Table of Contents

Product Features **1**
- Product Feature Overview 2
- Server Chassis Components 2
- Drive Bay 4
- Front Control Panel 5
- Front Bezel 5
- Hot-Swap SAS/SATA Backplane 6
  - 3.5" Hot-swap Backplane 6
  - 2.5" Hot-swap Backplane 8
- Dummy Tray Cover 10

Hardware Installations and Upgrades **11**
- Before You Begin 11
  - Tools and Supplies Needed 11
  - System Reference 11
- Removing and Installing the Front Bezel 12
  - Bezel Snap-ons 12
  - Removing the Front Bezel 13
  - Installing the Front Bezel 13
- Removing and Installing the Power Distribution Module Cover 14
  - Removing the Power Distribution Module Cover 14
  - Installing the Power Distribution Module Cover 15
- Removing and Installing the Compute Module 16
  - Installing the Compute Module 16
  - Removing the Compute Module 17
- Removing and Installing the Redundant Power Supply Unit 18
  - Removing the Power Supply Unit 18

Installing the Power Supply Unit 18
Installing a Hot-swap Storage Device 19
3.5” Hard Disk Drive Assembly 19
Option to Install a 2.5” Solid State Device into a 3.5” Carrier 21
2.5” Storage Device (HDD or SSD) Assembly 22
Replacing the 2.5" Backplane Board 24
Removing the 2.5" Backplane Board 24
Installing the 2.5" Backplane Board 25
Replacing the 3.5" Backplane Board 27
Removing the 3.5" Backplane Board 27
Installing the 3.5" Backplane Board 28
Removing and Installing the Power Distribution Module 30
Removing the Power Distribution Module 30
Installing the Power Distribution Module 30
Replacing the Front Control Panel Board 31
Removing the Front Control Panel Board 31
Installing the Front Control Panel Board 32

1 Product Features

This chapter briefly describes the main features. This includes illustrations of the product, a list of the product features, and diagrams showing the location of important components and connections.

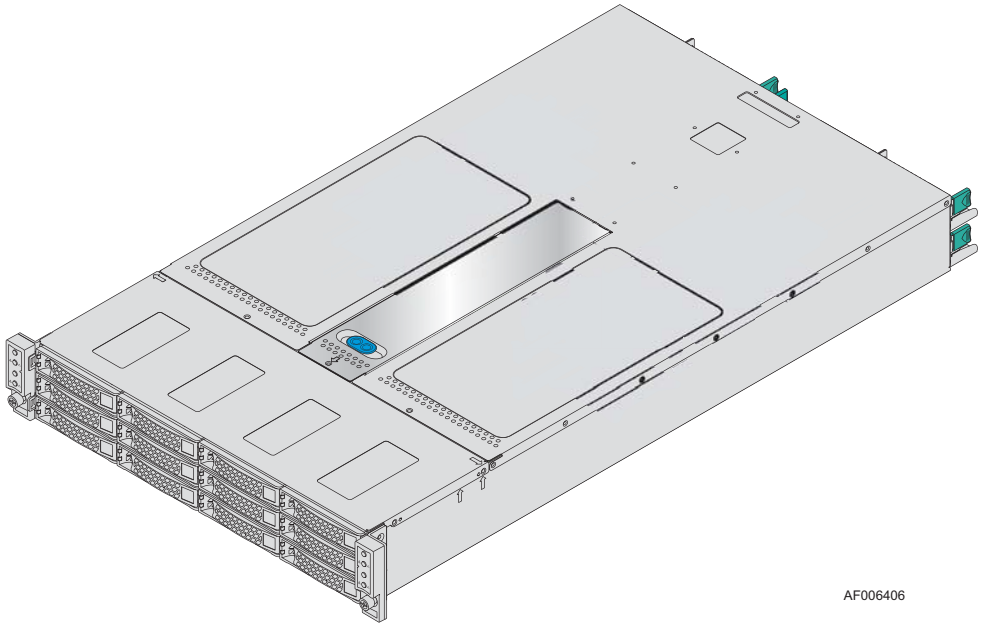


Figure 1. Product Overview

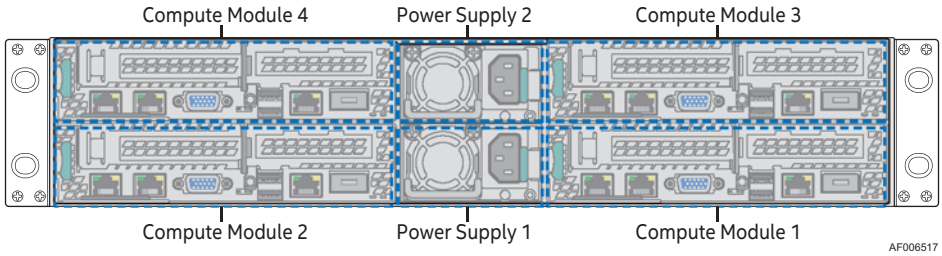


Figure 2. Product Rear View

Product Feature Overview

The following table summarizes the features of the product.

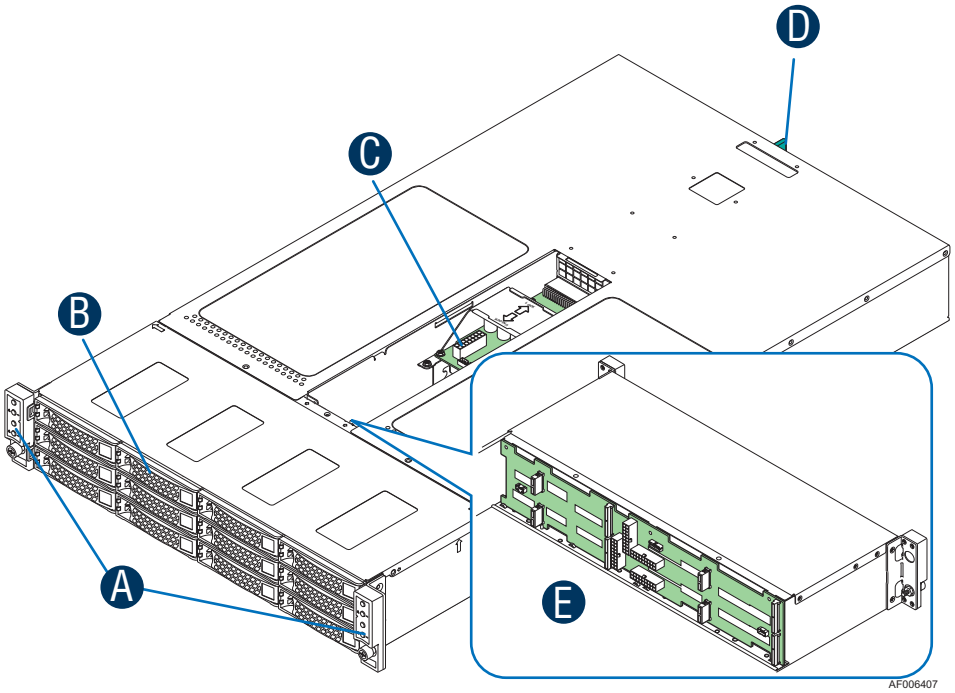
Table 1. Product Feature Set

Feature		Description
Dimensions	H2312XXKR2	• 3.42 inches (86.9 mm) high • 17.24 inches (438 mm) wide • 30.35 inches (771 mm) deep
	H2216XXKR2	• 3.42 inches (86.9 mm) high • 17.24 inches (438 mm) wide • 28.86 inches (733 mm) deep
Package Dimensions		984X578X266 mm
Weight	H2312XXKR2	Net weight 21.5kg, package weight 29.5kg
	H2216XXKR2	Net weight 20.5kg, package weight 28.4kg
Compute Module Support		• Intel® Compute Module HNS2600KP Product Family • Intel® Compute Module HNS2600TP Product Family
System Fans		• One internal power supply fan for each installed power supply unit • Three fans for each compute module
Power Supply Options		1600W AC Common Redundant Power Supply (CRPS), 80 plus Platinum with PFC, supporting CRPS configuration
Storage Bay Options		• 12x 3.5-inch SATA/SAS drive bays – H2312XXKR2 • 16x 2.5-inch SATA/SAS drive bays – H2216XXKR2

Server Chassis Components

This section helps you identify the components of your product. If you are near the server chassis, you can also use the Quick Reference Label provided on the chassis cover to assist in identifying the components.

The Server Chassis supports four compute modules in the chassis. The whole chassis view is as below (with the power distribution module cover removed).



Label	Description
A	Front control panels
B	Drive bays
C	Power distribution module
D	Power supply modules
E	Hot-swap backplane (attached to the drive cage)

Figure 3. Server Chassis Components

Note: *The blank compute module bay must be covered by a dummy tray cover. When removed, keep the dummy tray cover properly for future use.*

Note: *The compute module bay in the chassis requires either a compute module being installed and powered up or a dummy tray cover installed to maintain proper thermal environment for the other running compute modules in the same chassis. In case of a compute module failure, remove the failed compute module, and replace with a dummy tray cover until the new compute module is installed.*

Drive Bay

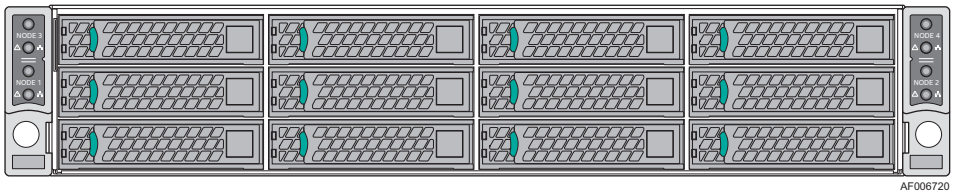


Figure 4. Front View

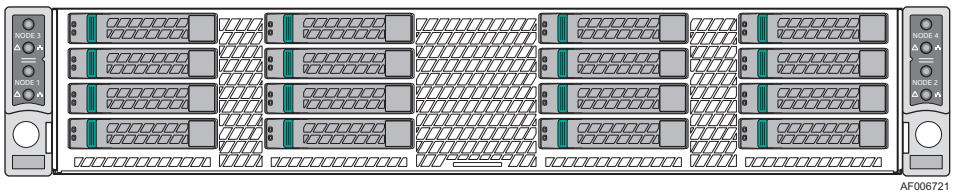


Figure 5. Front View

Each compute module has a dedicated drive array based on the backplane controller design. Following are schemes for the drive array corresponding to the compute module.

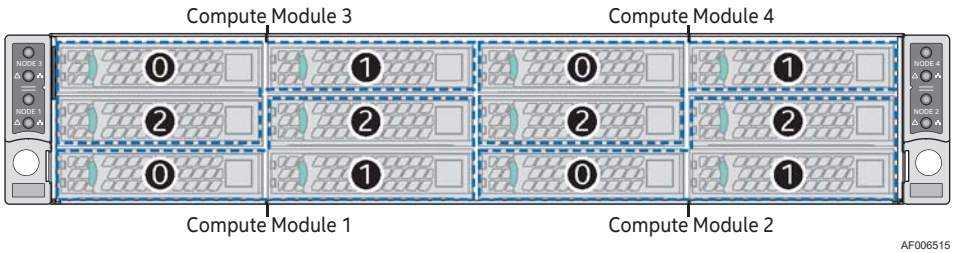


Figure 6. Drive Array Scheme

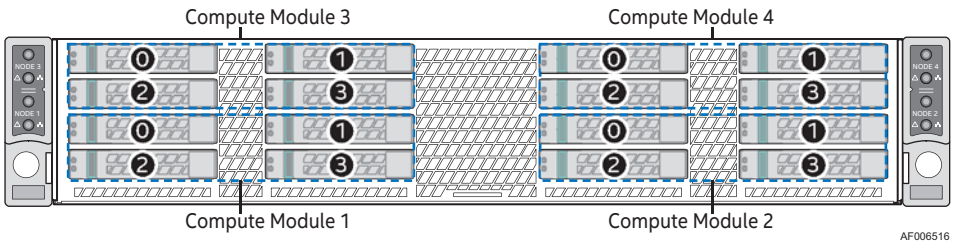


Figure 7. Drive Array Scheme on the

Front Control Panel

The server chassis contains two sets of control panels on the left and right rack handles. Each control panel contains two sets of control buttons and LEDs for each compute module. Following is the scheme of the control panel.

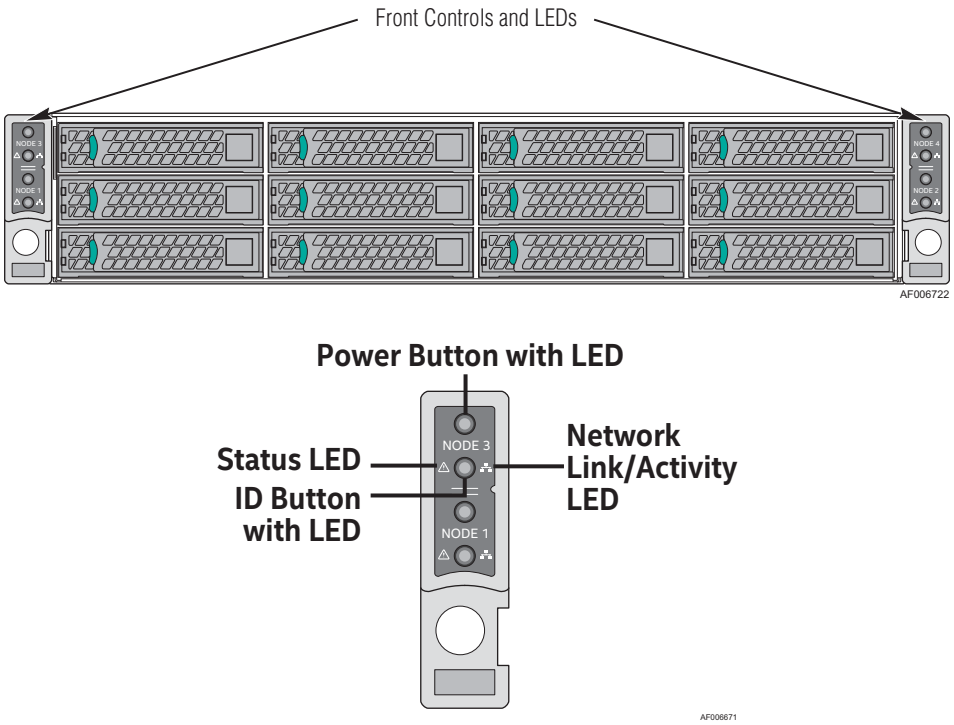


Figure 8. Front Control Panel Options

Front Bezel

The front bezel is available as an optional accessory for the server chassis.

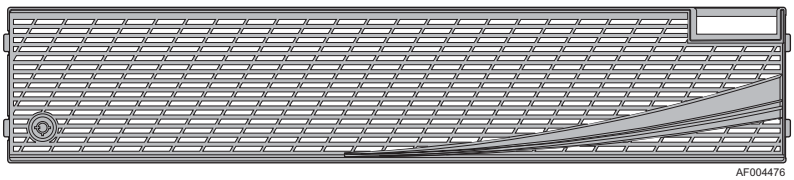
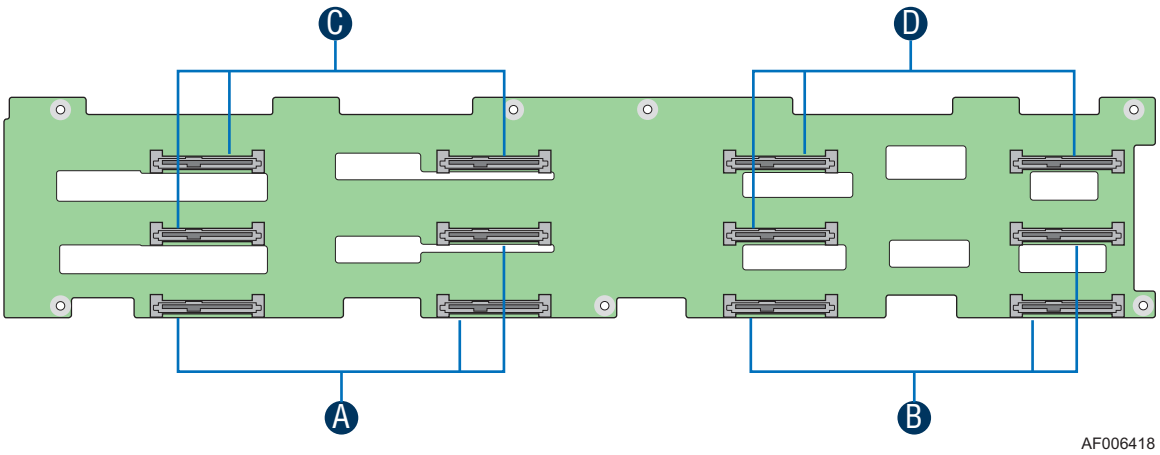


Figure 9. Front Bezel

Hot-Swap SAS/SATA Backplane

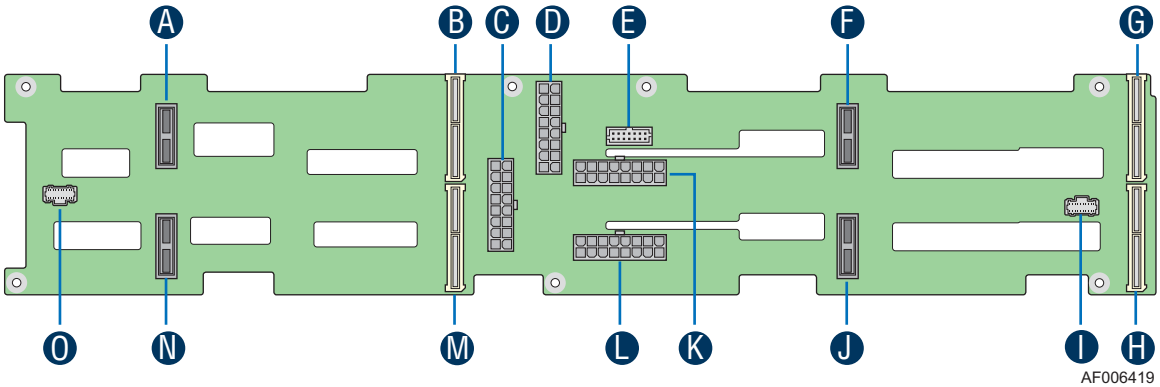
The hot-swap SAS/SATA backplane serves as an interface between the mother board and the drives. The following diagrams show the location for each connector found on the backplane.

3.5" Hot-swap Backplane



Label	Description
A	SATA/SAS connectors for node 1
B	SATA/SAS connectors for node 2
C	SATA/SAS connectors for node 3
D	SATA/SAS connectors for node 4

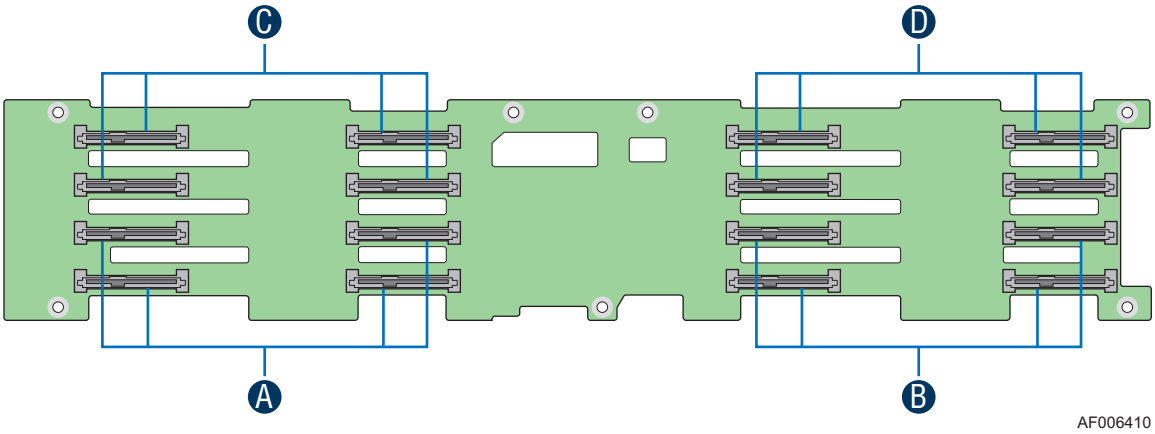
Figure 10. 3.5" Backplane Components (Front View)



Label	Description
A	2-blade compute module power connector for node 4
B	2x40 pin bridge board connector for node 4
C	2x9 pin power supply input connector
D	2x9 pin Power supply input connector
E	2x7 pin power control cable connector
F	2-blade compute module power connector for node 3
G	2x40 pin bridge board connector for node 3
H	2x40 pin bridge board connector for node 1
I	20-pin front panel cable connector for node 1 and 3
J	2-blade compute module power connector for node 1
K	2x9 pin power supply input connector
L	2x9 pin power supply input connector
M	2x40 pin bridge board connector for node 2
N	2-blade compute module power connector for node 2
O	20-pin front panel cable connector for node 2 and 4

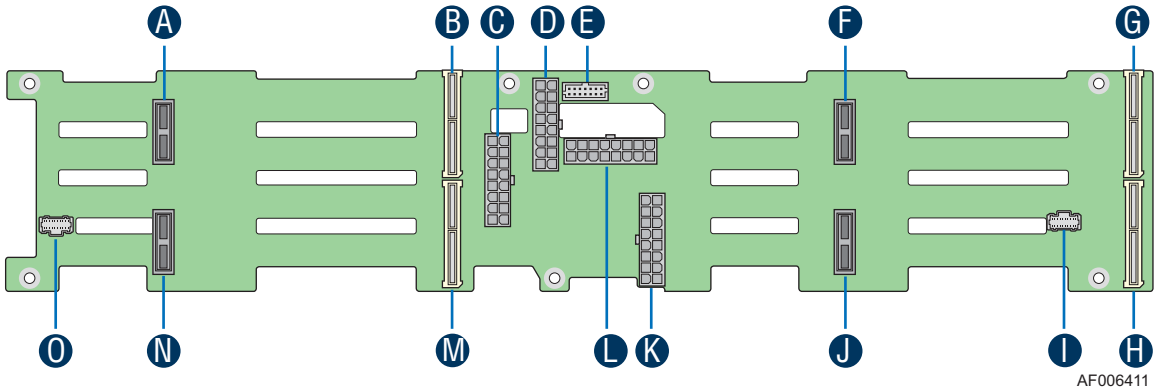
Figure 11. 3.5" Backplane Components (Back View)

2.5" Hot-swap Backplane



Label	Description
A	SATA/SAS connectors for node 1
B	SATA/SAS connectors for node 2
C	SATA/SAS connectors for node 3
D	SATA/SAS connectors for node 4

Figure 12. 2.5" Backplane Components (Front View)



Label	Description
A	2-blade compute module power connector for node 4
B	2x40 pin bridge board connector for node 4
C	2x9 pin power supply input connector
D	2x7 pin power control cable connector
E	2x9 pin power supply input connector
F	2-blade compute module power connector for node 3
G	2x40 pin bridge board connector for node 3
H	2x40 pin bridge board connector for node 1
I	20-pin front panel cable connector for node 1 and 3
J	2-blade compute module power connector for node 1
K	2x9 pin power supply input connector
L	2x9 pin power supply input connector
M	2x40 pin bridge board connector for node 2
N	2-blade compute module power connector for node 2
O	20-pin front panel cable connector for node 2 and 4

Figure 13. 2.5" Backplane Components (Back View)

Dummy Tray Cover

The dummy tray cover is shipped together with the chassis. It must be removed before installing the compute module, or it must be restored if the compute module is not to be installed.

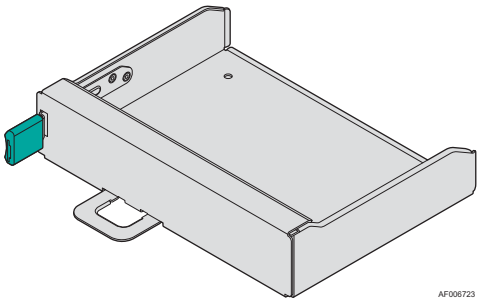


Figure 14. Dummy Tray Cover

2 Hardware Installations and Upgrades

Before You Begin

Before working with your server product, pay close attention to the Safety Information at the beginning of this manual.

Warning: *The transparent plastic protective films on the chassis top surface must be removed for proper system cooling.*

Note: *Whenever you service the server chassis, you must first power down the server and unplug all peripheral devices and the AC power cord.*

Tools and Supplies Needed

- Phillips* (cross head) screwdriver (#1 bit and #2 bit)
- Needle nosed pliers
- Anti-static wrist strap and conductive foam pad (recommended)

System Reference

All references to left, right, front, top, and bottom assume that the reader is facing the front of the chassis as it would be positioned for normal operation.

Removing and Installing the Front Bezel

The server chassis supports the installation of an optional front bezel (Intel product code: A2UBEZEL). The bezel kit includes a plastic lockable front bezel and multiple bezel snap-ons allowing for OEM differentiation.

Bezel Snap-ons

The bezel kit provides three different bezel snap-ons to allow for OEM differentiation; two different size badging snap-ons, and one decorative wave snap-on.

To mount the snap-on to the bezel, insert the snap-on hooks into the bezel and press to snap it into place.

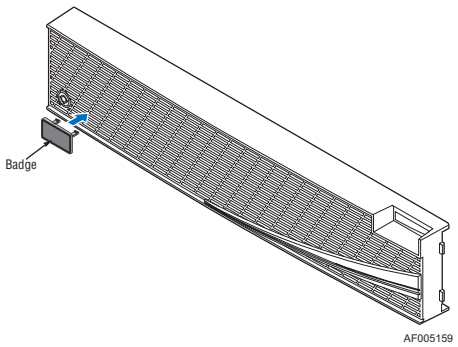


Figure 15. Installing the Snap-on to the Front Bezel

To remove the snap-on from the bezel, squeeze the hooks at the rear of the snap-on to release it (see letter **A**). Then remove the snap-on from the bezel (see letter **B**).

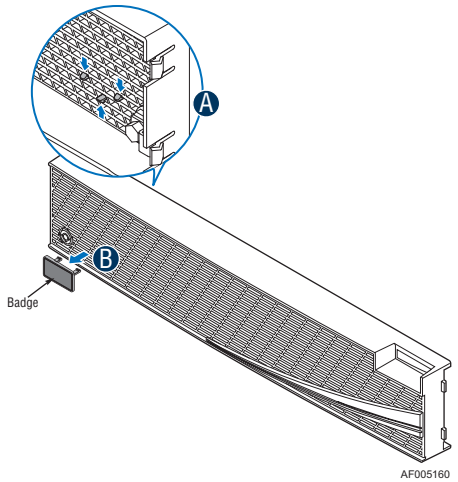


Figure 16. Removing the Snap-on from the Front Bezel

Removing the Front Bezel

If your server chassis includes a front bezel, follow these steps to remove it from the chassis:

1. Unlock the bezel.
2. Pull out the left side of the bezel from the rack handle (see letter **A**).
3. Rotate the left side of the bezel out away from the chassis to release the latches on the right side from the rack handle (see letter **B**).

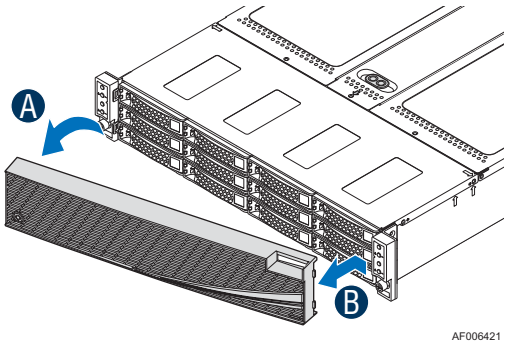


Figure 17. Removing the Front Bezel

Installing the Front Bezel

Note: *Before installing the front bezel, you must install the rack handles.*

1. Lock the right side of the bezel to the rack handle (see letter **A**).
2. Rotate the left side of the bezel towards the chassis and press the left side of the bezel into the rack handle until it clicks into place (see letter **B**).
3. Lock the bezel.

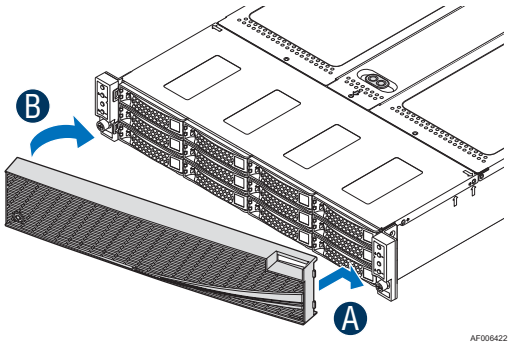


Figure 18. Installing the Front Bezel

Removing and Installing the Power Distribution Module Cover

Removing the Power Distribution Module Cover

The server chassis must be operated with the power distribution module cover in place to ensure proper cooling. You will need to remove the cover to add or replace the components inside of the chassis. Before removing the cover, power down the server and unplug all peripheral devices and the power cables.

Note: *A non-skid surface or a stop behind the server chassis may be needed to prevent the server chassis from sliding on your work surface.*

1. Remove the screw (see letter **A**).
2. Lift the cover from the front end to more than 45 degrees (see letter **B**) and remove the cover.

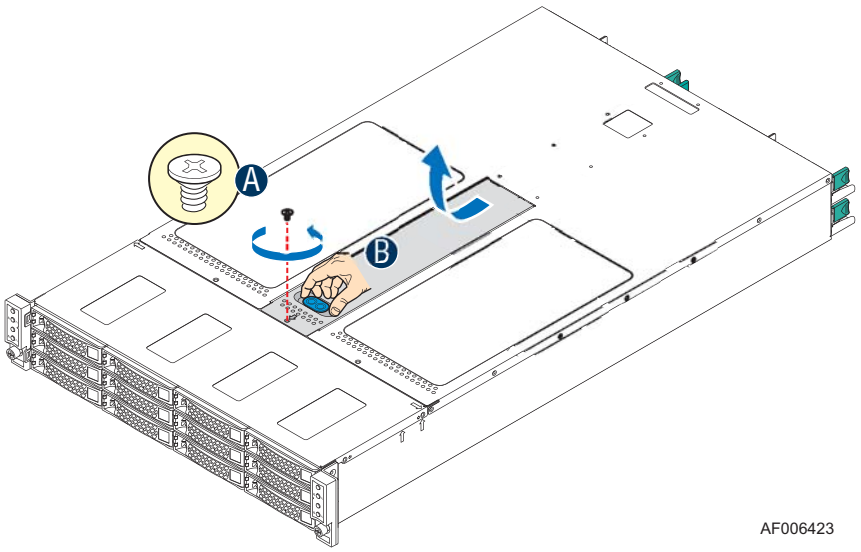


Figure 19. Removing the Power Distribution Module Cover

Installing the Power Distribution Module Cover

1. Place the cover onto the chassis and slide forward until the front edge of the cover is pressed up against the back edge of the front drive bay (see letter **A**).
2. Rotate the front end of the cover down to position and fix the cover with the screw (see letter **B**).

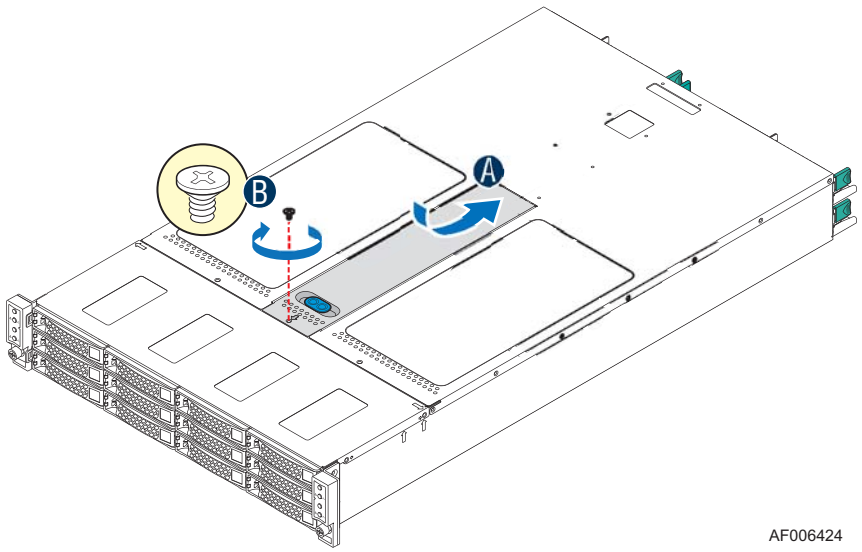


Figure 20. Installing the Power Distribution Module Cover

Removing and Installing the Compute Module

Each compute module is identical in the chassis. They are designed for either “cold” or “hot” swappable. The compute module can only be plugged from the rear chassis.

Installing the Compute Module

1. While pressing the latch, pull out the dummy tray cover.

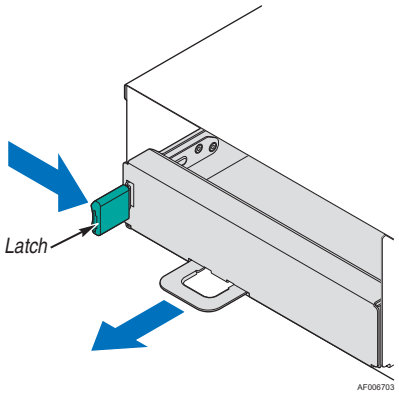


Figure 21. Removing the Dummy Tray Cover

2. Align and slide the compute module into the chassis.

Note: *When the upper compute module is being inserted into the chassis, make sure its front edge overrides the air duct edge of the lower compute module.*

3. While pressing the latch, push the compute module along the chassis rail until the latch locks in position.

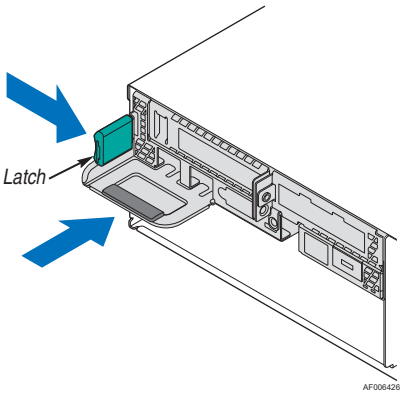


Figure 22. Installing the Compute Module

Removing the Compute Module

1. While pressing the latch, pull out the handle with the compute module.

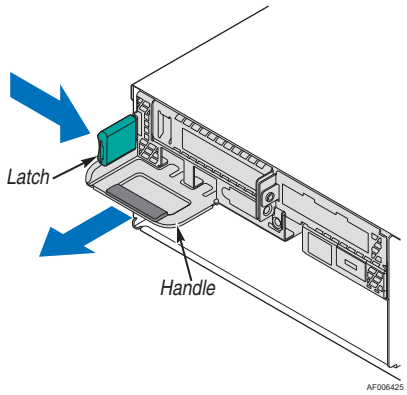


Figure 23. Removing the Compute Module

2. Restore the dummy tray cover.

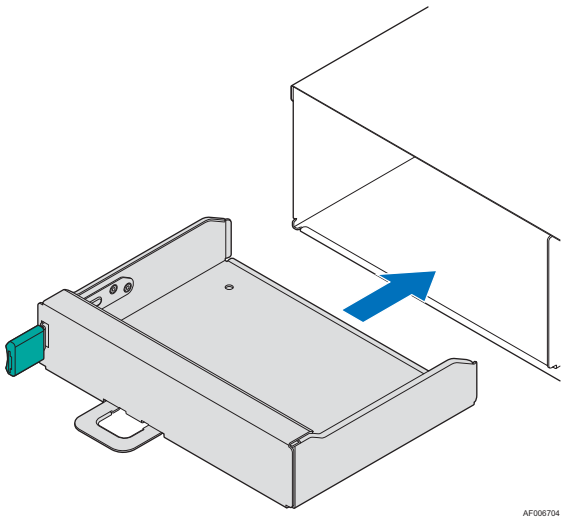


Figure 24. Restoring the Dummy Tray Cover

Removing and Installing the Redundant Power Supply Unit

The server chassis is equipped with two redundant power supply units. Each of them can be hot-swappable.

Caution: *Installing two power supply units with different wattage ratings in a server chassis is not supported. Doing so will not provide power supply redundancy and will result in multiple errors being logged.*

Removing the Power Supply Unit

While pressing the latch, pull out the handle with the power supply unit.

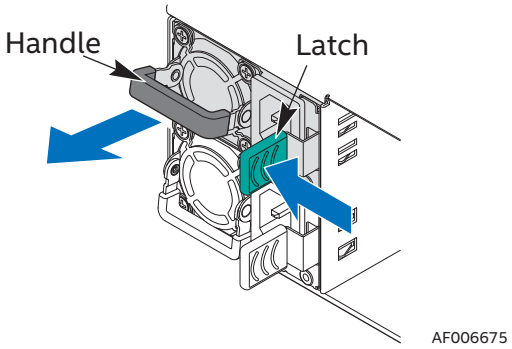


Figure 25. Removing the Power Supply Unit

Installing the Power Supply Unit

1. Align and slide the power supply unit into the power cage.
2. While pressing the latch, push the power supply unit along the power cage rail until the latch locks in position.

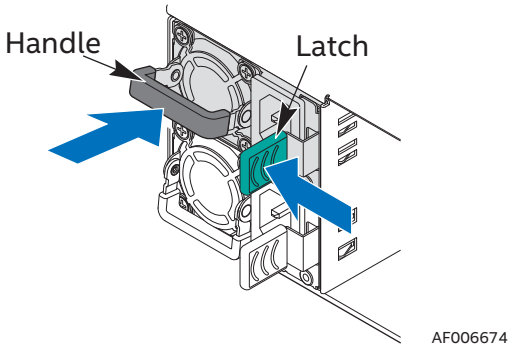


Figure 26. Installing the Power Supply Unit

Installing a Hot-swap Storage Device

Note: *To maintain proper system cooling, all externally accessable drive bays must be populated with a carrier mounted with a storage device (hard disk drive (HDD) or Solid State Device (SSD)) or with a supplied drive blank.*

3.5" Hard Disk Drive Assembly

1. Remove the drive carrier from the chassis by pressing the green button and pulling open the lever (see letter **A**).
2. Pull the carrier out of the drive bay (see letter **B**).

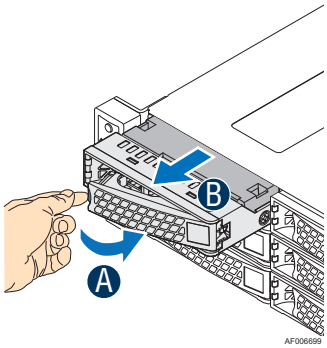


Figure 27. 3.5" HDD Assembly – Removing the Carrier

3. Remove the four screws securing the plastic drive blank to the carrier.
4. Remove the drive blank from the carrier (see letter **C**).

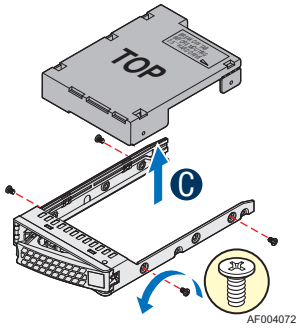


Figure 28. 3.5" HDD Assembly – Removing the Drive Blank

5. Install the hard disk drive into the carrier. Verify the connector end of the drive is located towards the back of the carrier (see letter **D**).
6. Secure the drive to the carrier using the four screws.

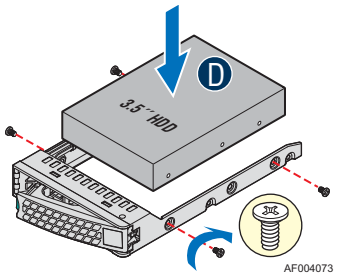


Figure 29. 3.5" HDD Assembly – Installing the Hard Disk Drive

7. With the lever open, insert the carrier assembly into the chassis (see letter **E**). Push in the lever to lock it into place (see letter **F**).

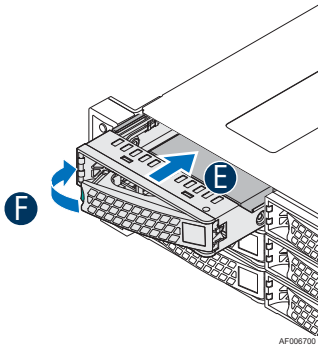


Figure 30. 3.5" HDD Assembly – Inserting the Carrier Assembly

Option to Install a 2.5” Solid State Device into a 3.5” Carrier

Note: *To maintain system thermals, all drive bays must be populated with a drive tray mounted with a hard disk drive, SSD, or supplied drive blank.*

The provided 3.5” drive blank can also be used as a 2.5” device bracket, allowing a 2.5” SSD to be installed into a 3.5” device carrier.

1. Remove the device carrier from the drive bay. See 3.5” Hard Disk Drive Assembly.
2. Remove the drive blank from the device carrier. See 3.5” Hard Disk Drive Assembly.
3. Break off the small side tab from the drive blank, making the drive blank into a device bracket (see letter **d1**).
4. Install the device bracket into the device carrier so that the hollow side of the device bracket is facing down.
5. Secure the device bracket with the three screws (see letter **d2**).
6. Turn the carrier assembly over.
7. Slide a 2.5" SSD into the device bracket and align the screw holes with the right and left rail (see letter **d3**).
8. Secure the device using the four screws (see letter **d4**).
9. Insert the carrier assembly into the chassis. See 3.5” Hard Disk Drive Assembly.

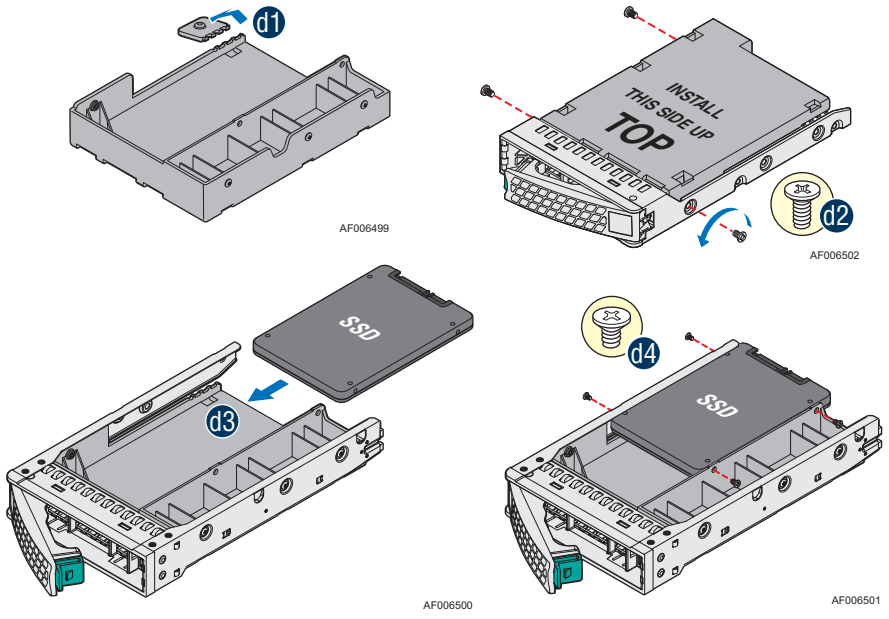


Figure 31. Option to Install the 2.5" SSD into a 3.5" Drive Blank

Note: *Due to degraded performance and reliability concerns, the use of the 3.5" drive blank as a 2.5" device bracket is intended to support SSD type storage devices only. Installing a 2.5" hard disk drive into the 3.5" drive blank cannot be supported.*

2.5" Storage Device (HDD or SSD) Assembly

1. Remove the drive carrier from the chassis by pressing the green button and pulling open the lever (see letter **A**).
2. Pull the carrier out of the drive bay (see letter **B**).

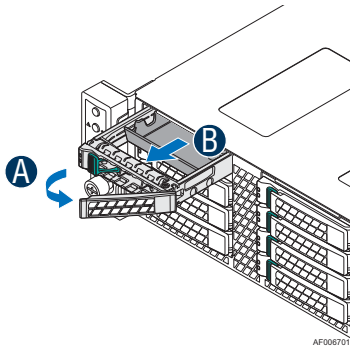


Figure 32. 2.5" HDD or SSD Assembly – Removing the Carrier

3. Remove the four screws securing the plastic drive blank to the carrier (see letter **C**).
4. Remove the drive blank from the carrier (see letter **D**).

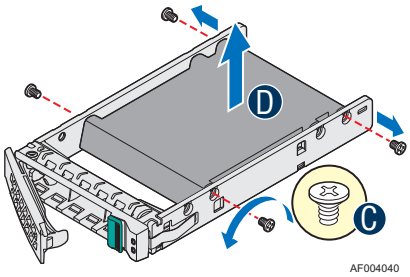


Figure 33. 2.5" HDD or SSD Assembly – Removing the Drive Blank

5. Install the storage device into the carrier. Verify the connector end of the storage device is located towards the back of the carrier (see letter **E**).
6. Secure the storage device to the carrier using the four screws.

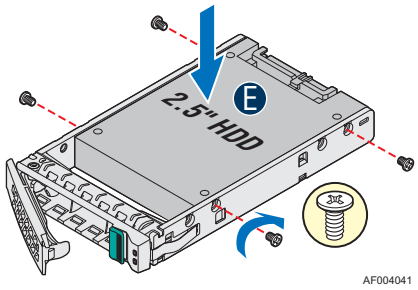


Figure 34. 2.5" HDD or SSD Assembly – Installing the 2.5" HDD or SSD

7. With the lever open, insert the carrier assembly into the chassis (see letter **F**). Push in the lever to lock it into place (see letter **G**).

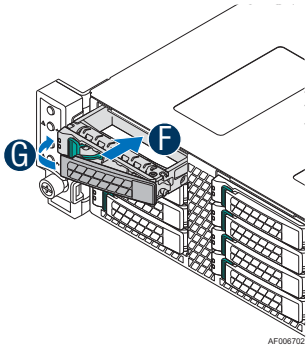


Figure 35. 2.5" HDD or SSD Assembly – Inserting the Carrier Assembly

Replacing the 2.5" Backplane Board

Removing the 2.5" Backplane Board

1. Remove all hot-swap drive carriers, regardless of whether a drive is installed in the carrier.
2. Remove the power distribution module cover. For instructions, see Removing the Power Distribution Module Cover.
3. Disconnect all cables from the backplane board.
4. Remove the drive cage screws (see letters **A** and **B**) and pull out the drive cage (see letter **C**).

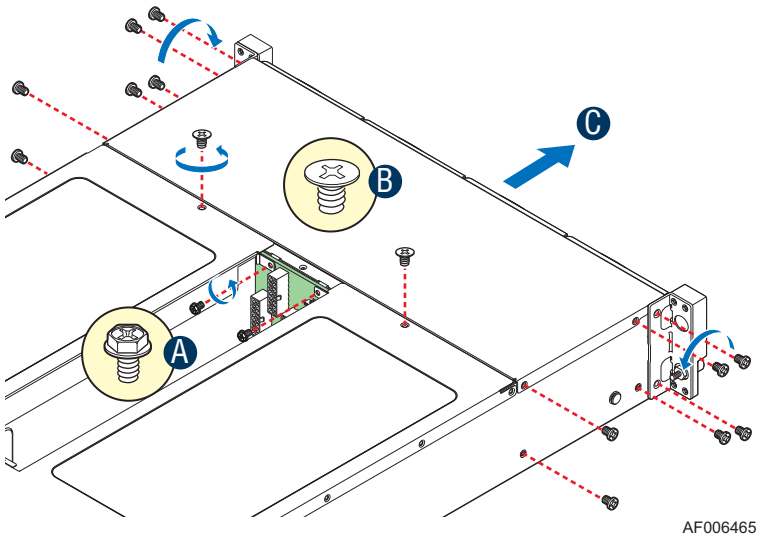


Figure 36. Removing the Drive Cage

5. Remove the screws from the backplane board (see letter **D**) and de-attach the backplane board from the drive cage (see letter **E**).

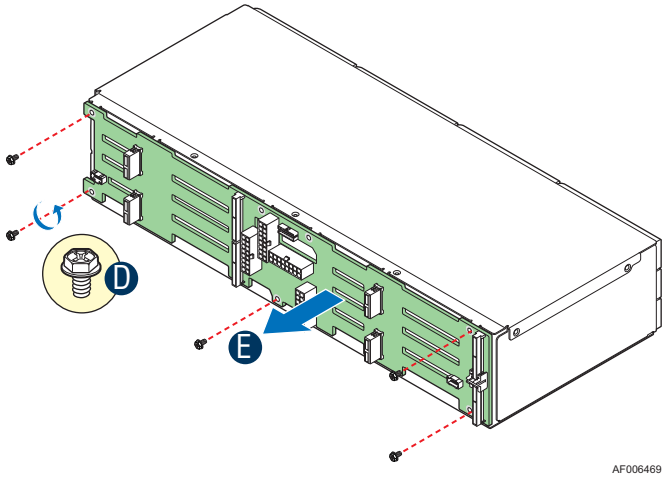


Figure 37. Removing the 2.5" Backplane Board from the Drive Cage

Installing the 2.5" Backplane Board

1. Attach the backplane board to the drive cage (see letter **A**) and fix the backplane board with the screws (see letter **B**).

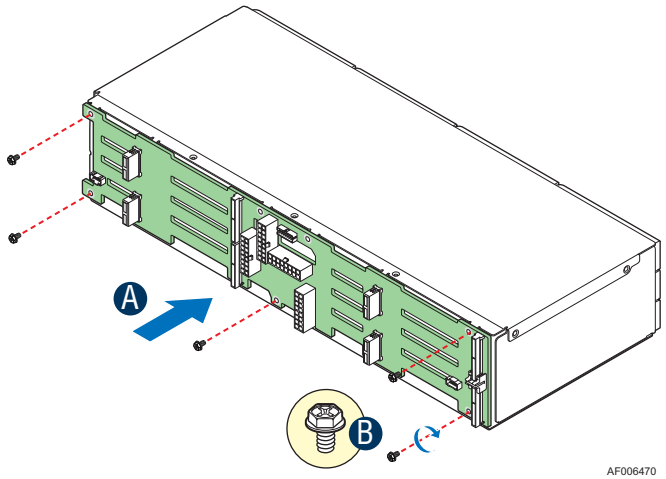


Figure 38. Installing the 2.5" Backplane Board to the Drive Cage

2. Install the drive cage to the chassis (see letter **C**) and fix the drive cage with the screws (see letters **D** and **E**).

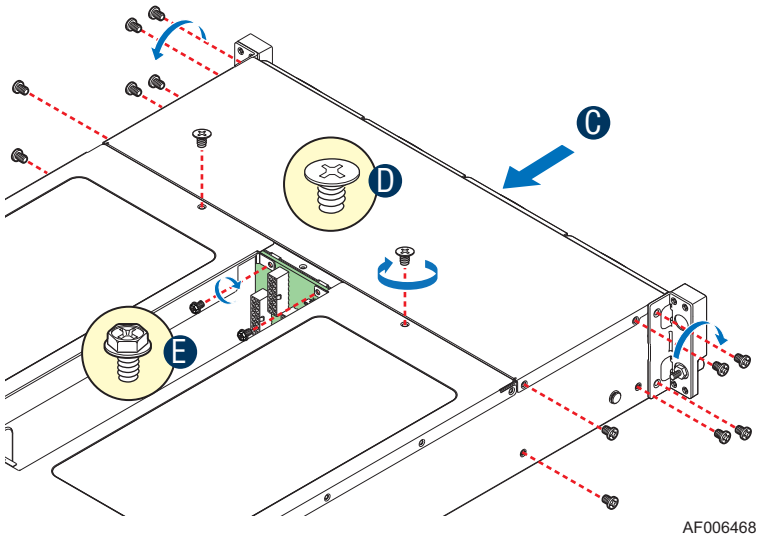


Figure 39. Installing the Drive Cage to the Chassis

3. Reconnect all cables to the backplane board.
4. Install the power distribution module cover. For instructions, see Installing the Power Distribution Module Cover.
5. Install all hot-swap drive carriers if removed.

Replacing the 3.5" Backplane Board

Removing the 3.5" Backplane Board

1. Remove all hot-swap drive carriers, regardless of whether a drive is installed in the carrier.
2. Remove the power distribution module cover. For instructions, see Removing the Power Distribution Module Cover.
3. Disconnect all cables from the backplane board.
4. Remove the drive cage screws (see letters **A** and **B**) and pull out the drive cage (see letter **C**).

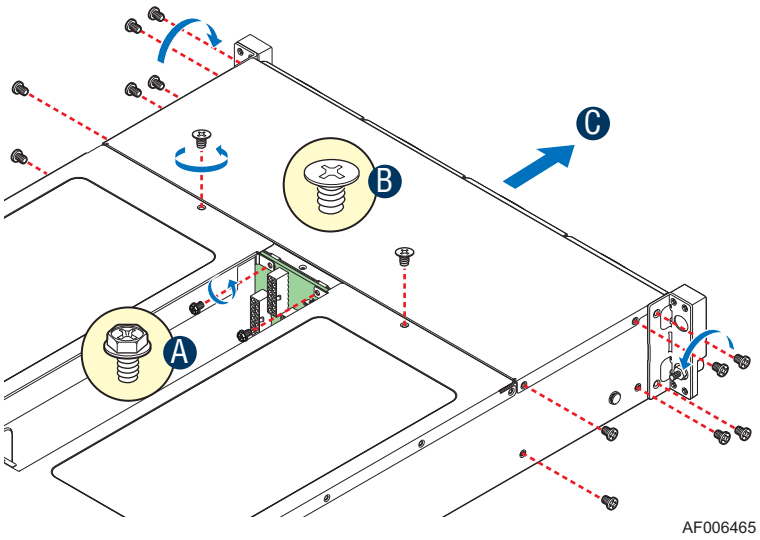


Figure 40. Removing the Drive Cage

5. Remove the screws from the backplane board (see letter **D**) and de-attach the backplane board from the drive cage (see letter **E**).

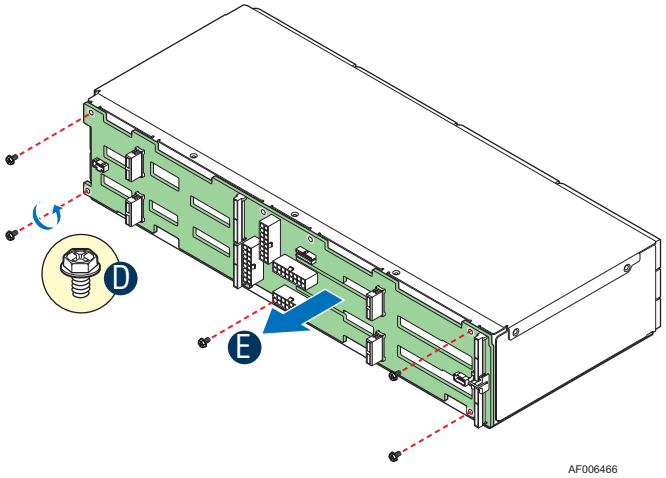


Figure 41. Removing the 3.5" Backplane Board from the Drive Cage

Installing the 3.5" Backplane Board

1. Attach the backplane board to the drive cage (see letter **A**) and fix the backplane board with the screws (see letter **B**).

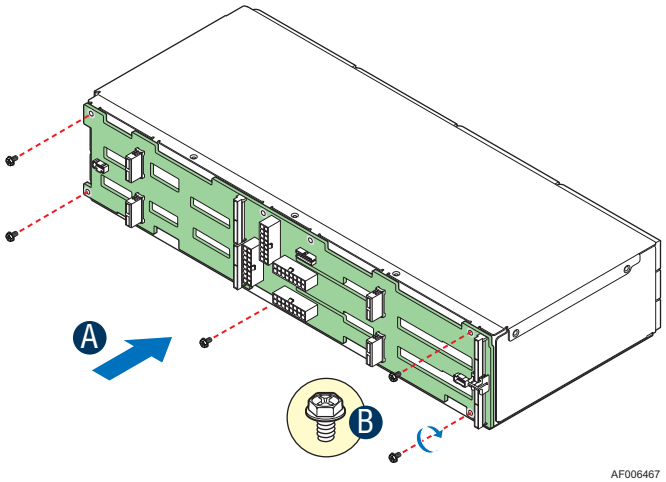


Figure 42. Installing the 3.5" Backplane Board to the Drive Cage

2. Install the drive cage to the chassis (see letter **C**) and fix the drive cage with the screws (see letters **D** and **E**).

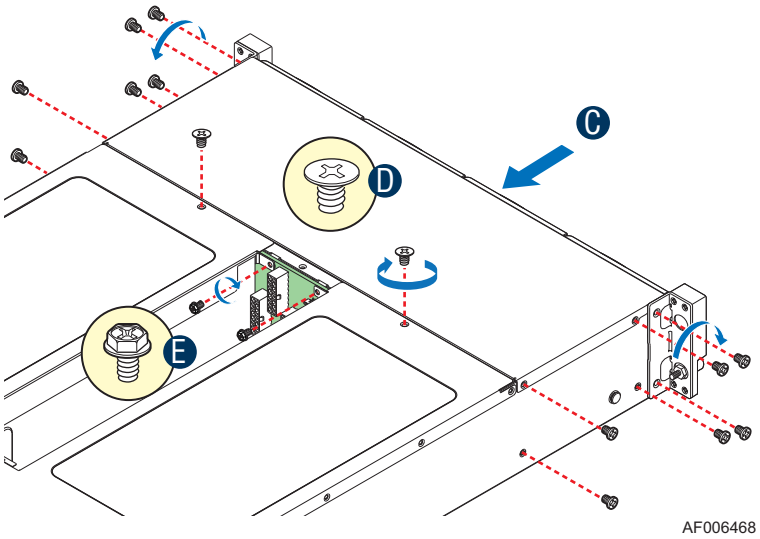


Figure 43. Installing the Drive Cage to the Chassis

3. Reconnect all cables to the backplane board.
4. Install the power distribution module cover. For instructions, see Installing the Power Distribution Module Cover.
5. Install all hot-swap drive carriers if removed.

Removing and Installing the Power Distribution Module

Removing the Power Distribution Module

1. Remove the cover and the power supply units from the chassis.
2. Remove the power cables and the PMBus* cable between the power distribution module and the backplane.
3. Remove the two screws (see letter **A**) and slide the power distribution module and lift it (see letter **B**).

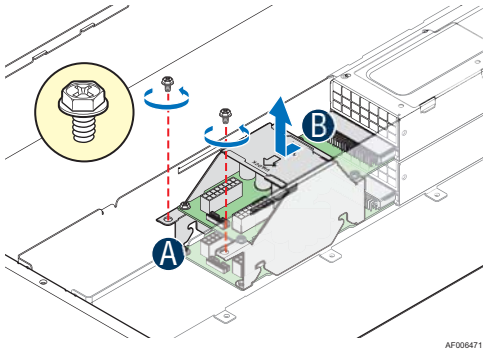


Figure 44. Removing the Power Distribution Module

Installing the Power Distribution Module

1. Slide in the power distribution module (see letter **A**) and fix the module with the two screws (see letter **B**).

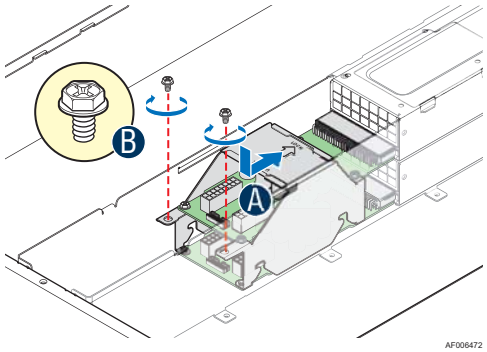


Figure 45. Installing the Power Distribution Module

2. Connect the power cables and the PMBus* cable to the power distribution module.
3. Close the cover and install the power supply units.

Replacing the Front Control Panel Board

Removing the Front Control Panel Board

1. Remove the four screws on the back of the rack handle (see letter **A**). Be careful of the front panel cable on the back.

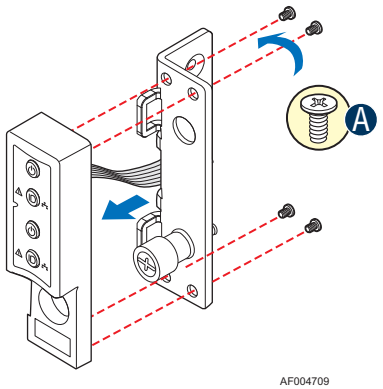


Figure 46. Removing the Front Control Panel Assembly from the Rack Handle

2. Disconnect the cable from the front control panel board (see letter **B**).

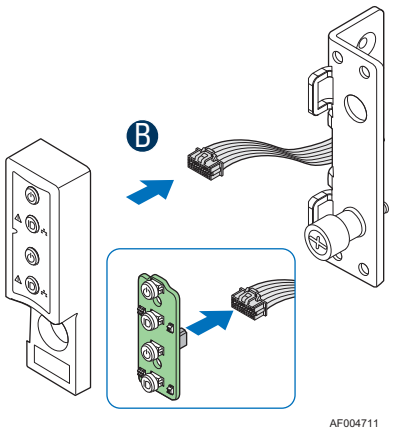


Figure 47. Disconnecting the Front Panel Cable

3. Remove the two screws from the back of the front control panel board (see letter **C**) and remove the board.

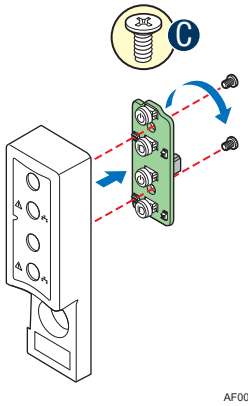


Figure 48. Removing the Front Control Panel Board

Installing the Front Control Panel Board

1. Install the front control panel board to the panel shell with the two screws (see letter **A**).

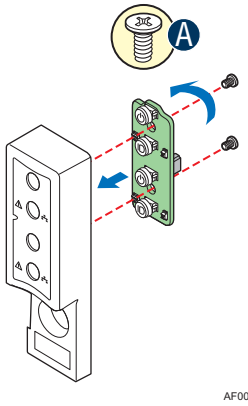


Figure 49. Installing the Front Control Panel Board

2. Connect the cable to the front control panel board (see letter **B**).

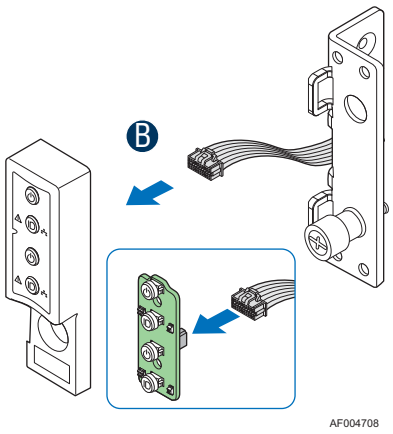


Figure 50. Connecting the Front Panel Cable

3. Install the front control panel assembly to the rack handle with the four screws (see letter **C**).

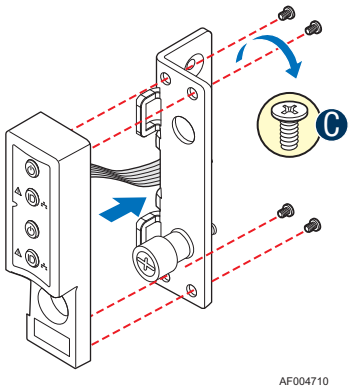


Figure 51. Installing the Front Control Panel Assembly to the Rack Handle