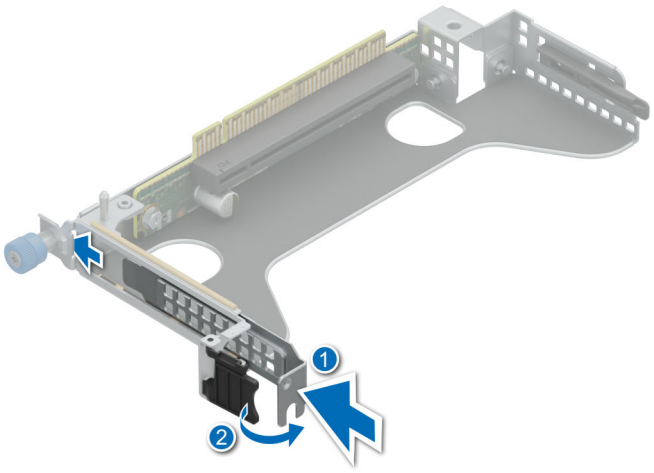


Figure 124. Installing filler bracket in Riser 3

Next steps

If applicable, Install an expansion card into the expansion card riser 3 or Install the expansion card Riser 3.

Installing an expansion card into the expansion card riser 3

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. If installing a new expansion card, unpack it and prepare the card for installation.

   NOTE: For instructions, see the documentation accompanying the card.
4. Remove the 2U air shroud.
5. Remove the drive cage.
6. Remove the Expansion card riser 2.

NOTE: The procedure to install the expansion card is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Pull and lift up the expansion card retention latch locks to open.
2. If installed, remove the filler bracket.

   NOTE: Store the filler bracket for future use. Filler brackets must be installed in empty expansion card slots to maintain Federal Communications Commission (FCC) certification of the system. The filler brackets also keep dust and dirt out of the system and aid in proper cooling and airflow inside the system.

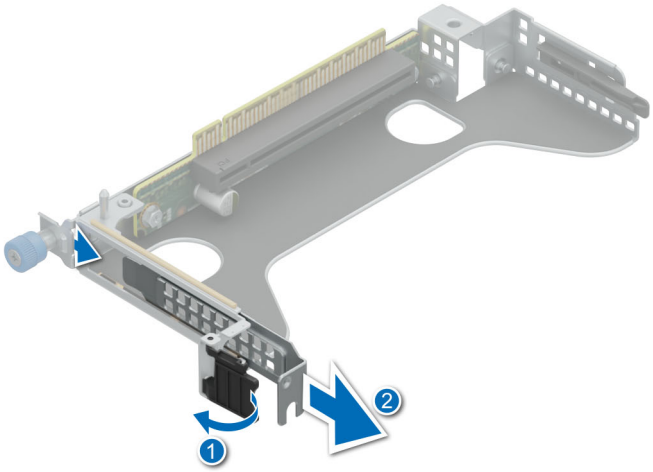


Figure 125. Removing a filler bracket from Riser 3

3. Hold the expansion card by the edges, and align the card edge connector with the expansion card connector on the riser.
4. Insert the card edge connector firmly into the expansion card connector until the card is fully seated.
5. Close the expansion card retention latch.

   NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

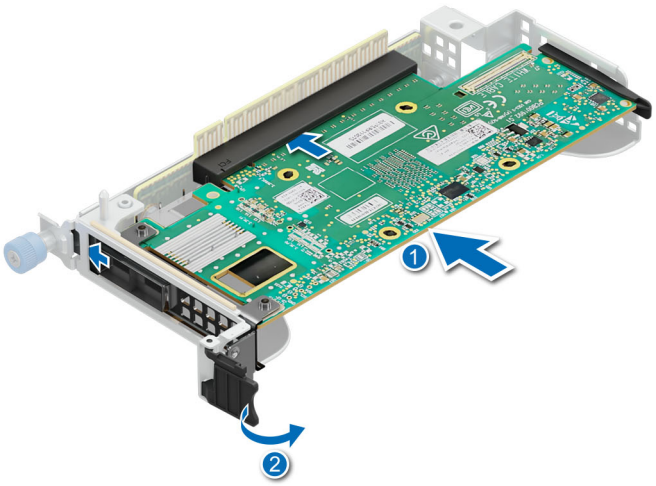


Figure 126. Installing a full-height expansion card into Riser 3

Next steps

1. If applicable, connect the internal cables to the expansion card.
2. Install the Expansion card riser 1.
3. Install the Expansion card riser 2.
4. Install the drive cage.
5. Install the 2U air shroud.
6. Follow the procedure listed in After working inside your system.
7. Install any device drivers required for the card as described in the documentation for the card.

NOTE: While replacing a faulty storage controller or NIC card or GPU with the same type of card, after you power on the system; the new card automatically updates to the same firmware and configuration of the faulty one. For more information about the Part replacement configuration, see the *Dell Lifecycle Controller User's Guide* available at https://www.dell.com/idracmanuals

CAUTION: Do not install GPUs, network cards, or other PCIe devices on your system that are not validated and tested by Dell. Damage caused by unauthorized and invalidated hardware installation will null and void the system warranty.

Side wall brackets

Removing the side wall bracket

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.

NOTE: Ensure that you note the routing of the cables as you remove them from the system board. Route the cables properly when you replace them to prevent the cables from being pinched or crimped.

NOTE: The procedure to remove the side wall bracket is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Press the side tabs to release the side wall cable holder.

   NOTE: Move the cables out of the side wall cable holder.

2. Press the center tab to release the bracket from the chassis, and lift it away from the system.

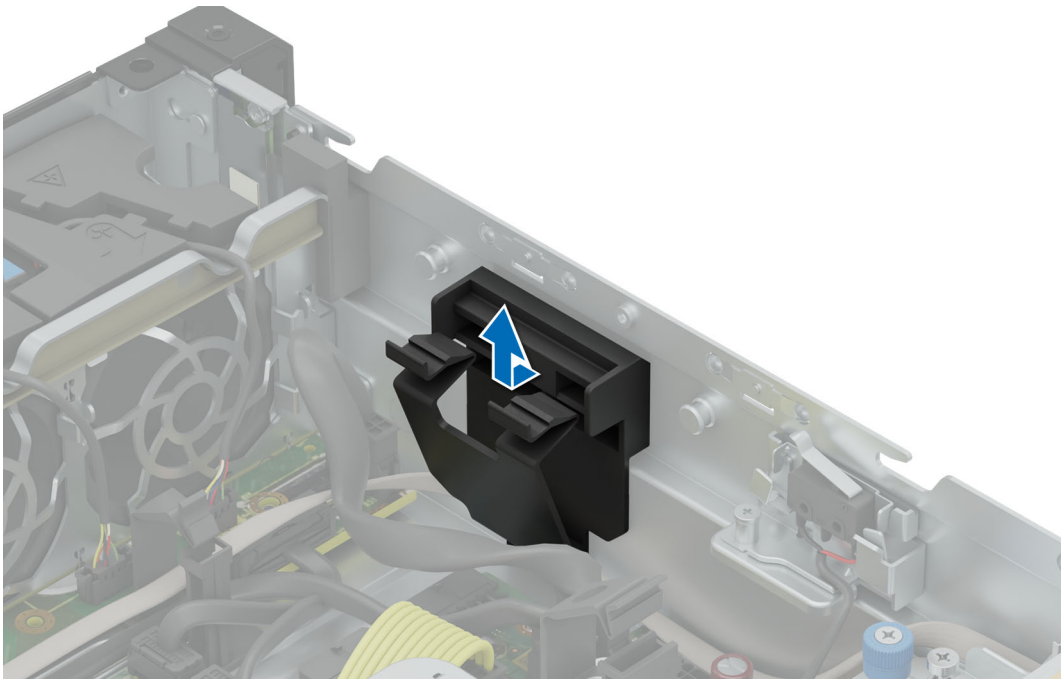


Figure 127. Removing the side wall bracket

Next steps

1. Replace the side wall bracket.

Installing the side wall bracket

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.

NOTE: Ensure that you note the routing of the cables as you remove them from the system board. Route the cables properly when you replace them to prevent the cables from being pinched or crimped.

NOTE: The procedure to install the side wall bracket is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Align the guide slots on the side wall bracket with the guides on the system and slide until the cover is seated firmly.

   NOTE: Route the cables through the side wall cable holder.

2. Close the side wall cable holder until the holder clicks into place.

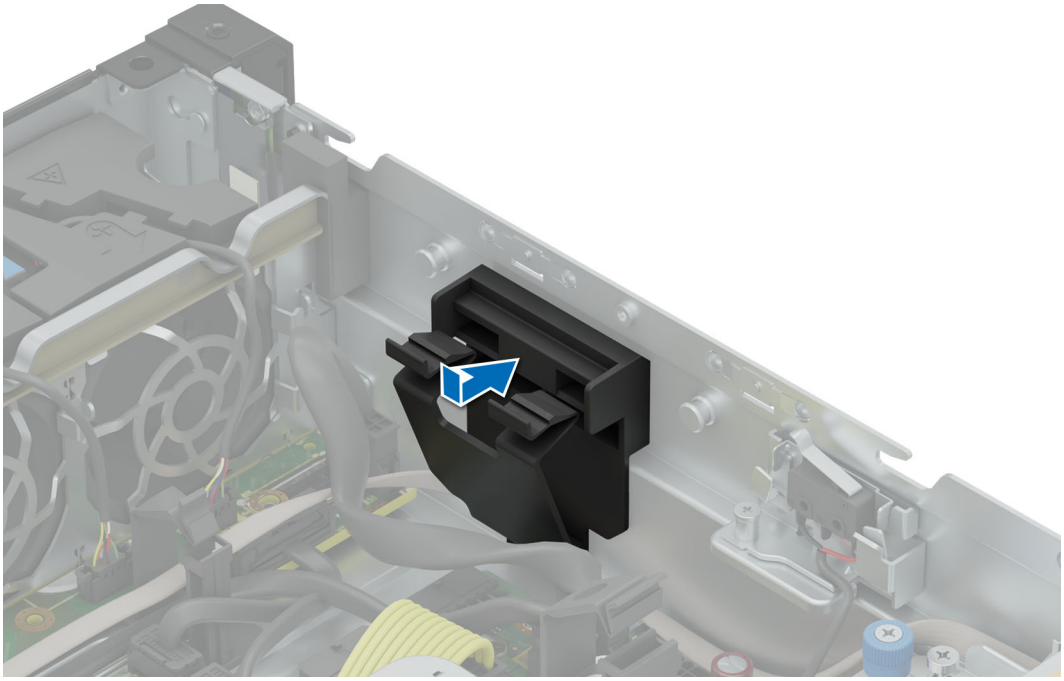


Figure 128. Installing the side wall bracket

Next steps

1. Install the 2U air shroud.
2. Follow the procedure listed in the After working inside your system.

Cooling fans

Removing a cooling fan

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud
4. Remove the 1U air shroud.

NOTE: The procedure to remove the cooling fan is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Disconnect the cooling fan cable that is connected on the system board connector.
2. Press the blue release tab and lift the cooling fan out of the fan cage.

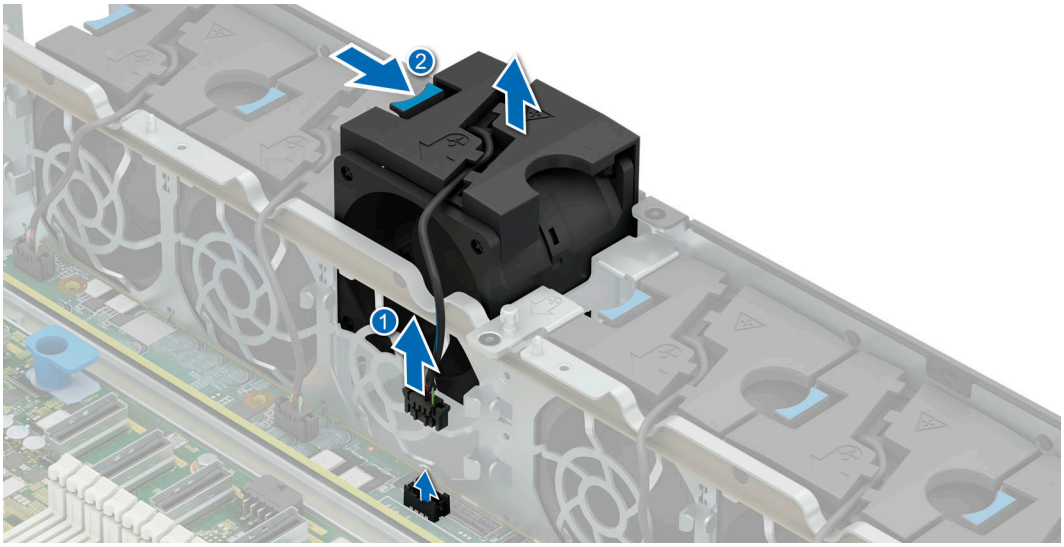


Figure 129. Removing a cooling fan

Next steps

1. Replace a cooling fan.

Installing a cooling fan

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud
4. Remove the 1U air shroud.

NOTE: The procedure to install the cooling fan is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Ensure to match the airflow directional arrows on the fan assembly to the arrows on the chassis. Lower the cooling fan into the cage until it is seated firmly.
2. Route the fan cables properly to prevent the cables from being pinched or crimped.
3. Press the release tabs on the fan cable connector and connect the cable to the system board.

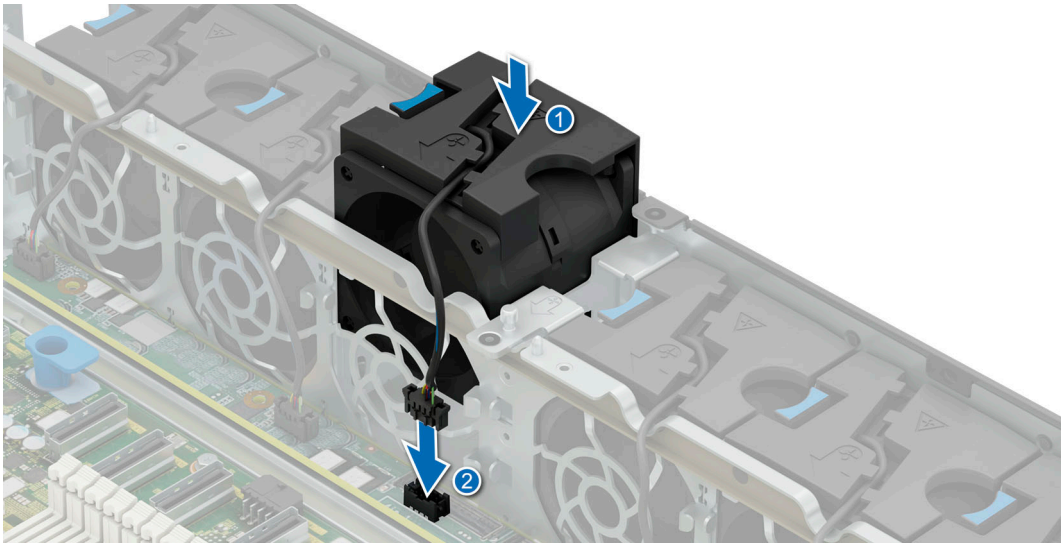


Figure 130. Installing a cooling fan

Next steps

1. Install the 1U air shroud.
2. Install the 2U air shroud.
3. Follow the procedure listed in After working inside your system.

Fan board

This is a service technician replaceable part only.

Removing a fan board

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the 1U air shroud.
5. Remove all the fans.

NOTE: The procedure to remove the fan board is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Using the Phillips 2 screwdriver, loosen the two thumb screws and lift the metallic bar away from the system.
2. Using the Phillips 2 screwdriver, remove the screws and using the Phillips 1 screwdriver remove the standoff screw securing fan board to the chassis . Holding the fan board, lift it away from the system.

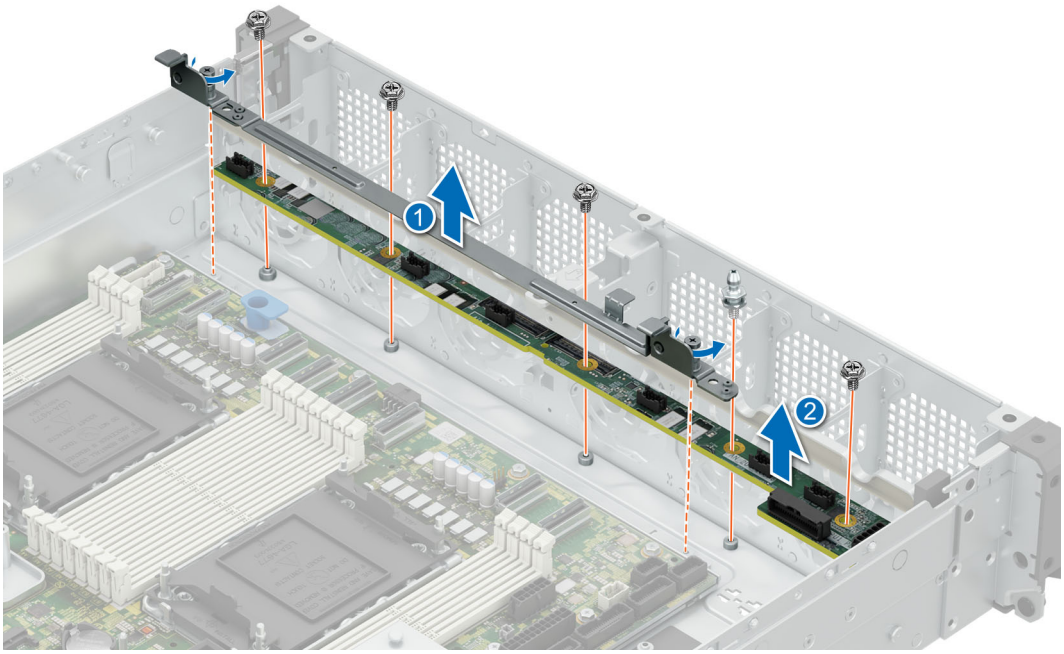


Figure 131. Removing a fan board

Next steps

1. Replace a fan board.

Installing a fan board

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the 1U air shroud.
5. Remove all the fans.

NOTE: The procedure to install the fan board is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Align and insert the fan board into the slots until it is seated firmly. Tighten the screws using a Phillips 2 screwdriver and the standoff screw with a Phillips 1 screwdriver to secure the fan board into the chassis.
2. Route the fan cables properly to prevent the cables from being pinched or crimped.
3. Align and lower the metallic bar into the system. Using the Phillips 2 screwdriver, tighten the two thumb screws to secure the bar into the chassis.

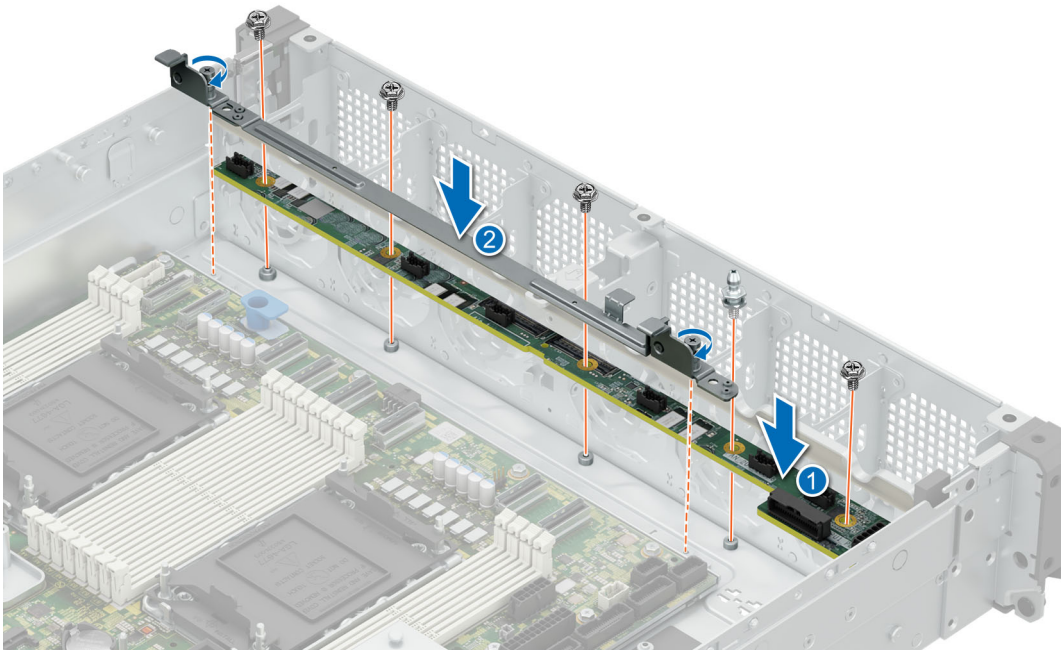


Figure 132. Installing a fan board

Next steps

1. Install the cooling fans.
2. Install the 1U air shroud.
3. Install the 2U air shroud.
4. Follow the procedure listed in After working inside your system.

M.2 BOSS card

Removing BOSS riser

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. If installed, remove the Expansion card riser 2.
5. If installed, remove the Expansion card riser 1.

NOTE: The procedure to remove the BOSS riser is the same for Rear Accessed and Front Accessed configurations.

Steps

Holding the blue touch points lift the BOSS riser from the riser connector on the system board.

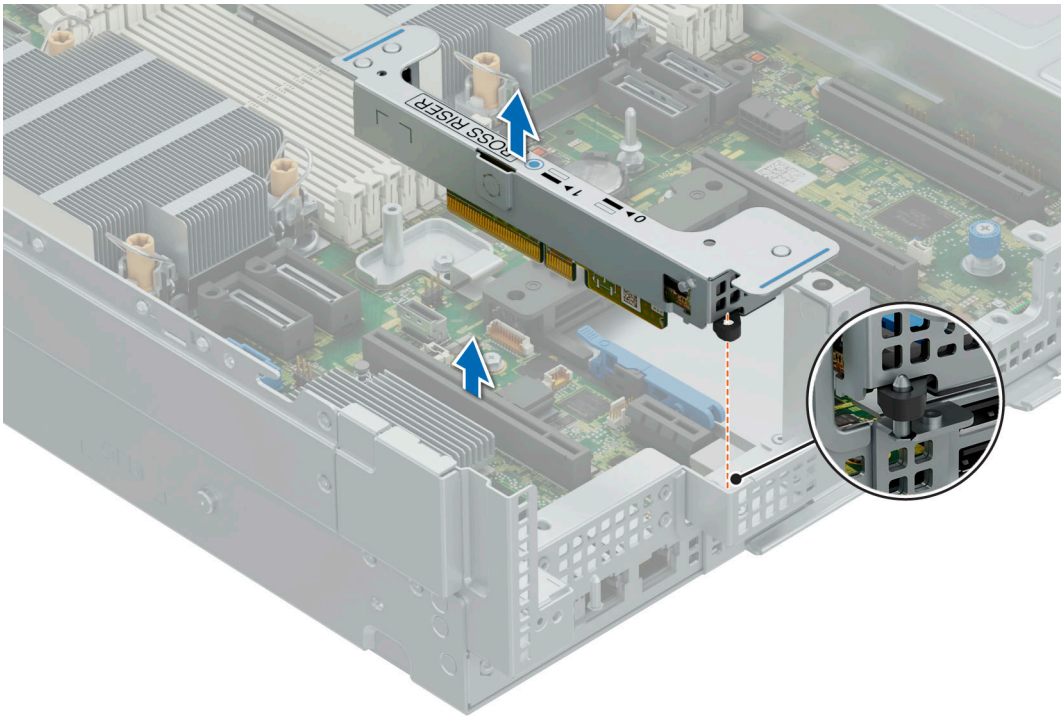


Figure 133. Removing the BOSS riser

Next steps

1. Replace the BOSS riser.

Installing BOSS riser

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. If installed, remove the Expansion card riser 2.
5. If installed, remove the Expansion card riser 1.

Steps

1. Holding the blue touch points, align the hole on the BOSS riser with the guide and connector on the system board.
2. Lower the BOSS riser into place and press until the BOSS riser connector is fully seated on the system board connector.

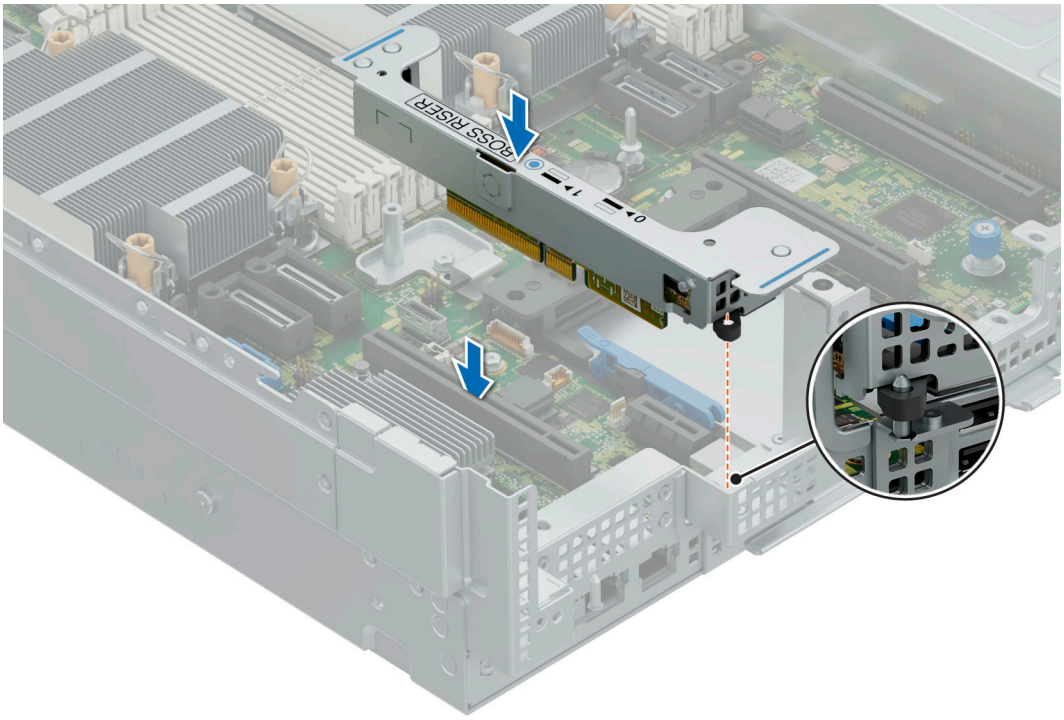


Figure 134. Installing the BOSS riser

Next steps

1. If needed, install the Expansion card riser 1.
2. If needed, install the Expansion card riser 2.
3. Install the 2U air shroud
4. Follow the procedure listed in After working inside your system.

Removing the M.2 BOSS card from the M.2 BOSS riser

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the BOSS riser.

Steps

Holding the blue tag, pull the M.2 BOSS card away from the M.2 BOSS riser.

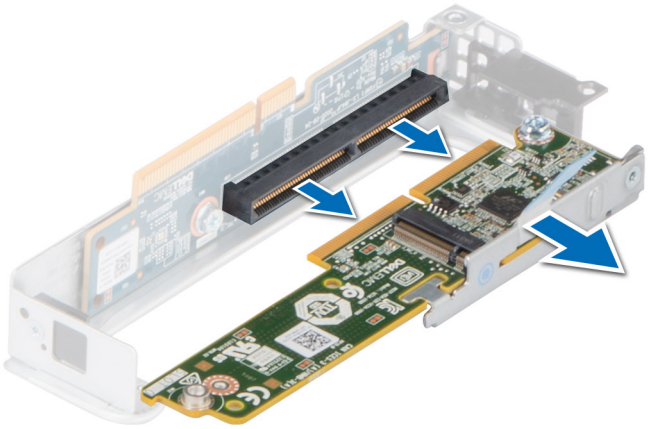


Figure 135. Removing the M.2 BOSS card from the M.2 BOSS riser

Next steps

If applicable, install an card into the M.2 BOSS riser.

Installing the M2 BOSS card into the M.2 BOSS riser

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the BOSS riser.

Steps

1. Align and insert the M.2 BOSS card connector with the connectors on the M.2 BOSS riser.
2. Press the blue touch point on the M.2 BOSS card until it is firmly seated.

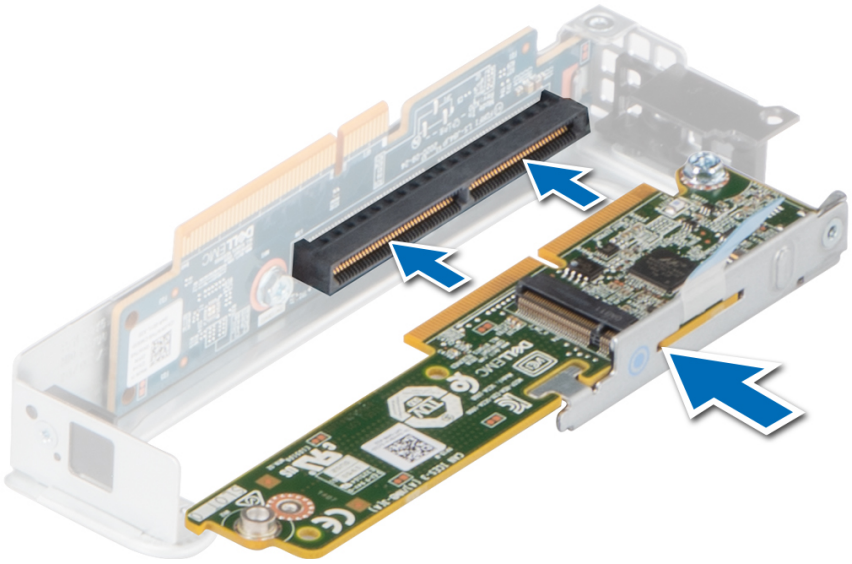


Figure 136. Installing the M2 BOSS card into the M.2 BOSS riser

Next steps

1. If applicable, Install the M.2 BOSS riser.
2. Follow the procedure listed in After working inside your system.

Removing the M.2 SSD module

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the BOSS riser.

NOTE: The procedure to remove the M.2 SSD module is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Using the Phillips 1 screwdriver, remove the screw securing the M.2 SSD module to the BOSS card.
2. Pull the M.2 SSD module to disconnect from the connector on the M.2 BOSS card.

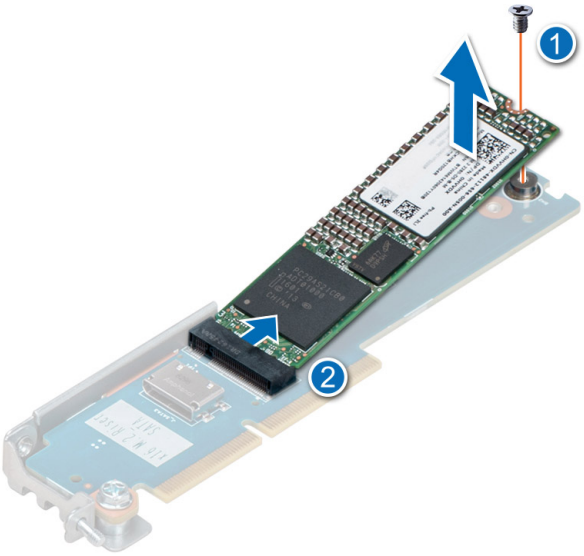


Figure 137. Removing the M.2 SSD module

Next steps

If applicable, Install the M.2 BOSS card.

Installing the M.2 SSD module

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the BOSS riser.

NOTE: The procedure to install the M.2 SSD module is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Align the M.2 SSD module at angle with the connector on the M.2 BOSS card.
2. Insert the M.2 SSD module until it is firmly seated in M.2 BOSS card connector.
3. Using the Phillips 1 screwdriver, secure the M.2 SSD module on the M.2 BOSS card with the screw.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

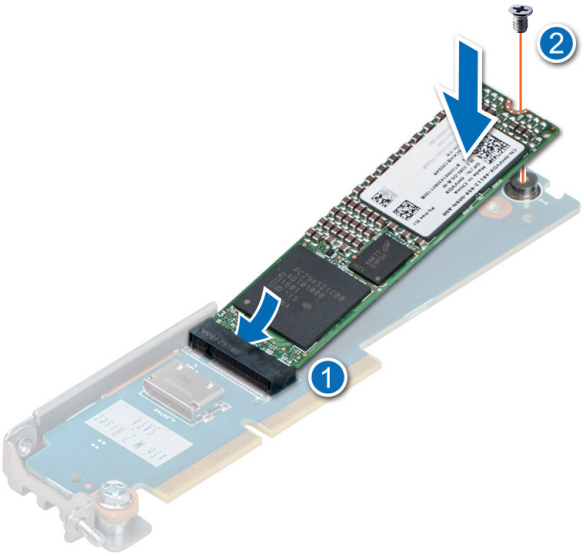


Figure 138. Installing the M.2 SSD module

Next steps

1. If applicable, Install the BOSS riser.
2. Follow the procedure listed in the After working inside your system.

System memory

System memory guidelines

The PowerEdge XR7620 system supports DDR5 registered DIMMs (RDIMMs).

Your system memory is organized into eight channels per processor and 16 memory sockets per system.

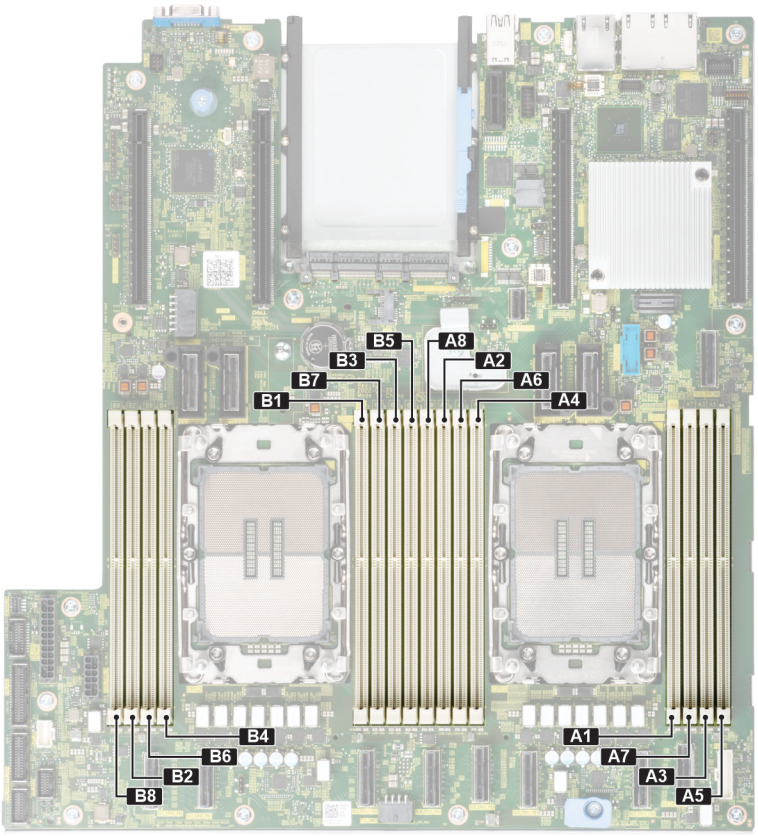


Figure 139. Memory channels

Memory channels are organized as follows:

Table 102. Memory channels

Processor	Channel A	Channel B	Channel C	Channel D	Channel E	Channel F	Channel G	Channel H
Processor 1	Slot A1	Slot A7	Slot A3	Slot A5	Slot A4	Slot A6	Slot A2	Slot A8
Processor 2	Slot B1	Slot B7	Slot B3	Slot B5	Slot B4	Slot B6	Slot B2	Slot B8

Table 103. Supported memory matrix

DIMM type	Rank	Capacity	DIMM rated voltage and speed	Operating Speed
				1 DIMM per channel (DPC)
RDIMM	1 R	16 GB	DDR5 (1.1 V), 4800 MT/s	4800 MT/s
	2 R	32 GB, 64 GB, 128 GB	DDR5 (1.1 V), 4800 MT/s	4800 MT/s

NOTE: The processor may reduce the performance of the rated DIMM speed.

General memory module installation guidelines

To ensure optimal performance of your system, observe the following general guidelines when configuring your system memory. If your system's memory configuration fails to observe these guidelines, your system might not boot, stop responding during memory configuration, or operate with reduced memory.

The memory bus may operate at speeds of 4800 MT/s, 4400 MT/s or 4000 MT/s depending on the following factors:

- System profile selected (for example, Performance, Performance Per Watt Optimized (OS), or Custom [can be run at high speed or lower])
- Maximum supported DIMM speed of the processors
- Maximum supported speed of the DIMMs

NOTE: MT/s indicates DIMM speed in MegaTransfers per second.

- All DIMMs must be DDR5.
- Memory mixing is not supported for different DIMM capacities.
- If memory modules with different speeds are installed, they operate at the speed of the slowest installed memory module(s).
- Populate memory module sockets only if a processor is installed.
  - For dual-processor systems, sockets A1 to A8 and sockets B1 to B8 are available.
  - A minimum of 1 DIMM must be populated for each installed processor.
- In **Optimizer Mode**, the DRAM controllers operate independently in the 64-bit mode and provide optimized memory performance.

Table 104. Memory population rules

Processor	Memory population	Memory population information
Dual processor (Start with processor1. Processor 1 and processor 2 population should match)	A{1}, B{1}, A{2}, B{2}, A{3}, B{3}, A{4}, B{4}, A{5}, B{5}, A{6}, B{6}, A{7}, B{7} A{8}, B{8}	2, 4, 8, 12, and 16 DIMMs are supported per system.

- Always populate memory channels identically with equal DIMMs for best performance.

Removing a memory module

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in Before working inside your system.
3. Remove the 1U air shroud.

NOTE: The procedure to remove the memory module is the same for Rear Accessed and Front Accessed configurations.

WARNING: The memory modules are hot to touch for some time after the system has been powered off. Allow the memory modules to cool before handling them.

Steps

1. Locate the appropriate memory module socket.
2. To release the memory module from the socket, simultaneously press the ejectors on both ends of the memory module socket to fully open.

   CAUTION: Handle each memory module only by the card edges, ensuring not to touch the middle of the memory module or metallic contacts.

3. Lift the memory module away from the system.

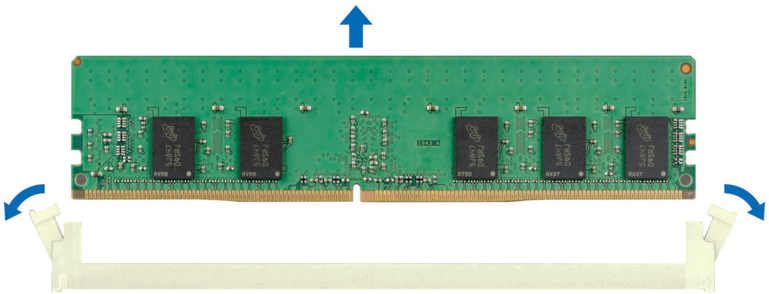


Figure 140. Removing a memory module

Next steps

Replace the memory module.

Installing a memory module

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in Before working inside your system.
3. Remove the 1U air shroud.

NOTE: The procedure to install the memory module is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Locate the appropriate memory module socket.

   CAUTION: Handle each memory module only by the card edges, ensuring not to touch the middle of the memory module or metallic contacts.

   NOTE: Ensure that the socket ejector latches are fully open before installing the memory module.

2. Align the edge connector of the memory module with the alignment key of the memory module socket, and insert the memory module in the socket.

   CAUTION: To prevent damage to the memory module or the memory module socket during installation, do not bend or flex the memory module; insert both ends of the memory module simultaneously.

   NOTE: The memory module socket has an alignment key that enables you to install the memory module in the socket in only one orientation.

   CAUTION: Do not apply pressure at the center of the memory module; apply pressure at both ends of the memory module evenly.

3. Press the memory module with your thumbs until the ejectors firmly click into place. When the memory module is properly seated in the socket, the levers on the memory module socket align with the levers on the other sockets that have memory modules that are installed.

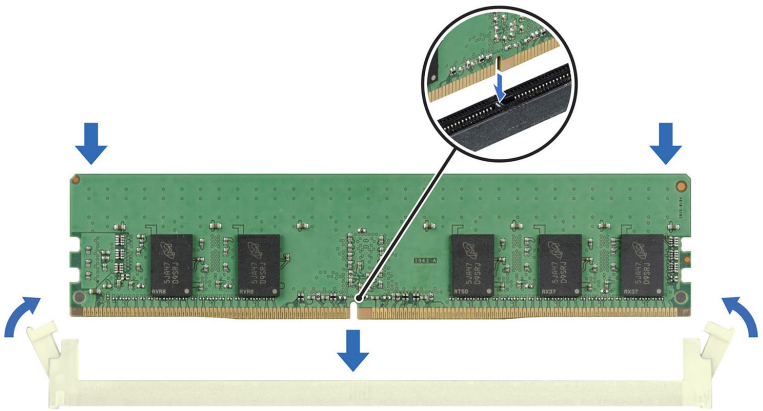


Figure 141. Installing a memory module

Next steps

1. Install the 1U air shroud .
2. Follow the procedure listed in After working inside your system.
3. To verify that the memory module has been installed properly, press F2 during reboot and navigate to **System Setup Main Menu > System BIOS > Memory Settings**. In the **Memory Settings** screen, the System Memory Size must reflect the updated capacity of the installed memory.
4. If the System Memory Size is incorrect, one or more of the memory modules may not be installed properly. Shut down the system and ensure that the memory modules are firmly seated in the correct sockets.
5. Run the system memory test in system diagnostics.

Processor and heat sink module

This is a service technician replaceable part only.

Removing the processor and heat sink module

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 1U air shroud.

NOTE: The heat sink and processor are hot to touch for some time after the system has been powered off. Allow the heat sink and processor to cool down before handling them.

NOTE: The procedure to remove the processor and heat sink module is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Ensure all four anti-tilt wires are in the locked position (outward position), and then using a Torx T30 screwdriver, loosen the captive nuts on the processor heat sink module (PHM) in the order that is mentioned below:
   a. Loosen the first nut three turns.
   b. Loosen the nut diagonally opposite to the nut you loosened first.
   c. Repeat the procedure for the remaining two nuts.
   d. Return to the first nut and loosen it completely.

NOTE: Ensure that the anti-tilt wires on the PHM are in locked position when loosening the captive nuts.

2. Set all the anti-tilt wires to unlocked position (inward position).

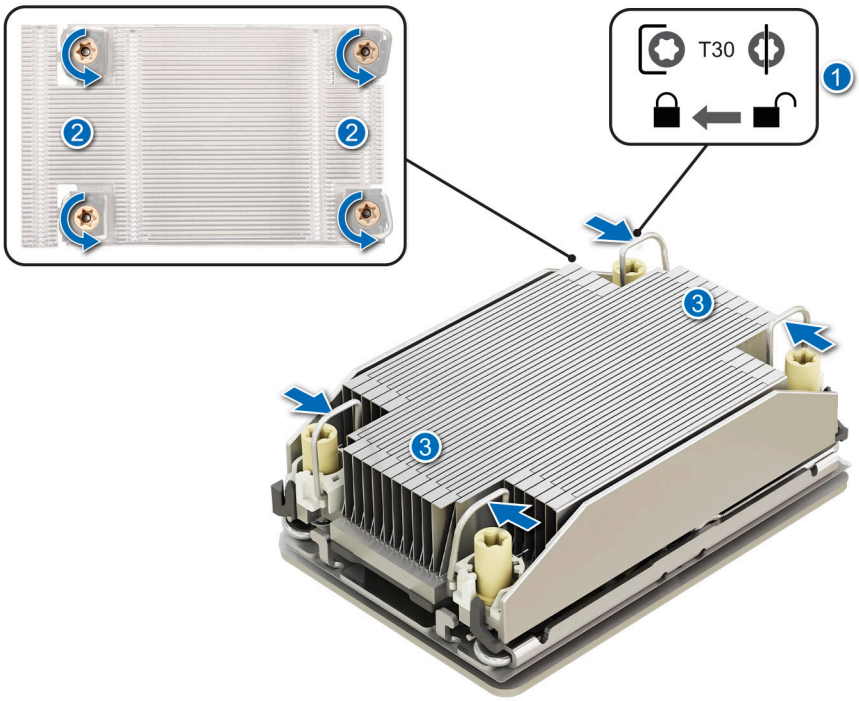


Figure 142. Removing the processor heat sink module

3. Lift the PHM from the system and set the PHM aside with the processor side facing up.

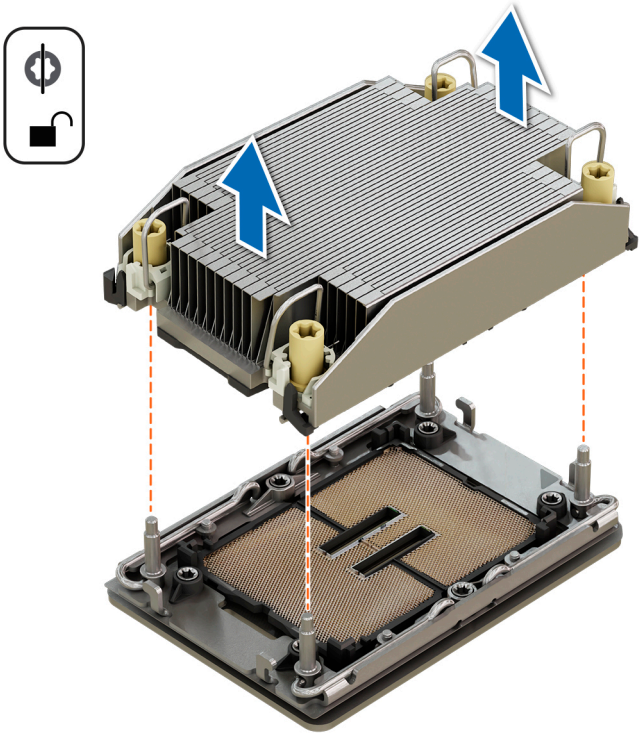


Figure 143. Removing a heat sink

Next steps

If you are removing a faulty heat sink, replace the heat sink, if not, remove the processor.

Removing the processor

Prerequisites

WARNING: Remove the processor from processor and heat sink module (PHM) only if you are replacing the processor or heat sink.

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 1U air shroud.
4. Remove the processor heat sink module.

CAUTION: You may find the CMOS battery loss or CMOS checksum error that is displayed during the first instance of powering on the system after the processor or system board replacement which is expected. To fix this, simply go to setup option to configure the system settings.

NOTE: The procedure to remove the processor is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Place the heat sink with the processor side facing up.
2. Using your thumb, lift the thermal interface material (TIM) break lever to release the processor from the TIM and retaining clip.
3. Holding the processor by the edges, lift the processor away from the retaining clip.

   NOTE: Ensure to hold the retaining clip to the heat sink as you lift the TIM break lever.

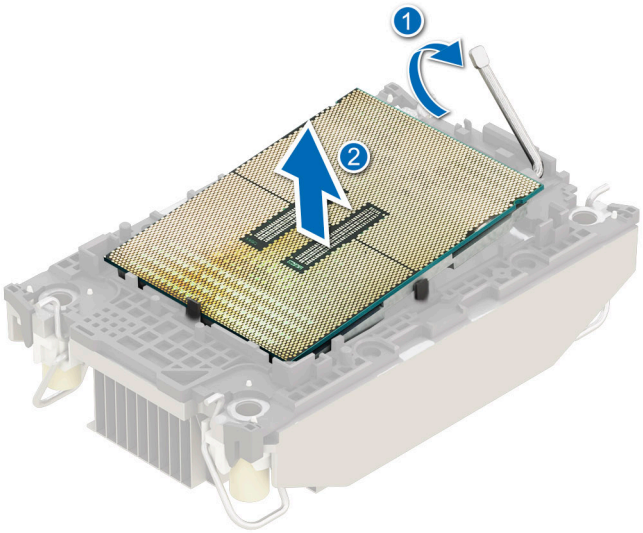


Figure 144. Removing the processor

   NOTE: Ensure to return the TIM break lever back to original position.

4. Using your thumb and index finger, first hold the retaining clip release tab at the pin 1 connector, pull out the tip of the retaining clip release tab, and then lift the retaining clip partially from the heat sink.
5. Repeat the procedure at the remaining three corners of the retaining clip.
6. After all the corners are released from the heat sink, lift the retaining clip from the pin 1 corner of the heat sink.

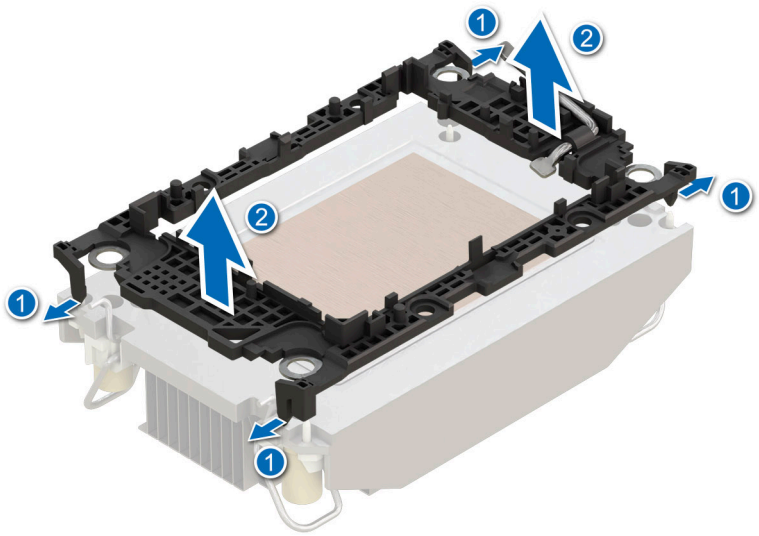


Figure 145. Removing the retaining clip

Next steps

Replace the processor.

Installing the processor

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 1U air shroud.
4. Remove the processor heat sink module.

NOTE: The procedure to install the processor is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Place the processor in the processor tray.

   NOTE: Ensure the pin 1 indicator on the processor tray is aligned with the pin 1 indicator on the processor.

2. Place the retaining clip on top of the processor in the processor tray aligning pin 1 indicator on the processor.

   NOTE: Ensure the pin 1 indicator on the retaining clip is aligned with the pin 1 indicator on the processor before placing the retaining clip on the processor.

   NOTE: Before you install the heat sink, ensure to place the processor and retaining clip in the tray.

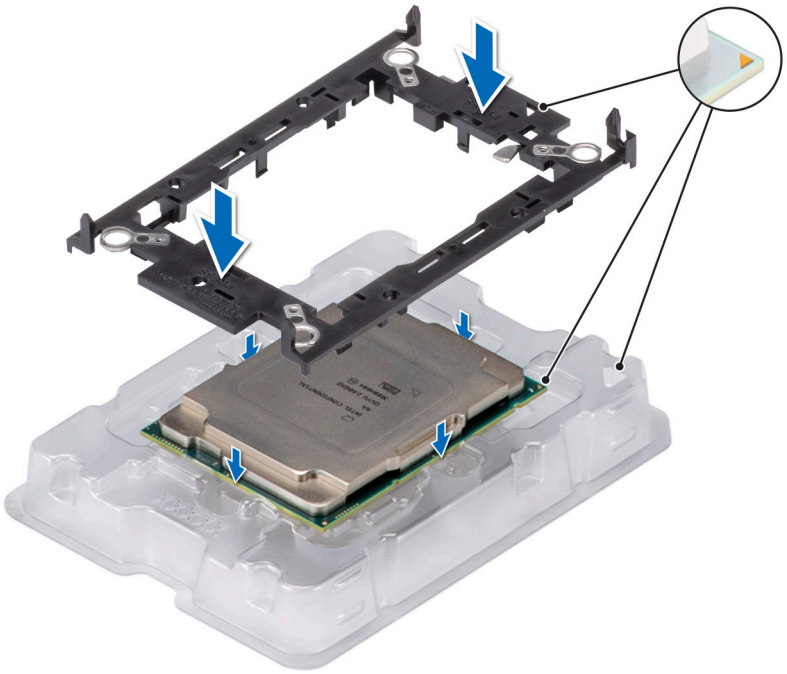


Figure 146. Installing the retaining clip

3. Align the processor with retaining clip, by using your fingers press the retaining clip on all the four sides until it clicks into place.

   NOTE: Ensure that the processor is securely latched to the retaining clip.

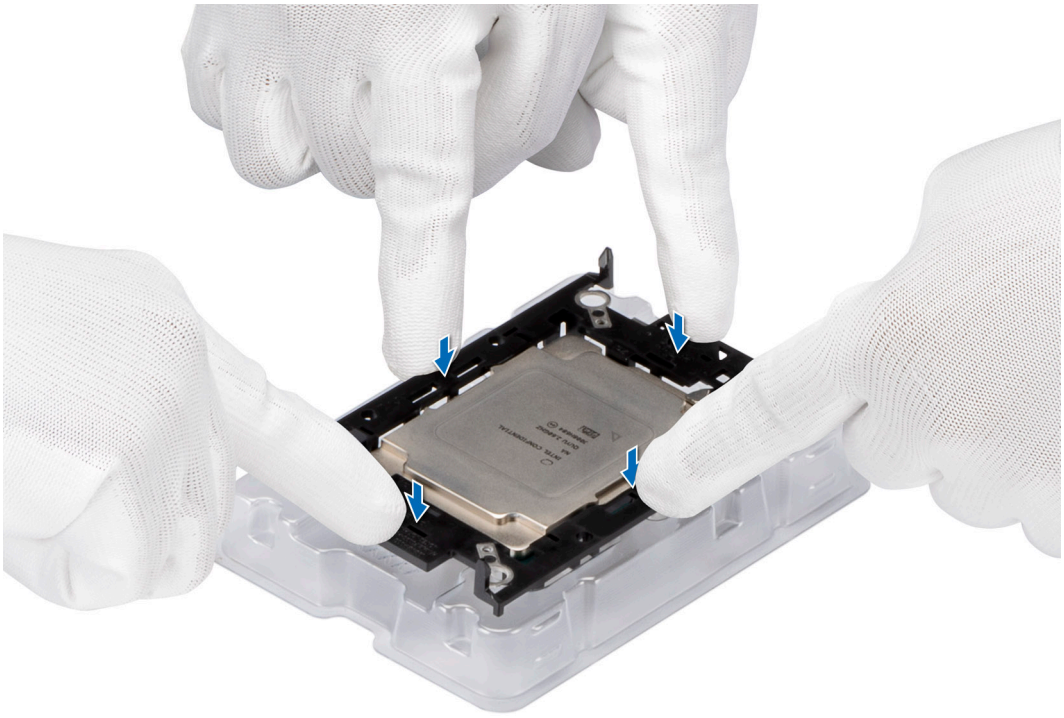


Figure 147. Press the retaining clip on the four sides

4. If you are using an existing heat sink, remove the thermal grease from the heat sink by using a clean lint-free cloth.
5. Use the thermal grease syringe included with your processor kit to apply the grease in a thin spiral design on the bottom of the heat sink.

CAUTION: Applying too much thermal grease can result in excess grease coming in contact with and contaminating the processor socket.

NOTE: The thermal grease syringe is intended for single use only. Dispose the syringe after you use it.

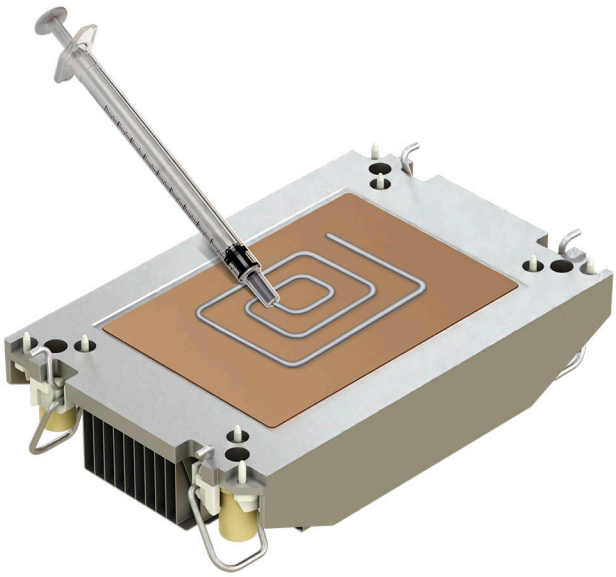


Figure 148. Applying thermal grease

6. For new heat sink, pull and remove the plastic cover from the base of heat sink.

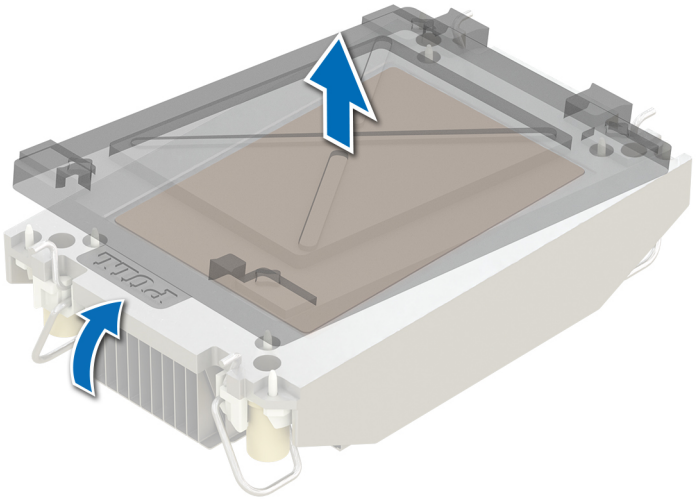


Figure 149. Removing the cover

7. Place the heat sink on the processor and press the base of the heat sink until the retaining clip locks onto the heat sink at all the four corners.

CAUTION: To avoid damaging the fins on the heat sink, do not press down on the heat sink fins.

NOTE:

- Ensure latching features on retaining clip, and heat sink are aligned during assembly.
- Ensure that the pin 1 indicator on the heat sink is aligned with the pin 1 indicator on the retaining clip before placing the heat sink onto the retaining clip.

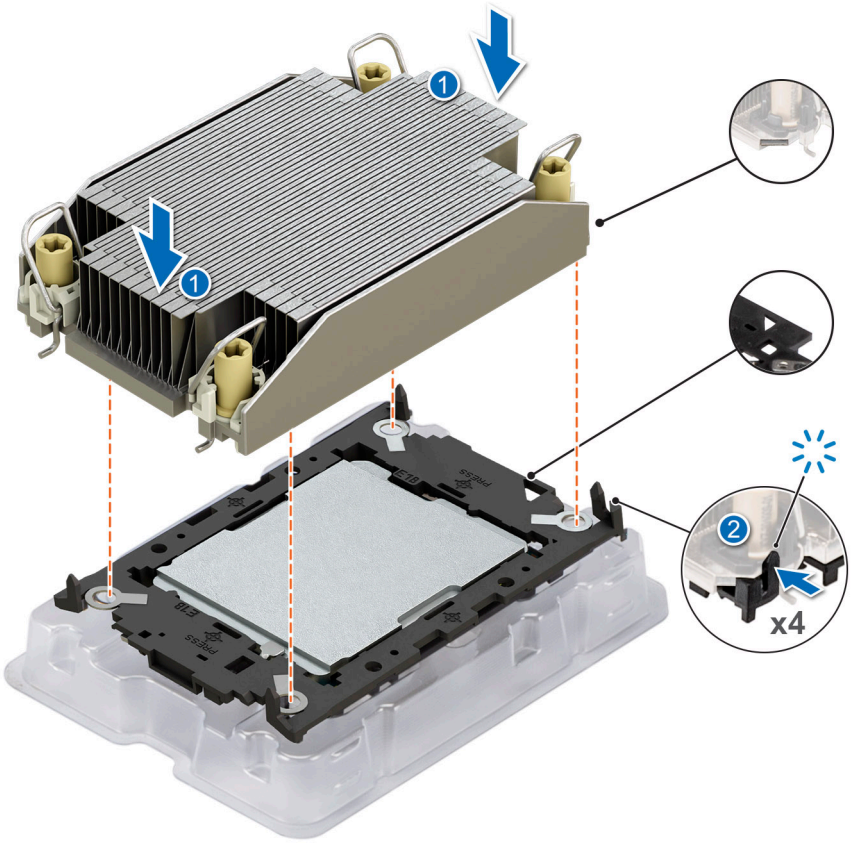


Figure 150. Installing the heat sink onto the processor

Next steps

1. Install the processor heat sink module.
2. Install the 1U air shroud.
3. Follow the procedure listed in After working inside your system.

Installing the processor and heat sink module

Prerequisites

Never remove the heat sink from a processor unless you intend to replace the processor or heat sink. The heat sink is necessary to maintain proper thermal conditions.

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 1U air shroud.

NOTE: The procedure to install the processor and heat sink module is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Set the anti-tilt wires to the unlocked position on the heat sink (inward position).
2. Align the pin 1 indicator of the heat sink to the system board, and then place the processor heat sink module (PHM) on the processor socket.

CAUTION: To avoid damaging the fins on the heat sink, do not press down on the heat sink fins.

NOTE: Ensure that the PHM is held parallel to the system board to prevent damaging the components.

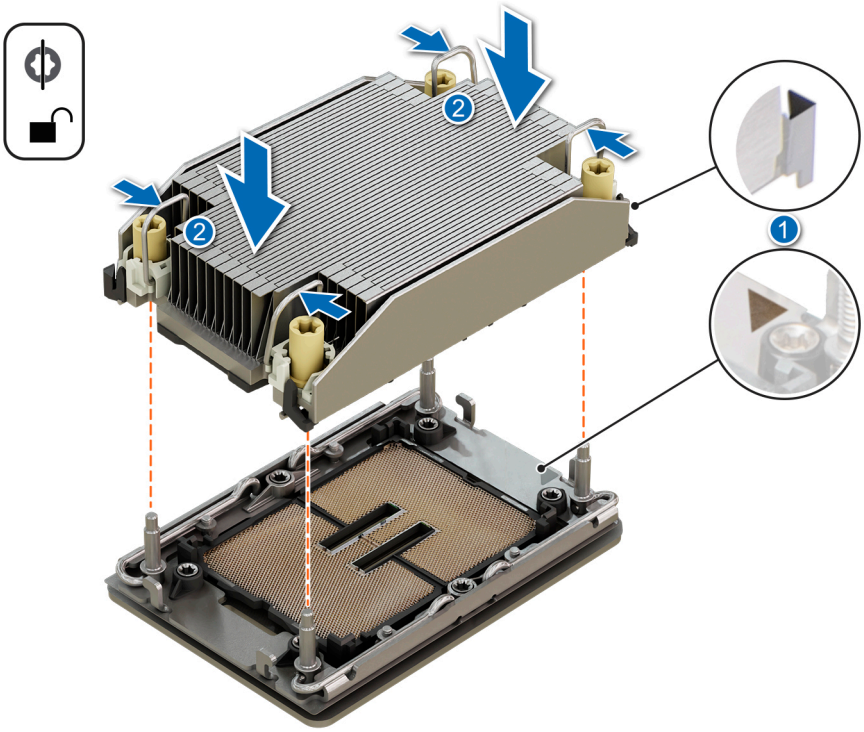


Figure 151. Installing the processor heat sink

3. Set the anti-tilt wires to the locked position (outward position), and then using the Torx T30 screwdriver, tighten the captive nuts (8 in-lbf) on the heat sink in the order below:
   a. In a random order, tighten the first nut three turns.
   b. Tighten the nut diagonally opposite to the nut that you tighten first.
   c. Repeat the procedure for the remaining two nuts.
   d. Return to the first nut to tighten it completely.
   e. Check all the nuts to ensure they are firmly secured.

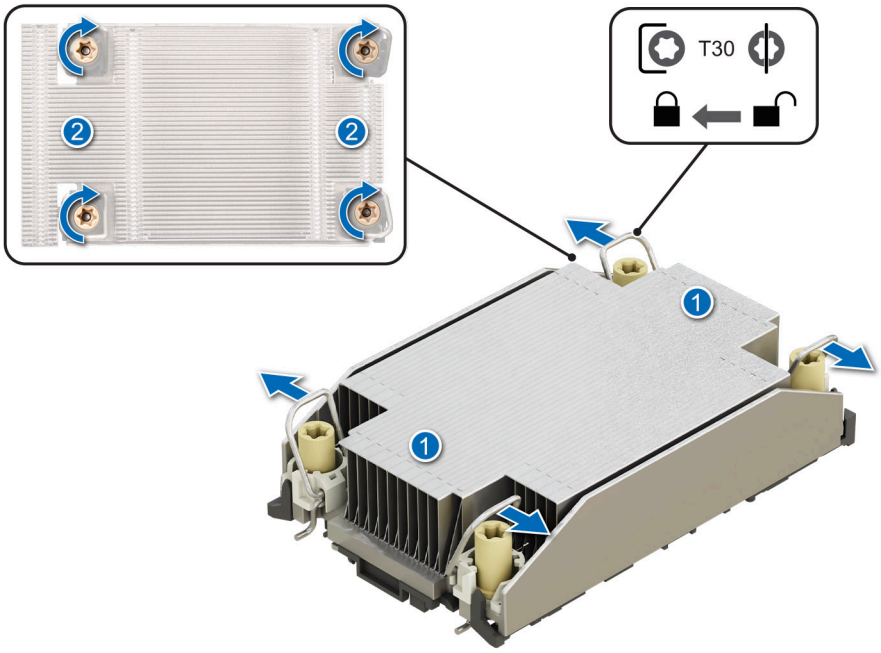


Figure 152. Set the anti-tilt wires to the locked position and tightening the nuts

Next steps

1. Install the 1U air shroud.
2. Follow the procedure listed in the After working inside your system.

System battery

This is a service technician replaceable part only.

Replacing the system battery

Prerequisites

WARNING: There is a danger of a new battery exploding if it is incorrectly installed. Replace the battery only with the same or equivalent type that is recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions. See the Safety instructions that came with your system for more information.

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. If applicable, disconnect the power or data cables from the expansion cards.
4. if installed,remove the riser 3.

NOTE: The procedure to install and remove the system battery is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Press and hold the socket battery retention latch.
2. To remove the battery, rotate it out of the socket.

CAUTION: To avoid damage to the battery connector, you must firmly support the connector while installing or removing a battery.

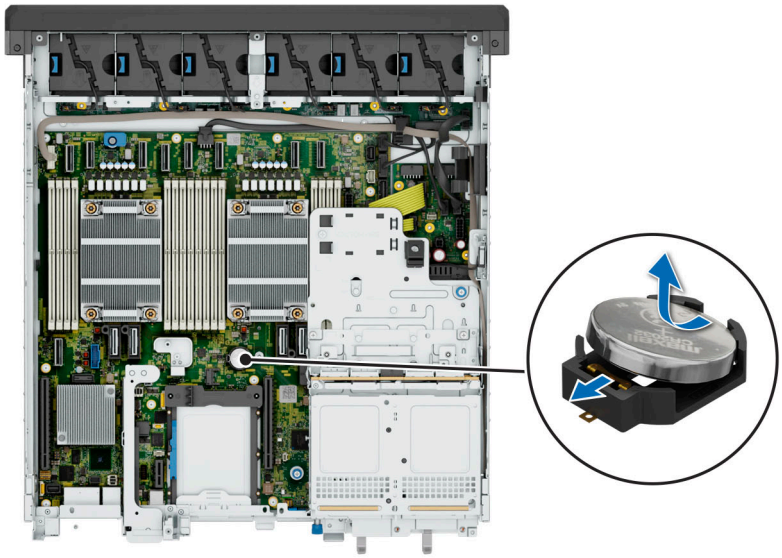


Figure 153. Removing the system battery

3. To install a new system battery:
   a. Hold the battery with the positive side facing up and slide it under the socket battery latch.
   b. Press the battery into the connector until it snaps into place.

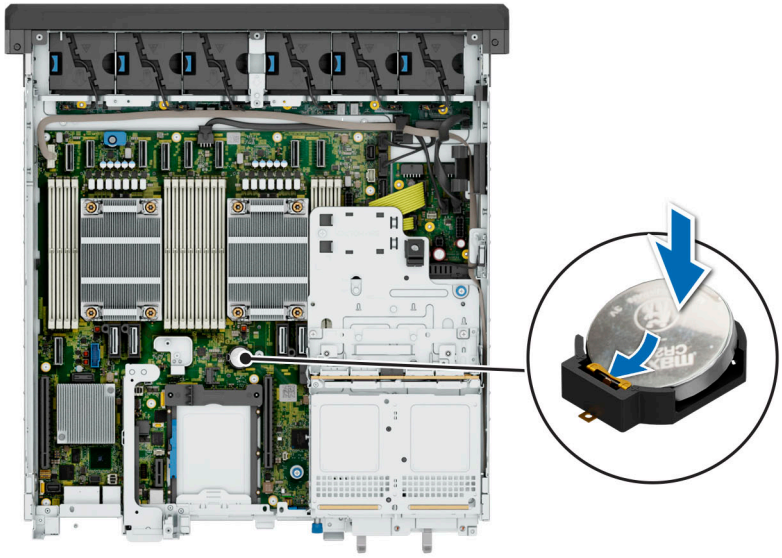


Figure 154. Installing the system battery

Next steps

1. If needed, Install the riser 3.
2. If applicable, connect the cables to one or more expansion cards.
3. Follow the procedure listed in After working inside your system.
4. Confirm that the battery is operating properly, by performing the following steps:
   a. Enter the System Setup, while booting, by pressing F2.

b. Enter the correct time and date in the System Setup **Time** and **Date** fields.
c. **Exit** the System Setup.
d. To test the newly installed battery, check the time and date at least an hour after installing the battery.
e. Enter the System Setup and if the time and date are still incorrect, see Getting help section.

Optional internal USB card

NOTE: To locate the internal USB port on the system board, see the System board jumpers and connectors section.

Removing the internal USB card

Prerequisites

CAUTION: To avoid interference with other components in the server, the maximum permissible dimensions of the USB memory key are 15.9 mm wide x 57.15 mm long x 7.9 mm high.

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the expansion card risers.

NOTE: The procedure to remove the internal USB card is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Holding the blue tag, lift the internal USB card to disconnect from the connector on the system board.
2. Remove the USB memory key from the internal USB card.

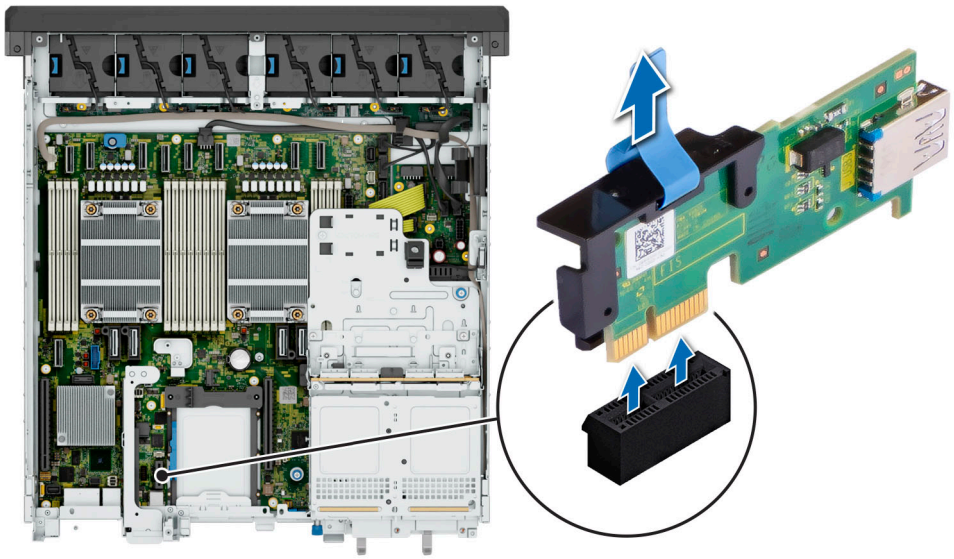


Figure 155. Removing the internal USB card

Next steps

1. Replace the internal USB card.

Installing the internal USB card

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the expansion card risers.

NOTE: The procedure to install the internal USB card is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Connect the USB key to the internal USB card.

   NOTE: For information about the exact location of USB on system board, see System board jumpers and connectors section.

2. Align the internal USB card with the connector on the system board and press firmly until the internal USB card is seated.

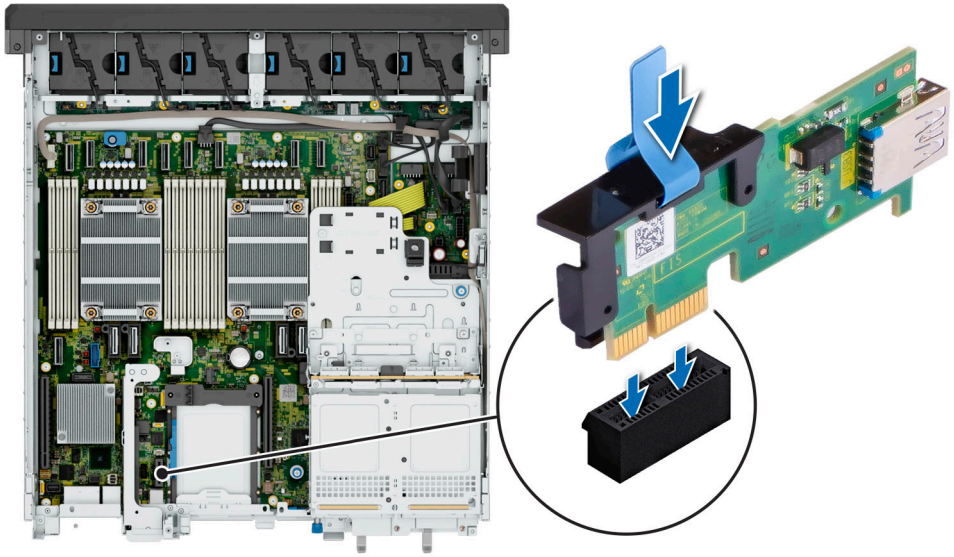


Figure 156. Installing the internal USB card

Next steps

1. Install the expansion card risers.
2. Follow the procedure listed in After working inside your system.
3. While booting, press F2 to enter **System Setup** and verify that the system detects the USB memory key.

Intrusion switch

This is a service technician replaceable part only.

Removing the intrusion switch module

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.

3. Remove the 2U air shroud.

NOTE: Ensure that you note the routing of the cable as you remove it from the system board. Route the cable properly when you replace it to prevent the cable from being pinched or crimped.

NOTE: The procedure to remove the intrusion switch module is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Disconnect the intrusion switch cable from the connector on the system board.
2. Using a Phillips #1 screwdriver, loosen the screw on the intrusion switch module.
3. Slide the intrusion switch module out of the slot on the system.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

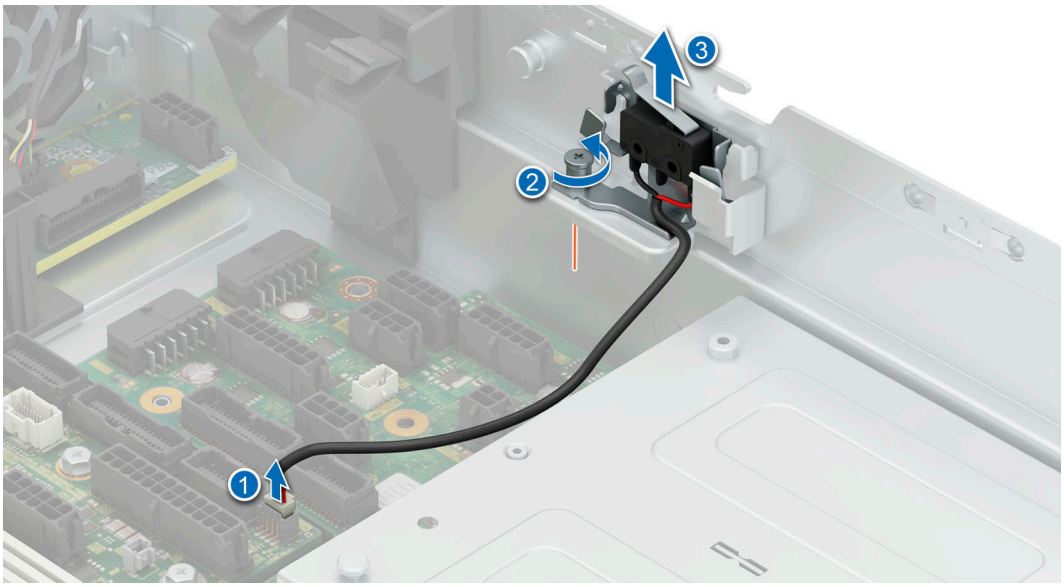


Figure 157. Removing the intrusion switch module

Next steps

1. Replace the intrusion switch module.

Installing the intrusion switch module

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.

NOTE: Ensure that you note the routing of the cable as you remove it from the system board. Route the cable properly when you replace it to prevent the cable from being pinched or crimped.

NOTE: The procedure to install the intrusion switch module is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Align and slide the intrusion switch module into the slot in the system until firmly seated.
2. Using a Phillips #1 screwdriver, tighten the screw on the intrusion switch module.
3. Connect the intrusion switch cable to the connector on the system board.

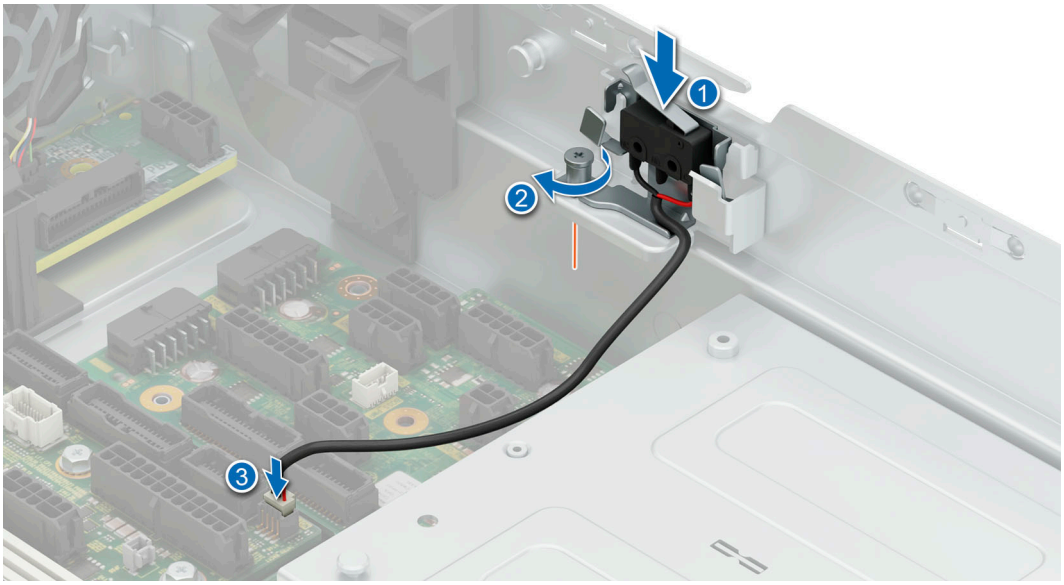


Figure 158. Installing the intrusion switch module

Next steps

1. Install the 2U air shroud.
2. Follow the procedure listed in After working inside your system.

Optional serial COM port

This is a service technician replaceable part only.

Removing the serial COM port

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the Riser 3.

NOTE: The serial COM port is supported only on slot 5 of the expansion card riser 3 .

NOTE: The procedure to remove the serial COM port is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Open the latch on the expansion card riser and slide the serial COM port out of the expansion card riser.

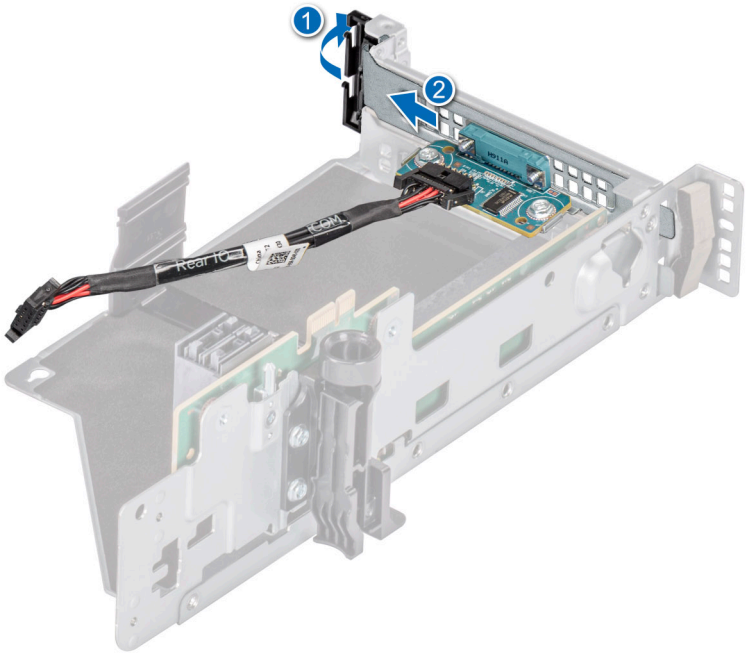


Figure 159. Removing the Serial COM port

2. Install the filler bracket if not replacing the serial COM port.

Next steps

1. Replace the serial COM port.

Installing the serial COM port

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the Riser 3.

NOTE: The serial COM port is supported only on slot 5 of the expansion card riser 3 .

NOTE: The procedure to install the serial COM port is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Open the latch on the expansion card riser and remove the filler bracket from the expansion card riser.
2. Slide the serial COM port into the expansion card riser and close the latch.

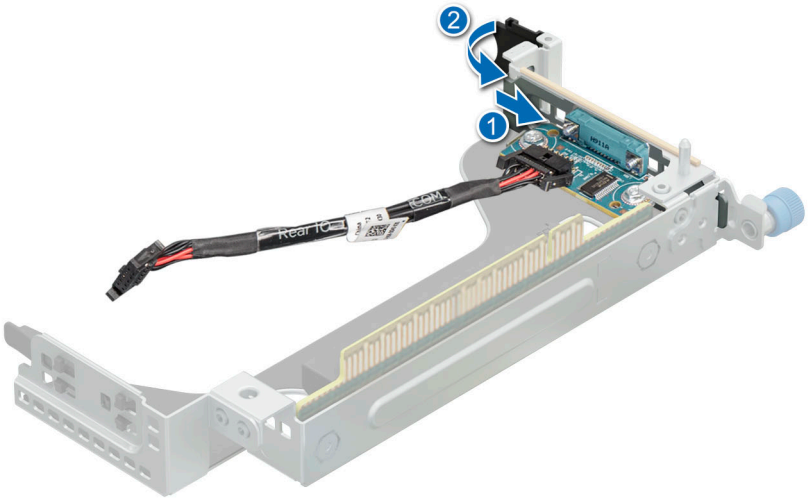


Figure 160. Installing the serial COM port

Next steps

1. Install the Riser 3.
2. Install the 2U air shroud.
3. Follow the procedure listed in After working inside your system.

Power supply unit

NOTE: While replacing the hot swappable PSU, after next server boot; the new PSU automatically updates to the same firmware and configuration of the replaced one. For updating to the latest firmware and changing the configuration, see the *Lifecycle Controller User's Guide* at https://www.dell.com/idracmanuals.

NOTE: For information about DC PSU cabling instructions, go to https://www.dell.com/poweredgemanuals > **Rack Servers** > PowerEdge XR7620 > **Select This Product** > **Documentation** > **Manuals and Documents** > *Cabling instructions for – 48 – 60 V DC power supply*.

Hot spare feature

Your system supports the hot spare feature that significantly reduces the power overhead associated with the power supply unit (PSU) redundancy.

When the hot spare feature is enabled, one of the redundant PSUs is switched to the sleep state. The active PSU supports 100 percent of the system load, thus operating at higher efficiency. The PSU in the sleep state monitors output voltage of the active PSU. If the output voltage of the active PSU drops, the PSU in the sleep state returns to an active output state.

If having both PSUs active is more efficient than having one PSU in the sleep state, the active PSU can also activate the sleeping PSU.

The default PSU settings are as follows:

- If the load on the active PSU is more than 50 percent of PSU rated power wattage, then the redundant PSU is switched to the active state.
- If the load on the active PSU falls below 20 percent of PSU rated power wattage, then the redundant PSU is switched to the sleep state.

You can configure the hot spare feature by using the iDRAC settings. For more information, see the *iDRAC User's Guide* available at www.dell.com/poweredgemanuals.

Removing a power supply unit blank

Prerequisites

Follow the safety guidelines listed in the Safety instructions.

NOTE: The procedure to remove the power supply unit blank is the same for Rear Accessed and Front Accessed configurations.

Steps

Pull the blank out of the system.

CAUTION: To ensure proper system cooling, the PSU blank must be installed in the second PSU bay in a non-redundant configuration. Remove the PSU blank only if you are installing a second PSU.

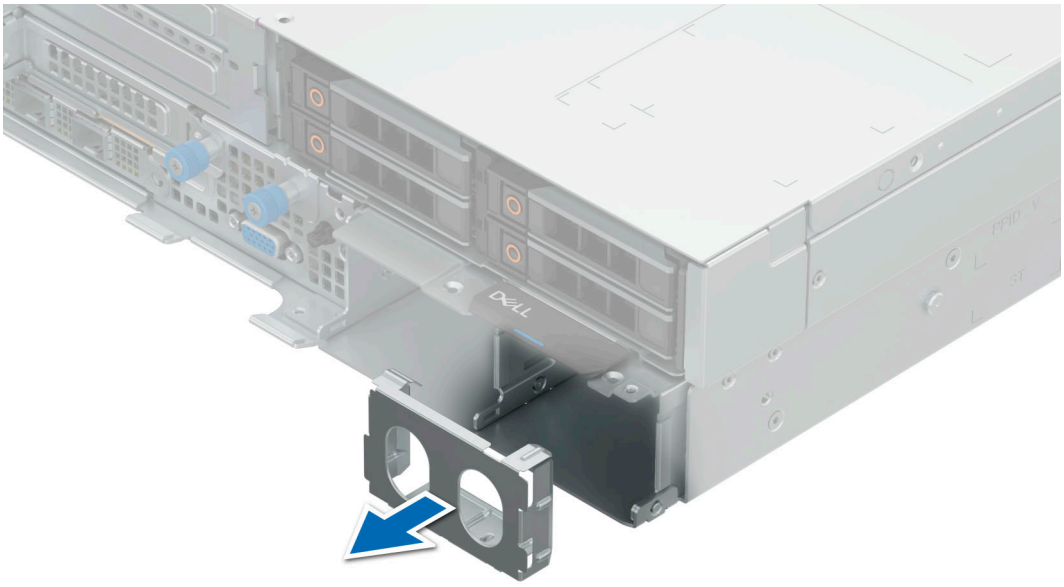


Figure 161. Removing a power supply unit blank

Next steps

1. Replace the PSU blank or install the PSU.

Installing a power supply unit blank

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.

   NOTE: Install the power supply unit (PSU) blank only in the second PSU bay.
2. If required, Remove the PSU.

NOTE: The procedure to install the power supply unit blank is the same for Rear Accessed and Front Accessed configurations.

Steps

Align the PSU blank with the PSU bay and push it into the PSU bay until it clicks into place.

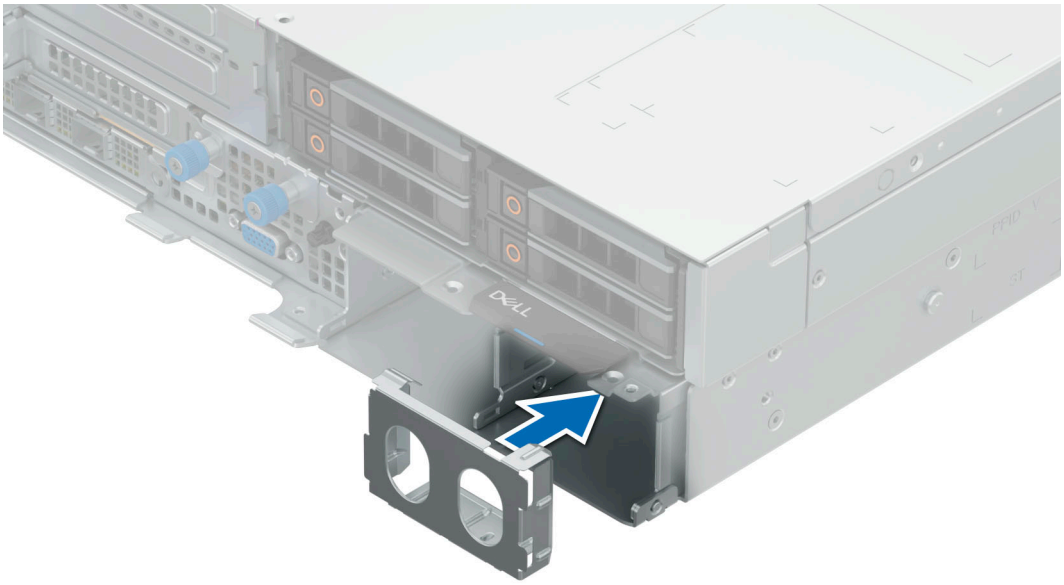


Figure 162. Installing a power supply unit blank

Removing a power supply unit

Prerequisites

CAUTION: The system requires one power supply unit (PSU) for normal operation. On power-redundant systems, remove and replace only one PSU at a time in a system that is powered on.

1. Follow the safety guidelines listed in the Safety instructions.
2. Disconnect the power cable from the power outlet and from the PSU that you intend to remove.
3. Remove the cable from the strap on the PSU handle.
4. Unlatch and lift or remove the optional cable management accessory if it interferes with the PSU removal.

   NOTE: For information about the cable management when the PSU is removed or installed while the system is in a rack, see the system's cable management arm documentation at https://www.dell.com/poweredgemanuals.

NOTE: The procedure to remove the PSU is the same for Rear Accessed and Front Accessed configurations.

Steps

Press the release latch and holding the PSU handle, slide the PSU out of the bay.

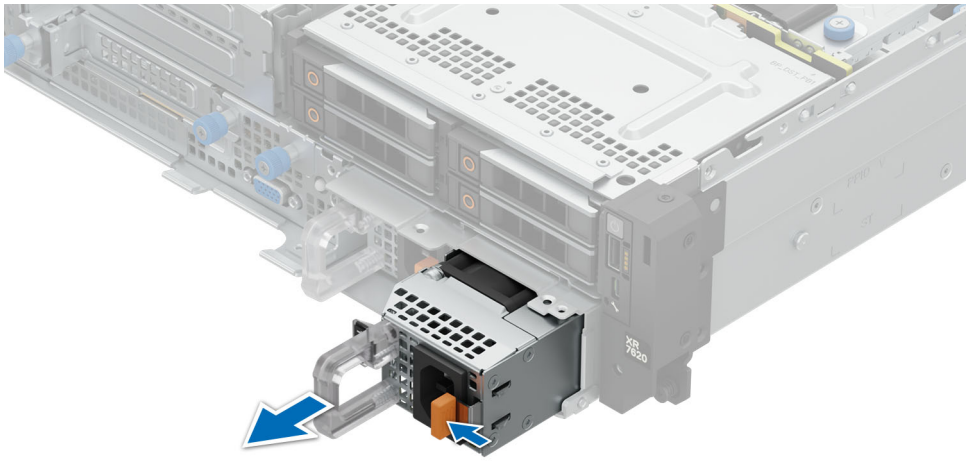


Figure 163. Removing a power supply unit

Next steps

1. Replace the PSU or install the PSU blank.

Installing a power supply unit

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. For systems that support redundant PSU, ensure that both the PSUs are of the same type and have the same maximum output power.

   NOTE: The maximum output power (shown in watts) is listed on the PSU label.
3. If required, Remove the PSU blank.

NOTE: The procedure to install the PSU is the same for Rear Accessed and Front Accessed configurations.

Steps

Slide the PSU into the PSU bay until the release latch snaps into place.

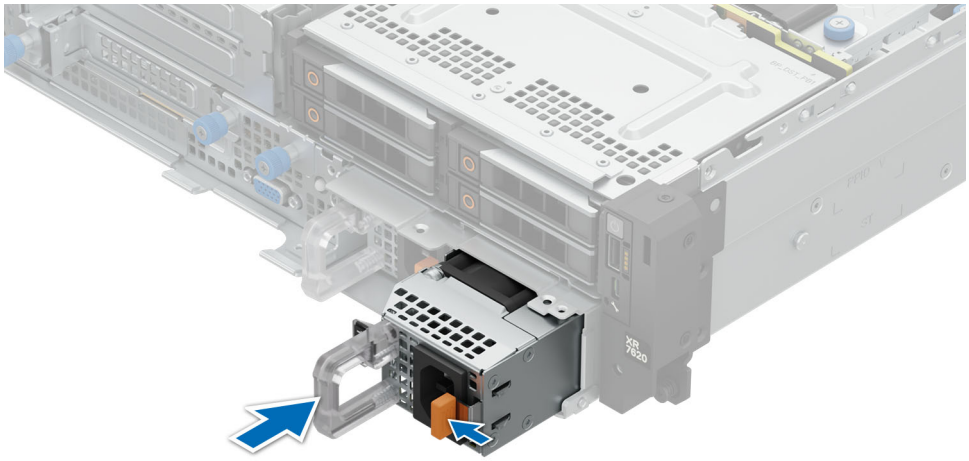


Figure 164. Installing a power supply unit

Next steps

1. If you have unlatched or removed the cable management accessory, reinstall or relatch it. For information about the cable management when the PSU is removed or installed while the system is in the rack, see the system's cable management accessory documentation at https://www.dell.com/poweredgemanuals.
2. Connect the power cable to the PSU, and plug the cable into a power outlet.

   CAUTION: When connecting the power cable to the PSU, secure the cable to the PSU with the strap.

   NOTE: When installing hot swapping, or hot adding a new PSU, wait for 15 seconds for the system to recognize the PSU and determine its status. The PSU redundancy may not occur until discovery is complete. The PSU status indicator turns green to indicate that the PSU is functioning properly.

Power interposer board

This is a service technician replaceable part only.

Removing the power interposer board

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the drive cage.
5. Remove the power supply units (PSU).
6. Disconnect the cables that are connected to power interposer board (PIB) including intrusion switch module cable and from the system board.

NOTE: The procedure to remove the PIB is same for Rear Accessed and Front Accessed configurations.

Steps

1. Using a Phillips 2 screwdriver, remove the screws securing the power interposer board to the system.

   NOTE: Observe the routing of the cables as you remove it from the system.

2. Lift the PIB away from the system.

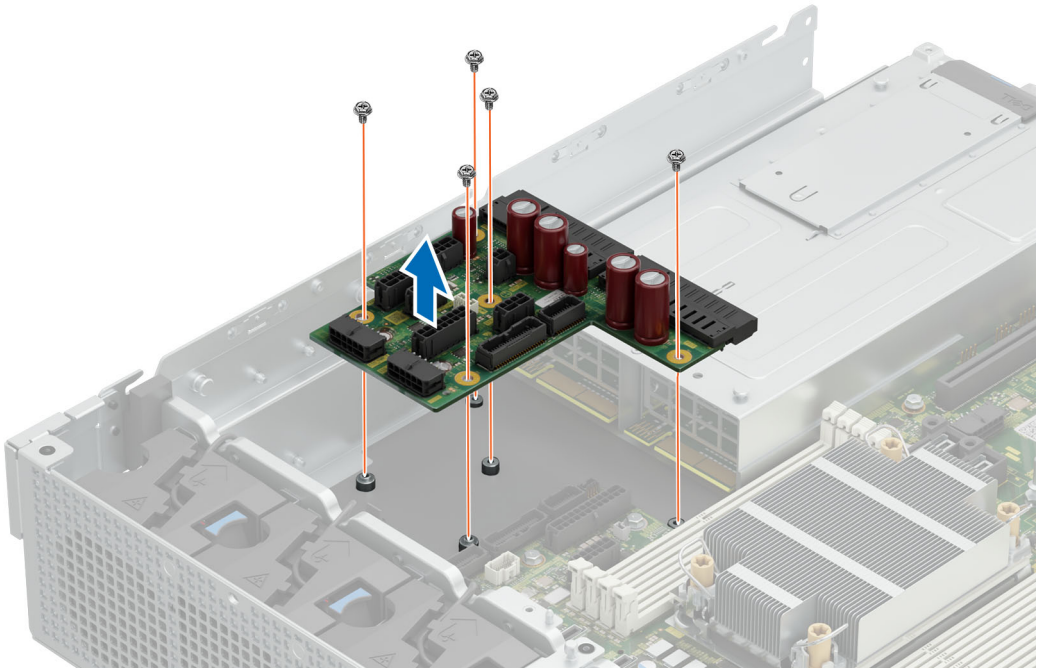


Figure 165. Removing the power interposer board

Next steps

Replace the power interposer board.

Installing the power interposer board

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the drive cage.
4. Remove the 2U air shroud.
5. Remove the power supply units (PSU).
6. Disconnect the cables that are connected to power interposer board (PIB) including intrusion switch module cable and from the system board.

NOTE: The procedure to install the PIB is same for Rear Accessed and Front Accessed configurations.

Steps

1. Align the slots on the PIB with the hook on the chassis and slide it into place.
2. Using Phillips 2 screwdriver, tighten the screws to secure the PIB to the system.

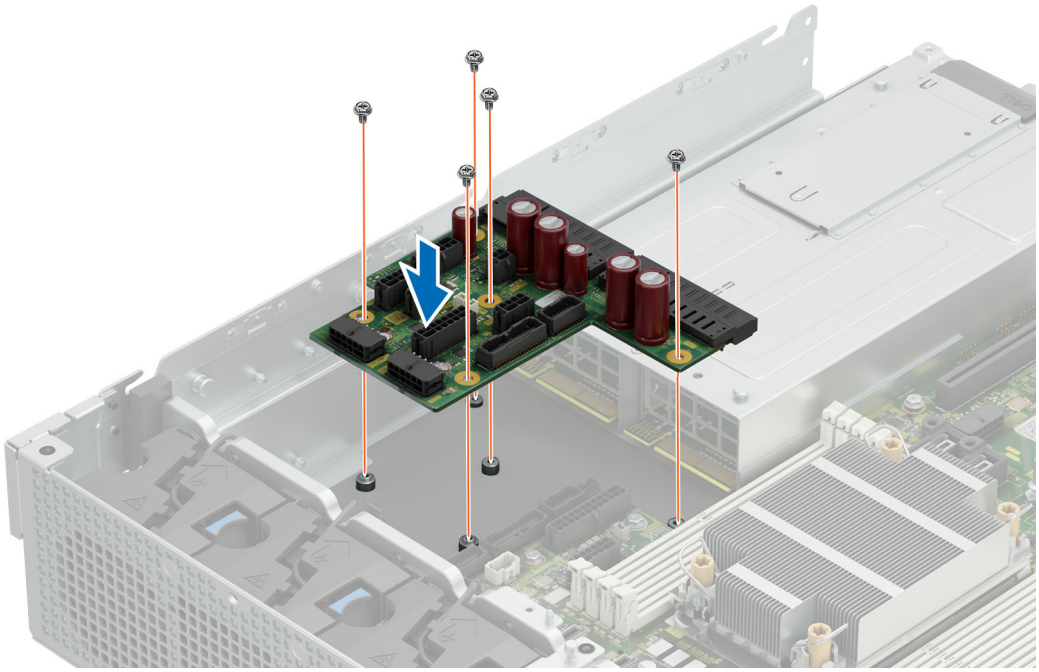


Figure 166. Installing the power interposer board

3. Reconnect the cables that are connected to the power interposer board (PIB) and also to the system board.

Next steps

1. Install the 2U air shroud.
2. Install the drive cage .
3. Install the PSU.
4. Follow the procedure listed in After working inside your system.

Optional OCP card

Removing the OCP card

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the expansion card riser 3.

NOTE: The procedure to remove the OCP card is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Open the blue latch to disengage the OCP card.
2. Push the OCP card towards the rear end of the system to disconnect from the connector on the system board.
3. Slide the OCP card out of the slot on the system.

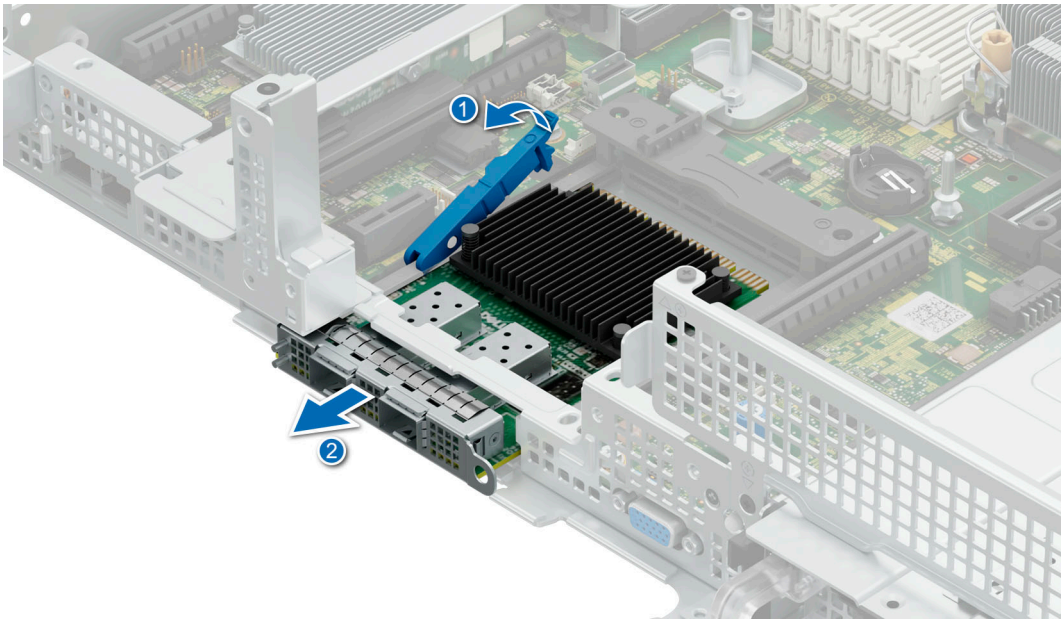


Figure 167. Removing the OCP card

4. If the OCP card is not going to be replaced, install a filler bracket .

   NOTE: You must install a filler bracket over an empty expansion card slot to maintain Federal Communications Commission (FCC) certification of the system. The brackets also keep dust and dirt out of the system and aid in proper cooling and airflow inside the system.

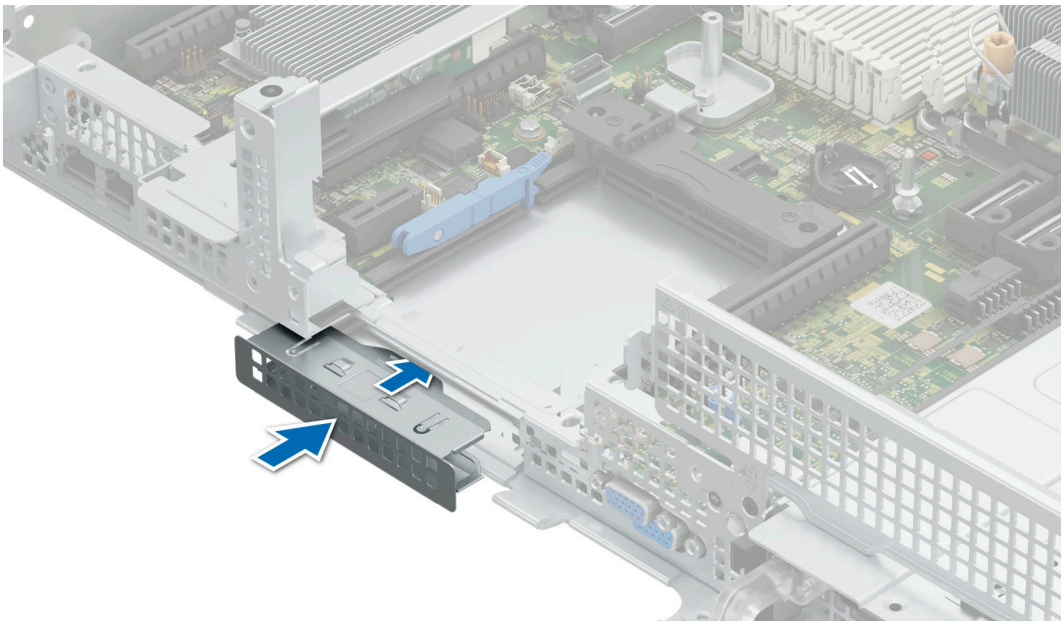


Figure 168. Installation of filler bracket

Next steps

1. Replace the OCP card.

Installing the OCP card

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the expansion card riser 3.

NOTE: The procedure to install the OCP card is the same for Rear Accessed and Front Accessed configurations.

CAUTION: Do not install GPUs, network cards, or other PCIe devices on your system that are not validated and tested by Dell. Damage caused by unauthorized and invalidated hardware installation will null and void the system warranty.

Steps

1. If installed, remove the filler bracket.

   NOTE: Store the filler bracket for future use. Filler brackets must be installed in empty expansion card slots to maintain Federal Communications Commission (FCC) certification of the system. The brackets also keep dust and dirt out of the system and aid in proper cooling and airflow inside the system.

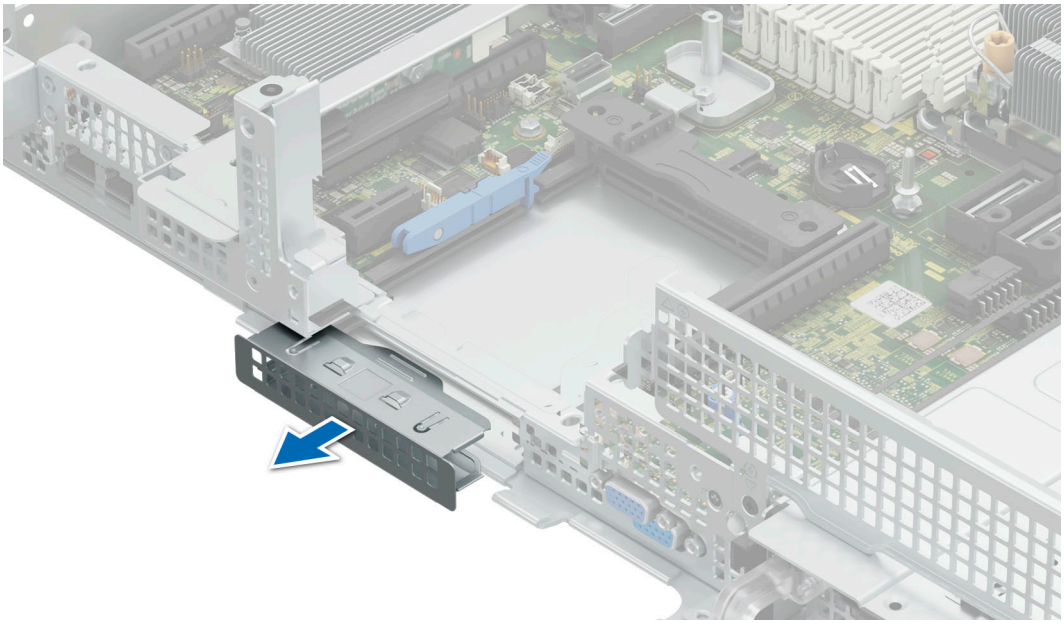


Figure 169. Removal of filler bracket

2. Open the blue latch on the system board.
3. Slide the OCP card into the slot in the system.
4. Push until the OCP card is connected to the connector on the system board.
5. Close the blue latch to lock the OCP card to the system.

   NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

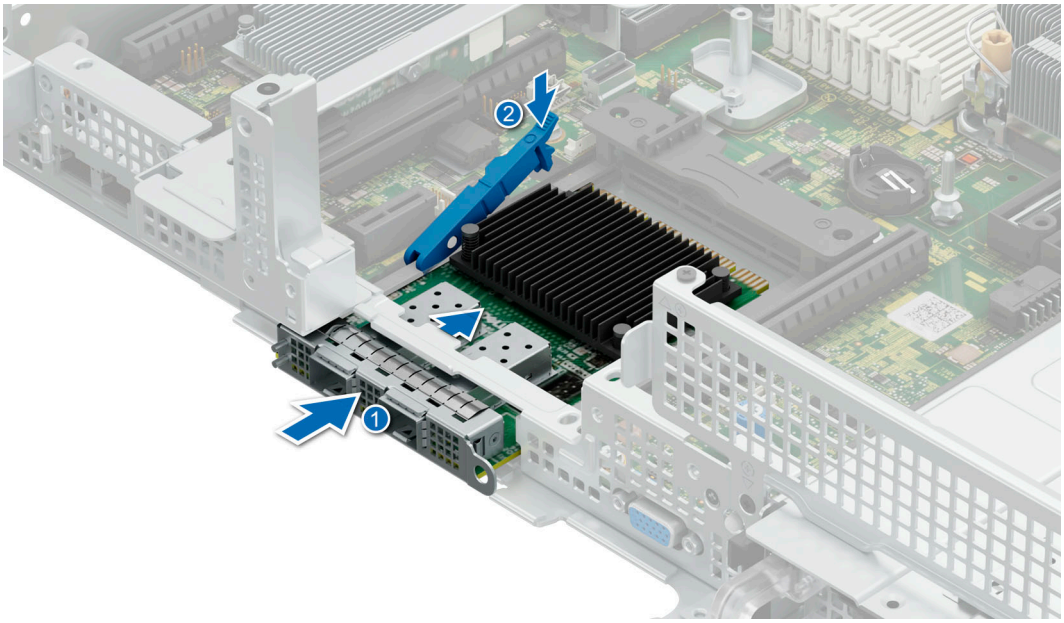


Figure 170. Installing the OCP card

Next steps

1. Install the expansion card riser 3.
2. Follow the procedure listed in After working inside your system.

System board

This is a service technician replaceable part only.

Removing the system board

Prerequisites

CAUTION: If you are using the Trusted Platform Module (TPM) with an encryption key, you may be prompted to create a recovery key during program or System Setup. Be sure to create and safely store this recovery key. If you replace this system board, you must supply the recovery key when you restart your system or program before you can access the encrypted data on your drives.

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the following components:
   a. 2U Air shroud
   b. Expansion card risers
   c. 1U Air shroud
   d. Front PERC
   e. Drives
   f. Drive cage
   g. Memory modules
   h. Processor and heat sink module
   i. BOSS-N1 riser
   j. Internal USB card (if installed)
   k. OCP card (if installed)
   l. Power supply units (PSU)

m. Disconnect all the cables from the system board and make note of all the cable connections.

CAUTION: Take care not to damage the system identification button while removing the system board from the system.

CAUTION: Do not lift the system board by holding a memory module, processor, or other components.

NOTE: The procedure to remove the system board is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Using the Phillips 2 screwdriver, loosen the two thumbscrews and lift the metallic bar away from the system.
2. Using the Phillips 2 screwdriver, loosen the thumbscrew on the system board.
3. Using the system board holder, slide the system board towards the front of the system.
4. At a tilted angle, lift the system board out of the chassis.

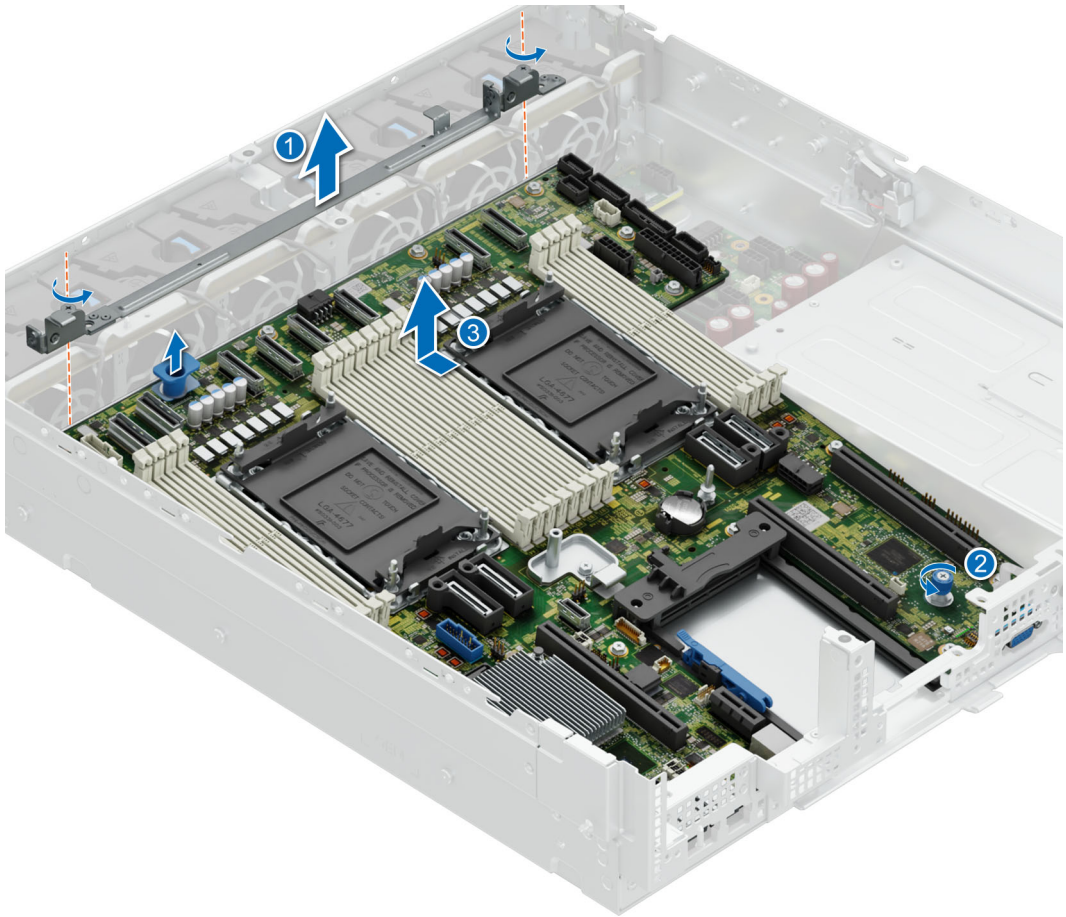


Figure 171. Removing the system board

Next steps

1. Install the system board.

Installing the system board

Prerequisites

NOTE: Before replacing the system board, replace the old iDRAC MAC address label on the Express Service Tag with the iDRAC MAC address label of the replacement system board.

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. If you are replacing the system board, remove all the components that are listed in theremoving the system board section.

NOTE: The procedure to remove the system board is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Unpack the new system board assembly.

   CAUTION: Do not lift the system board by holding a memory module, processor, or other components.

   CAUTION: Take care not to damage the system identification button while placing the system board into the chassis.

2. Holding the system board holder, lower the system board at a tilted angle into the system.
3. Slide the system board towards the rear of the chassis until the connectors are firmly seated in the slots. Using the Phillips 2 screwdriver, tighten the thumbscrew on the system board.
4. Align and lower the metallic bar into the system and using the Phillips 2 screwdriver, tighten the two metallic thumbscrews to secure the bar to the chassis.

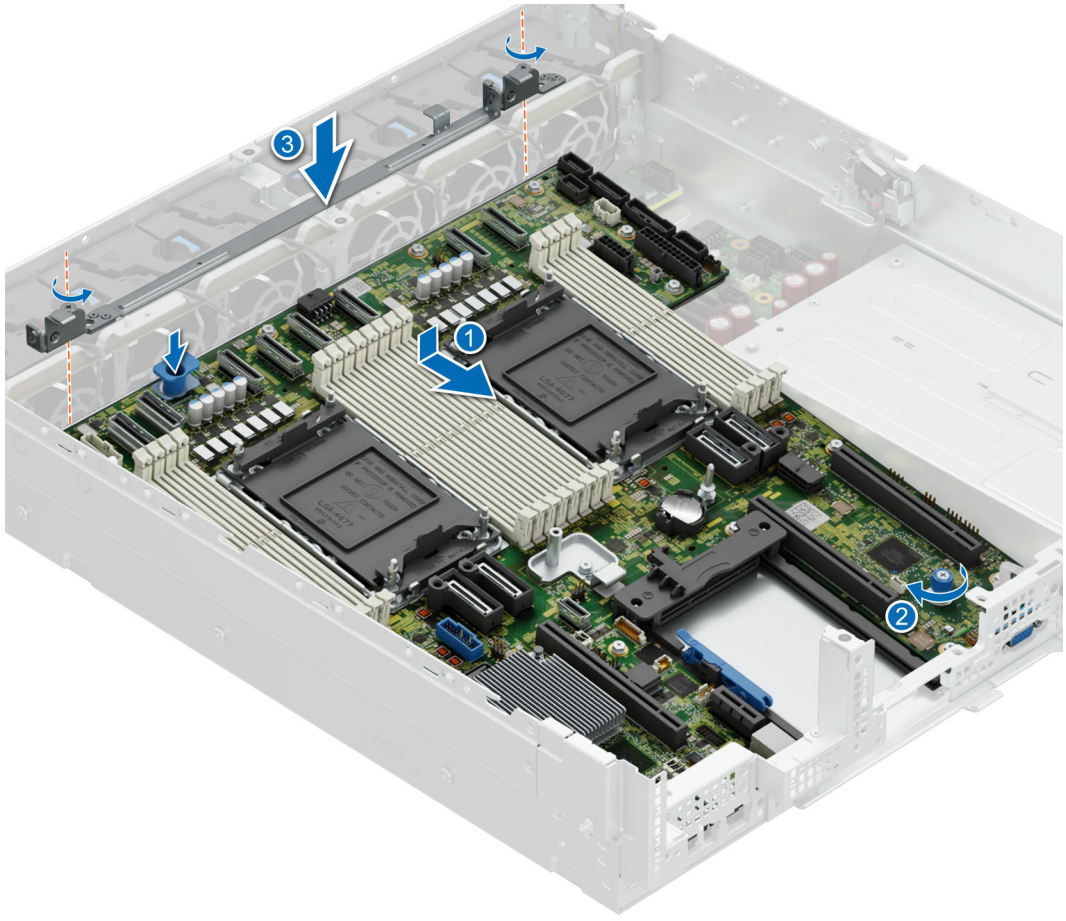


Figure 172. Installing the system board

Next steps

1. Replace the following components:
   a. Trusted Platform Module (TPM)

      NOTE: The TPM Module must be replaced only while installing new system board.

   b. Internal USB card (if removed)

c. OCP card (if removed)
d. Processor and heat sink module
e. Memory modules
f. BOSS-N1 module
g. 1U Air shroud
h. Expansion card risers
i. 2U Air shroud
j. Power supply units (PSU)

2. Reconnect all cables to the system board.

   NOTE: Ensure that the cables inside the system are routed along the chassis wall and secured using the cable securing bracket.

3. Ensure that you perform the following steps:
   a. Use the Easy Restore feature to restore the Service Tag. See the Restoring the system by using the Easy Restore feature section.
   b. If the service tag is not backed up in the backup flash device, enter the system service tag manually. See the Manually update the Service Tag by using System Setup section.
   c. Update the BIOS and iDRAC versions.
   d. Re-enable the Trusted Platform Module (TPM). See the Upgrading the Trusted Platform Module section.
4. Follow the procedure listed in After working inside your system.

Restoring the system using Easy Restore

The Easy Restore feature enables you to restore your service tag, license, UEFI configuration, and the system configuration data after replacing the system board. All data is backed up in a backup flash device automatically. If BIOS detects a new system board, and the service tag in the backup flash device, BIOS prompts the user to restore the backup information.

About this task

Below is a list of options/steps available:

Steps

1. Restore the service tag, license, and diagnostics information, press **Y**
2. Navigate to the Lifecycle Controller based restore options, press **N**
3. Restore data from a previously created **Hardware Server Profile**, press **F10**

   NOTE: When the restore process is complete, BIOS prompts to restore the system configuration data.

4. Restore data from a previously created **Hardware Server Profile**, press **F10**
5. To restore the system configuration data, press **Y**
6. To use the default configuration settings, press **N**

   NOTE: After the restore process is complete, system reboots.

Manually update the Service Tag

After replacing a system board, if Easy Restore fails, follow this process to manually enter the Service Tag, using **System Setup**.

About this task

If you know the system service tag, use the **System Setup** menu to enter the service tag.

Steps

1. Power on the system.
2. To enter the **System Setup**, press **F2**.
3. Click **Service Tag Settings**.

4. Enter the service tag.

   NOTE: You can enter the service tag only when the **Service Tag** field is empty. Ensure that you enter the correct service tag. Once the service tag is entered, it cannot be updated or changed. Incorrectly entered service tag will lead to system board replacement.

5. Click **OK**.

Trusted Platform Module

This is a service technician replaceable part only.

Upgrading the Trusted Platform Module

Removing the TPM

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in Before working inside your system.

NOTE:

- Ensure the operating system is compatible with the TPM version you are installing.
- Ensure that you download and install the latest BIOS firmware on your system.
- Ensure that the BIOS is configured to enable UEFI boot mode.

CAUTION: The TPM plug-in module is cryptographically bound to that particular system board after it is installed. When the system is powered on, any attempt to remove an installed TPM plug-in module breaks the cryptographic binding, and the removed TPM cannot be installed on another system board. Ensure any keys you have stored on the TPM have been securely transferred.

Steps

1. Locate the TPM connector on the system board. For more information, see .
2. Press to hold the module down and remove the screw using the security Torx 8-bit shipped with the TPM module.
3. Slide the TPM module out from its connector.
4. Push the plastic rivet away from the TPM connector and rotate it 90° counterclockwise to release it from the system board.
5. Pull the plastic rivet out of its slot on the system board.

Installing the TPM

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in Before working inside your system.

Steps

1. To install the TPM, align the edge connectors on the TPM with the slot on the TPM connector.
2. Insert the TPM into the TPM connector such that the plastic rivet aligns with the slot on the system board.
3. Press the plastic rivet until the rivet snaps into place.
4. Replace the screw that secures the TPM to the system board.

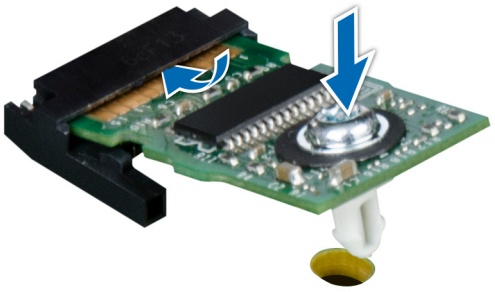


Figure 173. Installing the TPM

Initializing TPM for users

Steps

1. Initialize the TPM.
   For more information, see Initializing the TPM 2.0 for users.
2. The **TPM Status** changes to **Enabled, Activated**.

Initializing the TPM 2.0 for users

Steps

1. While booting your system, press F2 to enter System Setup.
2. On the **System Setup Main Menu** screen, click **System BIOS** > **System Security Settings**.
3. From the **TPM Security** option, select **On**.
4. Save the settings.
5. Restart your system.

Control panel

This is a service technician replaceable part only.

Removing the Status LED control panel

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the 1U air shroud.
5. Remove the Expansion card riser 2.
6. Remove the Expansion card riser 1.

NOTE: The procedure to remove the Status LED control panel is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Disconnect the Status LED control panel cable from the system board connector.

NOTE: Observe the routing of the cable as you remove it from the system.

2. Using the Torx 8, remove screws from Status LED control panel assembly.
3. Hold the Status LED control panel assembly and remove the Status LED control panel along with the cable from the system.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

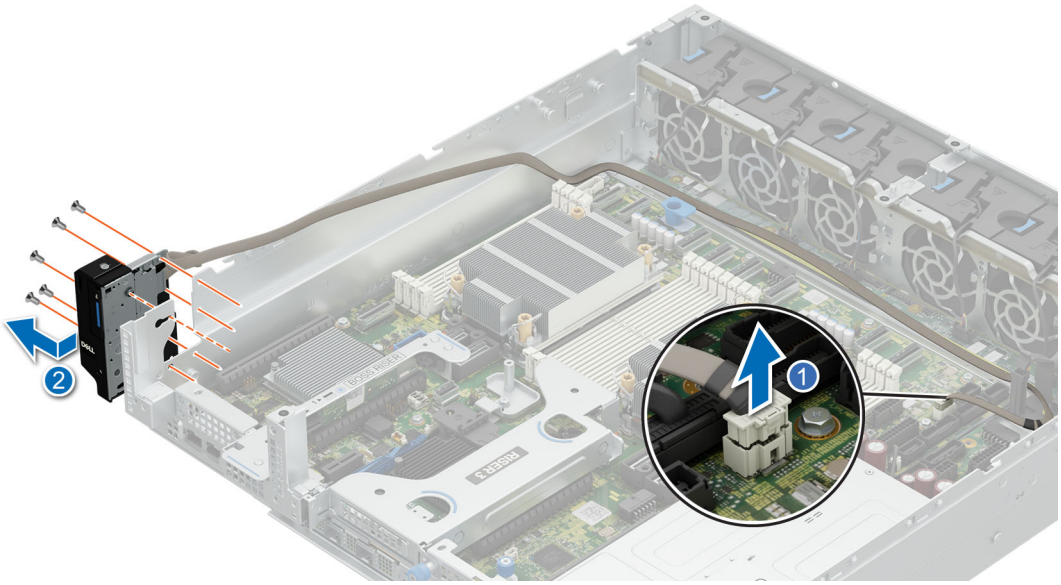


Figure 174. Removing the Status LED control panel for Front Accessed configuration

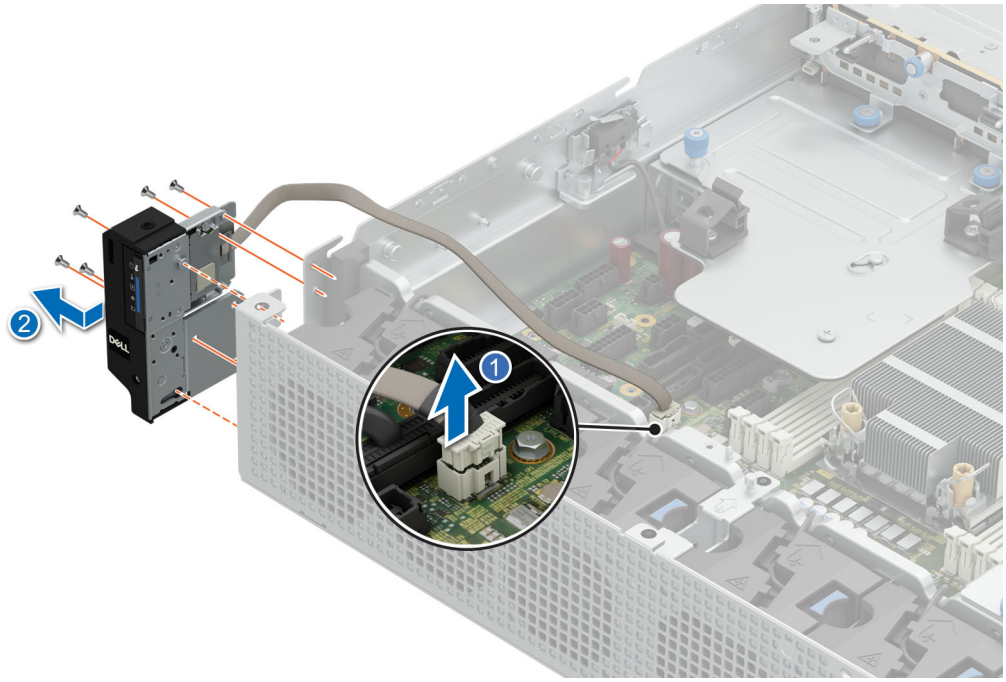


Figure 175. Removing the Status LED control panel for Rear Accessed configuration

Next steps

Replace the Status LED control panel.

Installing the Status LED control panel

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the 1U air shroud.
5. Remove the Expansion card riser 2.
6. Remove the Expansion card riser 1.

NOTE: The procedure to install the Status LED control panel is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Route the control panel cable through the guide slots in the system and connector on system board.

   NOTE: Route the cable properly to prevent the cable from being pinched or crimped.

2. Align and insert the Status LED control panel assembly in the slot on the system.
3. Using the Torx 8, tighten screws from status LED control panel assembly.

   NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

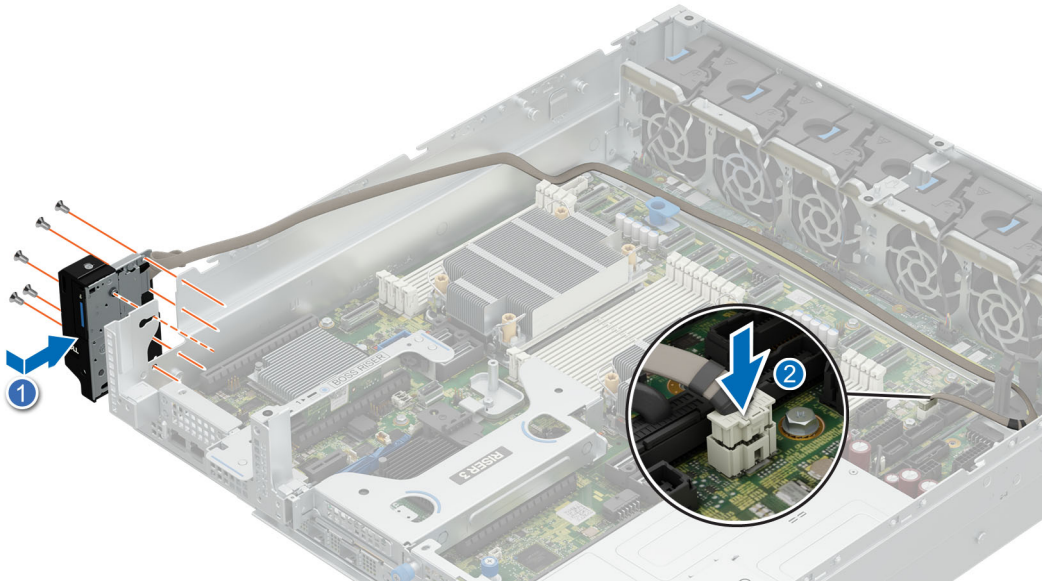


Figure 176. Installing the Status LED control panel for Front Accessed configuration

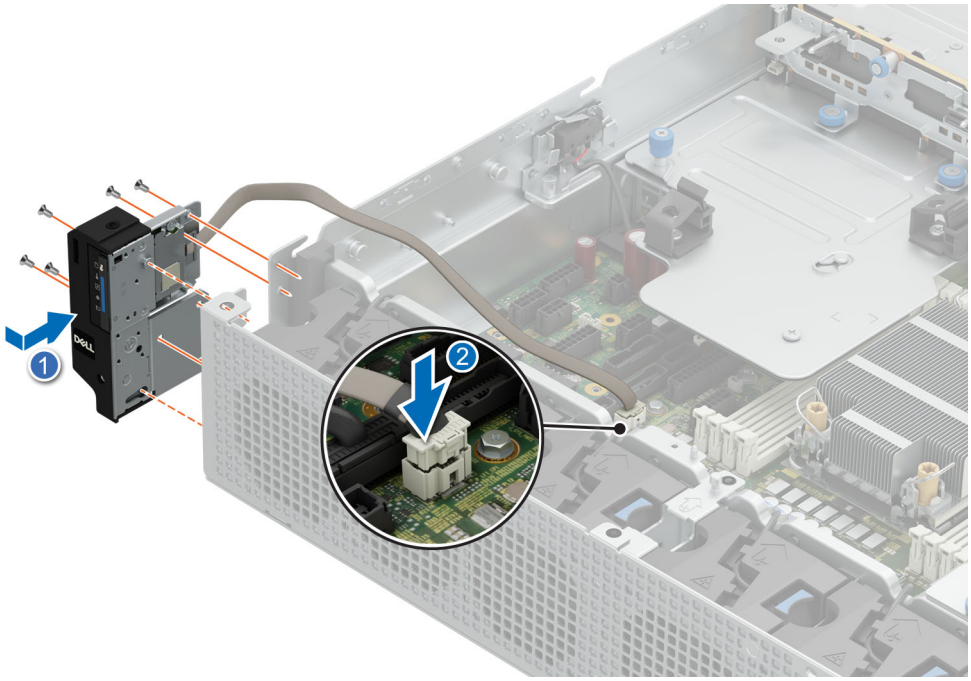


Figure 177. Installing the Status LED control panel for Rear Accessed configuration

Next steps

1. Install the Expansion card riser 1.
2. Install the Expansion card riser 2.
3. Install the 1U air shroud
4. Install the 2U air shroud.
5. Follow the procedure listed in the After working inside your system.

Removing the Power button control panel

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the 1U air shroud.
5. Remove the Expansion card riser 2.
6. Remove the Expansion card riser 1.

NOTE: The procedure to remove the Power button control panel is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Disconnect the control panel cable from the system board connector.

   NOTE: Observe the routing of the cable as you remove it from the system.

2. Using the Phillips 2, remove screws from rack ear assembly.
3. Hold the control panel assembly and remove the control panel along with the cable from the system.

   NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

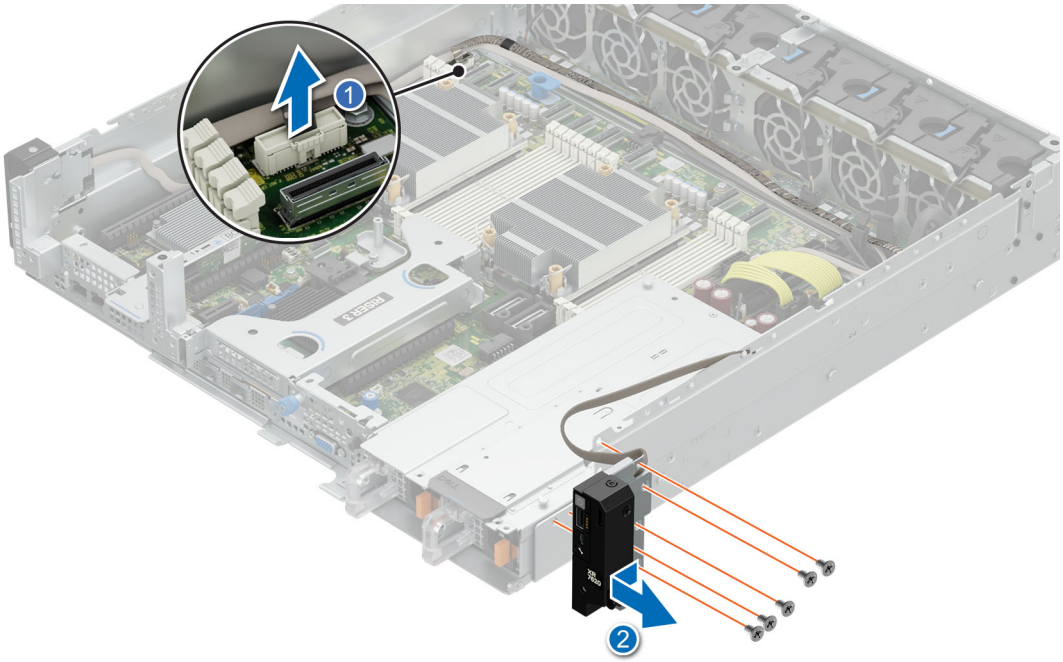


Figure 178. Removing the Power button control panel for Front Accessed configuration

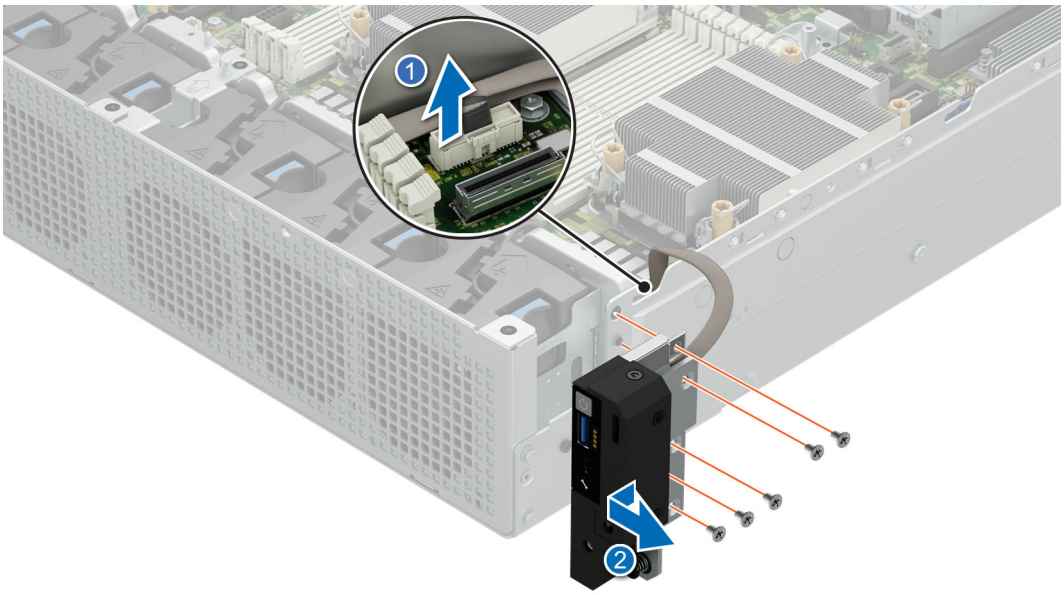


Figure 179. Removing the Power button control panel for Rear Accessed configuration

Next steps

Installing the power button control panel.

Installing the Power button control panel

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.

2. Follow the procedure listed in the Before working inside your system.
3. Remove the 2U air shroud.
4. Remove the 1U air shroud.
5. Remove the Expansion card riser 2.
6. Remove the Expansion card riser 1.

NOTE: The procedure to install the Power button control panel is the same for Rear Accessed and Front Accessed configurations.

Steps

1. Route the control panel cable through the side wall of the system.

   NOTE: Route the cable properly to prevent the cable from being pinched or crimped.

2. Align and insert the control panel in the slot on the system.
3. Connect the control panel cable to the connector on the system board.
4. Using the Torx 8, tighten screws from power button control panel assembly.

   NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

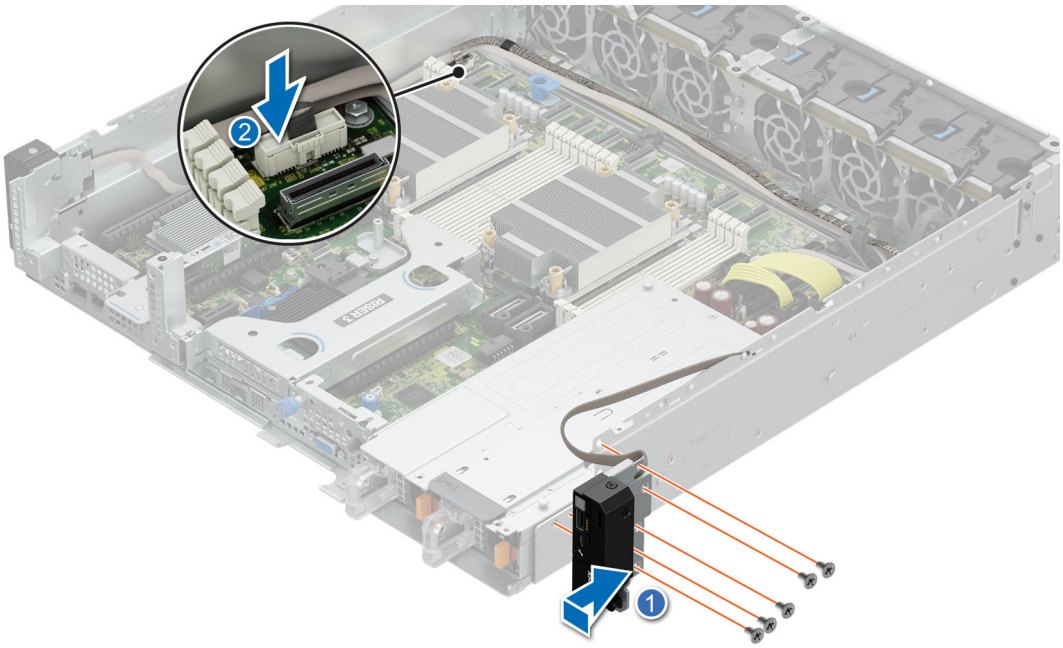


Figure 180. Installing the Power button control panel for Front Accessed configuration

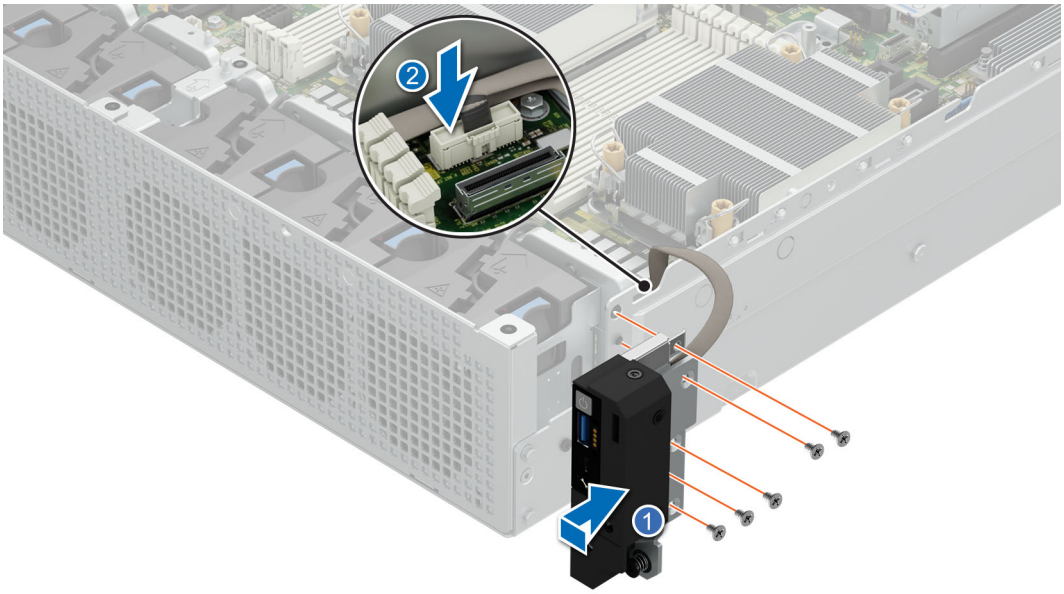


Figure 181. Installing the Power button control panel for Rear Accessed configuration

Next steps

1. Install the Expansion card riser 1.
2. Install the Expansion card riser 2.
3. Install the 1U air shroud
4. Install the 2U air shroud.
5. Follow the procedure listed in the After working inside your system.

8

MIL kit

The MIL kit provides rugged protection for the PowerEdge XR7620 server. The MIL kit consists of the components mentioned below:

- Power supply rugged bracket
- Drive rugged bracket
- Ten countersunk screws

Topics:

Installing the MIL kit

Prerequisites

NOTE: The MIL kits are ordered separately from Dell.

1. Follow the safety guidelines listed in the Safety instructions.
2. Unpack the 901E and MIL 461G rugged brackets.
3. If installed, remove the front bezel.
4. Remove the front bezel for Front Accessed configuration.

Steps

1. Align and slide the storage MIL bracket on the drive cage. Using a Phillips 1 screwdriver, tighten the screws securing the storage MIL bracket on the drive cage.

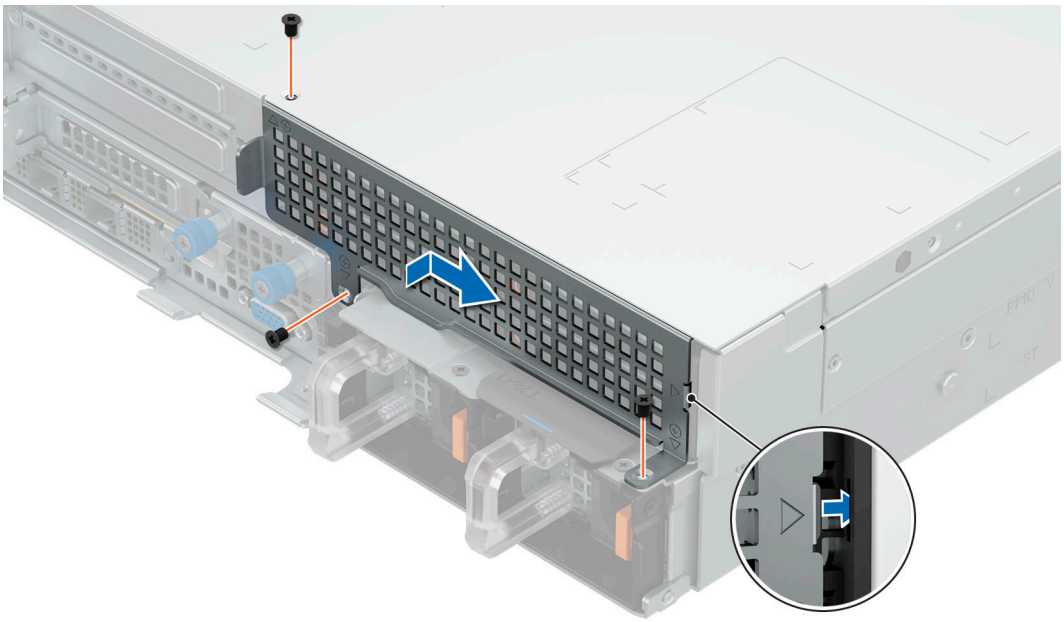


Figure 182. Installing the storage MIL bracket

2. Align the power supply bracket to the rear of the power supply cage and slide it in to secure it in place. Using a Phillips 1 screwdriver, secure the power supply rugged bracket.

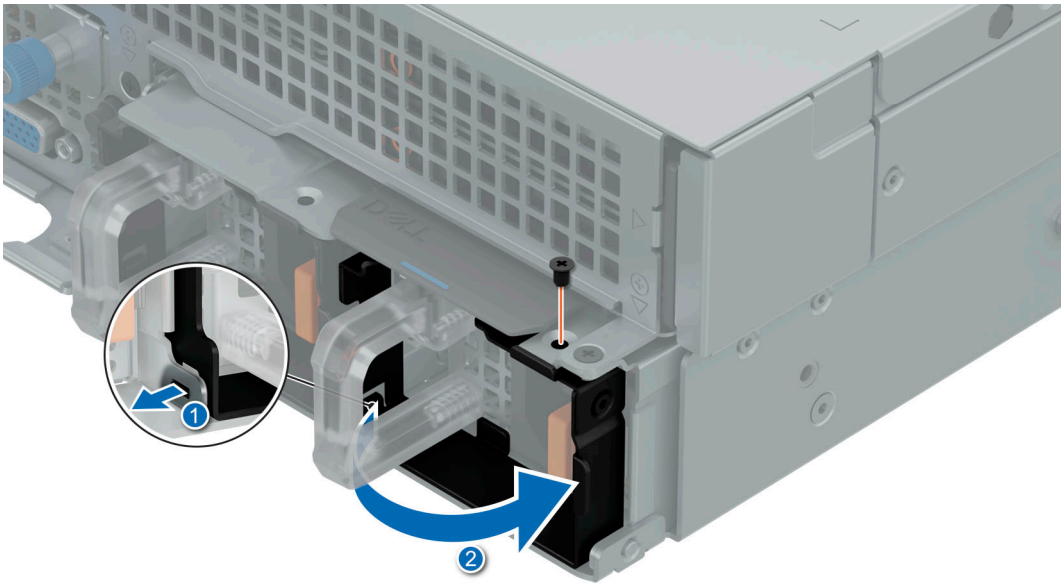


Figure 183. Installing the power supply bracket

3. Align the tabs on the system cover with the guide slots on the system. Close the system cover release latch. Using a Phillips 1 screwdriver, tighten the screw to secure the system cover.

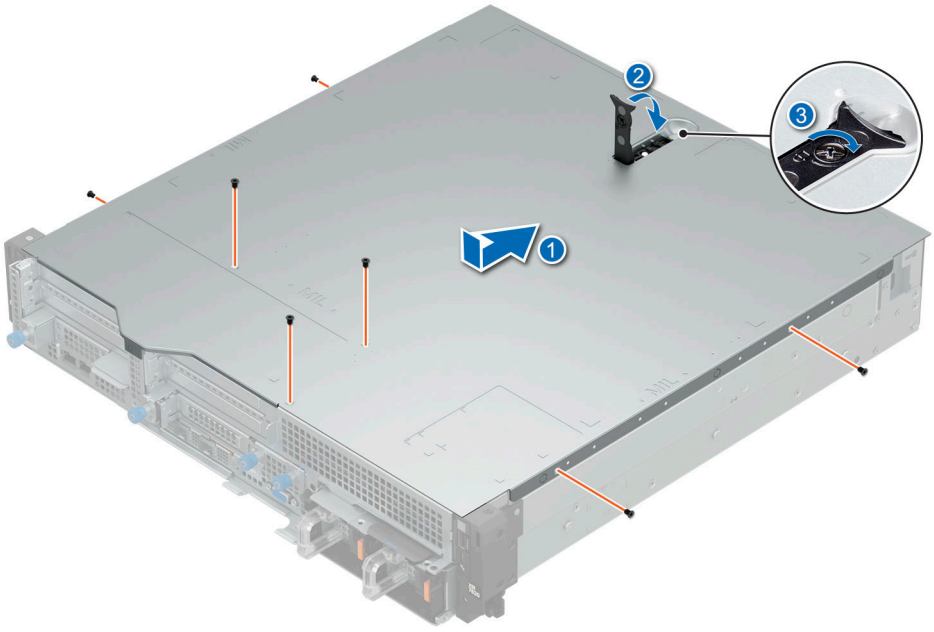


Figure 184. Installing the system cover

4. Install the front bezel.

Next steps

Follow the procedure listed in After working inside your system.

9

Upgrade Kits

The table lists the available After Point Of Sale [APOS] kits.

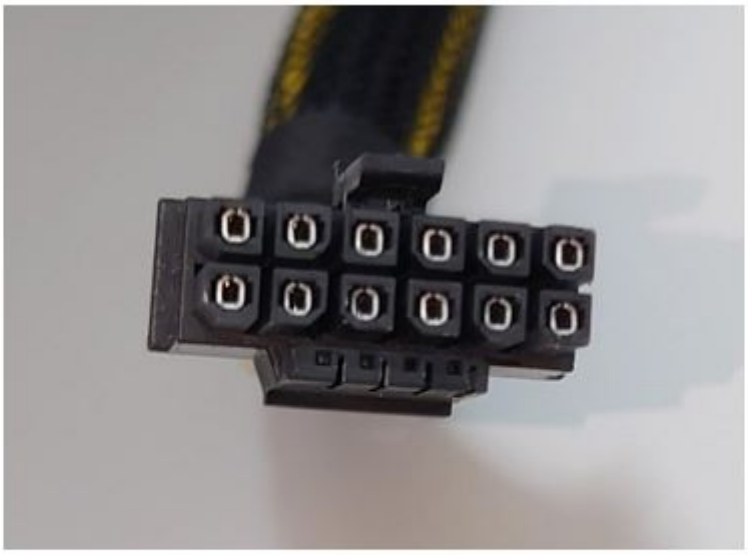
Table 105. Upgrade kits

Kits	Related links to service instructions
GPU	See Installing GPUs
Storage cards or Network cards	See Installing the Expansion cards
PCIe SSDs or SAS/SATA SSDs or E3.S SSDs	See Installing the drive
Memory	See Installing a memory module
TPM	See Upgrading the Trusted Platform Module
Cables	Offered, but without special service instructions
Power cords	Offered, but without special service instructions
Power supplies	See Installing a power supply unit
Cable Management Arm	See CMA posted on the Dell support site
Bezel	See Installing the front bezel
Bezel filter	See Installing bezel filter **NOTE:** The bezel filter kit comes with four filters in one package.
Rail	Offered, but without special service instructions
Internal USB 3.0 card	See Internal USB card
Serial board	-
M.2 NVMe SSD	See Installing the M.2 NVMe SSD module
Processors	See Installing the processor
BOSS-N1	See Installing the BOSS-N1 controller card module

Dual Width GPU upgrade

Each 300W GPU requires an additional GPU power cable, these cables vary depending on the GPU vendor (Intel or Nvidia) and the GPU location (riser 1 or riser 2).

Below are images of Intel and NVIDIA GPU power cables:



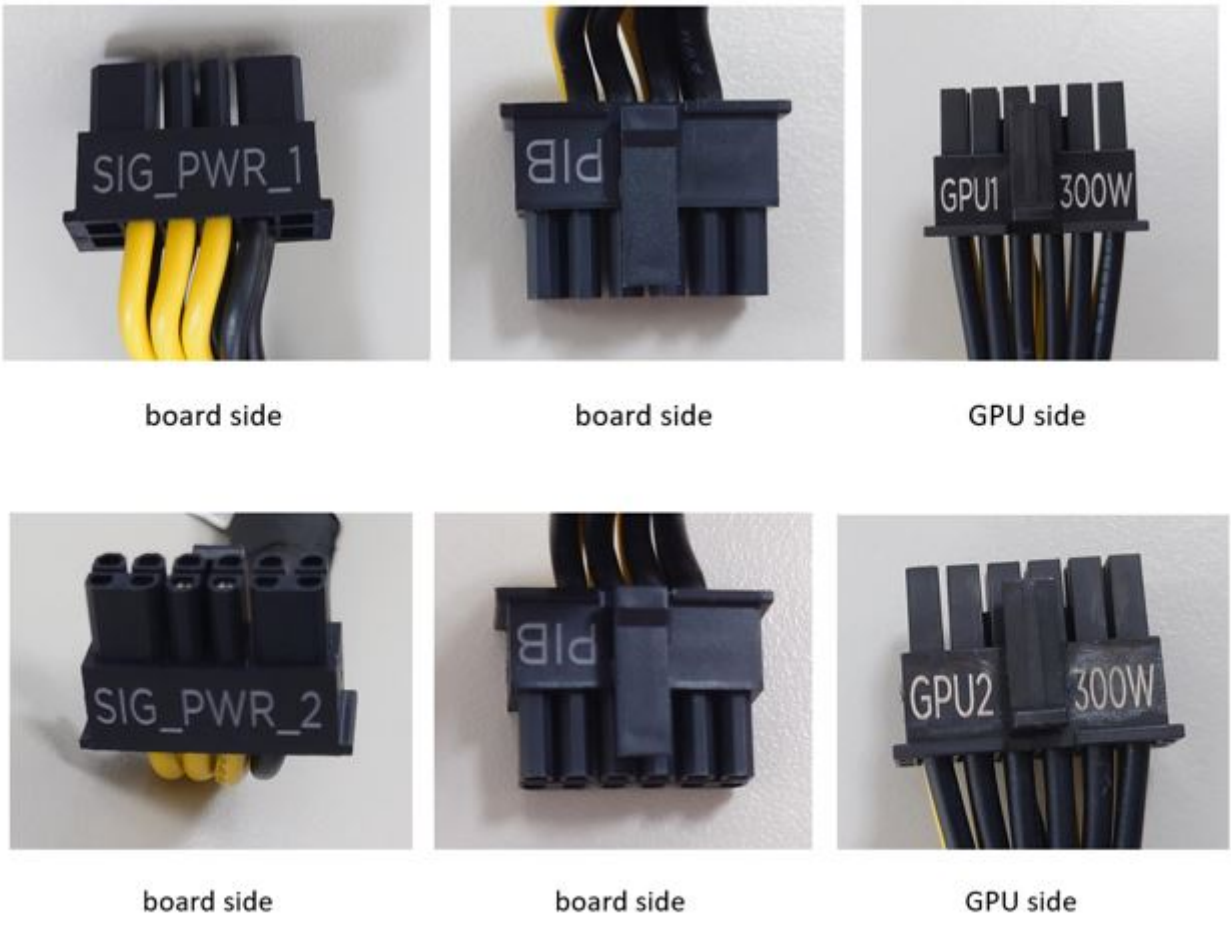


Figure 185. Intel GPU power cable

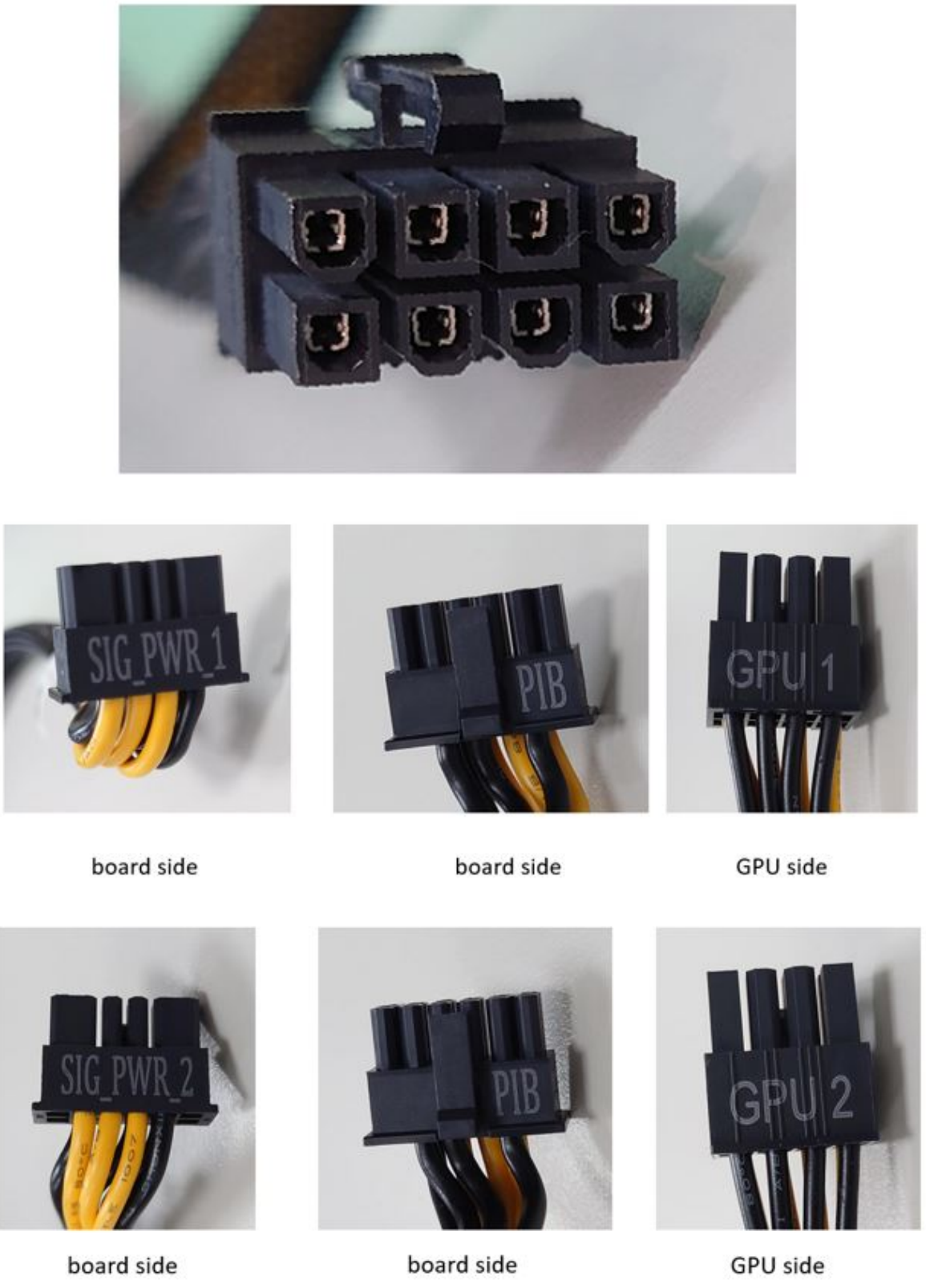


Figure 186. NVIDIA GPU power cable

10

Jumpers and connectors

This topic provides some basic and specific information about jumpers and switches. It also describes the connectors on the various boards in the system. Jumpers on the system board help to disable the system and reset the passwords. To install components and cables correctly, you must know the connectors on the system board.

Topics:

System board jumpers and connectors

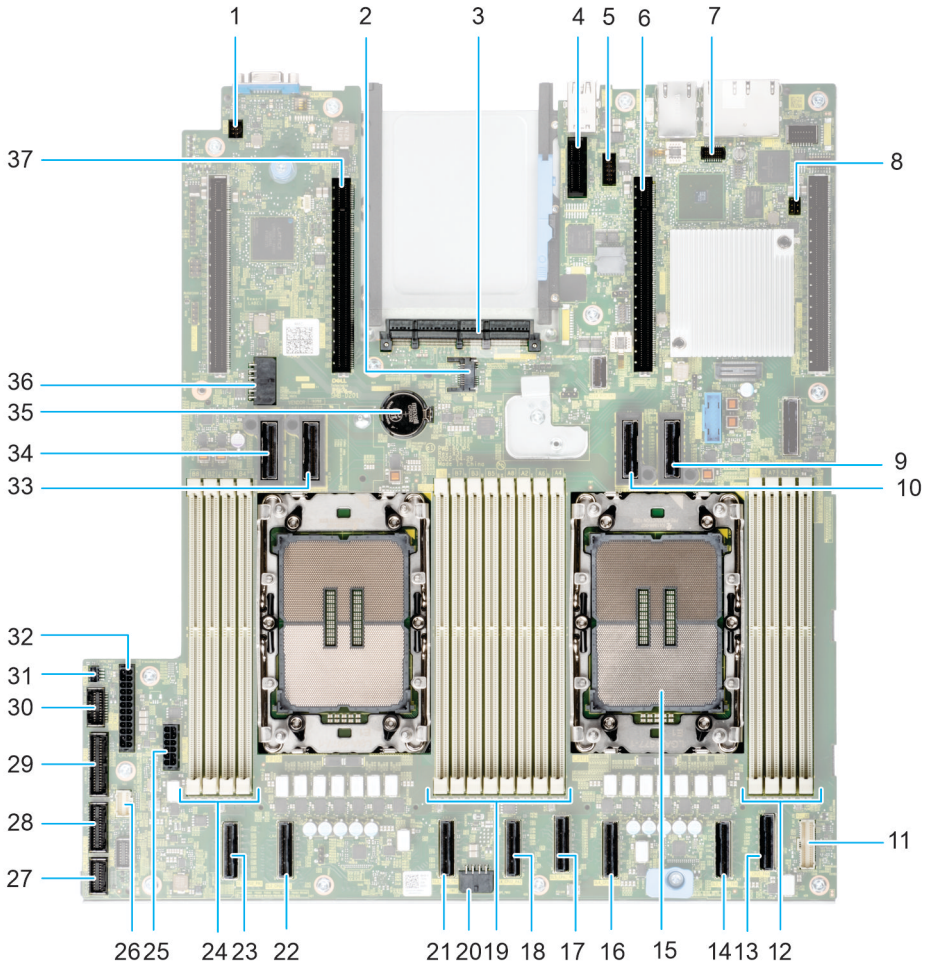


Figure 187. System board jumpers and connectors

Table 106. System board jumpers and connectors

Item	Connector
1.	System ID Connector

Table 106. System board jumpers and connectors (continued)

Item	Connector
2.	TPM Connector
3.	OCP NIC 3.0 Connector
4.	IDSDM/Internal USB Connector
5.	Serial Port Connector
6.	PCIe slot 2/BOSS N1 riser slot (CPU1)
7.	MIC_CON
8.	Jumper
9.	PCIe Conn 12_Riser1 (SL12_CPU1_PB6)
10.	PCIe Conn 11_Riser1 (SL11_CPU1_PA6)
11.	Right Control Panel Connector
12.	DIMMS for CPU1
13.	PCIe Connector 8 (SL8_CPU1_PA4)
14.	PCIe Connector 7 (SL7_CPU1_PA4)
15.	CPU1
16.	PCIe Connector 6 (SL6_CPU1_PB3)
17.	PCIe Connector 5 (SL5_CPU1_PA3)
18.	PCIe Connector 4 (SL4_CPU2_PA2)
19.	DIMMS for CPU1 and CPU2
20.	System Power Connector 2
21.	PCIe Connector 3 (SL3_CPU2_PB2)
22.	PCIe Connector 2 (SL2_CPU2_PB1)
23.	PCIe Connector 1 (SL1_CPU2_PA1)
24.	DIMMs for CPU2
25.	Signal Power Out (SIG_PWR_4)
26.	Left Control Panel Connector
27.	Fan Signal 1
28.	Fan Signal 2
29.	PIB Signal 1
30.	PIB Signal 2
31.	Intrusion Switch Connector
32.	System Power Connector 1
33.	PCIe Conn 10_Riser 2 SL10_CPU2_PA5)
34.	PCIe Conn 9_Riser 2 SL9_CPU2_PB5)
35.	Coin Cell Battery
36.	Signal Power Out (SIG_PWR_0)
37.	Riser Connector 3 (CPU2)

System board jumper settings

For information about resetting the password jumper to disable a password, see the Disabling a forgotten password section.

Table 107. System board jumper settings

Jumper	Setting	Description
PWRD_EN		The BIOS password feature is enabled.
		The BIOS password feature is disabled. The BIOS password is now disabled and you are not allowed to set a new password.
NVRAM_CLR		The BIOS configuration settings are retained at system boot.
		The BIOS configuration settings are cleared at system boot.

CAUTION: You should be cautious when changing the BIOS settings. The BIOS interface is designed for advanced users. Any changes in the setting might prevent your system from starting correctly and may even result in data loss.

Disabling a forgotten password

The software security features of the system include a system password and a setup password. The password jumper enables or disables password features and clears any password(s) currently in use.

Prerequisites

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that are shipped with your product.

Steps

1. Power off the system and all attached peripherals. Disconnect the system from the electrical outlet, and disconnect the peripherals.
2. Remove the system cover.
3. Move the jumper on the system board from pins 2 and 4 to pins 4 and 6.
4. Replace the system cover.

   NOTE: The existing passwords are not disabled (erased) until the system boots with the jumper on pins 4 and 6. However, before you assign a new system and/or setup password, you must move the jumper back to pins 2 and 4.

   NOTE: If you assign a new system and/or setup password with the jumper on pins 4 and 6, the system disables the new password(s) the next time it boots.

5. Reconnect the peripherals and connect the system to the electrical outlet, and then power on the system.
6. Power off the system.
7. Remove the system cover.
8. Move the jumper on the system board from pins 4 and 6 to pins 2 and 4.
9. Replace the system cover.
10. Reconnect the peripherals and connect the system to the electrical outlet, and then power on the system.
11. Assign a new system and/or setup password.

11

System diagnostics and indicator codes

The diagnostic indicators on the system front panel display system status during system startup.

Topics:

Bezel LED indicator

Figure 188. Bezel LED indicator

Table 108. Bezel LED indicator behavior

LED behavior	Function description
Solid Blue	System is healthy
Blinking Amber, 2 sec ON, 1 sec Off	Fault
Blinking Blue, 1 sec ON, 1 sec Off	ID

Status LED indicators

NOTE: The indicators display solid amber if any error occurs.

Figure 189. Status LED indicators

Table 109. Status LED indicators and descriptions

Icon	Description	Condition	Corrective action
	Drive indicator	The indicator turns solid amber if there is a drive error.	• Check the System Event Log to determine if the drive has an error. • Run the appropriate Online Diagnostics test. Restart the system and run embedded diagnostics (ePSA). • If the drives are configured in a RAID array, restart the system, and enter the host adapter configuration utility program.
	Temperature indicator	The indicator turns solid amber if the system experiences a thermal error (for example, the ambient temperature is out of range or there is a fan failure).	Ensure that none of the following conditions exist: • A cooling fan has been removed or has failed. • System cover, air shrouds, or back filler bracket has been removed. • Ambient temperature is too high. • External airflow is obstructed. If the problem persists, see the Getting help section.
	Electrical indicator	The indicator turns solid amber if the system experiences an electrical error (for example, voltage out of range, or a failed power supply unit (PSU) or voltage regulator).	Check the System Event Log or system messages for the specific issue. If it is due to a problem with the PSU, check the LED on the PSU. Reseat the PSU. If the problem persists, see the Getting help section.
	Memory indicator	The indicator turns solid amber if a memory error occurs.	Check the System Event Log or system messages for the location of the failed memory. Reseat the memory module. If the problem persists, see the Getting help section.
	PCIe indicator	The indicator turns solid amber if a PCIe card experiences an error.	Restart the system. Update any required drivers for the PCIe card. Reinstall the card. If the problem persists, see the Getting help section. **NOTE:** For more information about the supported PCIe cards, see the Expansion cards

Table 109. Status LED indicators and descriptions (continued)

Icon	Description	Condition	Corrective action
			and expansion card risers > Expansion card installation guidelines section.

System health and system ID indicator codes

The system health and system ID indicator is located on the Status LED Control Panel of the system for Rear and Front Accessed configurations..

Figure 190. System health and system ID indicator

Table 110. System health and system ID indicator codes

System health and system ID indicator code	Condition
Solid blue	Indicates that the system is powered on, is healthy, and system ID mode is not active. Press the system health and system ID button to switch to system ID mode.
Blinking blue	Indicates that the system ID mode is active. Press the system health and system ID button to switch to system health mode.
Solid amber	Indicates that the system is in fail-safe mode. If the problem persists, see the Getting help section.
Blinking amber	Indicates that the system is experiencing a fault. Check the System Event Log for specific error messages. For information about the event and error messages generated by the system firmware and agents that monitor system components, go to qrl.dell.com > **Look Up** > **Error Code**, type the error code, and then click **Look it up**.

Power supply unit indicator codes

AC and DC power supply units (PSUs) have an illuminated translucent handle that serves as an indicator. The indicator shows if power is present or if a power fault has occurred.

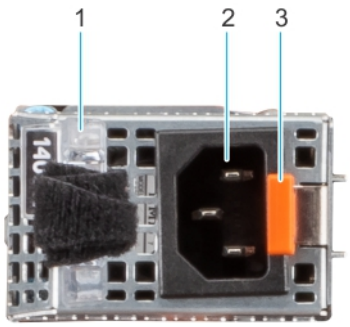


Figure 191. Rear Accessed configuration - AC PSU status indicator

1. AC PSU handle
2. Socket
3. Release latch

Figure 192. Front Accessed configuration - AC PSU status indicator

1. AC PSU handle
2. Socket
3. Release latch

Table 111. AC and DC PSU status indicator codes

Power indicator codes	Condition
Green	Indicates that a valid power source is connected to the PSU and the PSU is operational.
Blinking amber	Indicates an issue with the PSU.
Not powered on	Indicates that the power is not connected to the PSU.
Blinking green	Indicates that the firmware of the PSU is being updated. **CAUTION: Do not disconnect the power cord or unplug the PSU when updating firmware. If firmware update is interrupted, the PSUs will not function.**
Blinking green and powers off	When hot-plugging a PSU, it blinks green five times at a rate of 4 Hz and powers off. This indicates a PSU mismatch due to efficiency, feature set, health status, or supported voltage. **CAUTION: If two PSUs are installed, both the PSUs must have the same type of label; for example, Extended Power Performance (EPP) label. Mixing PSUs from previous generations of PowerEdge**

Table 111. AC and DC PSU status indicator codes (continued)

Power indicator codes	Condition
	servers is not supported, even if the PSUs have the same power rating. This results in a PSU mismatch condition or failure to power on the system. **CAUTION: If two PSUs are used, they must be of the same type and have the same maximum output power.** **CAUTION: When correcting a PSU mismatch, replace the PSU with the blinking indicator. Swapping the PSU to make a matched pair can result in an error condition and an unexpected system shutdown. To change from a high output configuration to a low output configuration or vice versa, you must power off the system.** **CAUTION: When two identical PSUs receive different input voltages, they can output different wattage, and trigger a mismatch.** *For example a 1100W PSU connected to a High-Line AC (HLAC) 200Vac-240Vac input, it will output 1100W. But if a second 1100W PSU in the same system is connected to a Low Line 100-120Vac input, it will only output 1050W, triggering a mismatch.*

NIC indicator codes

Each NIC on the back of the system has indicators that provide information about the activity and link status. The activity LED indicator indicates if data is flowing through the NIC, and the link LED indicator indicates the speed of the connected network.

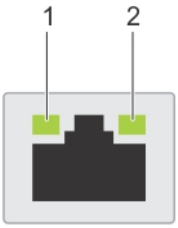


Figure 193. NIC indicator codes

1. Link LED indicator
2. Activity LED indicator

Table 112. NIC indicator codes

NIC indicator codes	Condition
Link and activity indicators are off.	Indicates that the NIC is not connected to the network.
Link indicator is green, and activity indicator is blinking green.	Indicates that the NIC is connected to a valid network at its maximum port speed, and data is being sent or received.
Link indicator is amber, and activity indicator is blinking green.	Indicates that the NIC is connected to a valid network at less than its maximum port speed, and data is being sent or received.
Link indicator is green, and activity indicator is off.	Indicates that the NIC is connected to a valid network at its maximum port speed, and data is not being sent or received.
Link indicator is amber, and activity indicator is off.	Indicates that the NIC is connected to a valid network at less than its maximum port speed, and data is not being sent or received.

Table 112. NIC indicator codes (continued)

NIC indicator codes	Condition
Link indicator is blinking green, and activity is off.	Indicates that the NIC identity is enabled through the NIC configuration utility.

Drive indicator codes

The LEDs on the drive carrier indicate the state of each drive. Each drive carrier has two LEDs: an activity LED (green) and a status LED (bicolor, green/amber). The activity LED blinks whenever the drive is accessed.

Figure 194. Drive indicators

1. Drive activity LED indicator
2. Drive status LED indicator
3. Drive capacity label

NOTE: If the drive is in the Advanced Host Controller Interface (AHCI) mode, the status LED indicator does not power on.

NOTE: Drive status indicator behavior is managed by Storage Spaces Direct. Not all drive status indicators may be used.

Table 113. Drive indicator codes

Drive status indicator code	Condition
Blinks green twice per second	Indicates that the drive is being identified or preparing for removal.
Not powered on	Indicates that the drive is ready for removal. **NOTE:** The drive status indicator remains off until all drives are initialized after the system is powered on. Drives are not ready for removal during this time.
Blinks green, amber, and then powers off	Indicates that there is an unexpected drive failure.
Blinks amber four times per second	Indicates that the drive has failed.
Blinks green slowly	Indicates that the drive is rebuilding.
Solid green	Indicates that the drive is online.
Blinks green for three seconds, amber for three seconds, and then powers off after six seconds	Indicates that the rebuild has stopped.

EDSFF E3.S drive led codes

The LEDs on the drive carrier indicate the state of each drive. The LEDs on the EDSFF E3.S drive have two LEDs: an activity LED (green) and a locate/fault LED (blue/amber). The activity LED blinks whenever the drive is accessed.

Figure 195. EDSFF E3.S drive indicators

1. Drive activity LED indicator
2. Drive status LED indicator
3. Drive capacity label

EDSFF E3.S drive led codes

E3.S hard drives have Green LED and Blue/Amber LED.

- Green LED shows : Drive power status , Activity
- Blue/Amber LED shows: Drive Fault, Locate

EDSFF indicator behavior

Table 114. EDSFF indicator behavior

Pattern Name	Description	Blue Element	Amber Element
Locate	This device is being identified.	ON (1 sec ON 1 sec OFF)	OFF
Fault	The device is in a fault condition.	OFF	ON (2 sec ON 1 sec OFF)
N/A	This device does not have fault or locate device.	OFF	OFF

NOTE: Locate behavior overrides Fault state.

Green LED

The green LED is driven and controlled by the device. The two functions for this LED are defined as follows:

- Power: This function indicates that the device has power and has no issues with its power regulation. Once the green LED is ON, it shall either remain ON or blink at the activity frequency unless the device determines power is no longer within its operating range.
- Activity: This function indicates if the device is being used.

Table 115. LED and device state per function for Green LED

Function/Device state	LED state
Power ON/Device is powered, no activity occurring.	ON
Activity/Device is powered, host initiated I/O activity occurring.	4 Hz nominal blink rate
Power OFF/Device is not powered.	OFF

iDRAC Direct LED indicator codes

The iDRAC Direct LED indicator lights up to indicate that the port is connected and is being used as a part of the iDRAC subsystem.

You can configure iDRAC Direct by using a USB to micro USB (type AB) cable, which you can connect to your laptop or tablet. Cable length should not exceed 3 feet (0.91 meters). Performance could be affected by cable quality. The following table describes iDRAC Direct activity when the iDRAC Direct port is active:

Table 116. iDRAC Direct LED indicator codes

iDRAC Direct LED indicator code	Condition
Solid green for two seconds	Indicates that the laptop or tablet is connected.
Blinking green (on for two seconds and off for two seconds)	Indicates that the laptop or tablet connected is recognized.
LED Indicator off	Indicates that the laptop or tablet is unplugged.

Using system diagnostics

If you experience an issue with the system, run the system diagnostics before contacting Dell for technical assistance. The purpose of running system diagnostics is to test the system hardware without using additional equipment or risking data loss. If you are unable to fix the issue yourself, service and support personnel can use the diagnostics results to help you solve the issue.

Dell Embedded System Diagnostics

NOTE: The Dell Embedded System Diagnostics is also known as Enhanced Pre-boot System Assessment (ePSA) diagnostics.

The Embedded System Diagnostics provide a set of options for particular device groups or devices allowing you to:

- Run tests automatically or in an interactive mode
- Repeat tests
- Display or save test results
- Run thorough tests to introduce additional test options to provide extra information about the failed device(s)
- View status messages that inform you if tests are completed successfully
- View error messages that inform you of issues encountered during testing

Running the Embedded System Diagnostics from Boot Manager

Run the Embedded System Diagnostics (ePSA) if your system does not boot.

Steps

1. When the system is booting, press F11.
2. Use the up arrow and down arrow keys to select **System Utilities** > **Launch Diagnostics**.
3. Alternatively, when the system is booting, press F10, select **Hardware Diagnostics** > **Run Hardware Diagnostics**. The **ePSA Pre-boot System Assessment** window is displayed, listing all devices detected in the system. The diagnostics starts executing the tests on all the detected devices.

Running the Embedded System Diagnostics from the Dell Lifecycle Controller

Steps

1. When the system is booting, press F10.
2. Select **Hardware Diagnostics** → **Run Hardware Diagnostics**.
   The **ePSA Pre-boot System Assessment** window is displayed, listing all devices detected in the system. The diagnostics start executing the tests on all the detected devices.

System diagnostic controls

Table 117. System diagnostic controls

Menu	Description
Configuration	Displays the configuration and status information of all detected devices.
Results	Displays the results of all tests that are run.
System health	Provides the current overview of the system performance.
Event log	Displays a time-stamped log of the results of all tests run on the system. This is displayed if at least one event description is recorded.

12

Getting help

Topics:

Recycling or End-of-Life service information

Take back and recycling services are offered for this product in certain countries. If you want to dispose of system components, visit www.dell.com/recyclingworldwide and select the relevant country.

Contacting Dell Technologies

Dell provides online and telephone based support and service options. If you do not have an active internet connection, you can find Dell contact information on your purchase invoice, packing slip, bill or Dell product catalog. The availability of services varies depending on the country and product, and some services may not be available in your area. To contact Dell for sales, technical assistance, or customer service issues follow these steps:

Steps

1. Go to www.dell.com/support/home.
2. Select your country from the drop-down menu on the lower right corner of the page.
3. For customized support:
   a. Enter the system Service Tag in the **Enter a Service Tag, Serial Number, Service Request, Model, or Keyword** field.
   b. Click **Search**.
   The support page that lists the various support categories is displayed.
4. For general support:
   a. Select your product category.
   b. Select your product segment.
   c. Select your product.
   The support page that lists the various support categories is displayed.
5. For contact details of Dell Global Technical Support:
   a. Click Contact Technical Support.
   b. The **Contact Technical Support** page is displayed with details to call, chat, or e-mail the Dell Global Technical Support team.

Accessing system information by using QRL

You can use the Quick Resource Locator (QRL) located on the Express service tag in the front of the XR7620 system, to access information about PowerEdge XR7620. There is also another QRL for accessing product information located on the back of the system cover.

Prerequisites

Ensure that your smartphone or tablet has a QR code scanner installed.

The QRL includes the following information about your system:

- How-to videos
- Reference materials, including the Installation and Service Manual, and mechanical overview
- The system service tag to quickly access the specific hardware configuration and warranty information
- A direct link to Dell to contact technical assistance and sales teams

Steps

1. Go to www.dell.com/qrl, and navigate to your specific product or
2. Use your smart phone or tablet to scan the model-specific Quick Resource (QR) code on your system or in the Quick Resource Locator section.

Quick Resource Locator for PowerEdge XR7620 system

Figure 196. Quick Resource Locator for PowerEdge XR7620 system

Receiving automated support with Secure Connect Gateway (SCG)

Dell Secure Connect Gateway (SCG) is an optional Dell Services offering that automates technical support for your Dell server, storage, and networking devices. By installing and setting up a Secure Connect Gateway (SCG) application in your IT environment, you can receive the following benefits:

- Automated issue detection — Secure Connect Gateway (SCG) monitors your Dell devices and automatically detects hardware issues, both proactively and predictively.
- Automated case creation — When an issue is detected, Secure Connect Gateway (SCG) automatically opens a support case with Dell Technical Support.

- Automated diagnostic collection — Secure Connect Gateway (SCG) automatically collects system state information from your devices and uploads it securely to Dell. This information is used by Dell Technical Support to troubleshoot the issue.
- Proactive contact — A Dell Technical Support agent contacts you about the support case and helps you resolve the issue.

The available benefits vary depending on the Dell Service entitlement purchased for your device. For more information about Secure Connect Gateway (SCG), go to www.dell.com/secureconnectgateway.

13

Documentation resources

This section provides information about the documentation resources for your system.

To view the document that is listed in the documentation resources table:

- From the Dell support site:
  1. Click the documentation link that is provided in the Location column in the table.
  2. Click the required product or product version.

     NOTE: To locate the model number, see the front of your system.
  3. On the Product Support page, click **Documentation**.
- Using search engines:
  - Type the name and version of the document in the search box.

Table 118. Additional documentation resources for your system

Task	Document	Location
Setting up your system	For more information about installing and securing the system into a rack, see the Rail Installation Guide included with your rail solution. For information about setting up your system, see the *Getting Started Guide* document that is shipped with your system.	www.dell.com/poweredgemanuals
Configuring your system	For information about the iDRAC features, configuring and logging in to iDRAC, and managing your system remotely, see the Integrated Dell Remote Access Controller User's Guide. For information about understanding Remote Access Controller Admin (RACADM) subcommands and supported RACADM interfaces, see the RACADM CLI Guide for iDRAC. For information about Redfish and its protocol, supported schema, and Redfish Eventing implemented in iDRAC, see the Redfish API Guide. For information about iDRAC property database group and object descriptions, see the Attribute Registry Guide. For information about Intel QuickAssist Technology, see the Integrated Dell Remote Access Controller User's Guide.	www.dell.com/poweredgemanuals
	For information about earlier versions of, the iDRAC documents. To identify the version of iDRAC available on your system, on the iDRAC web interface, click **?** > **About**.	www.dell.com/idracmanuals

Table 118. Additional documentation resources for your system (continued)

Task	Document	Location
	For information about installing the operating system, see the operating system documentation.	www.dell.com/operatingsystemmanuals
	For information about updating drivers and firmware, see the Methods to download firmware and drivers section in this document.	www.dell.com/support/drivers
Managing your system	For information about systems management software offered by Dell, see the Dell OpenManage Systems Management Overview Guide.	www.dell.com/poweredgemanuals
	For information about setting up, using, and troubleshooting OpenManage, see the Dell OpenManage Server Administrator User's Guide.	www.dell.com/openmanagemanuals > OpenManage Server Administrator
	For information about installing and using Dell Secure Connect Gateway, see the Dell Secure Connect Gateway Enterprise User's Guide.	https://www.dell.com/serviceabilitytools
	For information about partner programs enterprise systems management, see the OpenManage Connections Enterprise Systems Management documents.	www.dell.com/openmanagemanuals
Working with the Dell PowerEdge RAID controllers (if applicable)	For information about understanding the features of the Dell PowerEdge RAID controllers (PERC), Software RAID controllers, or BOSS card and deploying the cards, see the Storage controller documentation.	www.dell.com/storagecontrollermanuals
Understanding event and error messages	For information about the event and error messages generated by the system firmware and agents that monitor system components, go to qrl.dell.com > **Look Up** > **Error Code**, type the error code, and then click **Look it up**.	www.dell.com/qrl
Troubleshooting your system	For information about identifying and troubleshooting the PowerEdge server issues, see the Server Troubleshooting Guide.	www.dell.com/poweredgemanuals