Dell EMC PowerEdge MX750c

Installation and Service Manual

D&LL Technologies

Notes, cautions, and warnings

(i) **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

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.

Dell EMC PowerEdge MX750c system overview

The system is a 2S single width compute sled that supports:
- Up to two 3rd Generation Intel Xeon Scalable processors.
- Up to 32 DIMM slots.
- Up to six 2.5-inch SAS, SATA (HDD or SSD), or NVMe drives.

ⓘ **NOTE:** All instances of SAS, SATA drives are mentioned as drives in this document, unless specified otherwise.

ⓘ **NOTE:** For more information, see the Dell EMC PowerEdge MX750c Technical Specifications on the product documentation page.

ⓘ **NOTE:** The Dell EMC PowerEdge MX750c is compatible with the Dell EMC PowerEdge MX7000 enclosure running OME-Modular 1.30 or higher. For more information about the enclosure, see the Installation and Service Manual for the PowerEdge MX7000 at www.dell.com/poweredgemanuals.

Topics:

- Front view of the system
- Inside the system
- Locating the Express Service Code and Service Tag
- System information label

Front view of the system
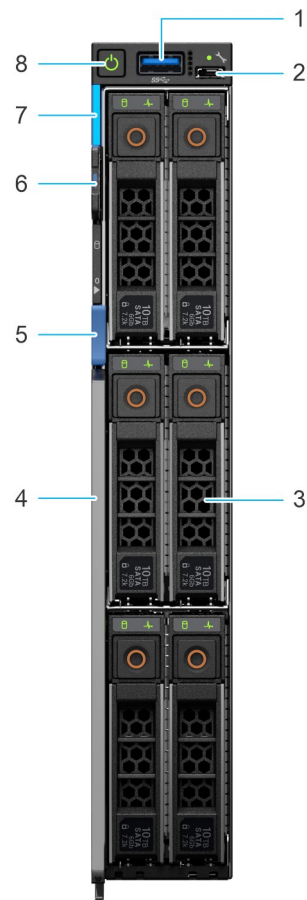
Figure 1. Front view of the 6 drive configuration

1. USB 3.0 port
2. iDRAC direct port
3. Drives
4. Release handle
5. Release handle button
6. Information tag
7. System health and System ID indicator
8. Power button

ⓘ **NOTE:** For more information, see the Dell EMC PowerEdge MX750c Technical Specifications on the product documentation page.
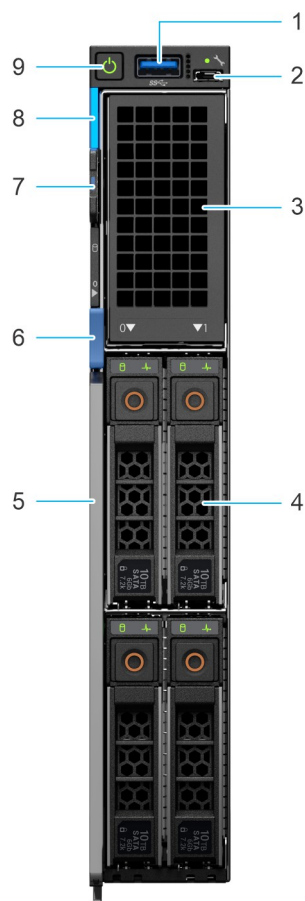
Figure 2. Front view of the 4 drive configuration

1. USB 3.0 port
2. iDRAC direct port
3. Drive blank
4. Drives
5. Release handle
6. Release handle button
7. Information tag
8. System health and System ID indicator
9. Power button

Inside the system

ⓘ **NOTE:** Components that are hot swappable have orange touch points and the components that are not hot swappable have blue touch points.
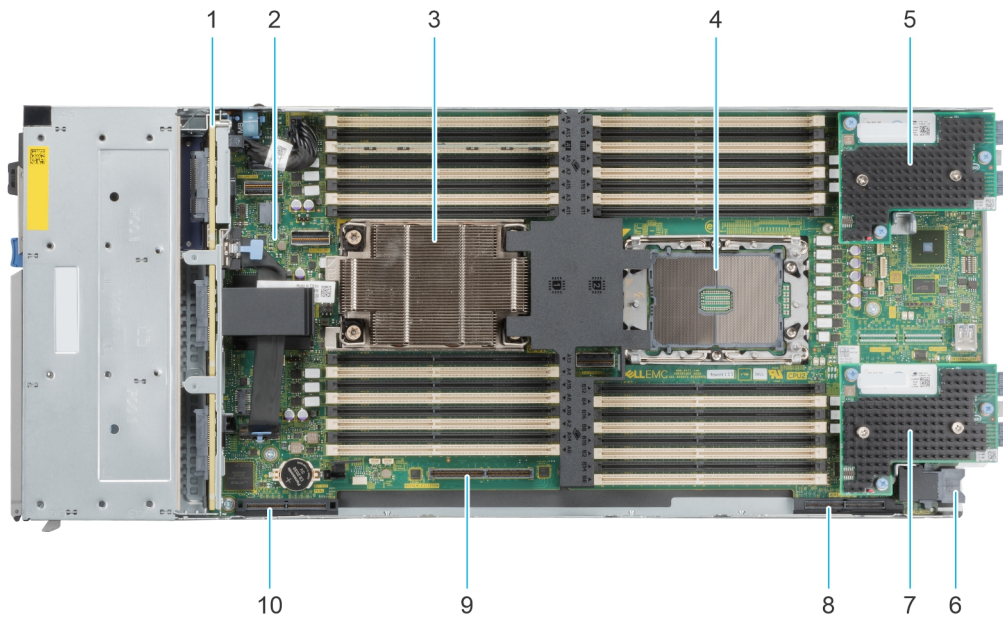
Figure 3. Inside the system

1. Backplane
2. System board
3. Processor and heat sink module 1
4. Processor and heat sink module 2 (blank)
5. Mezzanine card A
6. Power connector
7. Mezzanine card B
8. Mini Mezzanine connector C (HBA330 MMZ) / Jumbo PERC connector (H745P MX)
9. BOSS (M.2) / IDSDM connector
10. PERC connector (H755 MX, HBA350i MX)

Locating the Express Service Code and Service Tag

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

of the system that
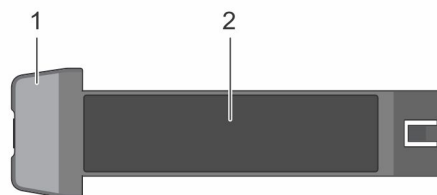
Figure 4. Locating Service Tag of your system

1. Information tag
2. Service tag

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

Alternatively, the Service Tag information is located on a label on the left wall of the chassis.

System information label

Service Information

System Touchpoints

■ Hot swap touchpoints: Components with terracotta touchpoints can be serviced while the system is running.

■ Cold swap touchpoints: Components with blue touchpoints require a full system shutdown before servicing.

Mechanical Overview

Front View

Power   USB

System ID   iDRAC Direct
Status Light Bar   (Micro-AB USB)

EST

Lever Button

Hard Drives

0 1

2 3

4 5

0 1

2 3

2.5" x 6
Hot Swap HDD

2.5" x 4
Hot Swap HDD

Rear View

MEZZ
Connector
A

MEZZ
Connector
B

Power
Connector

Jumbo PERC /
MINI MEZZ Connector C

Figure 5. Mechanical overview

Memory Information

⚠️ Caution: Memory (DIMMs) and CPUs may be hot during servicing.

Memory Population

Configuration	Sequence
Memory-Optimized	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

Latest population rules are documented in the Installation and Service Manual.
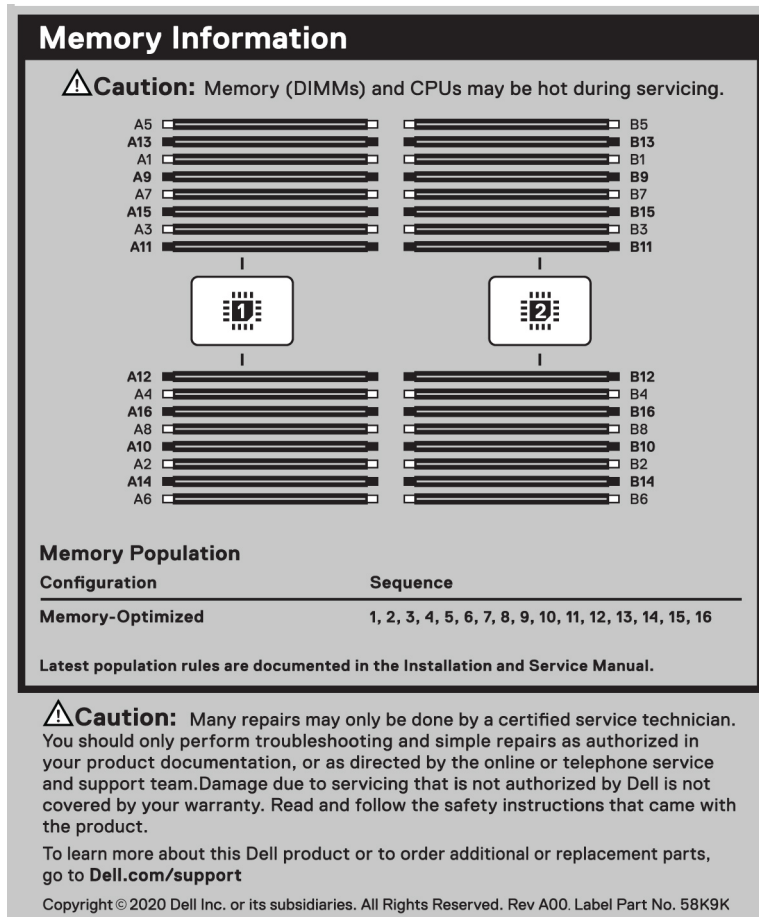
Figure 6. Memory overview

Electrical Overview

System Board Connections

1. Front I/O Connector
2. Backplane Power (SIG_PWR_0)
3. DIMMs For CPU 1 Channels A,B,C,D
4. CPU 1
5. DIMMs For CPU 2 Channels A,B,C,D
6. CPU 2
7. MEZZ Connector A (MEZZ_A1)
8. Internal USB (INT_USB1_3.0)
9. MEZZ Connector B (MEZZ_B1)
10. Power Connector
11. Jumbo PERC / MINI MEZZ Connector C (MINI_MEZZ_C1)
12. DIMMs For CPU 2 Channels E,F,G,H
13. PCIe Connector 3 (SL3_CPU2_PA2)
14. BOSS (M.2) / IDSDM
15. DIMMs For CPU 1 Channels E,F,G,H
16. PERC Connector
17. Coin Cell Battery
18. SATA Connector (SL6_PCH_SA1)
19. TPM Connector
20. Jumper
21. PCH
22. PCIe Connector 2 (SL2_CPU1_PB1)
23. PCIe Connector 1 (SL1_CPU1_PA1)

Front | **Rear**

Figure 7. System board

Jumper Settings

Jumper	Setting	Description
PWRD_EN	(default)	BIOS password is enabled.
		BIOS password is disabled. iDRAC local access is unlocked at next BMC reboot. iDRAC password reset is enabled in F2 iDRAC settings menu.
NVRAM_CLR	(default)	BIOS configuration settings retained at system boot.
		BIOS configuration settings cleared at system boot.

Figure 8. Jumper settings

Scan to see hardware servicing
and software setup videos,
how-to's, and documentation.

Quick Resource Locator
Dell.com/QRL/Server/PEMX750c

Icon Legend

	CPU	EST	Express Service Tag
	Memory Bank		iDRAC Direct (Micro-AB USB)

Figure 9. Quick Resource Locator

Figure 10. System tasks

Initial system setup and configuration

This section describes the tasks for initial setup and configuration of the Dell EMC 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. Remove the I/O connector cover from the system connectors.

   ⚠️ **CAUTION: While installing the system, ensure that it is properly aligned with the slot on the enclosure to prevent damage to the system connectors.**

3. Install the system in the enclosure.
4. Power on the enclosure.

   ⓘ **NOTE:** Wait for the enclosure to initialize before powering on the enclosure.

5. Power on the sled.

   Alternatively, you can also power on the system by using iDRAC by any of the below :

   * For more information about powering on the system using iDRAC, see the Options to log in to iDRAC.

   * Open OpenManage Enterprise-Modular (OME-M 1.3 or later versions), after the iDRAC is configured on the OME. For more information, see the *OME-Modular User's Guide* at https://www.dell.com/poweredgemanuals.

   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 *Dell EMC PowerEdge MX750c BIOS and UEFI Reference Guide* on the product documentation page.

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 EMC 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 1. 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**. ⓘ **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/sln308699.
OpenManage Deployment Toolkit	*Dell EMC 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/sln308699.
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/sln308699.
OME Modular	*Dell EMC OpenManagement Enterprise Modular User's Guide* at https://www.dell.com/openmanagemanuals > **Dell OpenManage Enterprise** > **Dell OpenManage Enterprise-Modular** > **Documentation**

ⓘ **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 USB cable. You can also access iDRAC through the shared mode on the Mezz cards in Fabric A.

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, enter the iDRAC secure default password available on back of the Information Tag. If you have not opted for secure default access to iDRAC, enter the default user name and password – `root` and `calvin`. 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* at www.dell.com/idracmanuals.

(i) **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/sln308699.

(i) **NOTE:** The Intel Quick Assist Technology (QAT) on the Dell EMC PowerEdge MX750c system is supported with chipset integration and is enabled through an optional license. The license files are enabled on the sleds through iDRAC.

For more information about drivers, documentation, and white papers on the Intel QAT, see https://01.org/intel-quickassist-technology.

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 2. Resources to install the operating system

Resource	Documentation links
iDRAC	*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**. (i) **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/sln308699.
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**. Dell recommends using Lifecycle Controller to install the OS, since all required drivers are installed on the system. (i) **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/sln308699.
OpenManage Deployment Toolkit	www.dell.com/openmanagemanuals > OpenManage Deployment Toolkit
Dell certified VMware ESXi	www.dell.com/virtualizationsolutions

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

Options to download 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 3. Options to download firmware

Option	Documentation link
Using Integrated Dell Remote Access Controller Lifecycle Controller (iDRAC with LC)	www.dell.com/idracmanuals

Table 3. Options to download firmware (continued)

Option	Documentation link
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 4. Options to download and install OS drivers

Option	Documentation
Dell EMC support site	Downloading drivers and firmware section.
iDRAC virtual media	*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** . (i) **NOTE:** To determine the most recent iDRAC release for your platform and for latest documentation version, see https://www.dell.com/support/article/sln308699.

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 EMC Product ID or Model** field, and then press Enter.

   (i) **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.

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 EMC system.

Topics:

- Minimum configuration to POST
- Configuration validation

Minimum configuration to POST

The components listed below are the minimum configuration to POST:

- System board
- One processor in socket processor 1
- One memory module (DIMM) installed in the socket A1

Configuration validation

The new generation of PowerEdge 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, backplanes, floating card (adapter PERC like BOSS), and processor is obtained from the CPLD and backplane memory maps is analyzed. This information forms a unique configuration, which is compared with one of the qualified configurations stored in a table 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 5. 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, 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: adapter PERC/HBA
		Missing element or cable is reported in HWC8010 error logs. Install the missing element (cable, etc).	Config Missing : SL cable PLANAR_SL8 and CTRL_DST_PA1

Table 5. Configuration validation error (continued)

Error	Description	Possible cause and recommendations	Example
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 displayed on the screen during POST or captured in the system event log (SEL)/ LifeCycle (LC) log.

Table 6. Error message HWC8010

Error code	HWC8010
Message	The System Configuration Check operation resulted in the following issue involving the indicated component type
Arguments	Riser, floating card (adapter PERClike BOSS), backplane, processor, cable, or other components
Detailed Description	The issue 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 7. Error message HWC8011

Error code	HWC8011
Message	The System Configuration Check operation resulted in multiple issues involving the indicated component type
Arguments	Riser, floating card (adapter PERClike 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

Installing and removing system components

Topics:

Safety instructions

⚠ **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.

(i) **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.

⚠ **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.**

Before working inside your system

Prerequisites

Follow the safety guidelines listed in the Safety instructions.

Steps

1. Power off the sled.
2. Remove the sled from the enclosure.
3. If applicable install the I/O connector cover.

   ⚠ **CAUTION: To prevent damage to the I/O connectors on the system, ensure that you cover the connectors when you remove the system from the enclosure.**

4. Remove the system cover.

After working inside your system

Prerequisites

Follow the safety guidelines listed in Safety instructions.

Steps

1. If applicable, remove the I/O connector cover from the system connectors. Install the sled into the enclosure.
2. Reconnect the peripherals and connect the system to the electrical outlet, and then power on the system.

Recommended tools

You need the following tools to perform the removal and installation procedures:
● Phillips 1 screwdriver
● Phillips 2 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

PowerEdge MX750c sled

The PowerEdge MX750c sled is a server unit that is installed into the PowerEdge MX7000 enclosure.

Removing the sled from enclosure

Prerequisites

1. Follow the safety guidelines listed in Safety Instructions.
2. Power off the sled.

Steps

1. Press the blue release button on the sled to release the sled handle.
2. Holding the sled handle, slide the sled out of the enclosure.

   (i) **NOTE:** Support the system with both hands while sliding it out of the enclosure.

   (i) **NOTE:** Removing the sled with the enclosure powered on is supported if you shut down the sled before removal.

Figure 11. Removing the sled from enclosure

3. Install the I/O connector cover on the sled.

   ⚠ **CAUTION: To protect the I/O connector pins, install the I/O connector cover every time a sled is removed from the enclosure.**

Figure 12. Installing the I/O connector cover on sled

(i) **NOTE:** The color of the I/O connector cover may differ.

⚠ **CAUTION: If you are permanently removing the sled, install a sled blank promptly. Operating the enclosure without a blank, for an extended time can result in overheating or performance loss.**

Next steps

1. Install the sled.

Installing the sled into enclosure

Prerequisites

1. Follow the safety guidelines listed in Safety instructions.

   ⚠ **CAUTION: To prevent damage to the I/O connectors, do not touch the connectors or the connector pins.**

Steps

1. Remove the I/O connector cover from the I/O connector(s) and store for future use.

   ⚠ **CAUTION: To protect the I/O connector pins, install the I/O connector cover every time a sled is removed from the enclosure.**

Figure 13. Removing the I/O connector cover from sled

(i) **NOTE:** The color of the I/O connector cover may differ.

2. Press the blue release button on the sled to release the sled handle.
3. Holding the sled with both hands, align the sled with the compute sled-bay in the enclosure.
4. Slide the sled into the enclosure, until the sled handle is in the lock position.
5. Push the sled handle inwards so that it locks into place to secure the sled in the enclosure.

Figure 14. Installing the sled into enclosure

Next steps

1. Power on the sled.

Sled cover

Removing the sled cover

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Power off the sled.
3. Remove the sled from the enclosure.
4. Place the sled on the flat surface with the top cover facing upwards.

Steps

1. Press the blue release tab and slide the cover towards the rear of the system.
2. Lift the cover away from the system.
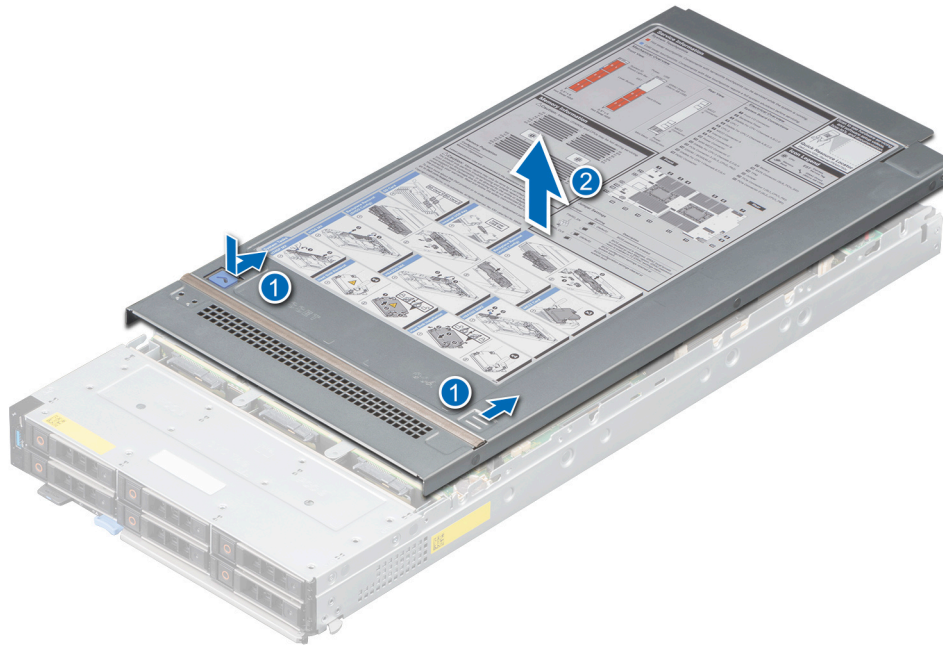
Figure 15. Removing the sled cover

Next steps

1. Replace the sled cover.

Installing the sled cover

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. 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.
2. Slide the cover towards the front of the system until it locks in to place.

Figure 16. Installing the sled cover

Next steps

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

Air shroud

Removing the air shroud

Prerequisites

⚠️ **CAUTION: 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

Holding the air shroud at both ends, lift the air shroud out of the system.
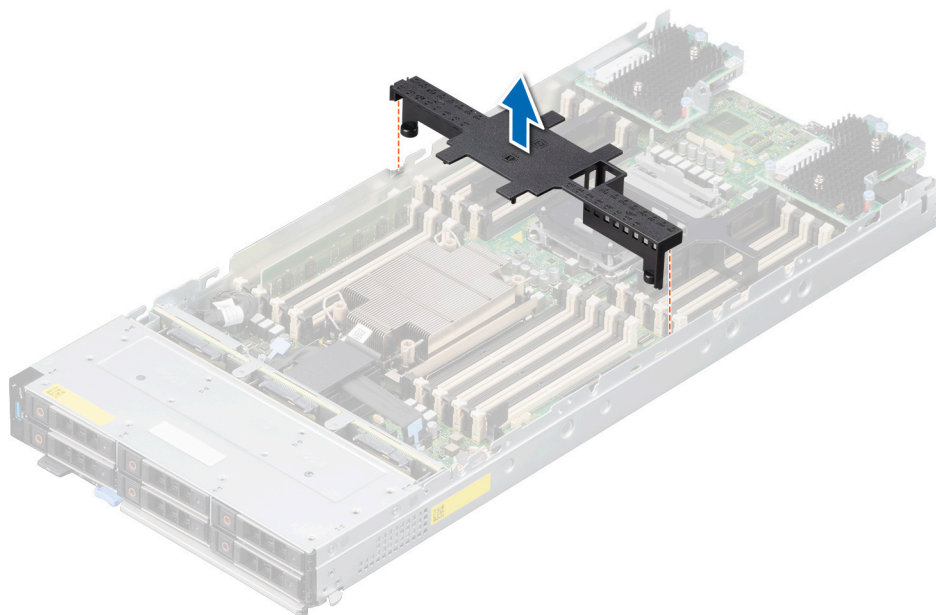
Figure 17. Removing the air shroud

Next steps

1. Replace the air shroud.

Installing the 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 slot on the air shroud with the tabs on the chassis wall.

2. Lower the air shroud into the system until it is firmly seated.
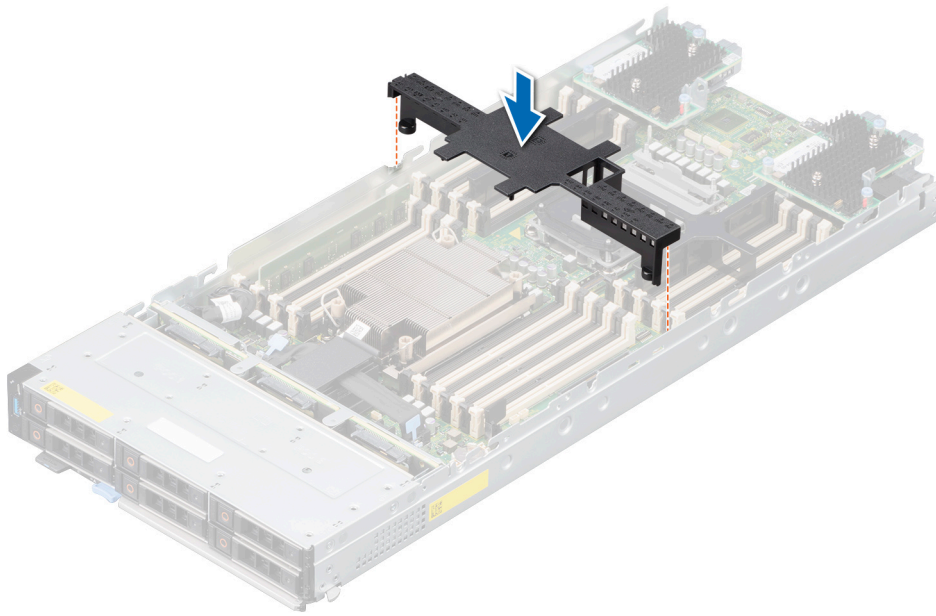
Figure 18. Installing the air shroud

Next steps

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

Processor and memory module blank

Removing the processor and memory module blank

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 release the processor and memory module blank from the socket, simultaneously press the ejectors on both ends of the memory module socket to fully open.
2. Lift the processor and memory module blank away from the system.

   ⓘ **NOTE:** The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.
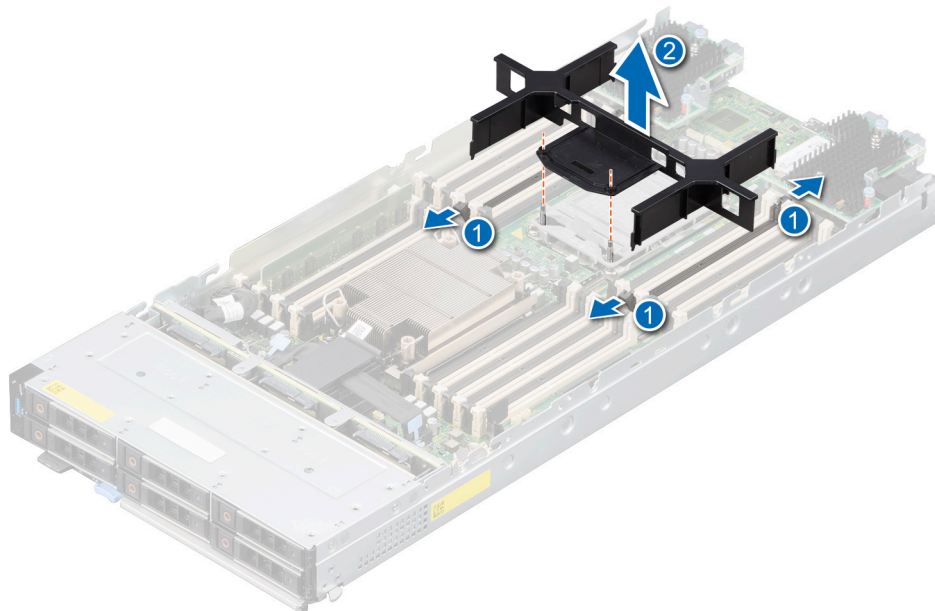
Figure 19. Removing the processor and memory module blank

Next steps

1. Replace the processor and memory module blank.

Installing the processor and memory module blank

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 processor and memory module blank, first align the two guide pin in bolster with the hole of the blank.
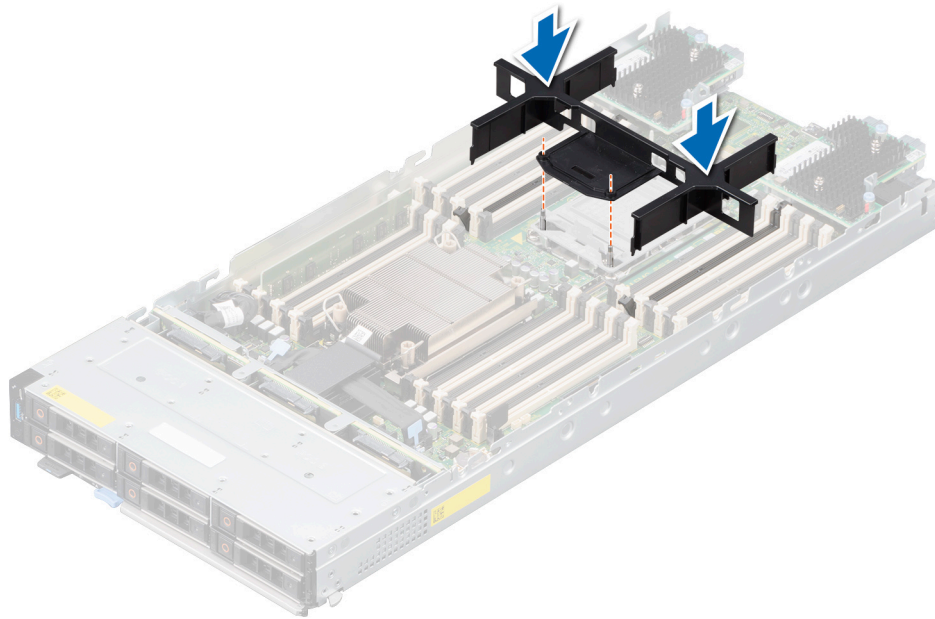
Figure 20. Installing the processor and memory module blank

2. Align the edges of the processor and memory module blank with the alignment key of the memory module socket, and insert the blank in the socket.
3. Press the blank with your thumbs until the ejectors firmly click into place.

Next steps

1. 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.

⚠ **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.
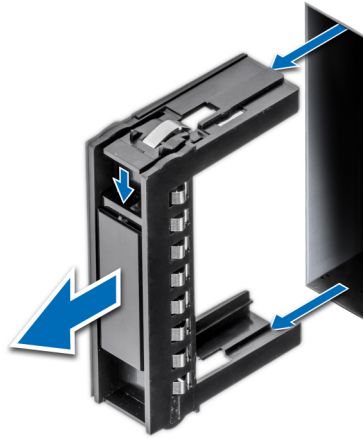
Figure 21. Removing drive blank

Next steps

1. Install a drive or replace the drive blank.

Installing a drive blank

Prerequisites

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

Steps

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

Figure 22. Installing drive blank

Removing the drive carrier

Prerequisites

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

⚠ **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 installation.**

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

⚠ **CAUTION: To maintain proper system cooling, all empty drive bays must have drive blanks installed.**

Steps

1. Press the release button to open the drive carrier release handle.
2. Holding the handle, slide the drive carrier out of the drive slot.
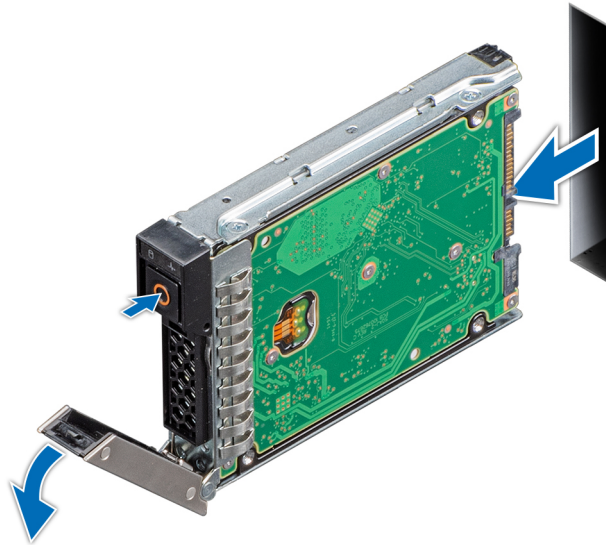
Figure 23. Removing drive carrier

Next steps

1. Install a drive carrier or drive blank.

Installing the drive carrier

Prerequisites

⚠ **CAUTION: Before removing or installing 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: 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.**

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

ⓘ **NOTE:** 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.

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

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

Steps

1. Slide the drive carrier into the drive slot.
2. Close the drive carrier release handle to lock the drive in place.
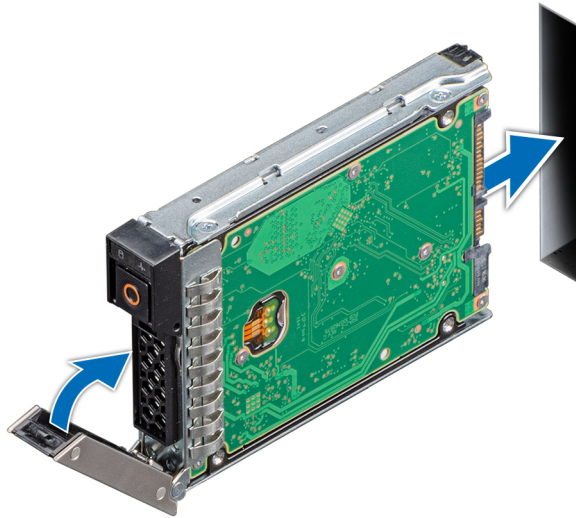
Figure 24. Installing drive carrier

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

   (i) **NOTE:** If the hard drive or SSD carrier has Torx screw, use Torx 6 (for 2.5-inch drive) or Torx 8 (for 3.5-inch drive) screwdriver to remove the drive. ✪

2. Lift the drive out of the drive carrier.
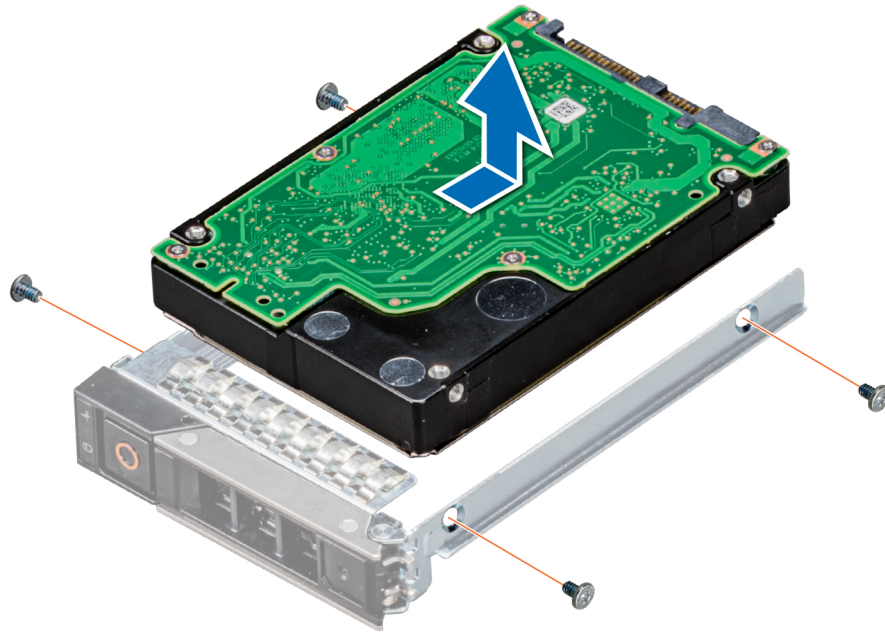
Figure 25. Removing a drive from drive carrier

Next steps

Replace the drive into the drive carrier.
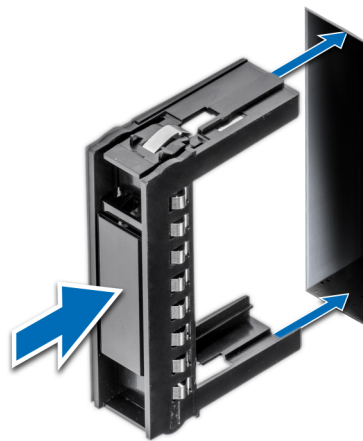
Installing the drive into the drive carrier

Prerequisites

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

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

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 screw holes on the drive carrier.
3. Using the Phillips #1 screwdriver, secure the drive to the drive carrier with the screws.

   ⓘ **NOTE:** If the hard drive or SSD carrier has Torx screw, use Torx 6 (for 2.5-inch drive) screwdriver to install the drive.✿
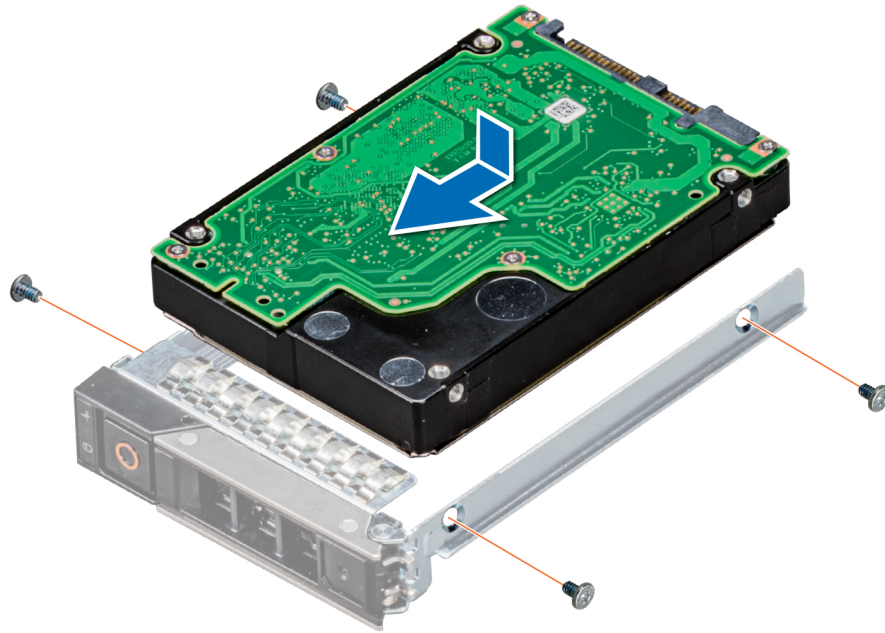
Figure 26. Installing a drive into drive carrier

Next steps

1. Install the drive carrier.

Drive backplane

This is a service technician replaceable part only.

Drive backplane details

Depending on the configuration, your system supports:
- 2.5-inch (x6) Universal backplane
- 2.5-inch (x6) SAS/SATA backplane
- 2.5-inch (x4) Universal backplane
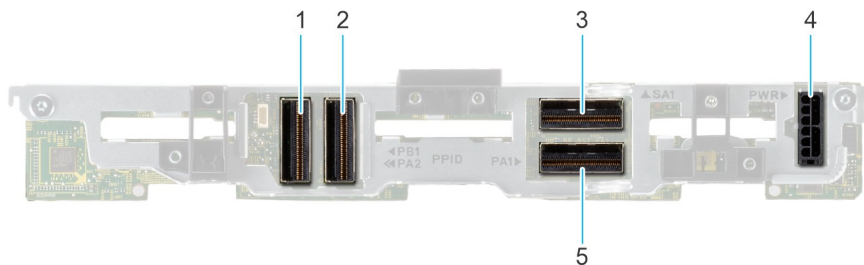
Figure 27. 6 x 2.5-inch universal backplane

1. BP_DST_PA2 (PCIe cable connector)
2. BP_DST_PB1 (PCIe cable connector)
3. BP_DST_SA1 (SAS/SATA cable connector)
4. BP_PWR_1 (Power cable connector)

5. BP_DST_PA1 (PCIe cable connector)

Figure 28. 6 x 2.5-inch SAS/SATA backplane

1. BP_DST_SA1 (SAS/SATA cable connector)
2. BP_PWR_1 (Power cable connector)
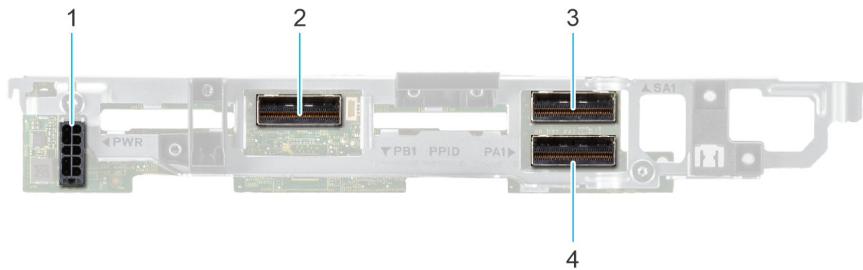
Figure 29. 4 x 2.5-inch universal backplane

1. BP_PWR_1 (Power cable connector)
2. BP_DST_PB1 (PCIe cable connector)
3. BP_DST_SA1 (SAS/SATA cable connector)
4. BP_DST_PA1 (PCIe cable connector)

Removing 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.**

ⓘ **NOTE:** The procedure to remove the backplane is similar for all backplane configurations.

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

Steps

1. Holding the drive backplane by the edges, lift it upwards to disengage the backplane from the guide pins.
2. Lift the backplane out of the sled.
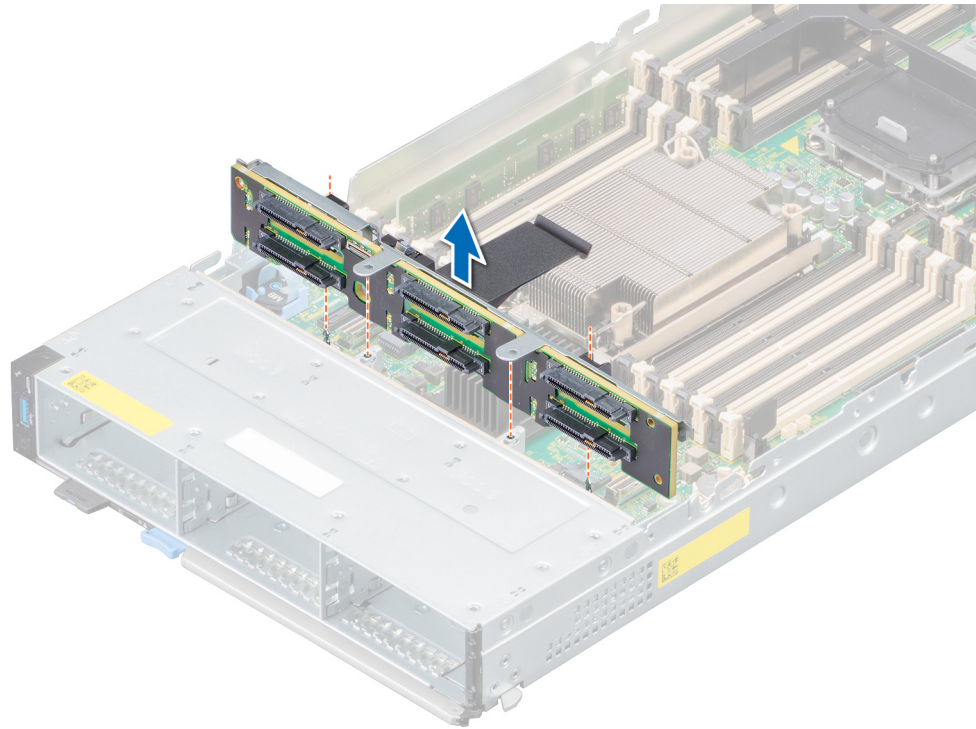
Figure 30. Removing drive backplane

Next steps

1. Replace the drive backplane.

Installing drive backplane

Prerequisites

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

Steps

1. Verify backplane connector pins are not bent and then connect the signal cable to the backplane.
2. Align the guide pins on the backplane with the guides on the sled.
3. Insert the backplane into the guides and lower the backplane firmly until it is fully seated.

   (i) **NOTE:** To install the backplane, ensure the two pins on the backplane tab seat into the two slots on the system chassis.
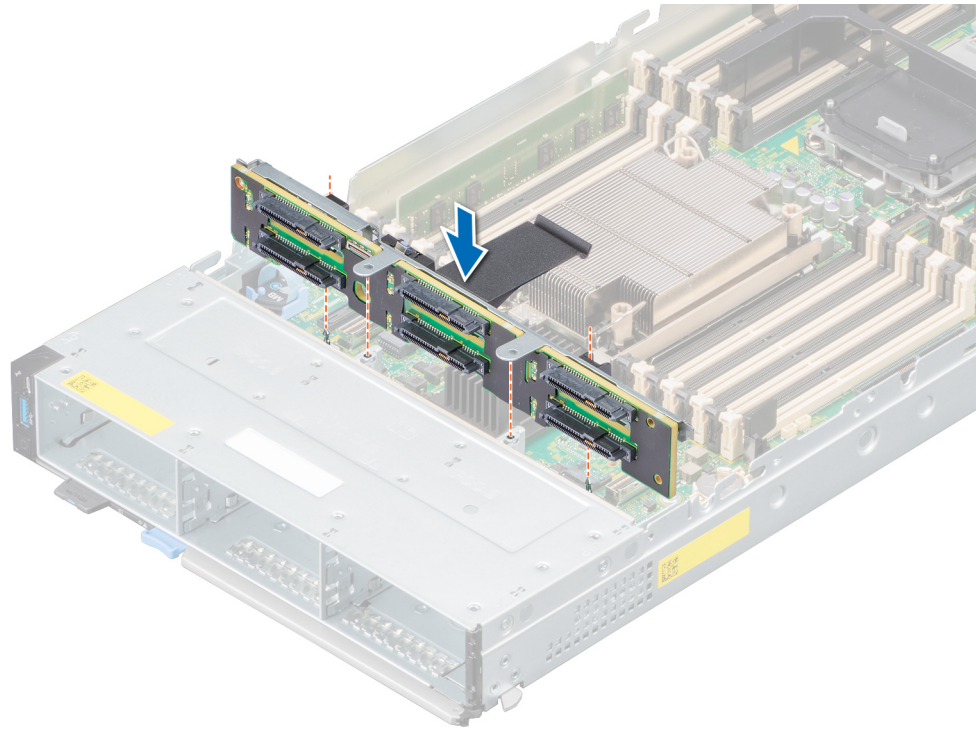
Figure 31. Installing drive backplane

Next steps

1. Connect the incoming power cable to the backplane and then verify both power and signal cable connections are fully seated to the backplane and system board.
2. Connect the integrated cable to the backplane and system board if there is no PERC card installed in the system.
3. Install all the drives.
4. Follow the procedure listed in After working inside the system.

Cable routing

Figure 32. SATA/PCIe cabling diagram of configuration 3 - 6 x 2.5-inch Universal backplane with on board SATA + on board PCIe

Table 8. Connector descriptions for on board SATA + on board PCIe

From	To
BP_PWR_1 (backplane power connector)	SIG_PWR_0 (system board power connector)
BP_DST_PA1 (backplane PCIe 1 connector, cable marking BP PA1)	SL1_CPU1_PA1 (signal connector on the system board, cable marking MB SL1)
BP_DST_SA1 (backplane SATA connector, cable marking BP SA1)	SL6_PCH_SA1 (signal connector on the system board, cable marking MB SL6)
BP_DST_PB1 (backplane PCIe 2 connector, cable marking BP PB1)	SL2_CPU1_PB1 (signal connector on the system board, cable marking MB SL2)
BP_DST_PA2 (backplane PCIe 3 connector, cable marking BP PA2)	SL3_CPU2_PA2 (signal connector on the system board, cable marking MB SL3)

Figure 33. PCIe cabling diagram of configuration 4 - 6 x 2.5-inch Universal backplane with H755 MX

Table 9. Connector descriptions for PCIe with H755 MX

From	To
BP_PWR_1 (backplane power connector)	SIG_PWR_0 (system board power connector)
BP_DST_PA1 (backplane PCIe 1 connector, cable marking BP PA1)	CTRL_SRC_PA1 (PCIe connector of H755 MX controller card, cable marking CTRL_PA1)
BP_DST_PB1 (backplane PCIe 2 connector, cable marking BP PB1)	CTRL_SRC_PA1 (PCIe connector of H755 MX controller card, cable marking CTRL_PA1)
BP_DST_PA2 (backplane PCIe 3 connector, cable marking BP PA2)	CTRL_SRC_PA2 (PCIe connector of H755 MX controller card, cable marking CTRL_PA2)
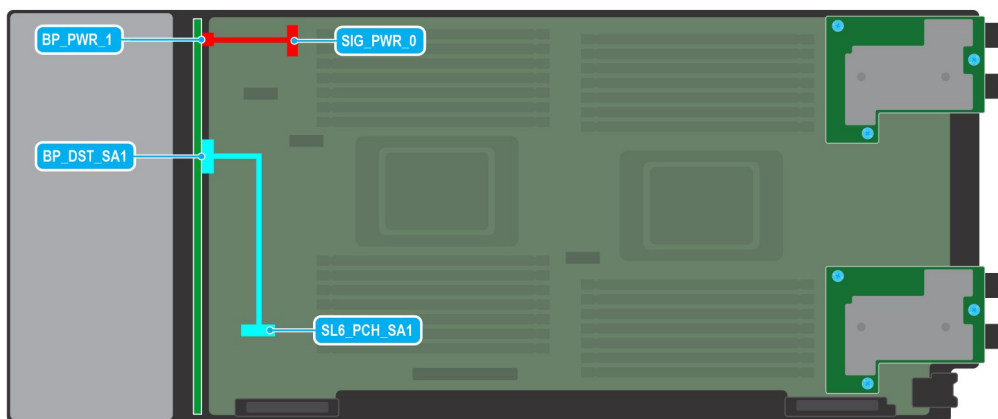
Figure 34. SATA cabling diagram of configuration 5 - 6 x 2.5-inch SAS/SATA backplane with on board SATA

Table 10. Connector descriptions for on board SATA

From	To
BP_PWR_1 (backplane power connector)	SIG_PWR_0 (system board power connector)
BP_DST_SA1 (backplane SATA connector, cable marking BP SA1)	SL6_PCH_SA1 (signal connector on the system board, cable marking MB SL6)

Figure 35. SAS cabling diagram of configuration 6 - 6 x 2.5-inch SAS/SATA backplane with HBA350i MX

Table 11. Connector descriptions for SAS with HBA350i MX

From	To
BP_PWR_1 (backplane power connector)	SIG_PWR_0 (system board power connector)
BP_DST_SA1 (backplane SAS connector, cable marking BP SA1)	CTRL_SRC_SA1 (SAS connector of HBA350i MX controller card, cable marking CTRL_SA1)

Figure 36. SAS cabling diagram of configuration 6 - 6 x 2.5-inch SAS/SATA backplane with H755 MX

Table 12. Connector descriptions for SAS with H755 MX

From	To
BP_PWR_1 (backplane power connector)	SIG_PWR_0 (system board power connector)
BP_DST_SA1 (backplane SAS connector, cable marking BP SA1)	CTRL_SRC_SA1 (SAS connector of H755 MX controller card, cable marking CTRL_SA1)

Figure 37. SAS cabling diagram of configuration 7 - 6 x 2.5-inch SAS/SATA backplane with H745P MX (Jumbo PERC)

Table 13. Connector descriptions for SAS with H745P MX

From	To
BP_PWR_1 (backplane power connector)	SIG_PWR_0 (system board power connector)
BP_DST_SA1 (backplane SAS connector, cable marking BP SA1)	CTRL_SRC_SA1 (SAS connector of H745P MX controller card, cable marking CTRL_SA1)

Figure 38. SAS/PCIe cabling diagram of configuration 9 - 4 x 2.5-inch Universal backplane with HBA350i MX + on board PCIe

Table 14. Connector descriptions for SAS with HBA350i MX+ on board PCIe

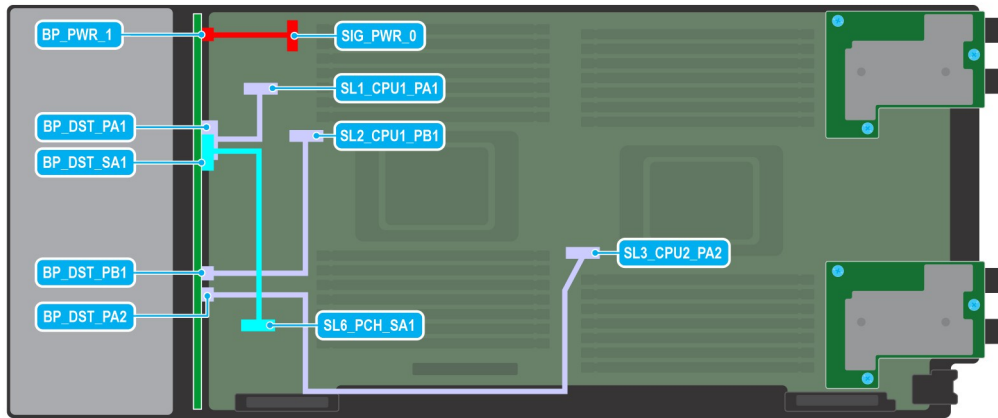| From	To
BP_PWR_1 (backplane power connector)	SIG_PWR_0 (system board power connector)
BP_DST_PA1 (backplane PCIe 1 connector, cable marking BP_PA1)	SL1_CPU1_PA1 (signal connector on the system board, cable marking MB SL1)
BP_DST_SA1 (backplane SAS connector, cable marking BP SA1)	CTRL_SRC_SA1 (SAS connector of HBA350i MX controller card, cable marking CTRL_SA1)
BP_DST_PB1 (backplane PCIe 2 connector, cable marking BP PB1)	SL2_CPU1_PB1 (signal connector on the system board, cable marking MB SL2)

Figure 39. SAS/PCIe cabling diagram of configuration 9 - 4 x 2.5-inch Universal backplane with H755 MX + on board PCIe

Table 15. Connector descriptions for SAS with H755 MX+ on board PCIe

From	To
BP_PWR_1 (backplane power connector)	SIG_PWR_0 (system board power connector)
BP_DST_PA1 (backplane PCIe 1 connector, cable marking BP_PA1)	SL1_CPU1_PA1 (signal connector on the system board, cable marking MB SL1)
BP_DST_SA1 (backplane SAS connector, cable marking BP SA1)	CTRL_SRC_SA1 (SAS connector of H755 MX controller card, cable marking CTRL_SA1)
BP_DST_PB1 (backplane PCIe 2 connector, cable marking BP PB1)	SL2_CPU1_PB1 (signal connector on the system board, cable marking MB SL2)

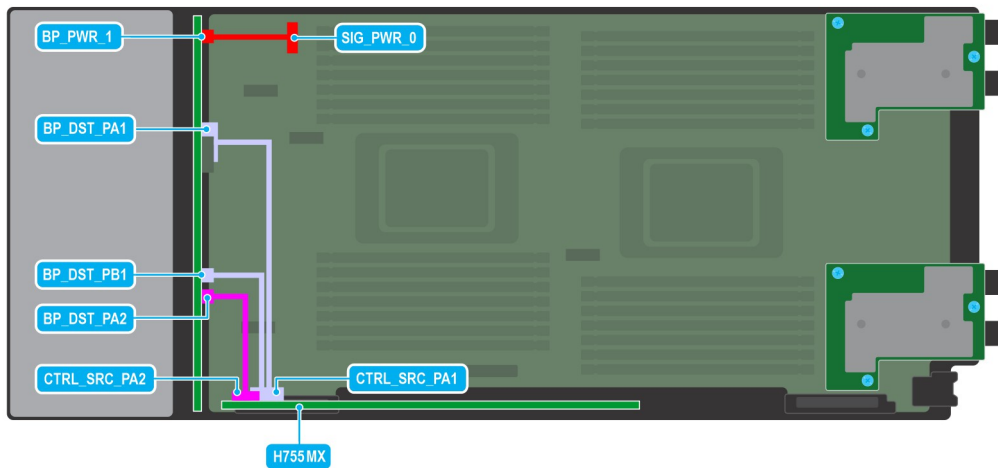**Figure 40. SAS/PCIe cabling diagram of configuration 10 - 4 x 2.5-inch Universal backplane with H745P MX (Jumbo PERC) + on board PCIe**

Table 16. Connector descriptions for SAS with H745P MX + on board PCIe

From	To
BP_PWR_1 (backplane power connector)	SIG_PWR_0 (system board power connector)
BP_DST_PA1 (backplane PCIe 1 connector, cable marking BP PA1)	SL1_CPU1_PA1 (signal connector on the system board, cable marking MB SL1)
BP_DST_SA1 (backplane SAS connector, cable marking BP SA1)	CTRL_SRC_SA1 (SAS connector of H745P MX controller card, cable marking CTRL_SA1)
BP_DST_PB1 (backplane PCIe 2 connector, cable marking BP PB1)	SL2_CPU1_PB1 (signal connector on the system board, cable marking MB SL2)

Figure 41. SATA/PCIe cabling diagram of configuration 11 - 4 x 2.5-inch Universal backplane with on board SATA + on board PCIe

Table 17. Connector descriptions for on board SATA + on board PCIe

From	To
BP_PWR_1 (backplane power connector)	SIG_PWR_0 (system board power connector)
BP_DST_PA1 (backplane PCIe 1 connector, cable marking BP PA1)	SL1_CPU1_PA1 (signal connector on the system board, cable marking MB SL1)
BP_DST_SA1 (backplane SAS connector, cable marking BP SA1)	SL6_PCH_SA1 (signal connector on the system board, cable marking MB SL6)
BP_DST_PB1 (backplane PCIe 2 connector, cable marking BP PB1)	SL2_CPU1_PB1 (signal connector on the system board, cable marking MB SL2)

Figure 42. PCIe cabling diagram of configuration 12 - 4 x 2.5-inch Universal backplane with H755 MX

Table 18. Connector descriptions for PCIe with H755 MX

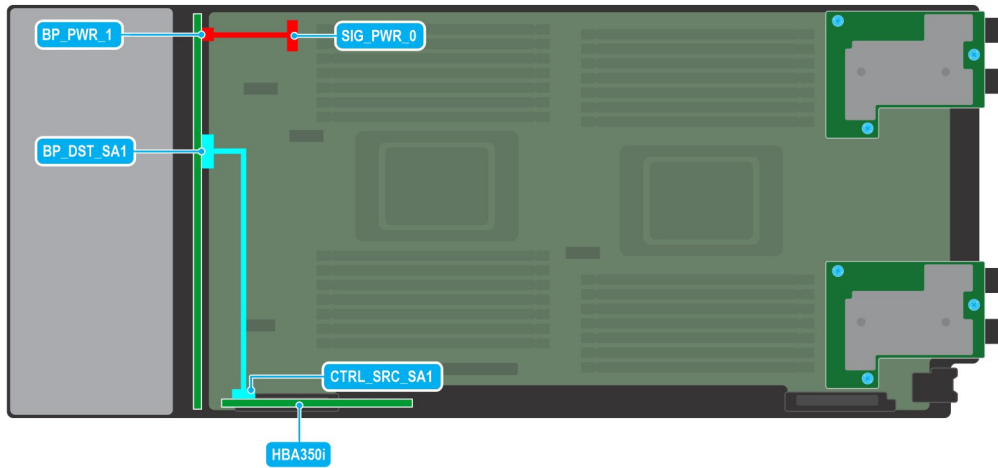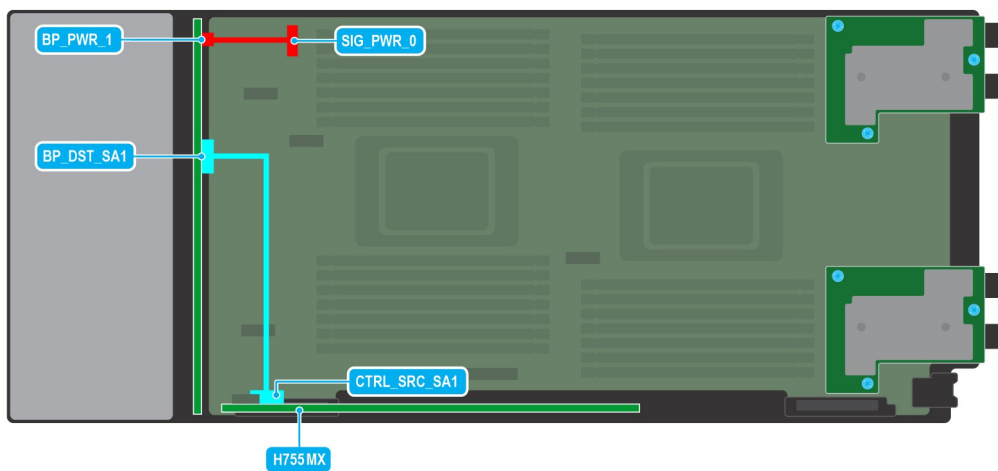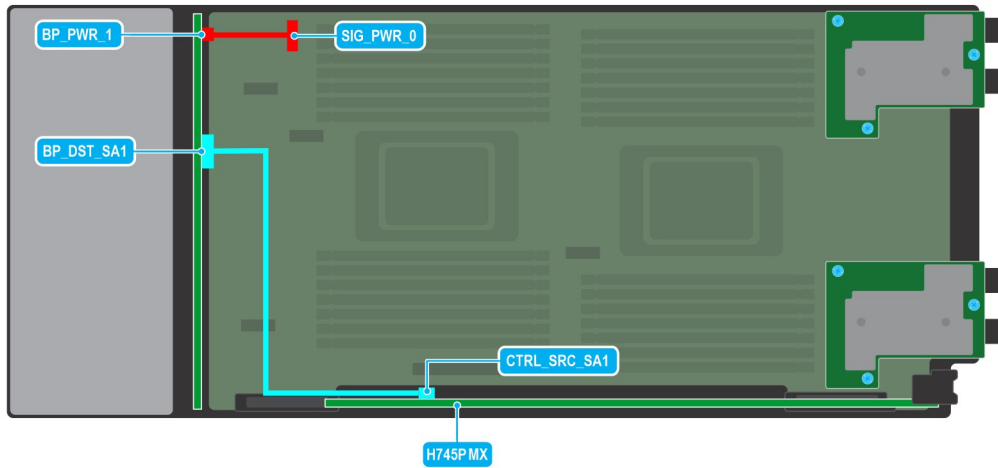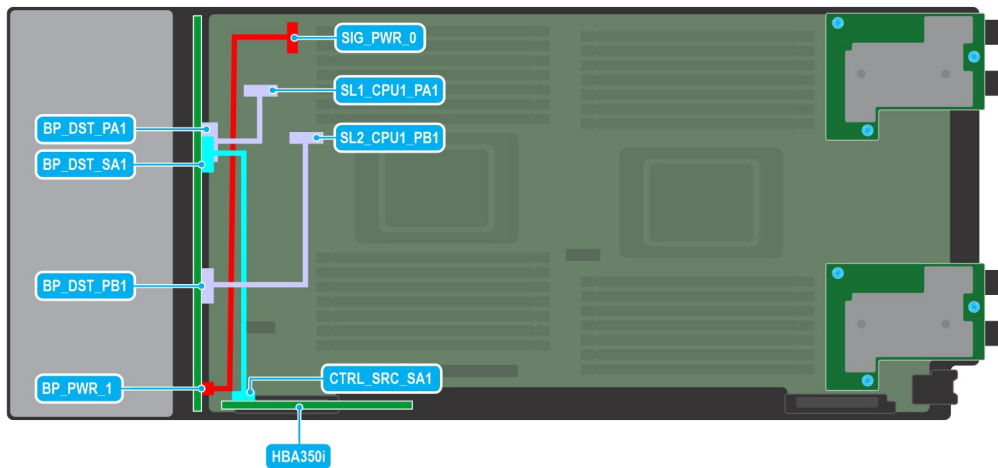| From	To
BP_PWR_1 (backplane power connector)	SIG_PWR_0 (system board power connector)
BP_DST_PA1 (backplane PCIe 1 connector, cable marking BP PA1)	CTRL_SRC_PA1 (PCIe connector of H755 MX controller card, cable marking CTRL_PA1)
BP_DST_PB1 (backplane PCIe 2 connector, cable marking BP PB1)	CTRL_SRC_PA1 (PCIe connector of H755 MX controller card, cable marking CTRL_PA1)

Drive cage

This is a service technician replaceable part only.

Removing the drive cage

Prerequisites

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

⚠ **CAUTION: Temporarily label drives before you remove the drives so that you can replace them in the same slots.**

ⓘ **NOTE:** Observe the routing of the cables on the chassis as you remove them from the system. You must route these cables properly when you replace them to prevent the cables from being pinched or crimped.

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

Steps

1. Using the Phillips #1 screwdriver, remove the screws that secure the drive cage to the sled.
2. Lift the drive cage away from the sled.
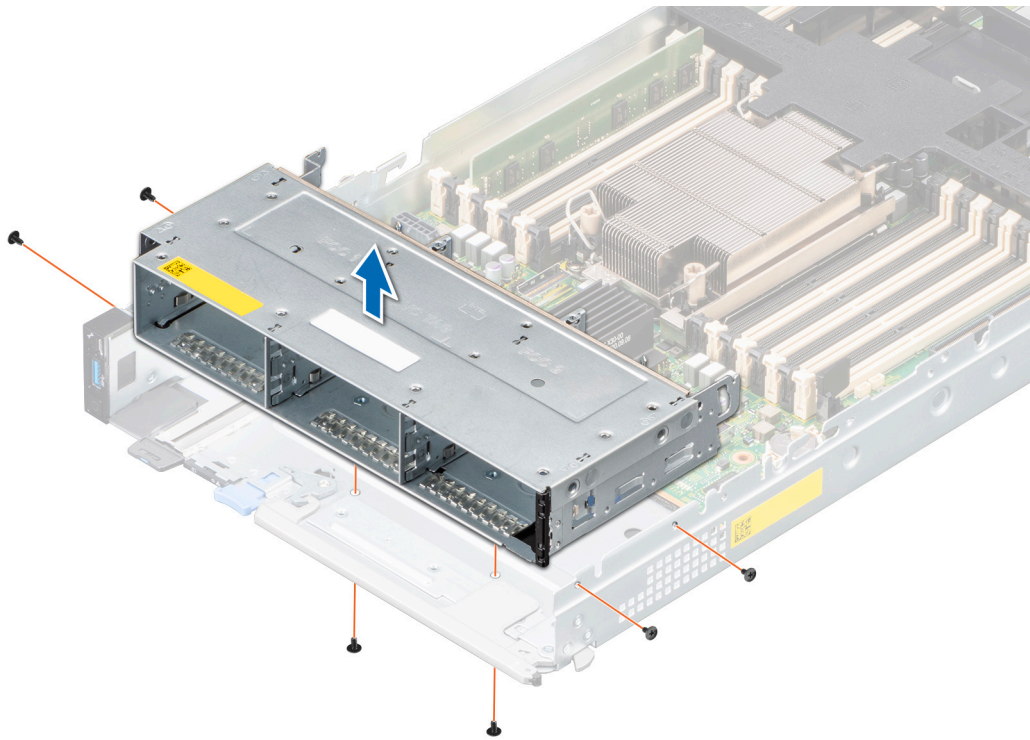
Figure 43. Removing the drive cage

Next steps

1. 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 Before working inside your system.
3. Disconnect the drive backplane cables from the connectors on the system board.

Steps

1. Place the drive cage into the system, aligning with the screw holes on the system.
2. Using the Phillips #1 screwdriver, tighten the screws to secure the drive cage in place.
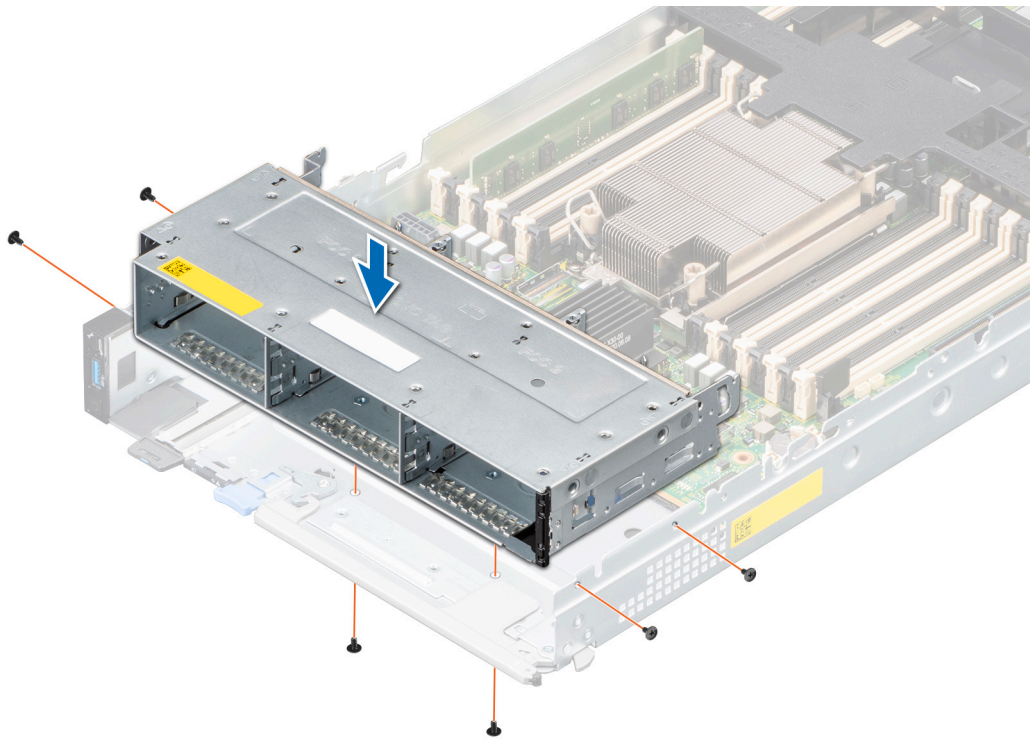
Figure 44. Installing the drive cage

Next steps

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

Control panel

This is a service technician replaceable part only.

Removing the 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 all the drives.
4. Remove the drive cage.

Steps

1. Releasing the blue latches, pull the blue strap to disconnect the control panel cable connected to the system board.
2. Using the Phillips #1 screwdriver, remove the screws that secure the control panel to the system.
3. Holding the control panel, remove the control panel along with the cable from the system.

   (i) **NOTE:** The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.
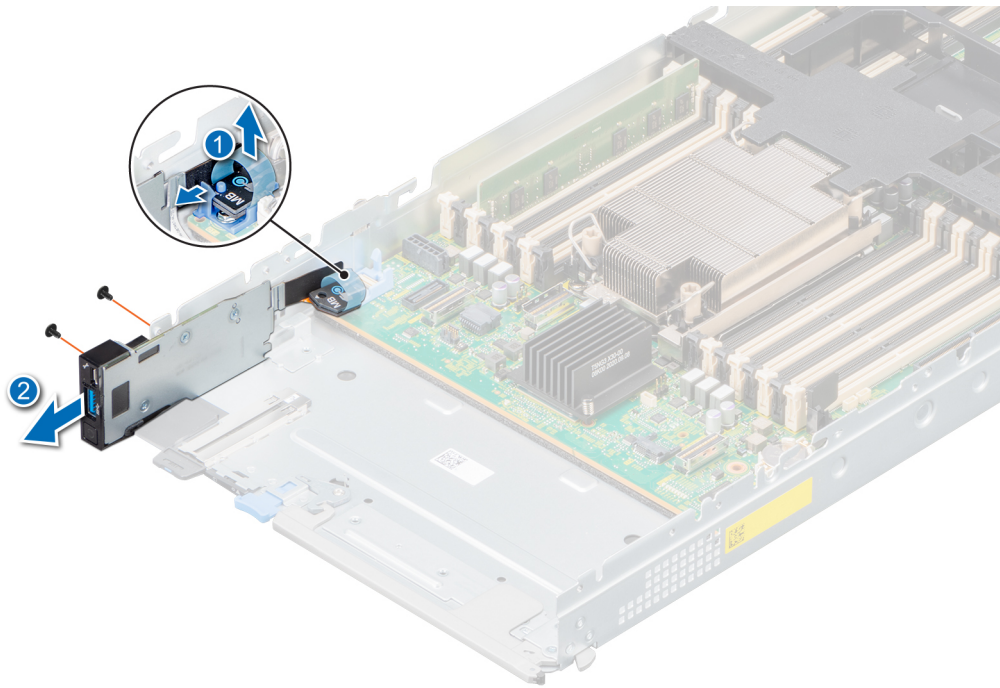
Figure 45. Removing the control panel

Next steps

1. Replace the control panel.

Installing the control panel

Prerequisites

1. Follow the safety guidelines listed in the Safety instructions.
2. Follow the procedure listed in Before working inside your system.
3. Remove all the drives.
4. Remove the drive cage.

Steps

1. Align and insert the control panel in the slot on the system.
2. Connect the control panel cable to the connector on the system board.
3. Using a Phillips #1 screwdriver, tighten the screws that secure the control panel to the system.

   (i) **NOTE:** The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.
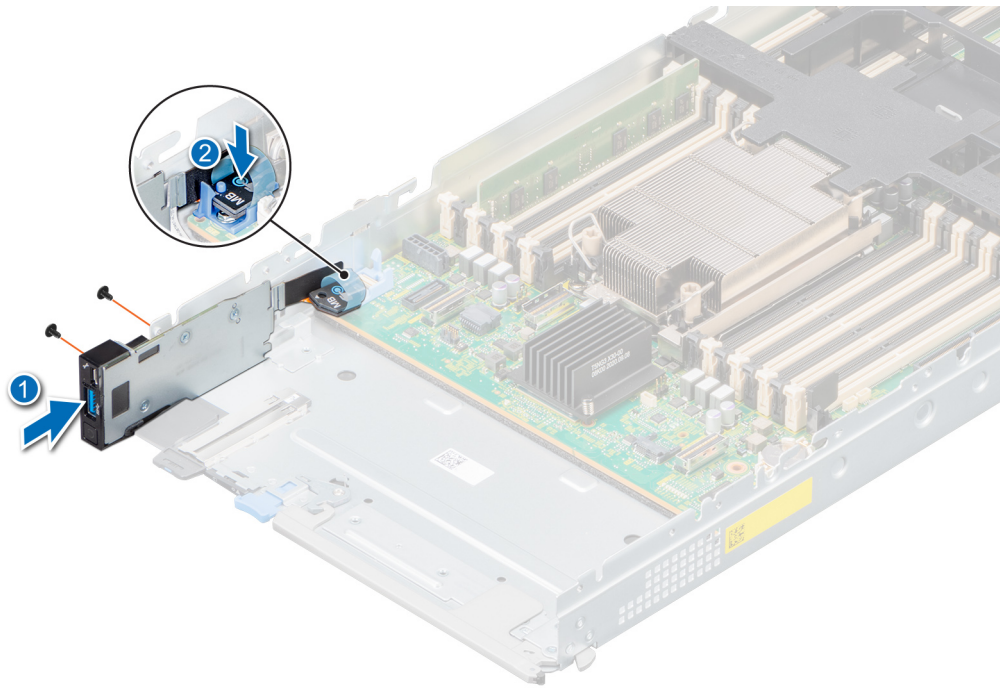
Figure 46. Installing the control panel

Next steps

1. Install the drive cage.
2. Install all the drives.
3. Follow the procedure listed in After working inside your system.

System memory

System memory guidelines

The PowerEdge MX750c system supports DDR4 registered DIMMs (RDIMMs), load reduced DIMMs (LRDIMMs), Intel Optane persistent memory (PMem) 200 series. System memory holds the instructions that are executed by the processor.

Your system contains 32 memory sockets that are split into two sets of 16 sockets, one set per processor. Each 16-socket set is organized into eight channels. Eight memory channels are allocated to each processor. In each channel, the release tabs of the first socket are marked white, and the second socket black.

Memory channels are organized as follows:

Table 19. Memory channels

Processor	Channel A	Channel B	Channel C	Channel D	Channel E	Channel F	Channel G	Channel H
Processor 1	Slots A1 and A9	Slots A5 and A13	Slots A3 and A11	Slots A7 and A15	Slots A2 and A10	Slots A6 and A14	Slots A4 and A12	Slots A8 and A16
Processor 2	Slots B1 and B9	Slots B5 and B13	Slots B3 and B11	Slots B7 and B15	Slots B2 and B10	Slots B6 and B14	Slots B4 and B12	Slots B8 and B16
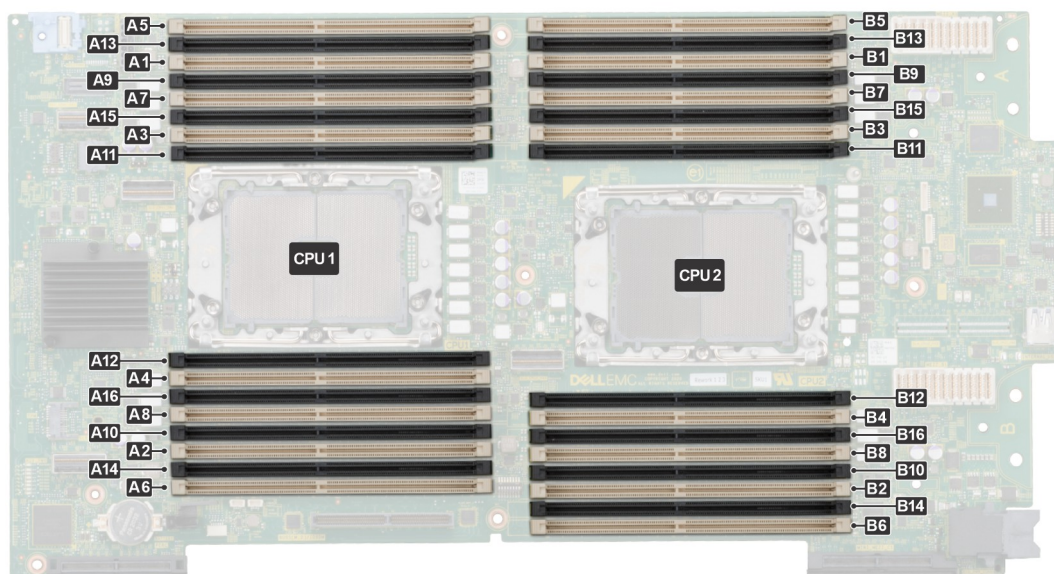
Figure 47. Memory sockets on the system board

The following table shows the memory populations and operating frequencies for the supported configurations:

Table 20. Supported memory matrix

DIMM Type	DIMM Ranking	Capacity	Voltage	Operating Frequency (in MT/s)
RDIMM	1R	8 GB	1.2 V	3200
RDIMM	2R	16 GB, 32 GB, 64 GB	1.2 V	3200
LRDIMM	4R	128 GB	1.2 V	3200
LRDIMM	8R	256 GB	1.2 V	3200

(i) **NOTE:** 256 GB LRDIMM is only supported on X4 universal backplane configuration. It cannot be mixed with Intel Optane PMem 200 Series configurations.

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 configurations fail 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 3200 MT/s, 2933 MT/s depending on the following factors:

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

(i) **NOTE:** MT/s indicates DIMM speed in MegaTransfers per second.

(i) **NOTE:** Fault Resilient Memory-Non Uniform Memory Access is supported.

The system supports Flexible Memory Configuration, enabling the system to be configured and run in any valid chipset architectural configuration. The following are the recommended guidelines for installing memory modules:

● All DIMMs must be DDR4.

- x4 and x8 DRAM based memory modules can be mixed.
- 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 single-processor systems, sockets A1 to A16 are available.
  - For dual-processor systems, sockets A1 to A16 and sockets B1 to B16 are available.
- In **Optimizer Mode**, the DRAM controllers operate independently in the 64-bit mode and provide optimized memory performance.

Table 21. Memory population rules

Processor	Configuration	Memory population	Memory population information
Single processor	Optimizer (Independent channel) population order	A{1}, A{2}, A{3}, A{4}, A{5}, A{6}, A{7}, A{8}, A{9}, A{10}, A{11}, A{12}, A{13}, A{14}, A{15}, A{16}	1, 2, 4, 6, 8, 12 or 16 DIMMs are allowed.
Dual processor (Start with processor1. Processor 1 and processor 2 population should match)	Optimizer (Independent channel) population order	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}, A{9}, B{9}, A{10}, B{10}, A{11}, B{11}, A{12}, B{12}, A{13}, B{13}, A{14}, B{14}, A{15}, B{15}, A{16}, B{16}	2, 4, 8, 12, 16, 24 and 32 DIMMs are supported per system. ⓘ **NOTE:** Optimizer population order is not traditional for 8 and 16 DIMMs installations for dual processor.

- Populate all the sockets with white release tabs first, followed by the black release tabs.
- Memory modules of different capacities can be mixed provided other memory population rules are followed.
  - ⓘ **NOTE:** For example, 8 GB and 16 GB memory modules can be mixed.
- Mixing of more than two memory module capacities in a system is not supported.
- Unbalanced or odd memory configuration results in a performance loss and system may not identify the memory modules being installed, so always populate memory channels identically with equal DIMMs for best performance.
- Supported RDIMM / LRDIMM configurations are 1, 2, 4, 6, 8, 12, or 16 DIMMs per processor.

Intel Optane PMem 200 Series installation guidelines

The following are the recommended guidelines for installing Intel Optane PMem 200 Series memory modules:
- Each system supports maximum of one Intel Optane PMem 200 Series memory module per channel.
  - ⓘ **NOTE:** If two different Intel Optane PMem 200 Series capacities are mixed, an F1/F2 warning is displayed as the configuration is not supported.
- Intel Optane PMem 200 Series can be mixed with RDIMM, LRDIMM, and 3DS LRDIMM.
  - ⓘ **NOTE:** Intel Optane PMem 200 Series cannot be mixed with 256 GB LRDIMM.
- Mixing of DDR4 DIMM types (RDIMM, LRDIMM, and 3DS LRDIMM), within channels, for Integrated Memory Controller (iMC), or across sockets are not supported.
- Mixing of Intel Optane PMem 200 Series operating modes (App Direct Mode, Memory Mode) is not supported.
- If only one DIMM is populated on a channel, then the DIMM should always be populated in the first slot in that channel (white slot).
- If a Intel Optane PMem 200 Series and a DDR4 DIMM are populated on the same channel, always plug Intel Optane PMem 200 Series on second slot (black slot).
- If the Intel Optane PMem 200 Series is configured in Memory Mode, the recommended DDR4 to Intel Optane PMem 200 Series capacity ratio is 1:4 to 1:16 per iMC.
- Intel Optane PMem 200 Series cannot be mixed with other capacities of Intel Optane PMem 200 Series or with NVDIMMs.
- Mixing different capacities of RDIMMs and LRDIMMs are not allowed when Intel Optane PMem 200 Series is installed.
- Intel Optane PMem 200 Series of different capacities are not allowed.
- VMware ESXi boot takes longer time when higher capacity of Intel Optane PMem 200 Series are configured in App Direct Mode, This is Address Range Scrub (ARS). This is expected as background Address Range Scrub (ARS) is going on the interleave sets and needs to be completed prior the pMem datastore is mounted on ESXi.
- In App Direct Mode (AP), sockets can be populated symmetrically or asymmetrically.

- In Memory Mode (MM), sockets can be populated symmetrically.
- Memory mode is not supported for the 6+1, 8+1 and 12+2 configurations irrespective of DDR to Intel Optane PMem 200 Series capacity ratio.
- In VMware ESXI environment, if BPS goal is changed between App Direct Mode and Memory Mode, it is recommended to sanitize the Intel Optane PMem 200 Series before creating a new goal.
- Populate Intel Optane PMem 200 Series in DIMM slot 1, unless Intel Optane PMem 200 Series is the only DIMM in that channel, and then populate in DIMM slot 0.

For more information about the supported Intel Persistent Memory 200 series (BPS) configurations, see the *Dell EMC Intel Persistent Memory 200 series (BPS) User's Guide* at https://www.dell.com/support/home/products/server_int/server_int_poweredge.

Table 22. Supported Intel Optane PMem 200 Series for dual processor configurations

Configuration	Description per processor	Memory population rules	
		RDIMMs or LRDIMMs	Intel Persistent Memory 200 series (BPS)
Configuration 1	4 x RDIMMs, 4 x Intel Optane PMem 200 Series	Processor1 {A1, 2, 3, 4} Processor2 {B1, 2, 3, 4}	Processor1 {A5, 6, 7 ,8} Processor2 {B5, 6, 7, 8}
Configuration 2	6 x RDIMMs, 1 x Intel Optane PMem 200 Series	Processor1 {A1, 2, 3, 4, 5, 6} Processor2 {B1, 2, 3, 4, 5, 6}	Processor1 {A7} Processor2 {B7}
Configuration 3	8 x RDIMMs, 1 x Intel Optane PMem 200 Series	Processor1 {A1, 2, 3, 4, 5, 6, 7, 8} Processor2 {B1, 2, 3, 4, 5, 6, 7, 8}	Processor1 {A9} Processor2 {B9}
Configuration 4	8 x RDIMMs, 4 x Intel Optane PMem 200 Series	Processor1 {A1, 2, 3, 4, 5, 6, 7, 8} Processor2 {B1, 2, 3, 4, 5, 6, 7, 8}	Processor1 {A9, 10, 11, 12} Processor2 {B9, 10, 11, 12}
Configuration 5	8 x RDIMMs, 8 x Intel Optane PMem 200 Series	Processor1 {A1, 2, 3, 4, 5, 6, 7, 8} Processor2 {B1, 2, 3, 4, 5, 6, 7, 8}	Processor1 {A9, 10, 11, 12, 13, 14, 15, 16} Processor2 {B9, 10, 11, 12, 13, 14, 15, 16}
Configuration 6	12 x RDIMMs, 2 x Intel Optane PMem 200 Series	Processor1 {A1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16} Processor2 {B1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16}	Processor1 {A5, 6} Processor2 {B5, 6}

(i) **NOTE:** There are limited configurations available for dual socket servers with only one processor populated.

Table 23. Intel Optane PMem 200 Series Configuration 1 - 4 x RDIMMs, 4 x Intel Optane PMem 200 Series per processor

Total No of RDIMMs	Total No of Intel Optane PMem 200 Series DIMMs	1 RDIMM capacity (GB)	1 Intel Persistent Memory 200 series (BPS) capacity (GB)	Total Standard Memory Capacity (GB)	Total PM Capacity (GB)	Supported Modes
4	4	16	128	64	512	MM or AD
4	4	32	128	128	512	MM or AD
4	4	64	128	256	512	AD
4	4	16	256	64	1024	MM or AD
4	4	32	256	128	1024	MM or AD

Table 23. Intel Optane PMem 200 Series Configuration 1 - 4 x RDIMMs, 4 x Intel Optane PMem 200 Series per processor (continued)

Total No of RDIMMs	Total No of Intel Optane PMem 200 Series DIMMs	1 RDIMM capacity (GB)	1 Intel Persistent Memory 200 series (BPS) capacity (GB)	Total Standard Memory Capacity (GB)	Total PM Capacity (GB)	Supported Modes
4	4	64	256	256	1024	MM or AD
4	4	16	512	64	2048	AD
4	4	32	512	128	2048	MM or AD
4	4	64	512	256	2048	MM or AD

Table 24. Intel Optane PMem 200 Series Configuration 1 - 4 x LRDIMMs, 4 x Intel Optane PMem 200 Series per processor

Total No of LRDIMMs	Total No of Intel Optane PMem 200 Series DIMMs	1 LRDIMM capacity (GB)	1 Intel Persistent Memory 200 series (BPS) capacity (GB)	Total Standard Memory Capacity (GB)	Total PM Capacity (GB)	Supported Modes
4	4	128	128	512	512	AD
4	4	128	256	512	1024	AD
4	4	128	512	512	2048	MM or AD

Table 25. Intel Optane PMem 200 Series Configuration 2 - 6 x RDIMMs, 1 x Intel Optane PMem 200 Series per processor

Total No of RDIMMs	Total No of Intel Optane PMem 200 Series DIMMs	1 RDIMM capacity (GB)	1 Intel Persistent Memory 200 series (BPS) capacity (GB)	Total Standard Memory Capacity (GB)	Total PM Capacity (GB)	Supported Modes
6	1	16	128	96	128	AD
6	1	32	128	192	128	AD
6	1	64	128	384	128	AD
6	1	16	256	96	256	AD
6	1	32	256	192	256	AD
6	1	64	256	384	256	AD
6	1	16	512	96	512	AD
6	1	32	512	192	512	AD
6	1	64	512	384	512	AD

Table 26. Intel Optane PMem 200 Series Configuration 2 - 6 x LRDIMMs, 1 x Intel Optane PMem 200 Series per processor

Total No of LRDIMMs	Total No of Intel Optane PMem 200 Series DIMMs	1 LRDIMM capacity (GB)	1 Intel Persistent Memory 200 series (BPS) capacity (GB)	Total Standard Memory Capacity (GB)	Total PM Capacity (GB)	Supported Modes
6	1	128	128	768	128	AD
6	1	128	256	768	256	AD
6	1	128	512	768	512	AD

Table 27. Intel Optane PMem 200 Series Configuration 3 - 8 × RDIMMs, 1 × Intel Optane PMem 200 Series per processor

Total No of RDIMMs	Total No of Intel Optane PMem 200 Series DIMMs	1 RDIMM capacity (GB)	1 Intel Persistent Memory 200 series (BPS) capacity (GB)	Total Standard Memory Capacity (GB)	Total PM Capacity (GB)	Supported Modes
8	1	16	128	128	128	AD
8	1	32	128	256	128	AD
8	1	64	128	512	128	AD
8	1	16	256	128	256	AD
8	1	32	256	256	256	AD
8	1	64	256	512	256	AD
8	1	16	512	128	512	AD
8	1	32	512	256	512	AD
8	1	64	512	512	512	AD

Table 28. Intel Optane PMem 200 Series Configuration 3 - 8 × LRDIMMs, 1 × Intel Optane PMem 200 Series per processor

Total No of LRDIMMs	Total No of Intel Optane PMem 200 Series DIMMs	1 LRDIMM capacity (GB)	1 Intel Persistent Memory 200 series (BPS) capacity (GB)	Total Standard Memory Capacity (GB)	Total PM Capacity (GB)	Supported Modes
8	1	128	128	1024	128	AD
8	1	128	256	1024	256	AD
8	1	128	512	1024	512	AD

Table 29. Intel Optane PMem 200 Series Configuration 4 - 8 × RDIMMs, 4 × Intel Optane PMem 200 Series per processor

Total No of RDIMMs	Total No of Intel Optane PMem 200 Series DIMMs	1 RDIMM capacity (GB)	1 Intel Persistent Memory 200 series (BPS) capacity (GB)	Total Standard Memory Capacity (GB)	Total PM Capacity (GB)	Supported Modes
8	4	16	128	128	512	MM or AD
8	4	32	128	256	512	AD
8	4	64	128	512	512	AD
8	4	16	256	128	1024	MM or AD
8	4	32	256	256	1024	MM or AD
8	4	64	256	512	1024	AD
8	4	16	512	128	2048	MM or AD
8	4	32	512	256	2048	MM or AD
8	4	64	512	512	2048	MM or AD

Table 30. Intel Optane PMem 200 Series Configuration 4 - 8 x LRDIMMs, 4 x Intel Optane PMem 200 Series per processor

Total No of LRDIMMs	Total No of Intel Optane PMem 200 Series DIMMs	1 LRDIMM capacity (GB)	1 Intel Persistent Memory 200 series (BPS) capacity (GB)	Total Standard Memory Capacity (GB)	Total PM Capacity (GB)	Supported Modes
8	4	128	128	1024	512	AD
8	4	128	256	1024	1024	AD
8	4	128	512	1024	2048	AD

Table 31. Intel Optane PMem 200 Series Configuration 5 - 8 x RDIMMs, 8 x Intel Optane PMem 200 Series per processor

Total No of RDIMMs	Total No of Intel Optane PMem 200 Series DIMMs	1 RDIMM capacity (GB)	1 Intel Persistent Memory 200 series (BPS) capacity (GB)	Total Standard Memory Capacity (GB)	Total PM Capacity (GB)	Supported Modes
8	8	16	128	128	1024	MM or AD
8	8	32	128	256	1024	MM or AD
8	8	64	128	512	1024	AD
8	8	16	256	128	2048	MM or AD
8	8	32	256	256	2048	MM or AD
8	8	64	256	512	2048	MM or AD
8	8	16	512	128	4096	AD
8	8	32	512	256	4096	MM or AD
8	8	64	512	512	4096	MM or AD

Table 32. Intel Optane PMem 200 Series Configuration 5 - 8 x LRDIMMs, 8 x Intel Optane PMem 200 Series per processor

Total No of LRDIMMs	Total No of Intel Optane PMem 200 Series DIMMs	1 LRDIMM capacity (GB)	1 Intel Persistent Memory 200 series (BPS) capacity (GB)	Total Standard Memory Capacity (GB)	Total PM Capacity (GB)	Supported Modes
8	8	128	128	1024	1024	AD
8	8	128	256	1024	2048	AD
8	8	128	512	1024	4096	MM or AD

Table 33. Intel Optane PMem 200 Series Configuration 6 - 12 x RDIMMs, 2 x Intel Optane PMem 200 Series per processor

Total No of RDIMMs	Total No of Intel Optane PMem 200 Series DIMMs	1 RDIMM capacity (GB)	1 Intel Persistent Memory 200 series (BPS) capacity (GB)	Total Standard Memory Capacity (GB)	Total PM Capacity (GB)	Supported Modes
12	2	16	128	192	256	AD
12	2	32	128	384	256	AD
12	2	64	128	768	256	AD
12	2	16	256	192	512	AD

Table 33. Intel Optane PMem 200 Series Configuration 6 - 12 x RDIMMs, 2 x Intel Optane PMem 200 Series per processor (continued)

Total No of RDIMMs	Total No of Intel Optane PMem 200 Series DIMMs	1 RDIMM capacity (GB)	1 Intel Persistent Memory 200 series (BPS) capacity (GB)	Total Standard Memory Capacity (GB)	Total PM Capacity (GB)	Supported Modes
12	2	32	256	384	512	AD
12	2	64	256	768	512	AD
12	2	16	512	192	1024	AD
12	2	32	512	384	1024	AD
12	2	64	512	768	1024	AD

Table 34. Intel Optane PMem 200 Series Configuration 6 - 12 x LRDIMMs, 2 x Intel Optane PMem 200 Series per processor

Total No of LRDIMMs	Total No of Intel Optane PMem 200 Series DIMMs	1 LRDIMM capacity (GB)	1 Intel Persistent Memory 200 series (BPS) capacity (GB)	Total Standard Memory Capacity (GB)	Total PM Capacity (GB)	Supported Modes
12	2	128	128	1536	256	AD
12	2	128	256	1536	512	AD
12	2	128	512	1536	1024	AD

Removing a memory module

Prerequisites

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

⚠ **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.**

⚠ **CAUTION: To ensure proper system cooling, memory module blanks must be installed in any memory socket that is not populated. Remove memory module blanks only if you intend to install memory modules in those sockets.**

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.**

2. To release the memory module from the socket, simultaneously press the ejectors on both ends of the memory module socket to fully open.
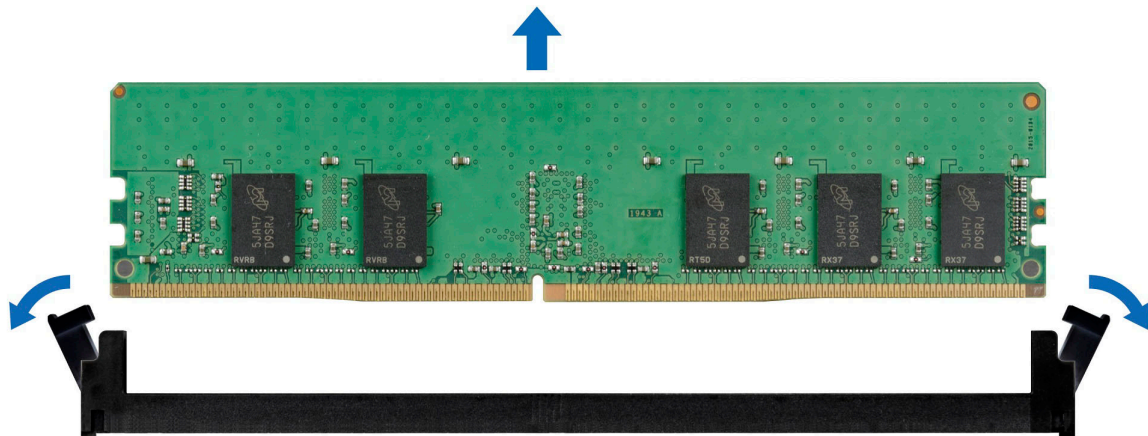3. Lift the memory module away from the system.

Figure 48. Removing a memory module

Next steps

1. Replace the memory module.
2. If you are removing the memory module permanently, install a memory module blank. The procedure to install a memory module blank is similar to that of the memory module.

ⓘ **NOTE:** When operating your system with single processor, install processor DIMM blanks/brackets in processor 2 memory sockets.

Installing a memory module

Prerequisites

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

⚠ **CAUTION: To ensure proper system cooling, memory module blanks must be installed in any memory socket that is not occupied. Remove memory module blanks only if you intend to install memory modules in those sockets.**

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.**

2. If a memory module is installed in the socket, remove it.

   ⓘ **NOTE:** Ensure the socket ejector latches are fully open, before installing the memory module.

3. 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.**

4. 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 installed.
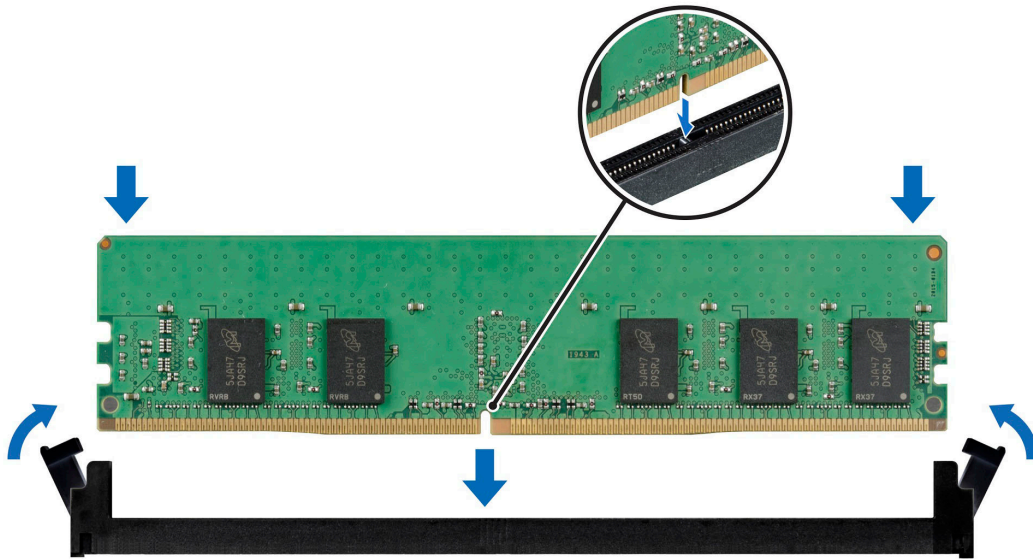

Figure 49. Installing a memory module

Next steps

1. Install the air shroud.
2. Follow the procedure listed in After working inside your system.
3. To verify if the memory module has been installed properly, press F2 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. Ensure that the memory modules are firmly seated in their sockets.
5. Run the system memory test in the system diagnostics.

Processor and heat sink module

This is a service technician replaceable part only.

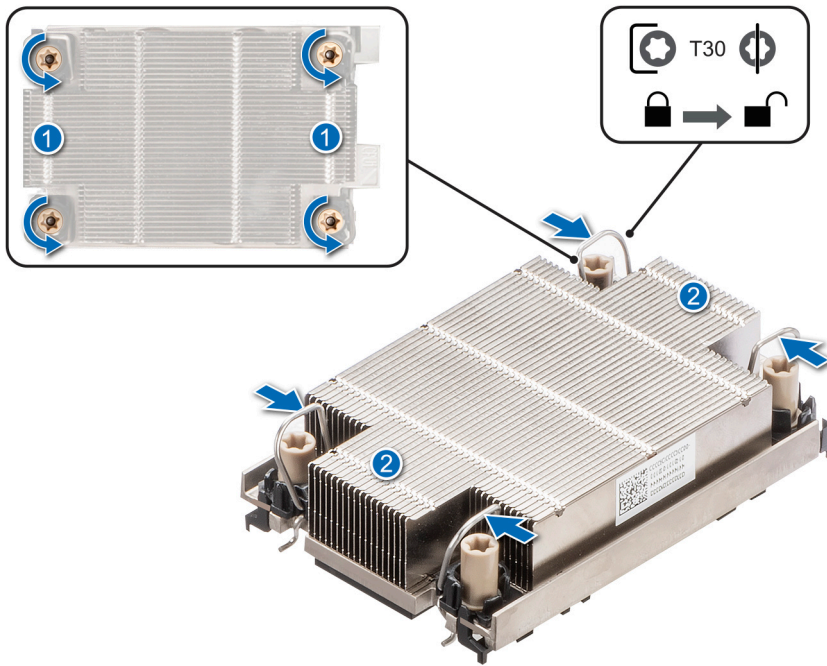## Removing a processor and heat sink module

Prerequisites

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

   (i) **NOTE:** The heat sink and processor are too hot to touch for some time after the system has been powered down. Allow the heat sink and processor to cool down before handling them.
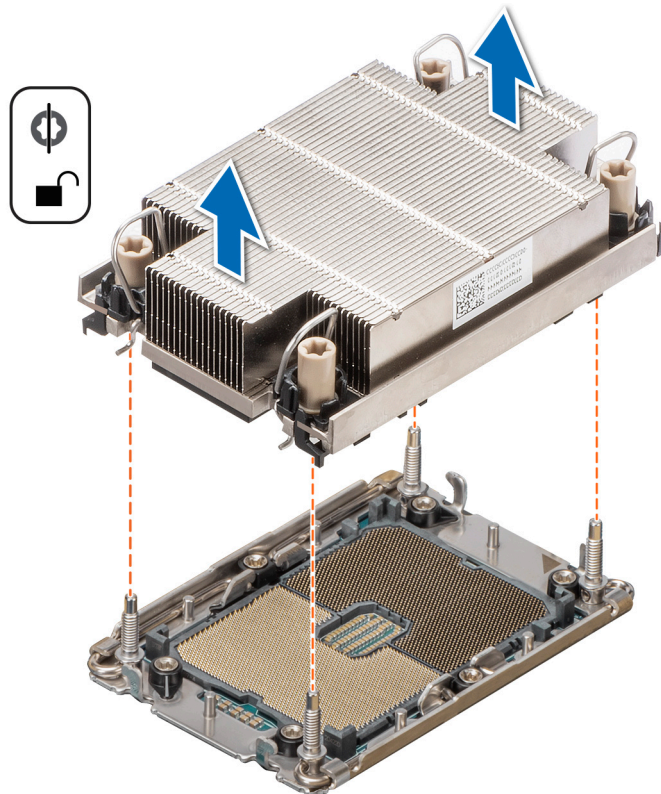
Steps

1. Ensure all four anti-tilt wires are in the locked position (outward position), and then using a Torx T30 tool, loosen the captive nuts on the heat sink 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 to loosen it completely.

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

Figure 50. Loosening the nuts and set the anti-tilt wires to the unlocked position

3. Lift the processor and heat sink module (PHM) from the system and set the PHM aside with the processor side facing up.

Figure 51. Removing a processor and heat sink module

Next steps

Remove the processor from the processor and heat sink module.

Removing the processor from the processor and heat sink module

Prerequisites

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

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

⚠️ **WARNING: The heat sink may be hot to touch for some time after the system has been powered down. Allow the heat sink to cool before removing it.**

⚠️ **CAUTION: An expected CMOS battery loss or CMOS checksum error message may be displayed during the first instance of powering on the system after replacing the processor or system board. To resolve this issue, go to setup option to configure the system settings.**

Steps

1. Place the heat sink with the processor side facing up.
2. Using your thumb lift up the Thermal Interface Material (TIM) break lever to release the processor from the TIM and carrier.

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

3. Holding the processor by its edges, lift the processor away from the retaining clip, and then place the processor connector side down on the processor tray. Ensure pin 1 marks are aligned.
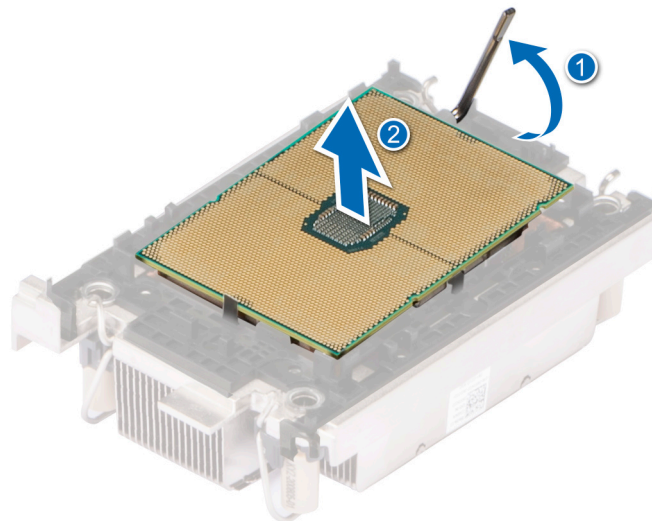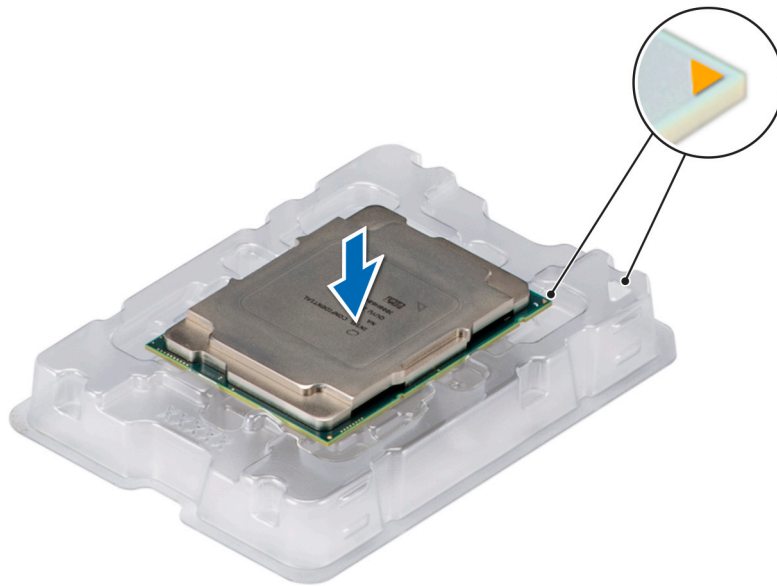


Figure 52. Lift up the TIM break lever

Figure 53. Aligning pin 1 marks of processor with tray

(i) **NOTE:** Ensure that to return the TIM break lever back to its 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.
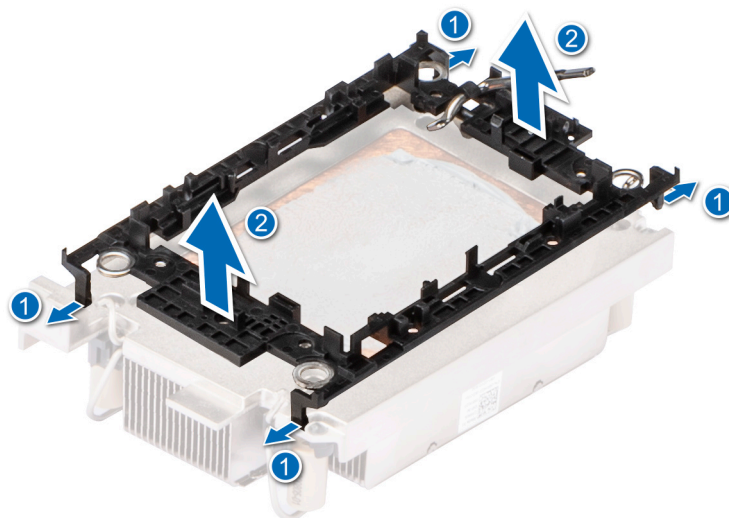
Figure 54. Removing the processor retaining clip

Next steps

Replace the processor into a processor and heat sink module (PHM).

Installing the processor into a processor and heat sink module

Prerequisites

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

Steps

1. Place the processor in the processor tray.

   (i) **NOTE:** Ensure that the pin 1 indicator on the processor tray is aligned with the pin 1 indicator on the processor.

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

   (i) **NOTE:** Ensure that 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.

   (i) **NOTE:** Ensure that the processor and the retaining clip are placed in the tray before you install the heat sink.
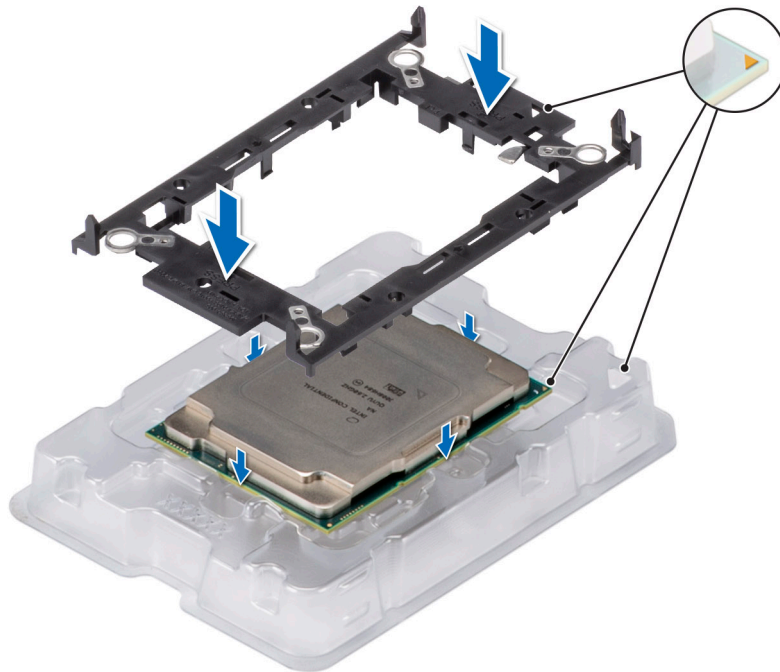
**Figure 55. Installing the processor carrier**

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

   (i) **NOTE:** Ensure that the processor is securely latched to the processor retaining clip.
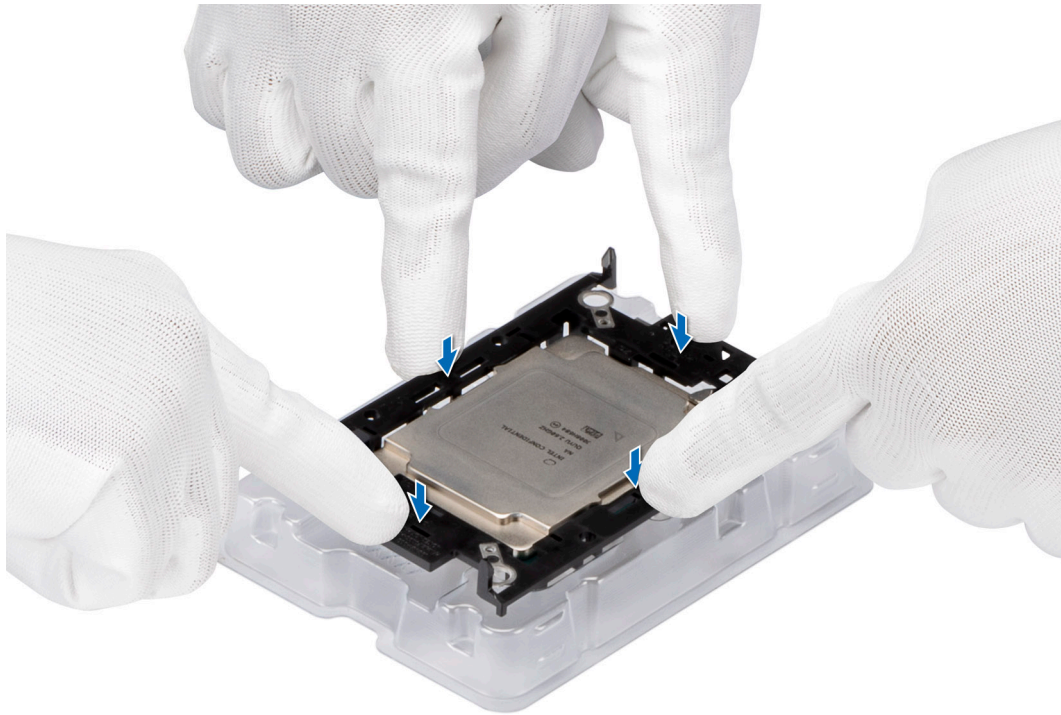
Figure 56. Press the retaining clip on the four sides

4. If you are using an existing heat sink, remove the thermal grease on 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 on the bottom of the heat sink.
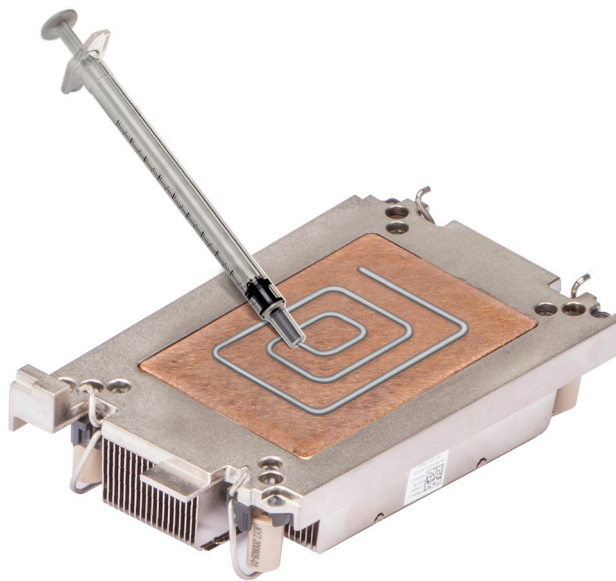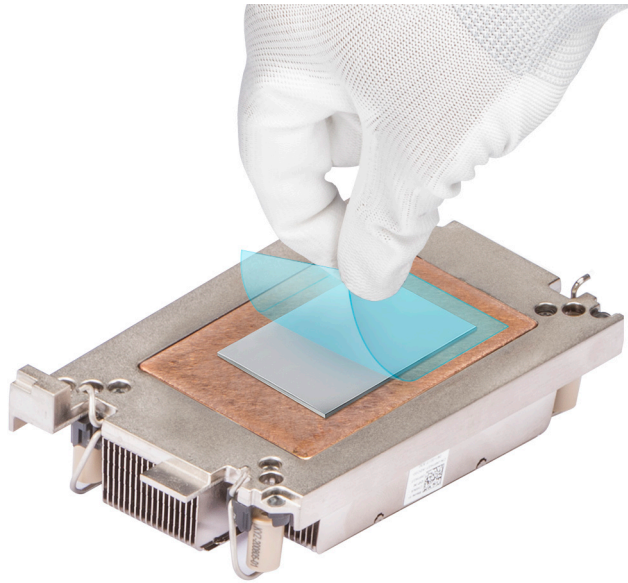

Figure 57. Applying thermal grease

> ⚠️ **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 of the syringe after you use it.

6. Remove the Thermal Interface Material (TIM) protective film from the base of heat sink.

Figure 58. Remove the Thermal Interface Material (TIM) protective film

7. Place the heat sink on the processor and press 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 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 processor retaining clip.

ⓘ **NOTE:** Ensure latching features on processor retaining clip and heat sink are aligned during assembly.
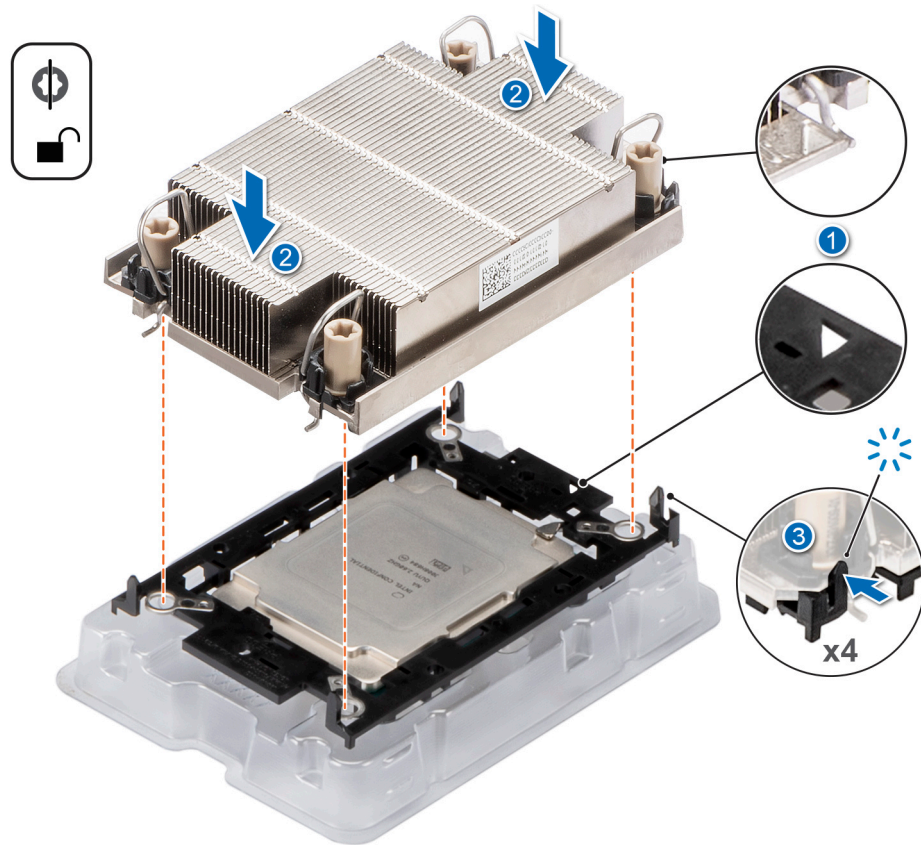
Figure 59. Installing the heat sink onto the processor

Next steps

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

Installing the processor and heat sink module

Prerequisites

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

1. Follow the safety guidelines listed in Safety instructions.
2. Follow the procedure listed in the Before working inside the system.
3. Remove the air shroud.
4. If installed, remove the processor dust cover.

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 and heat sink 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 processor and heat sink is held parallel to the system board to prevent damaging the components.
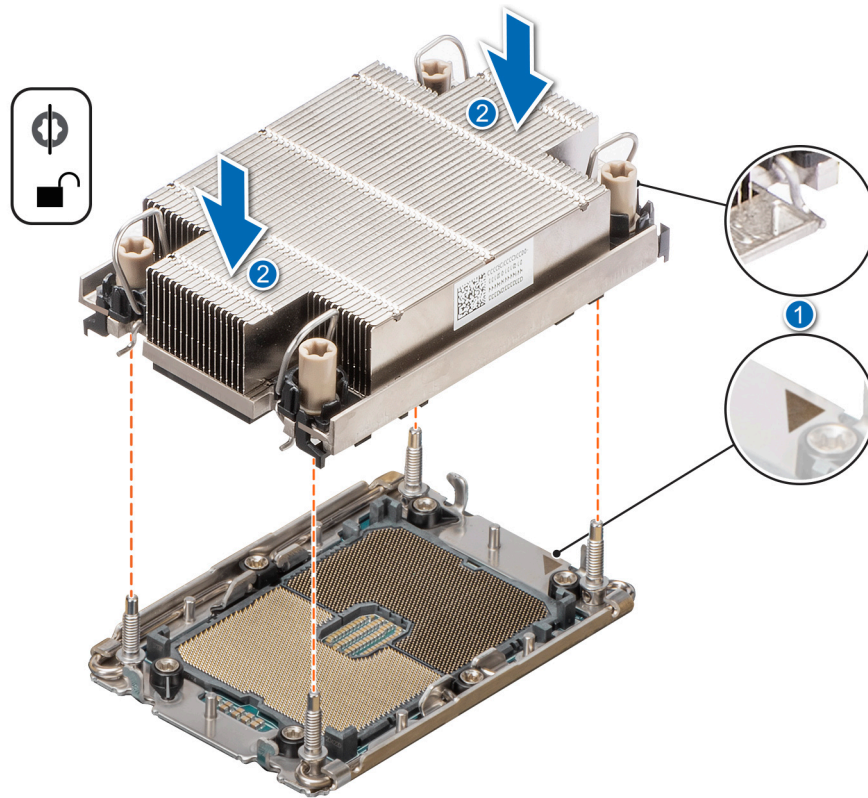
Figure 60. Installing the processor and heat sink (PHM)

3. Set the anti-tilt wires to the locked position (outward position), and then using the Torx T30 tool, 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 you tighten first.
   c. Repeat the procedure for the remaining two nuts.
   d. Return to the first nut to tighten it completely.
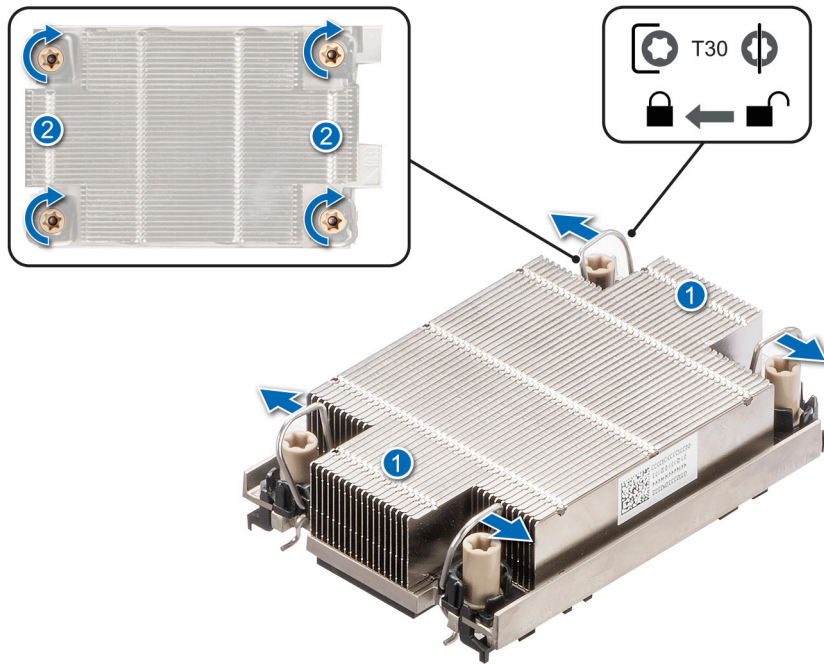   e. Check all the nuts to ensure they are firmly secured.

Figure 61. Set the anti-tilt wires to the locked position and tightening the captive nuts

Next steps

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

PERC card

Your system includes dedicated slots on the system board for PERC cards.

Removing the PERC card

Prerequisites

1. Follow the safety guidelines listed in Safety Instructions.
2. Follow the procedure listed in Before working inside your system.
3. Disconnect the cable connected to the PERC card.

Steps

1. Pull the blue pull tag to lift the lever up on the PERC card.
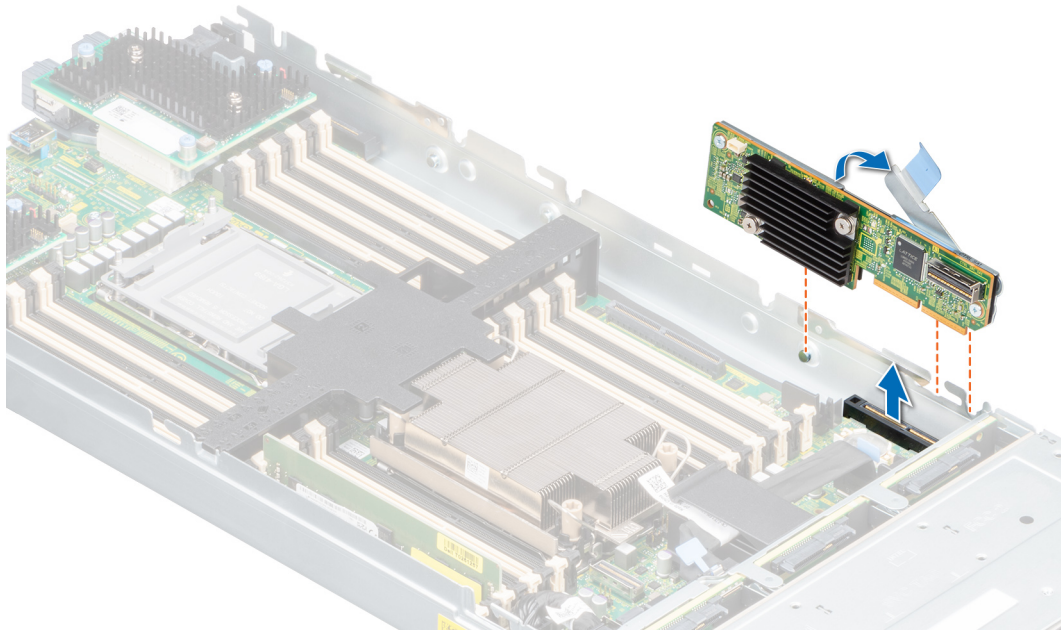2. Holding the blue pull tag, lift the PERC card out of the system.
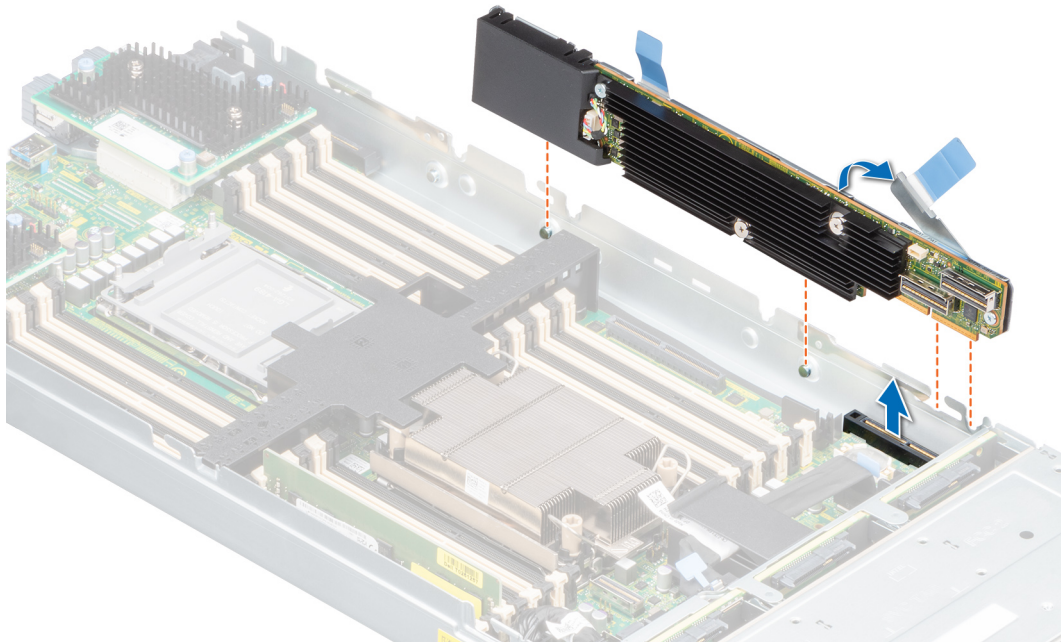
Figure 62. Removing the PERC card (HBA350i MX)

Figure 63. Removing the PERC card (H755 MX)

Next steps

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

Installing the PERC card

Prerequisites

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

Steps

1. Pull the blue pull tag to raise the lever up on the PERC card.
2. Align the connector on the PERC card with the connector on the system board.
3. Align the guides on the PERC card with the slots on the system.
4. Press the PERC card firmly until it is fully seated.
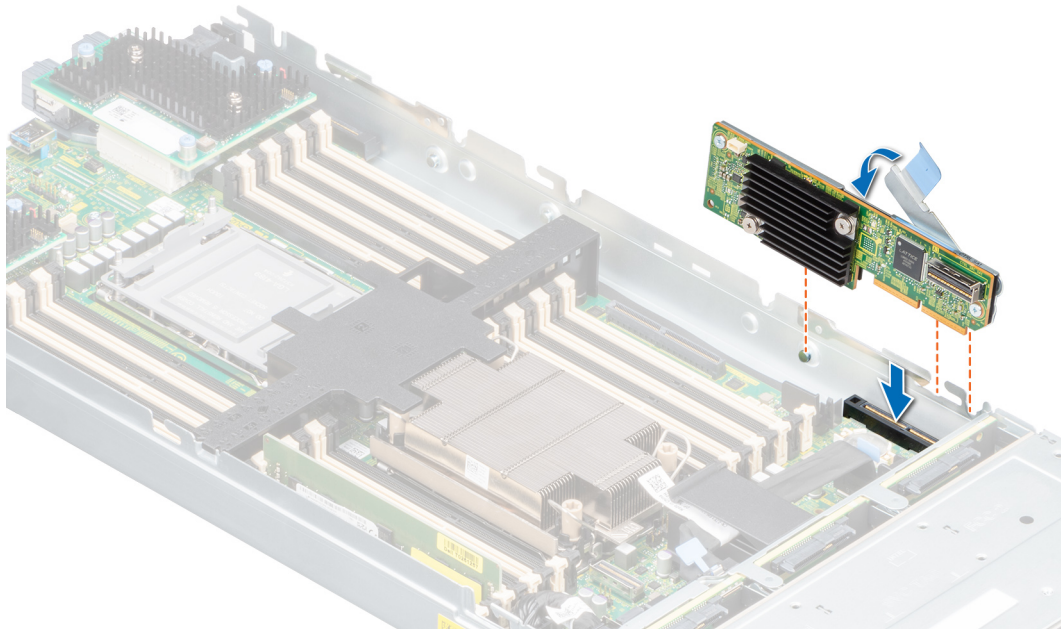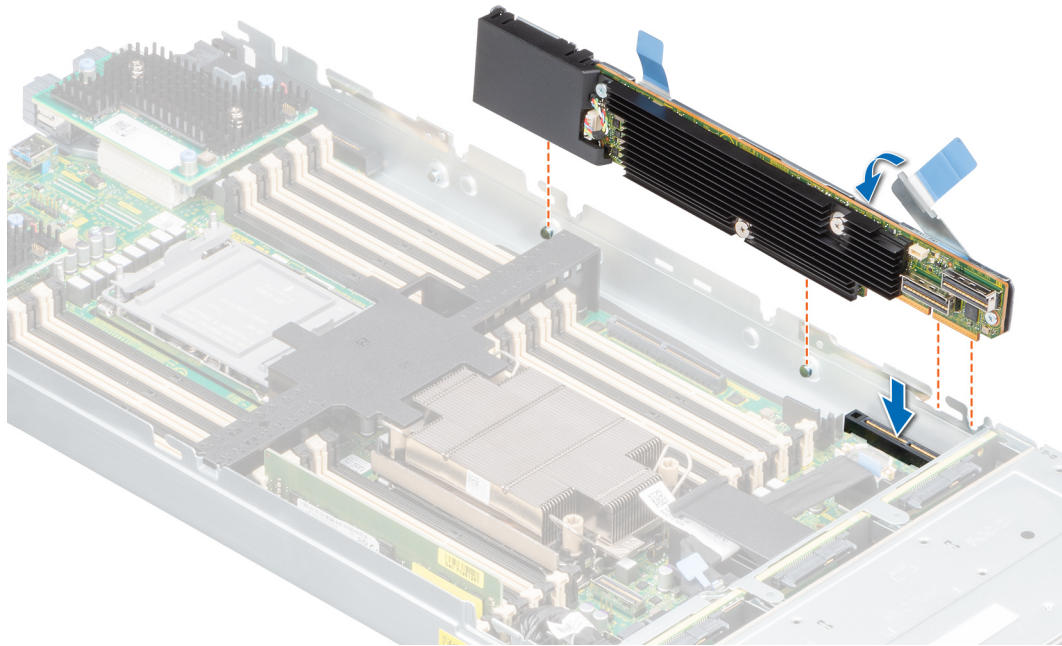5. Close the lever on the PERC card.

Figure 64. Installing the PERC card (HBA350i MX)

Figure 65. Installing the PERC card (H755 MX)

Next steps

1. Connect the cable to the PERC card.
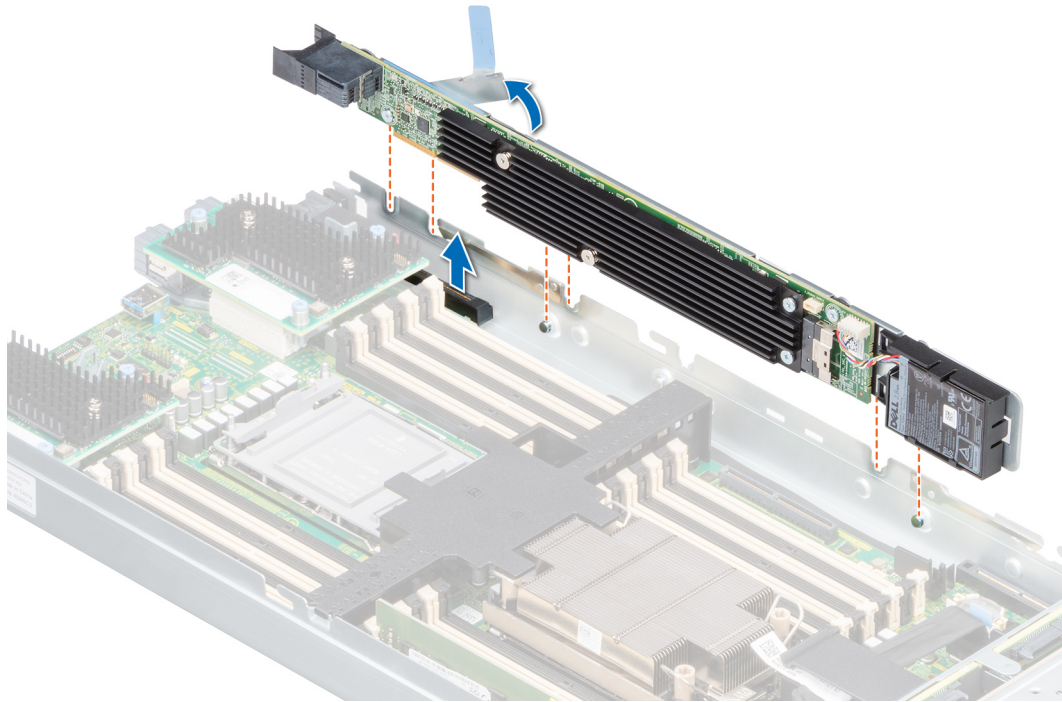2. Follow the procedure listed in After working inside your system.

Removing the Jumbo PERC 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. Disconnect the cable connected to the Jumbo PERC card.

Steps

1. Pull the blue pull tag to raise the lever up on the Jumbo PERC card.
2. Holding the blue pull tag, lift the Jumbo PERC card away from the system.
3. Install the connector cap on the I/O connector of the Jumbo PERC card.

Figure 66. Removing the Jumbo PERC card (H745P MX)

ⓘ **NOTE:** The Jumbo PERC card controls the internal drives, and the storage sled drives mapped to the storage controller.

Next steps

1. Install the Jumbo PERC card (H745P MX).

Installing the Jumbo PERC card

Prerequisites

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

ⓘ **NOTE:** Jumbo PERC card is supported only on dual-processor configuration.

Steps

1. Remove the connector cap on the I/O connector from the Jumbo PERC card.
2. Pull the blue pull tag to raise the lever on the Jumbo PERC card.
3. Align the Jumbo PERC card with the slots on the system board.
4. Press the Jumbo PERC card firmly until it is fully seated.
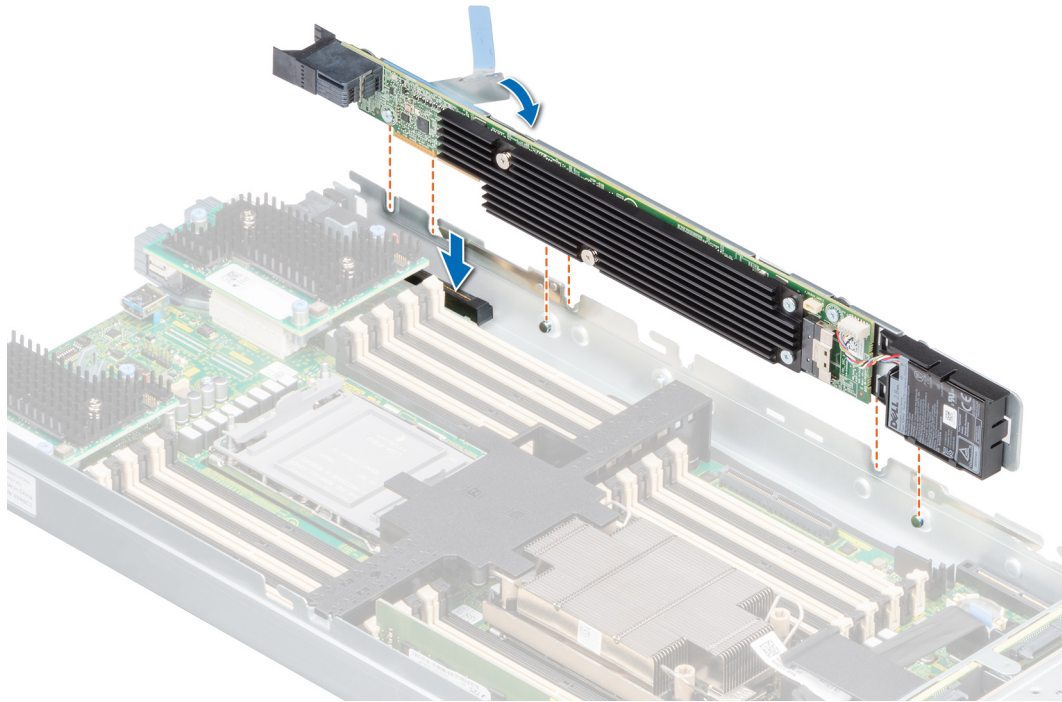5. Close the lever on the Jumbo PERC card.

Figure 67. Installing the Jumbo PERC card (H745P MX)

Next steps

1. Connect the cable on the Jumbo PERC card.
2. Follow the procedure listed in the After working inside your system.

Optional IDSDM module

Removing the IDSDM 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 air shroud.

Steps

Holding the blue tag, lift the IDSDM card out of the system .

⚠ **CAUTION: To prevent damage to the IDSDM card, you must not tilt the card while lifting it from the system board.**

Figure 68. Removing the IDSDM card

Next steps
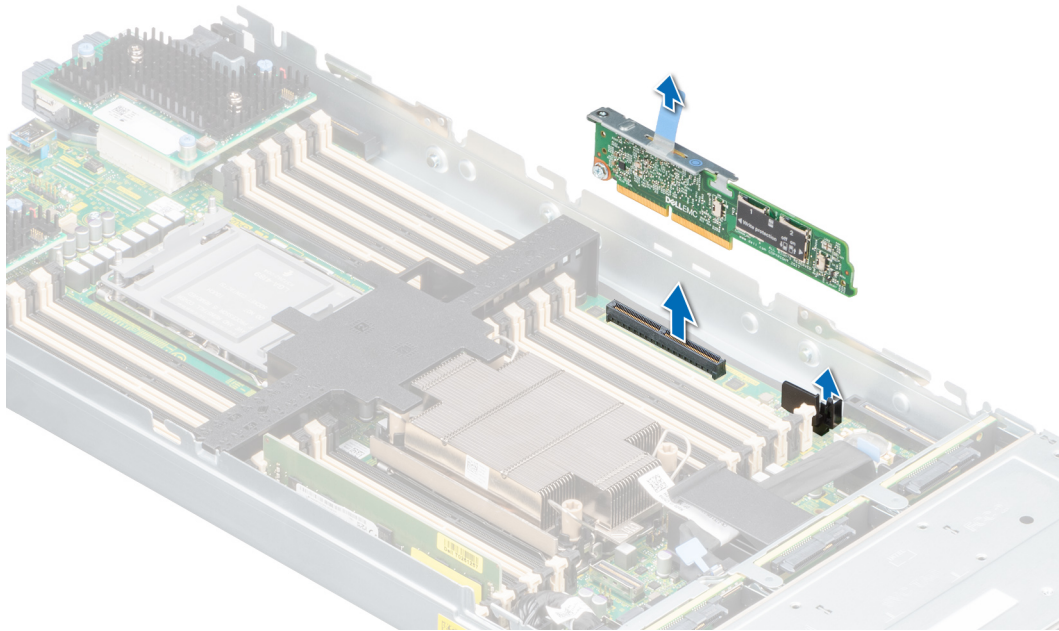
1. Replace the IDSDM module.

Installing the IDSDM module

Prerequisites

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

⚠ **CAUTION: To prevent damage to the IDSDM card, you must hold the card only by its edges.**

Steps

1. Locate the IDSDM connector on the system board.
2. Align the IDSDM card with the connector on the system board.
3. Push the IDSDM card firmly until it is fully seated on the system board.

Figure 69. Installing IDSDM card

Next steps

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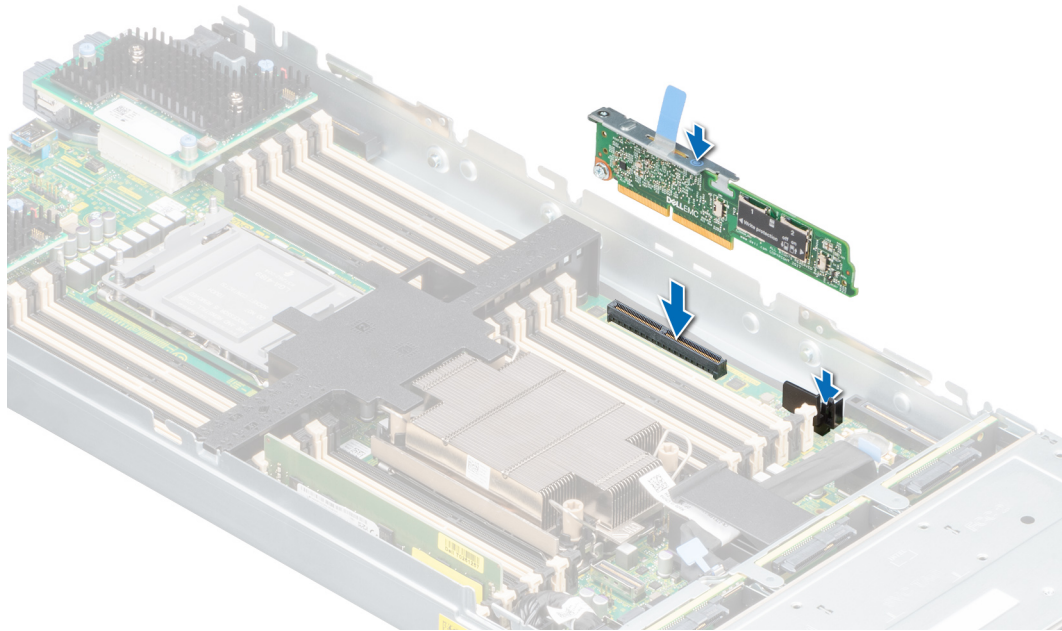
Removing the MicroSD card

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 IDSDM module.

Steps

1. Locate the MicroSD card slot on the IDSDM module, and press the card to partially release it from the slot.
2. Hold the MicroSD card and remove it from the slot.

   (i) **NOTE:** Temporarily label each MicroSD card with its corresponding slot number after removal.

Figure 70. Removing a MicroSD card

Next steps

1. Replace the MicroSD cards.
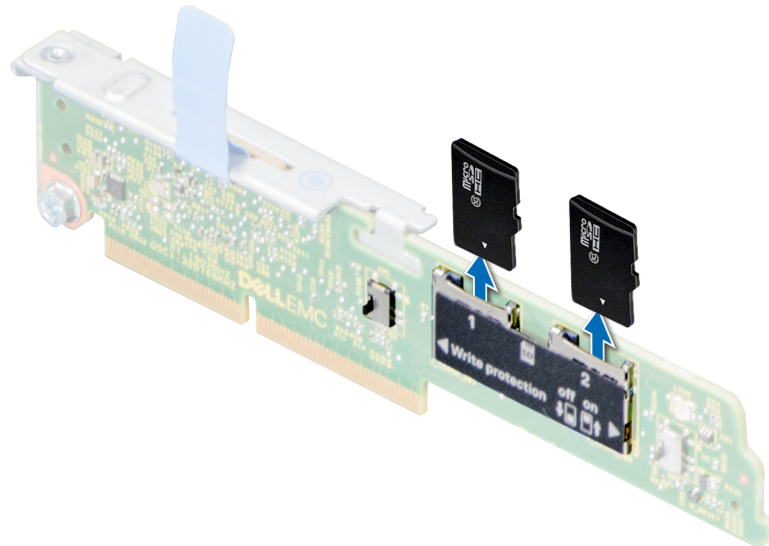2. Follow the procedure listed in After working inside your system.

Installing the MicroSD card

Prerequisites

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

ⓘ **NOTE:** To use a MicroSD card with your system, ensure that the **Internal SD Card Port** is enabled in System Setup.

ⓘ **NOTE:** If reinstalling, ensure that you install the MicroSD cards into the same slots based on the labels you had marked on the cards during removal.

Steps

1. Locate the MicroSD card connector on the IDSDM module. Orient the MicroSD card appropriately and insert the contact-pin end of the card into the slot.

   ⓘ **NOTE:** The slot is keyed to ensure correct insertion of the card.

2. Press the card into the card slot to lock it into place.
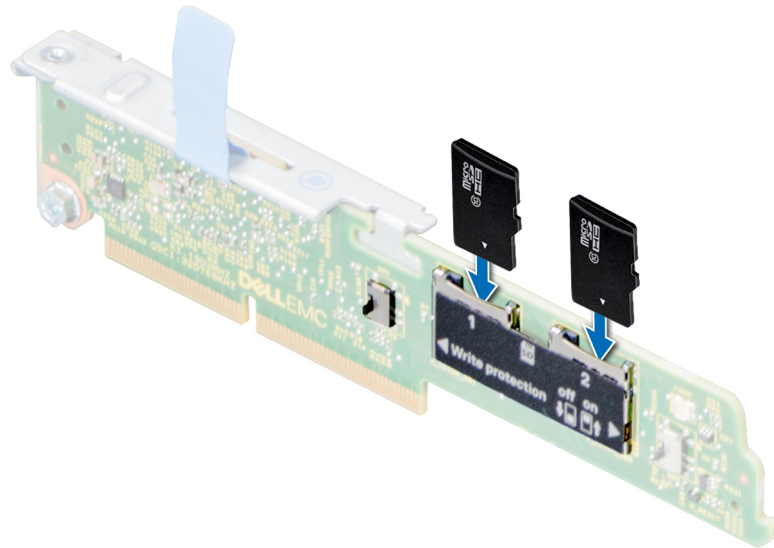
Figure 71. Installing a MicroSD card

Next steps

1. Install the IDSDM module.
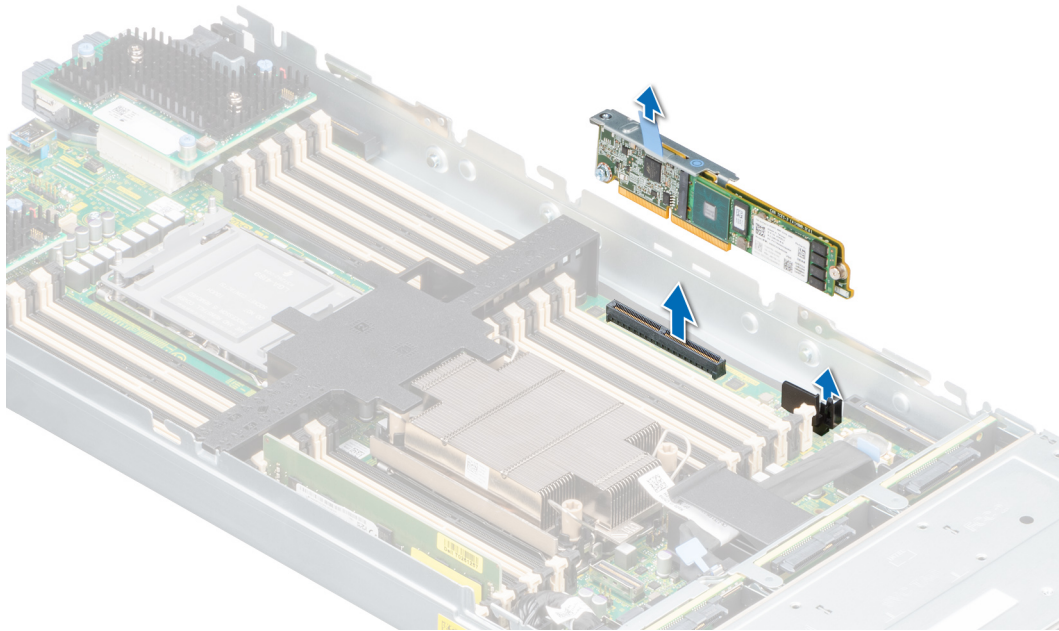2. Follow the procedure listed in After working inside your system.

M.2 BOSS card

Removing the M.2 BOSS card

Prerequisites

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

Steps

Holding the blue tag, lift the M.2 BOSS card out of the system.

Figure 72. Removing the M.2 BOSS card

Next steps

1. Replace the M.2 BOSS card.

Installing the M.2 BOSS card

Prerequisites

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

Steps

1. Align the M.2 BOSS card connector with the connectors on the system board and the guide on the M.2 BOSS card with the guiding slot on the system board.
2. Press the touch point on the M.2 BOSS card firmly until it is fully seated.

Figure 73. Installing the M.2 BOSS card

Next steps

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

Removing the M.2 SSD module
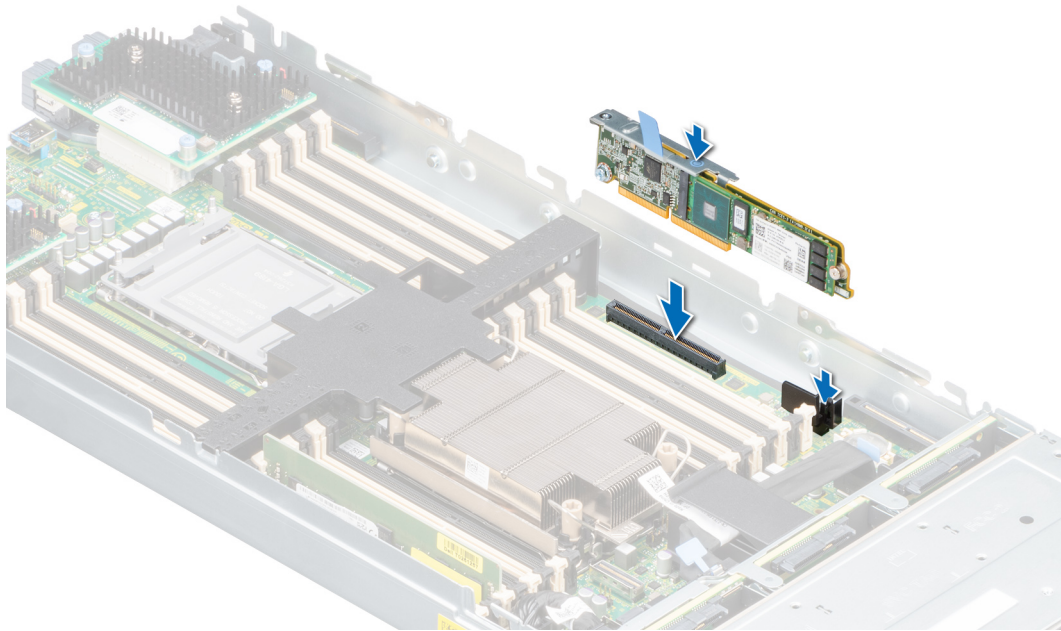
Prerequisites

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

Steps

1. Using the Phillips #1 screwdriver, remove the screws that secure the M.2 SSD module to the M.2 BOSS card.
2. Pull the M.2 SSD module to remove it from the M.2 BOSS card.

Figure 74. Removing the M.2 SSD module
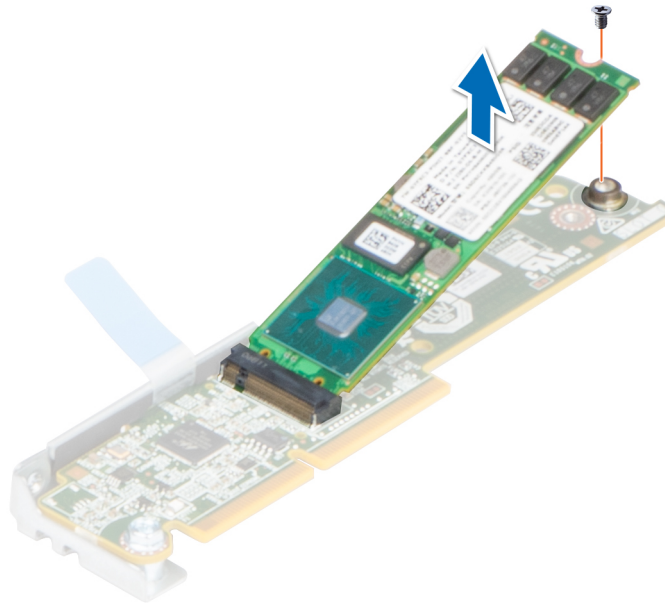
Next steps

1. Replace the M.2 SSD module.

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.

Steps

1. Align the M.2 SSD module at an angle with the M.2 BOSS card connector.
2. Insert the M.2 SSD module firmly until it is fully seated in the M.2 BOSS card connector.
3. Using the Phillips #1 screwdriver, secure the M.2 SSD module on the M.2 BOSS card.
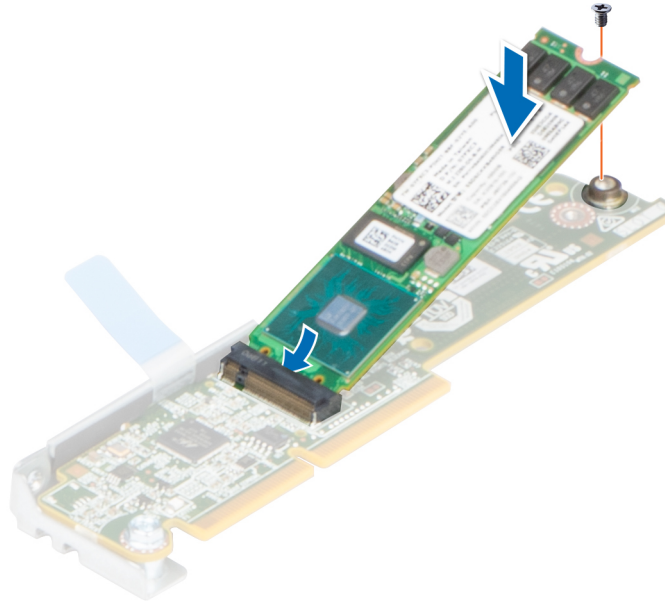
Figure 75. Installing the M.2 SSD module

Next steps

1. Install the M.2 BOSS module.
2. Follow the procedure listed in the After working inside your system.

Mezzanine cards

The PowerEdge MX750c system supports:

● One x16 PCIe Gen4 slot for PERC – connected to processor 1
● One x16 PCIe Gen4 slot for Mezz A – connected to processor 1
● One x16 PCIe Gen4 slot for Mezz B – connected to processor 2
● One x16 PCIe Gen4 slot for mini-Mezz card – connected to processor 2

Mezzanine card installation guidelines

The following table describes the supported mezzanine cards:

Table 35. Mezzanine card riser configurations

Mezzanine card category	Description	Slot priority	Maximum cards (FI)
Ethernet Mezz	Broadcom PCIe Gen4 Quad-Port 25Gb NIC	Mezzanine slot A or B (populate A first)	2
	QLogic PCIe Gen3 QL41262 DP 25Gb CNA	Mezzanine slot A or B (populate A first)	2
	Intel PCIe Gen3 DP 25Gb CNA	Mezzanine slot A or B (populate A first)	2
Fibre channel HBAs	Emulex (FC32 DP)	Mezzanine slot C (mini-Mezz slot)	1

Table 35. Mezzanine card riser configurations (continued)

Mezzanine card category	Description	Slot priority	Maximum cards (FI)
	QLogic QME2742 (FC32 DP)	Mezzanine slot C (mini-Mezz slot)	1
Storage	PERC 9: HBA330 MMZ	Mezzanine slot C (mini-Mezz slot)	1
	PERC 10: H745P MX V3	Mezzanine slot C (mini-Mezz slot)	1
	PERC 11: HBA350i	PERC connector	1
	PERC 11: H755 MX	PERC connector	1

Removing the Mezzanine card

Prerequisites

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

Steps

1. Use the Phillips #2 screwdriver, loosen the captive screws that secure the Mezzanine card to the system.
2. Lift the Mezzanine card out of the sled.

   (i) **NOTE:** To prevent damage to Mezzanine card, you must hold the card only by its edges.

Figure 76. Removing the Mezzanine-A card

Figure 77. Removing the Mezzanine-B card

Next steps

1. Install the Mezzanine card.
2. Follow the procedure listed in After working inside your system.

Installing the Mezzanine card

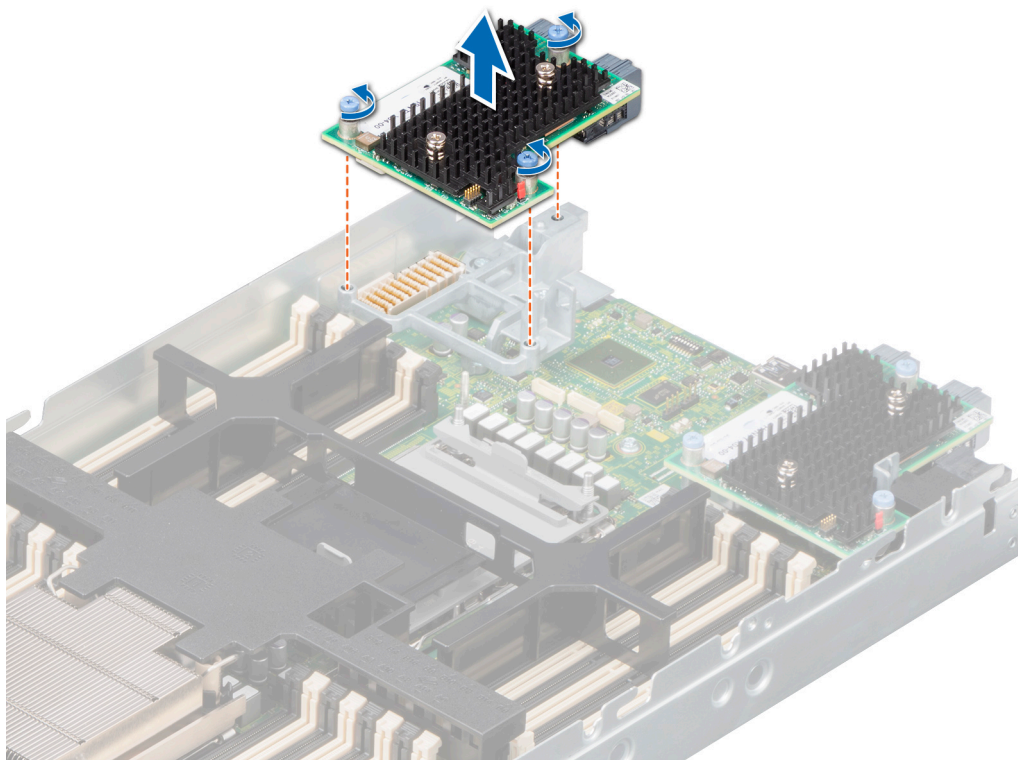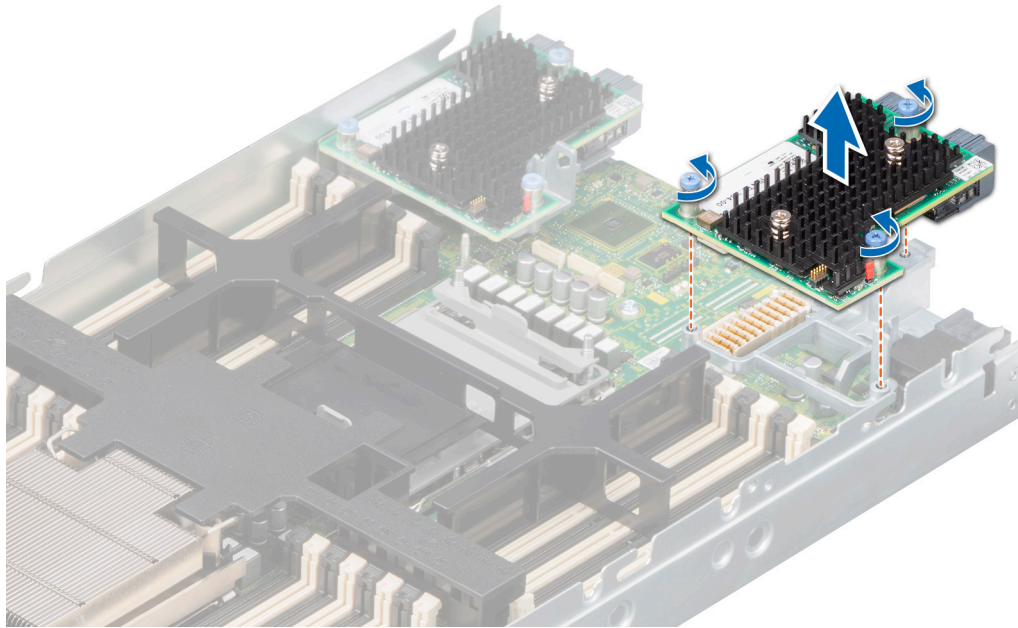**Prerequisites**

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

ⓘ **NOTE:** Mezzanine B card is supported only on dual-processor configuration.

Steps

1. Align the connector on the Mezzanine card with the connector on the system board.
2. Place the Mezzanine card on the connector and press the blue touch point firmly until it is fully seated.
3. Using the Phillips #2 screwdriver, tighten the captive screws on the Mezzanine card.
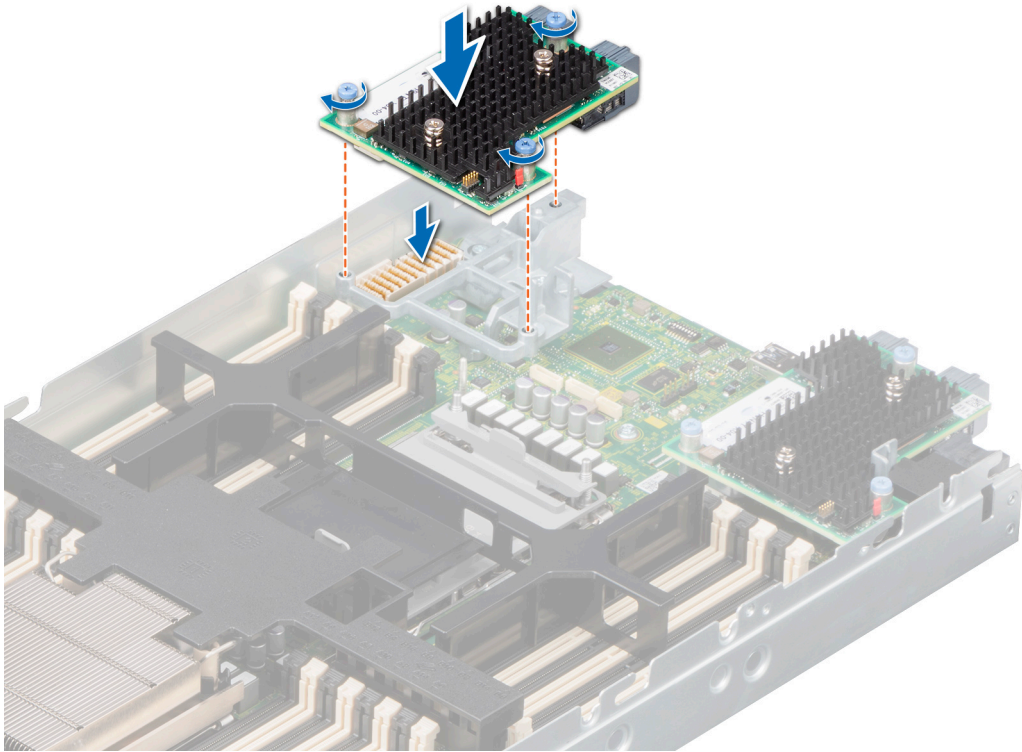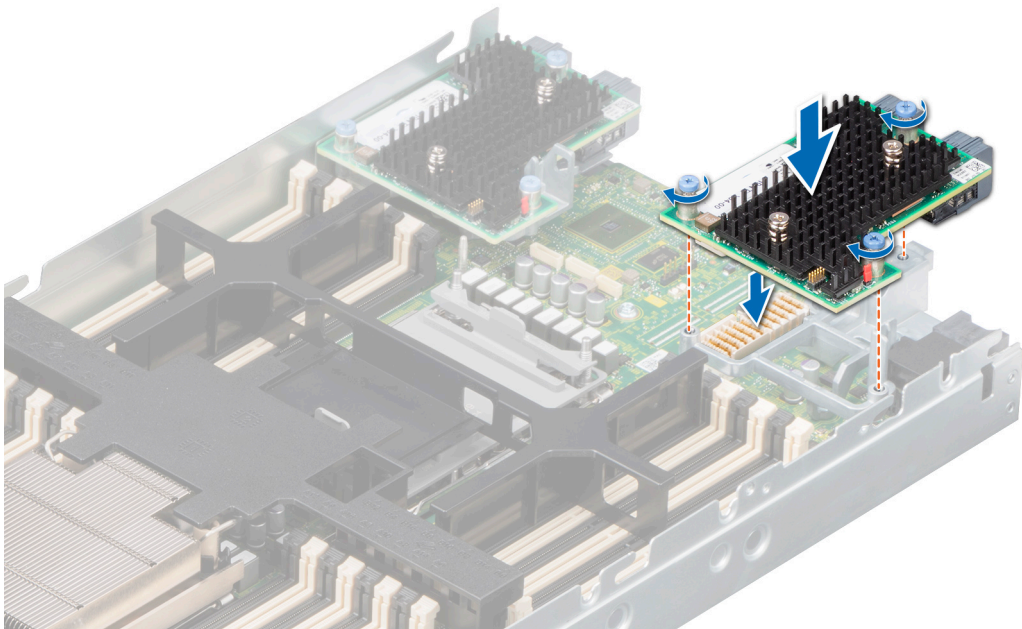
Figure 78. Installing the Mezzanine-A card

Figure 79. Installing the Mezzanine-B card

Next steps

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

Removing the mini Mezzanine card

Prerequisites

⚠ **CAUTION: To ensure proper system cooling, mini Mezzanine blank must be installed in the mini Mezzanine socket.**

ⓘ **NOTE:** It is recommended to remove the mini Mezzanine blank only if you intend to install mini Mezzanine card in the sockets.

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

   ⓘ **NOTE:** MX750c supports HBA330 MMZ and Fiber channel MMZ, which is installed in mini Mezzanine socket.

Steps

1. Pull the blue pull tag to lift the lever up of the mini Mezzanine card.
2. Holding the lever and the edge of the mini Mezzanine card, lift the mini Mezzanine card from the system.
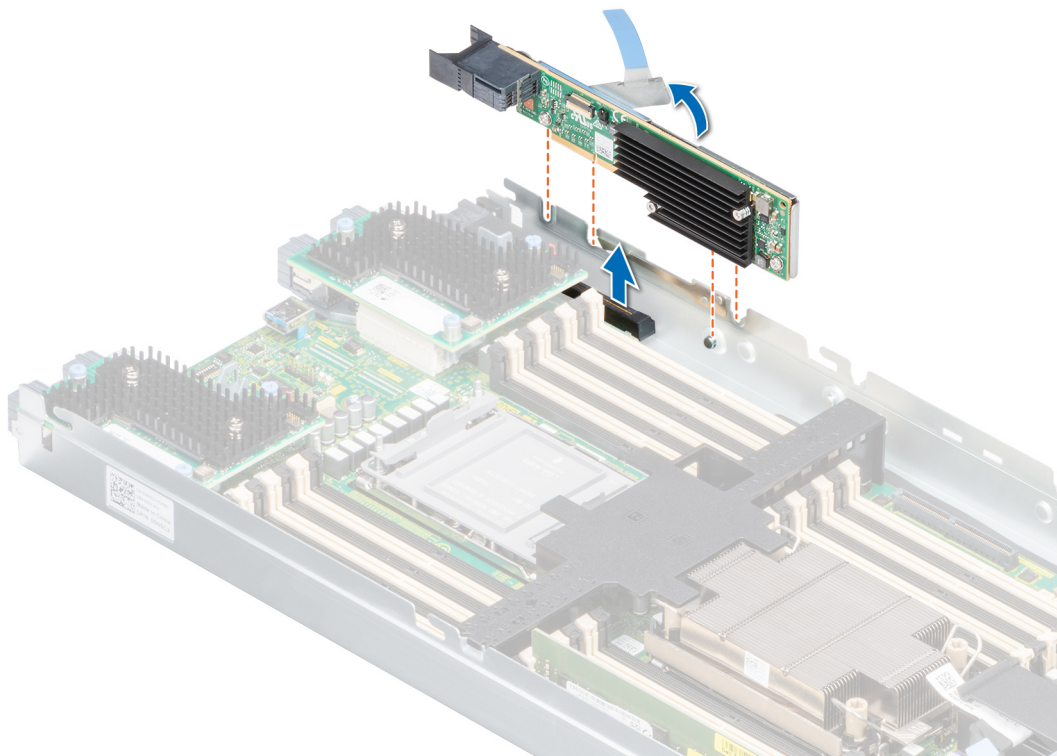
Figure 80. Removing the mini Mezzanine card (HBA330 MMZ)

ⓘ **NOTE:** Install the connector cap on the I/O connector of the mini Mezzanine card, when not installed on system board.

Next steps

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

Installing the mini Mezzanine card

Prerequisites

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

(i) **NOTE:** The mini Mezzanine card is supported only on systems with two processors.

Steps

1. Remove the connector cap on the I/O connector of the mini Mezzanine card.
2. Pull the blue pull tag to raise the lever on the mini Mezzanine card.
3. Align the mini Mezzanine card connector with the connector on the system board.
4. Insert the mini Mezzanine card firmly until it is fully seated.

Figure 81. Installing the mini Mezzanine card (HBA330 MMZ)

5. Close the lever on the mini Mezzanine card.

Next steps

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

Removing the mini Mezzanine card blank

Prerequisites

⚠ **CAUTION: To ensure proper system cooling, the mini Mezzanine blank must be installed in the mini Mezzanine socket.**

(i) **NOTE:** The removal of the blank is recommended only if you intend to install a mini Mezzanine card in the socket.

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

Steps

Lift the mini Mezzanine card blank from the slot to remove it from the system.
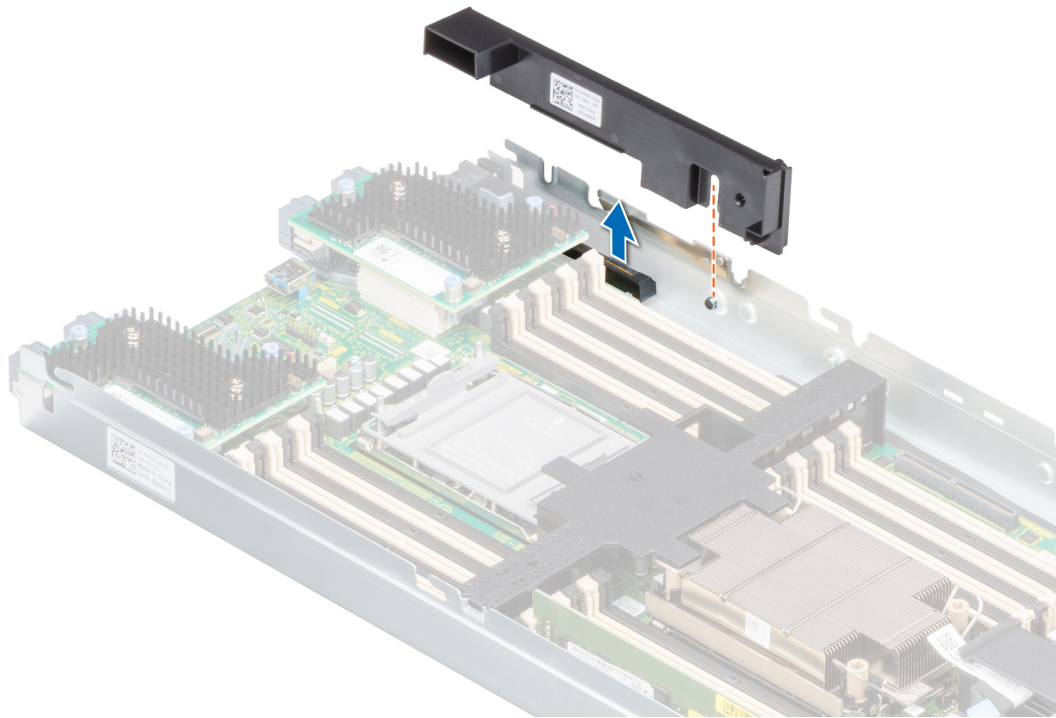
Figure 82. Removing the mini Mezzanine card blank

Next steps

1. Follow the procedure listed in After working inside your system.
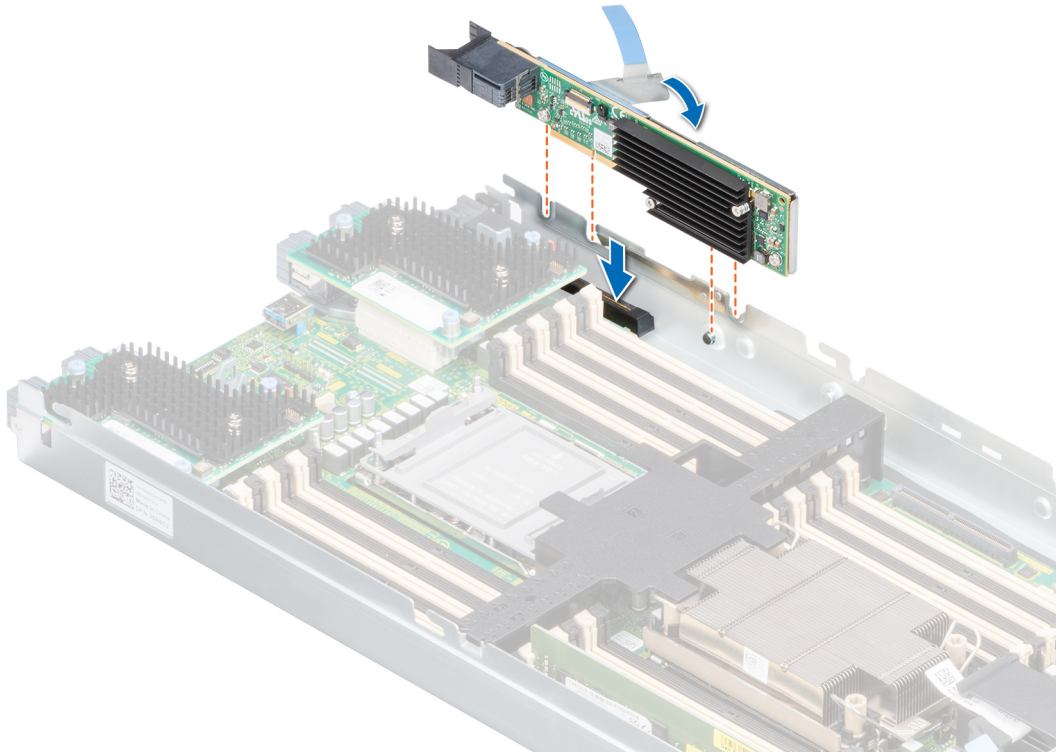
Installing the mini Mezzanine card blank

Prerequisites

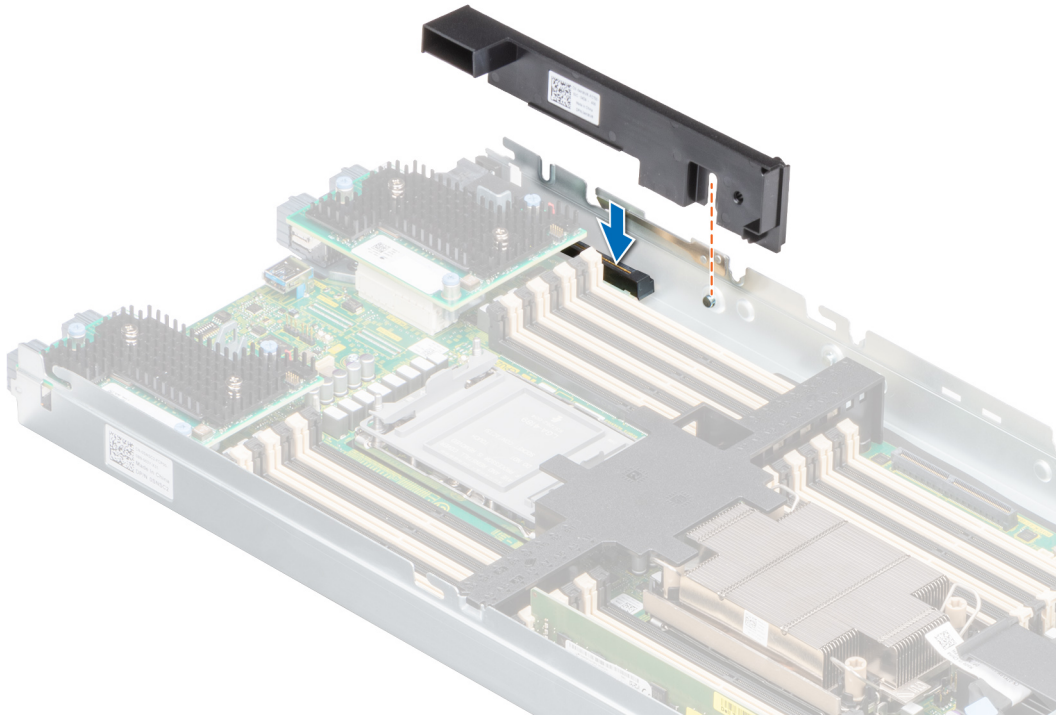1. Follow the safety guidelines listed in Safety Instructions.
2. Follow the procedure listed in Before working inside your system.

Steps

1. Align the slot on the blank with the guiding pin on the system.
2. Insert and press the blank firmly until it is fully seated.

Figure 83. Installing the mini Mezzanine card blank

Next steps

Follow the procedure listed in After working inside your system.

Optional internal USB memory key

Replacing the optional internal USB memory key

Prerequisites

⚠️ **CAUTION: To avoid interference with other components in the server, the maximum permissible dimensions of the USB memory key: 15.9 mm width x 57.15 mm length x 7.9 mm height.**

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

Steps

1. Locate the USB port or USB memory key on the system board.
2. If installed, remove the USB memory key from the USB port.
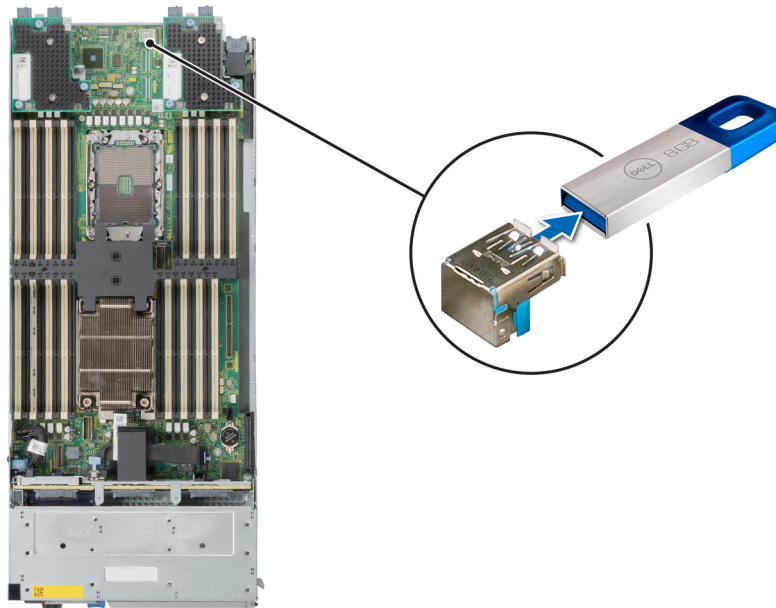
Figure 84. Removing the internal USB memory key

3. Insert the replacement USB memory key into the USB port.

Figure 85. Installing the internal USB memory key

Next steps

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

System battery

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.
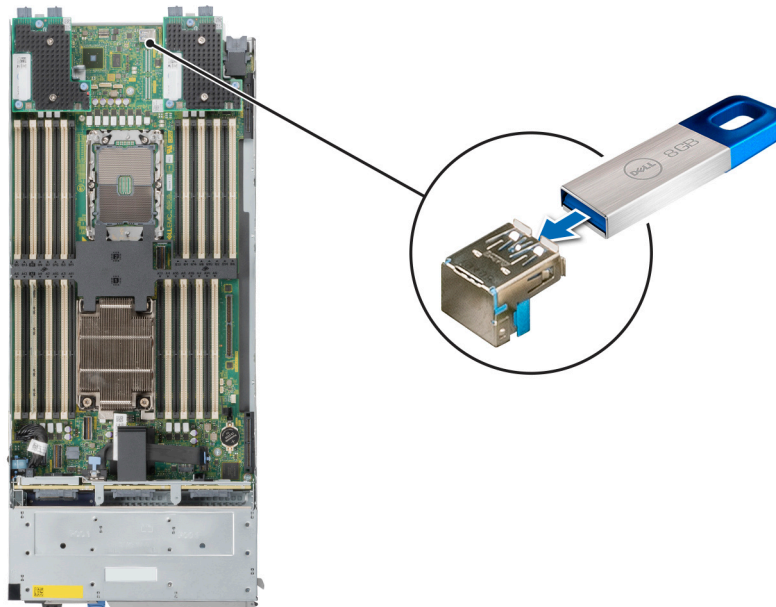2. Follow the procedure listed in the Before working inside your system.

Steps

1. To remove the battery:
   a. Use a plastic scribe to pry out the system battery.

   ⚠️ **CAUTION: To avoid damage to the battery connector, you must firmly support the connector while installing or removing a battery.**
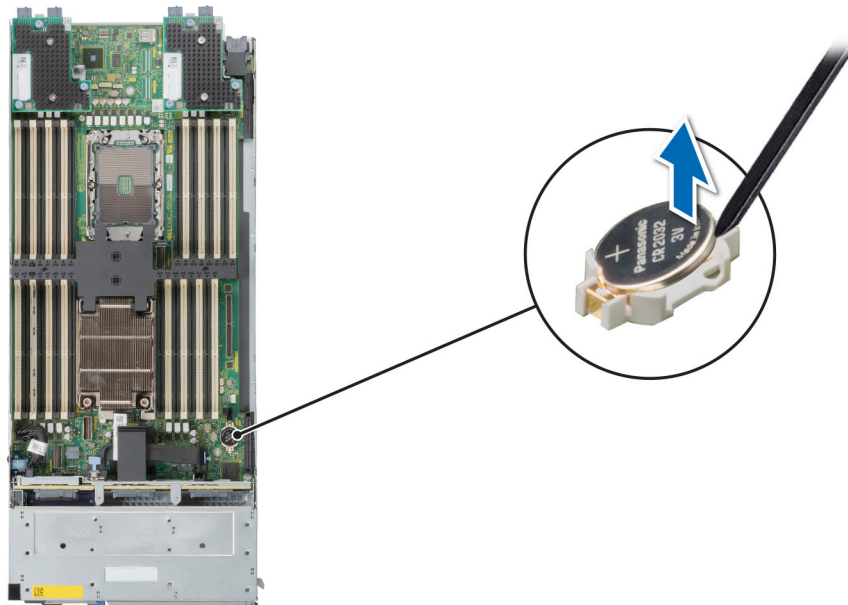
Figure 86. Removing the system battery

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

Figure 87. Installing the system battery

Next steps

1. Follow the procedure listed in After working inside your system.
2. 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, remove the system from the enclosure for at least an hour.
   e. Reinstall the system into the enclosure after an hour.
   f. Enter the System Setup and if the time and date are still incorrect, see Getting help section.

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.
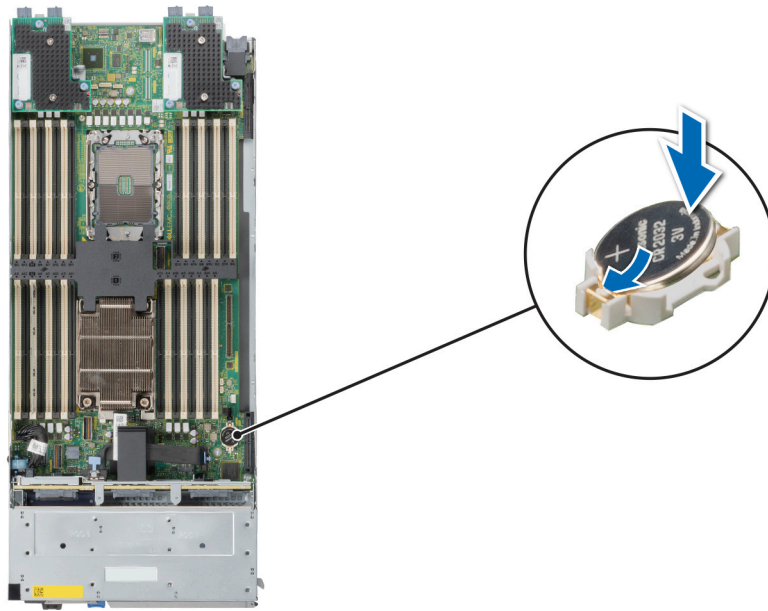2. Follow the procedure listed in the Before working inside your system.
3. Remove the following components:

   ⓘ **NOTE:** 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.

   a. Air shroud
   b. Memory modules
   c. Processor and heat sink module
   d. Drives

e. Drive backplane
f. Drive cage
g. PERC card
h. IDSDM/M.2 BOSS card
i. Mezzanine cards
j. Mini Mezzanine card
k. Internal USB key

⚠ **CAUTION: To prevent damage to the processor socket when replacing a faulty system board, ensure that you cover the processor socket with the processor dust cover.**

l. Disconnect all the cables from the system board.

⚠ **CAUTION: Take care not to damage the system identification button while removing the system board from the system.**

Steps

1. Using the Phillips #2 screwdriver, remove the screws that secure the Mezz card brackets to the system board.
2. Holding the brackets by the edges, lift the brackets out of the system.
3. Using the Phillips #2 screwdriver, remove the screws that secure the system board to the chassis.
4. Lift the system board out of the chassis.
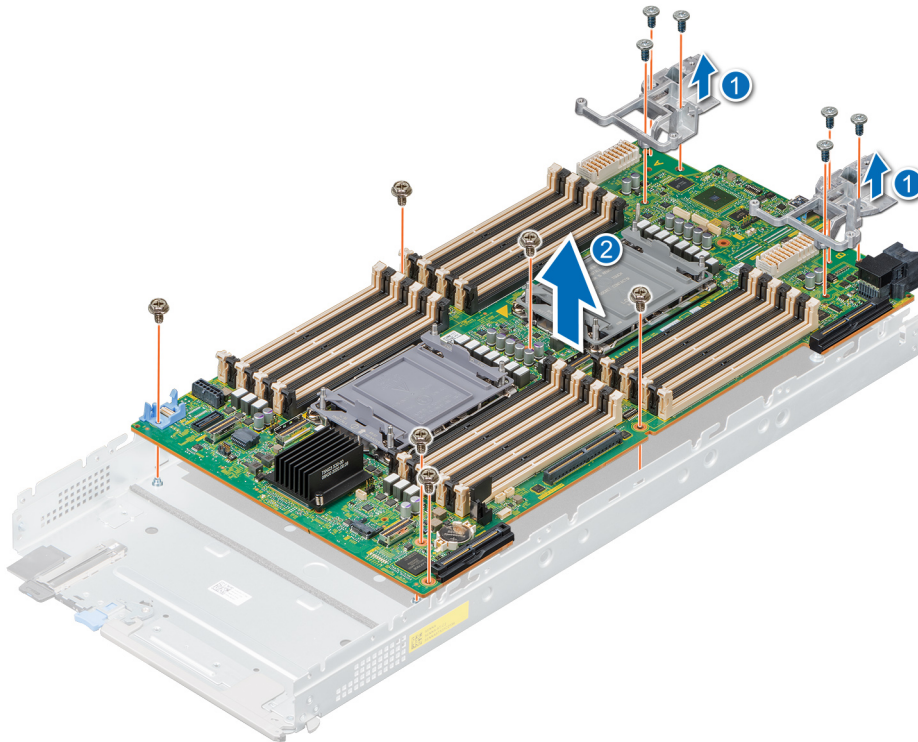
Figure 88. Removing the system board

Next steps

1. Replace the system board.

Installing the system board

Prerequisites

ⓘ **NOTE:** Before replacing the system board, replace the old iDRAC MAC address label in the Information 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 Before working inside your system.
3. If you are replacing the system board, remove all the components that are listed in the removing the system board section.

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 by its edges, lower the system board into the chassis.
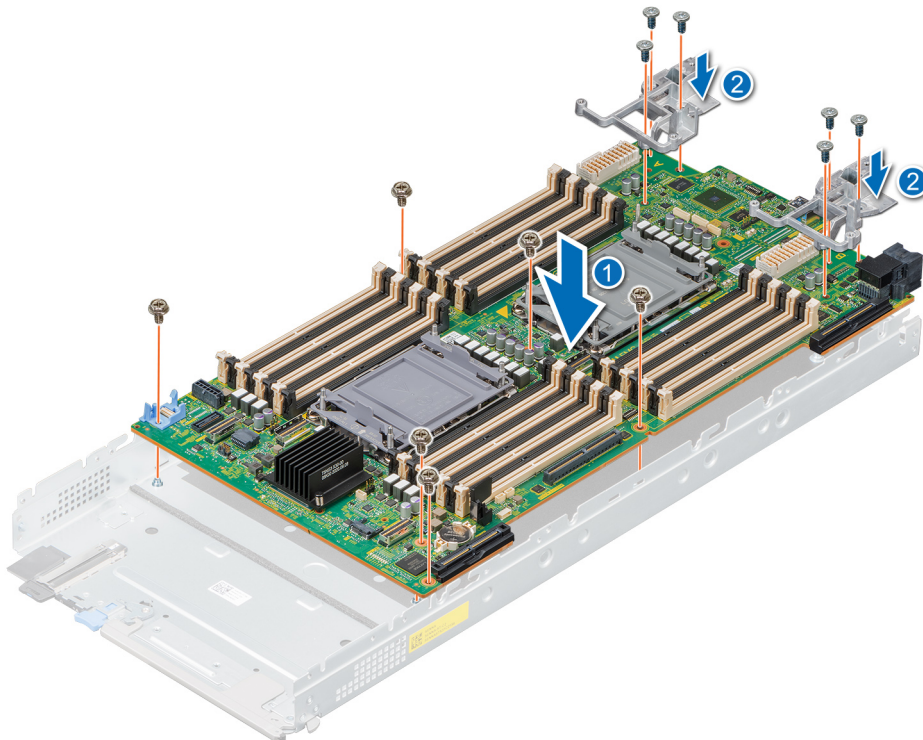
Figure 89. Installing the system board

3. Holding the Mezz card brackets by its edges, lower the brackets into the system board.
4. Using the Phillips #2 screwdriver, tighten the screws that secure the system board to the chassis.
5. Using the Phillips #2 screwdriver, tighten the screws that secure the Mezz card brackets to 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 key

c. IDSDM/M.2 BOSS card
   d. Mini Mezzanine card
   e. Mezzanine cards
   f. PERC card
   g. Drive cage
   h. Drive backplane
   i. Drives

   ⓘ **NOTE:** Ensure that you reinstall the drives in their original locations.

   j. Memory modules
   k. Processor and heat sink module
   l. Air shroud
2. Reconnect the 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. Remove the plastic I/O connector cover from the rear of the system.
4. Install the sled in the enclosure.
5. Follow the procedure listed in After working inside your system.
6. 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.
7. If you are not using Easy restore, import your new or existing iDRAC Enterprise license. For more information, see the Integrated *Dell Remote Access Controller User's Guide*, available at https://www.dell.com/idracmanuals.

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:
- Restore the service tag, license, and diagnostics information, press **Y**
- Navigate to the Lifecycle Controller based restore options, press **N**
- 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.

- Restore data from a previously created **Hardware Server Profile**, press **F10**
- To restore the system configuration data, press **Y**
- To use the default configuration settings, press **N**
-
   ⓘ **NOTE:** After the restore process is complete, system reboots.

Trusted Platform Module

This is a service technician replaceable part only.

Upgrading the Trusted Platform Module

Removing the TPM

Prerequisites

(i) **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 System board connectors.
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

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.
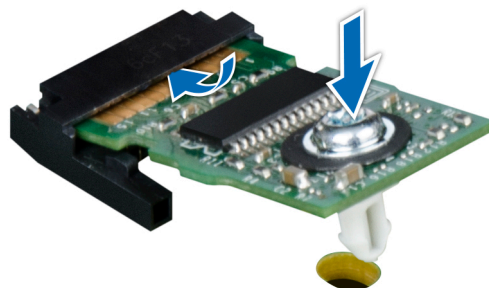
Figure 90. Installing the TPM

Initializing TPM for users

Steps

1. Initialize the TPM.
   For more information, see Initializing the TPM for users.
2. The **TPM Status** changes to **Enabled, Activated**.

Initializing the TPM 1.2 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 with Preboot Measurements**.
4. From the **TPM Command** option, select **Activate**.
5. Save the settings.
6. Restart your system.

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.

Upgrade Kits

> ⓘ **NOTE:** Kit includes SATA, SAS, PCIE and Jumbo SAS cables. Not all cables are required for each configuration. Cables are required based on the configuration.

Table 36. Upgrade kits

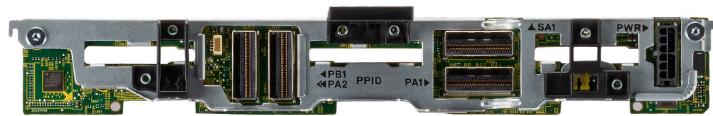| Kits	Related links to service instructions
PERC H755 MX	See Installing the H755 MX card
PERC H745P MX (Jumbo PERC)	See Installing the H745P MX card
HBA350i MX	See Installing the HBA350i MX card

1. Identify the backplane (see column **Backplane configuration** in the table).

Figure 91. x6 universal backplane
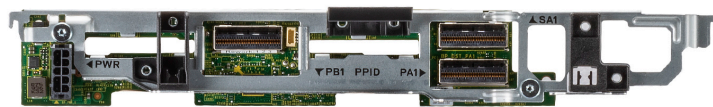
Figure 92. x4 universal backplane

Figure 93. x6 SAS/SATA backplane

2. Identify the current system configuration (see column **Upgrade from** in the table) and the upgrade to configuration (see column **Upgrade to** in the table).
3. Disconnect the card or cables (see column **Disconnect and remove card or cables from the connector** in the table) and replace with the card or cables (see column **Replace with the card or cables** in the table).
4. For the final cabling configuration (see column **Refer to cabling configurations** in the table).

Table 37. Cables

Cable name	Cable connector name	Cable image
SATA cable	MB SL6 – BP SA1	
SAS cable	BP SA1–CTRL_SA1	
PCIEA cable	CTRL_ PA1 – BP PA1	

Table 37. Cables (continued)

Cable name	Cable connector name	Cable image
Jumbo SAS cable	BP SA1– CTRL_SA1	
PCIE1 cable	MB SL1 – BP PA1	
PCIE2 cable	MB SL2 – BP PB1	
PCIEB cable	CTRL_PB1 – BP PA2	

Topics:

- PERC H755 MX Upgrade kit
- PERC H745P MX Upgrade kit
- HBA350i Upgrade kit

PERC H755 MX Upgrade kit

The below table provides the upgrade kit information about PERC H755 MX available After Point of Sale (APOS):

Table 38. PERC H755 MX upgrade kit

Backplane configuration	Upgrade from:	Upgrade to:	Disconnect and remove card or cables from the connector (cable marking):	Replace with the card or cables (cable marking):	Refer to cabling configurations
X6 Universal backplane	Onboard SATA/ SWRAID/NVME	H755 MX (NVME HW RAID)	- SATA cable (MB SL6 – BP SA1) - PCIE1 cable (MB SL1 – BP PA1) - PCIE2 cable (MB SL2 – BP PB1) - PCIE3 cable (MB SL3 – BP PA2)	- H755 MX card - PCIEA cable (CTRL_PA1 – BP PA1 and BP PB1) - PCIEB cable (CTRL_PA2 – BP PA2)	Cable routing > PCIe cabling diagram of configuration 4 - 6 x 2.5-inch Universal backplane with H755 MX
X4 Universal backplane	Onboard SATA/ SWRAID/NVME	H755 MX (SAS Controller)	SATA cable (MB SL6 – BP SA1)	- H755 MX card - SAS cable (CTRL_SA1 – BP SA1)	Cable routing > SAS/PCIe cabling diagram of configuration 9 - 4 x 2.5-inch Universal backplane with H755 MX + on board PCIe
		H755 MX (NVME HW RAID)	- SATA cable (MB SL6 – BP SA1) - PCIE1 cable (MB SL1 – BP PA1) - PCIE2 cable (MB SL2 – BP PB1)	- H755 MX card - PCIEA cable (CTRL_PA1 – BP PA1 and BP PB1)	Cable routing > SATA cabling diagram of configuration 12 - 4 x 2.5-inch SATA/SAS only backplane
	HBA350i (SAS Controller /Non– RAID)	H755 MX (SAS controller)	HBA350i card	H755 MX card	No cable change
		H755 MX (NVME HW RAID)	- HBA350i card - SAS cable (BP SA1– CTRL_SA1) - PCIE1 cable (MB SL1 – BP PA1) - PCIE2 cable (MB SL2 – BP PB1)	- H755 MX card - PCIEA cable (CTRL_PA1 – BP PA1 and BP PB1)	Cable routing > PCIe cabling diagram of configuration 12 - 4 x 2.5-inch Universal backplane with H755 MX
	H745P MX (Jumbo PERC)	H755 MX (SAS controller)	- H745P MX card - Jumbo SAS cable (BP SA1– CTRL_SA1)	- H755 MX card - SAS cable (CTRL_SA1 – BP SA1)	Cable routing > SAS/PCIe cabling diagram of configuration 9 - 4 x 2.5-inch Universal backplane

Table 38. PERC H755 MX upgrade kit (continued)

Backplane configuration	Upgrade from:	Upgrade to:	Disconnect and remove card or cables from the connector (cable marking):	Replace with the card or cables (cable marking):	Refer to cabling configurations
					with H755 MX + on board PCIe
		H755 MX (NVME HW RAID)	- H745P MX card - Jumbo SAS cable (BP SA1– CTRL_SA1) - PCIE1 cable (MB SL1 – BP PA1) - PCIE2 cable (MB SL2 – BP PB1)	- H755 MX card - PCIEA cable (CTRL_PA1 – BP PA1 and BP PB1)	Cable routing > PCIe cabling diagram of configuration 12 - 4 x 2.5-inch Universal backplane with H755 MX
X6 SAS/SATA backplane	Onboard SATA/ SWRAID	H755 MX (SAS Controller)	SATA cable (MB SL6 – BP SA1)	- H755 MX card - SAS cable (CTRL_SA1 – BP SA1)	Cable routing > SAS cabling diagram of configuration 6 - 6 x 2.5-inch SAS/ SATA backplane with H755 MX
	H745PMX (Jumbo PERC)	H755 MX (SAS Controller)	- H745P MX card - Jumbo SAS cable (BP SA1 – CTRL_SA1)	- H755 MX card - SAS cable (CTRL_SA1 – BP SA1)	Cable routing > SAS cabling diagram of configuration 6 - 6 x 2.5-inch SAS/ SATA backplane with H755 MX

PERC H745P MX Upgrade kit

The below table provides the upgrade kit information about PERC H745P MX available After Point of Sale (APOS):

Table 39. PERC H745P MX upgrade kit

Backplane configuration	Upgrade from:	Upgrade to:	Disconnect and remove card or cables from the connector (cable marking):	Replace with the card or cables (cable marking):	Refer to cabling configurations
X4 Universal backplane	Onboard SATA/ SWRAID/NVME	H745P MX (Jumbo PERC)	SATA cable (MB SL6 – BP SA1)	- H745P MX card - Jumbo SAS cable (CTRL_SA1 – BP SA1)	Cable routing > SAS/PCIe cabling diagram of configuration 10 - 4 x 2.5-inch Universal backplane with H745P MX (Jumbo PERC) + on board PCIe
	HBA350i (SAS Controller /Non– RAID)	H745P MX (Jumbo PERC)	- HBA350i card - SAS cable (CTRL_SA1 – BP SA1) - FabC MMZ card if present	- H745P MX card - Jumbo SAS cable (CTRL_SA1 – BP SA1)	Cable routing > SAS/PCIe cabling diagram of configuration 10 - 4 x 2.5-inch Universal backplane

Table 39. PERC H745P MX upgrade kit (continued)

Backplane configuration	Upgrade from:	Upgrade to:	Disconnect and remove card or cables from the connector (cable marking):	Replace with the card or cables (cable marking):	Refer to cabling configurations
					with H745P MX (Jumbo PERC) + on board PCIe
X6 SAS/SATA backplane	Onboard SATA/ SWRAID	H745P MX (Jumbo PERC)	SATA cable (MB SL6 – BP SA1)	● H745P MX card ● Jumbo SAS cable (CTRL_SA1 – BP SA1)	Cable routing > SAS cabling diagram of configuration 7 - 6 x 2.5-inch SAS/ SATA backplane with H745P MX (Jumbo PERC)
	H755 MX (SAS controller)	H745P MX (Jumbo PERC)	● H755 MX SAS ● SAS cable (CTRL_SA1 – BP SA1)	● H745P MX card ● Jumbo SAS cable (CTRL_SA1 – BP SA1)	Cable routing > SAS cabling diagram of configuration 7 - 6 x 2.5-inch SAS/ SATA backplane with H745P MX (Jumbo PERC)

HBA350i Upgrade kit

The below table provides the upgrade kit information about HBA350i available After Point of Sale (APOS):

Table 40. HBA350i upgrade kit

Backplane configuration	Upgrade from:	Upgrade to:	Disconnect and remove card or cables from the connector (cable marking):	Replace with the card or cables (cable marking):	Refer to cabling configurations
X4 Universal backplane	Onboard SATA/ SWRAID/NVME	HBA350i (SAS Controller/ Non–RAID)	SATA cable (MB SL6 – BP SA1)	● HBA350i card ● SAS cable (CTRL_SA1–BP SA1)	Cable routing > SAS/PCIe cabling diagram of configuration 9 - 4 x 2.5-inch Universal backplane with H755 MX + on board PCIe
	H745P MX (Jumbo PERC)	HBA350i (SAS Controller/ Non–RAID)	● H745P MX card ● Jumbo SAS cable (CTRL_SA1–BP SA1)	● HBA350i card ● SAS cable (CTRL_SA1–BP SA1)	Cable routing > SAS/PCIe cabling diagram of configuration 9 - 4 x 2.5-inch Universal backplane with H755 MX + on board PCIe
X6 SAS/SATA backplane	Onboard SATA/ SWRAID	HBA350i (SAS Controller/ Non–RAID)	SATA cable (MB SL6 – BP SA1)	● HBA350i card ● SAS cable (CTRL_SA1–BP SA1)	Cable routing > SAS/PCIe cabling diagram of configuration 9 - 4 x 2.5-inch Universal backplane

Table 40. HBA350i upgrade kit (continued)

Backplane configuration	Upgrade from:	Upgrade to:	Disconnect and remove card or cables from the connector (cable marking):	Replace with the card or cables (cable marking):	Refer to cabling configurations
					with H755 MX + on board PCIe

Jumpers and connectors

This section provides essential 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 be able to identify the connectors on the system board.

Topics:

- System board connectors
- System board jumper settings
- Disabling a forgotten password

System board connectors
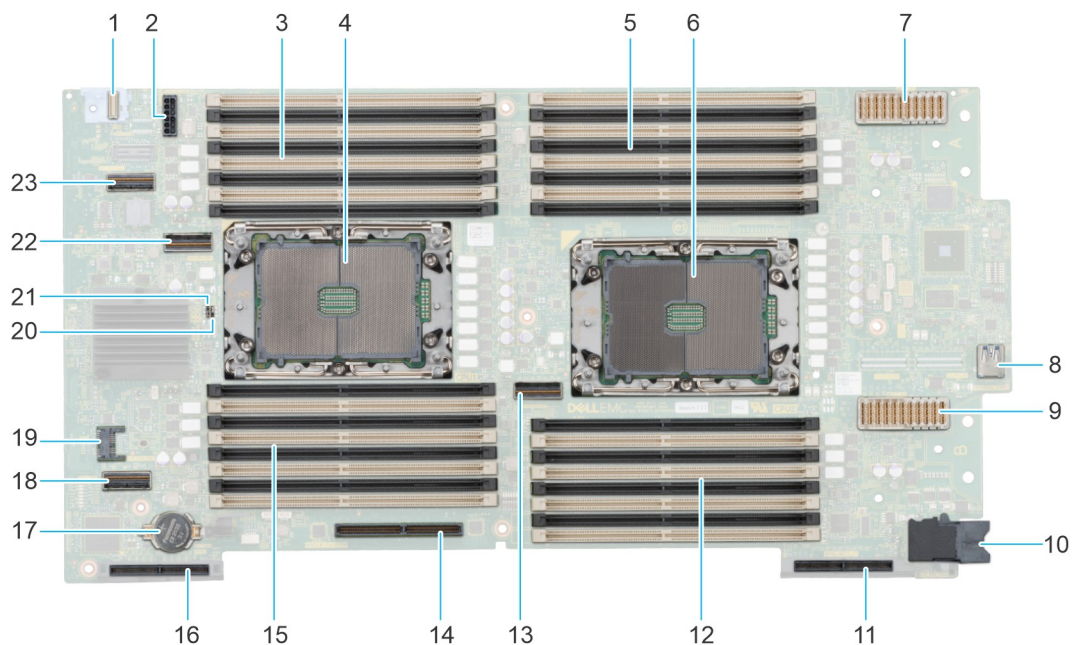
Figure 94. System board jumpers and connectors

1. Front I/O connector
2. Backplane power (SIG_PWR_0)
3. DIMMs for processor 1 (CPU 1) channels A,B,C,D
4. Processor 1 (CPU 1)
5. DIMMs for processor 2 (CPU 2) channels A,B,C,D
6. Processor 2 (CPU 2)
7. MEZZ connector A (MEZZ_A1)
8. Internal USB (INT_USB1_3.0)
9. MEZZ connector B (MEZZ_B1)
10. Power connector
11. Jumbo PERC / Mini MEZZ connector C (Mini_MEZZ_C1)
12. DIMMs for processor 2 (CPU 2) channels E,F,G,H
13. PCIe connector 3 (SL3_CPU2_PA2)
14. BOSS (M.2) / IDSDM
15. DIMMs for processor 1 (CPU 1) channels E,F,G,H
16. PERC connector
17. Coin cell battery
18. SATA connector (SL6_PCH_SA1)
19. TPM connector
20. NVRAM_CLR (Jumper)
21. PWRD_EN (Jumper)
22. PCIe connector 2 (SL2_CPU1_PB1)
23. PCIe connector 1 (SL1_CPU1_PA1)

System board jumper settings

For information about resetting the password jumper to disable a password, see the Disabling a forgotten password section.

Table 41. System board jumper settings

Jumper	Setting	Description
NVRAM_CLR	⬚■■⬚ 1 2 3 (default)	The BIOS configuration settings are retained at system boot.
	■■⬚ 1 2 3	The BIOS configuration settings are cleared at system boot.
PWRD_EN	■■⬚ 1 2 3 (default)	The BIOS password feature is enabled.
	⬚■■ 1 2 3	The BIOS password feature is disabled. iDRAC local access is unlocked at next AC power cycle. iDRAC password reset is enabled in F2 iDRAC settings menu.

⚠️ **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 compute sled and remove the compute sled from chassis.
2. Remove the system cover.
3. Move the jumper on the system board from pins 1 and 2 to pins 2 and 3.
4. Replace the system cover.

   ⓘ **NOTE:** The existing passwords are not disabled (erased) until the system boots with the jumper on pins 2 and 3. However, before you assign a new system and/or setup password, you must move the jumper back to pins 1 and 2.

   ⓘ **NOTE:** If you assign a new system and/or setup password with the jumper on pins 2 and 3, the system disables the new password(s) the next time it boots.

5. Insert compute sled into chassis and power on the compute sled.
6. Power off the compute sled and remove the compute sled from chassis.
7. Remove the system cover.
8. Move the jumper on the system board from pins 2 and 3 to pins 1 and 2.
9. Replace the system cover.
10. Insert compute sled into chassis and power on the compute sled.
11. Assign a new system and/or setup password.

System diagnostics and indicator codes

This section describes the diagnostic indicators on the system front panel that displays the system status during system startup.

Topics:

* Power button LED
* System health and system ID indicator codes
* Drive indicator codes
* Using system diagnostics

Power button LED

The power button LED is located on the front panel of your system.

Figure 95. Power button LED

Table 42. Power button LED

Power button LED indicator code	Condition
Off	System is not operating, regardless of power supply available.
On	System is operating, one or more of the non-standby power supply units are active.
Slowly blinking	System is performing powering on sequence and iDRAC is still booting.

ⓘ **NOTE:** When MX750c is installed in MX7000, the power button LED indicator display the status as off for one minute while the sled is initialized, even if the sled is configured to power on automatically (for example, with an AC power recovery policy of, On or Last). After one minute, if the sled is configured to power on automatically, the power button LED will start slowly blinking to indicate the system is performing the powering on sequence.

System health and system ID indicator codes

Figure 96. System health and system ID indicators

Table 43. 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.

Table 43. System health and system ID indicator codes (continued)

System health and system ID indicator code	Condition
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**.

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.

ⓘ **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 44. Drive indicator codes

Drive status indicator code	Condition
Blinks green twice per second	Indicates that the drive is being identified or preparing for removal.
Off	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.

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 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.

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.

System diagnostic controls

Table 45. 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.

Getting help

Topics:

- Recycling or End-of-Life service information
- Contacting Dell Technologies
- Accessing system information by using QRL
- Receiving automated support with SupportAssist

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 information tag in the front of the MX750c system, to access information about Dell EMC PowerEdge MX750c. 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 MX750c system

Figure 97. Quick Resource Locator for PowerEdge MX750c system

Receiving automated support with SupportAssist

Dell EMC SupportAssist is an optional Dell EMC Services offering that automates technical support for your Dell EMC server, storage, and networking devices. By installing and setting up a SupportAssist application in your IT environment, you can receive the following benefits:

- Automated issue detection — SupportAssist monitors your Dell EMC devices and automatically detects hardware issues, both proactively and predictively.
- Automated case creation — When an issue is detected, SupportAssist automatically opens a support case with Dell EMC Technical Support.
- Automated diagnostic collection — SupportAssist automatically collects system state information from your devices and uploads it securely to Dell EMC. This information is used by Dell EMC Technical Support to troubleshoot the issue.
- Proactive contact — A Dell EMC Technical Support agent contacts you about the support case and helps you resolve the issue.

The available benefits vary depending on the Dell EMC Service entitlement purchased for your device. For more information about SupportAssist, go to www.dell.com/supportassist.

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 EMC 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 46. Additional documentation resources for your system

Task	Document	Location
Setting up your system	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
	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

Table 46. Additional documentation resources for your system (continued)

Task	Document	Location
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 SupportAssist, see the Dell EMC SupportAssist 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	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