



Intel® Server Chassis H2000P Product Family

System Integration and Service Guide

Instruction on installation and removal of system components and available Intel® accessories and spares.

Rev 1.1

February 2018

<Blank page>

Document Revision History

Date	Revision	Changes
December 2017	1.0	Initial release.
February 2018	1.1	<ul style="list-style-type: none">• Added HSBP Cable Connection Diagram• Added PSU Cable Retainer

Disclaimers

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software, or service activation. Learn more at Intel.com, or from the OEM or retailer.

You may not use or facilitate the use of this document in connection with any infringement or other legal analysis concerning Intel products described herein. You agree to grant Intel a non-exclusive, royalty-free license to any patent claim thereafter drafted which includes subject matter disclosed herein.

No license (express or implied, by estoppel or otherwise) to any intellectual property rights is granted by this document.

The products described may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request.

Intel disclaims all express and implied warranties, including without limitation, the implied warranties of merchantability, fitness for a particular purpose, and non-infringement, as well as any warranty arising from course of performance, course of dealing, or usage in trade.

Copies of documents which have an order number and are referenced in this document may be obtained by calling 1-800-548-4725 or by visiting www.intel.com/design/literature.htm.

Intel and the Intel logo are trademarks of Intel Corporation or its subsidiaries in the U.S. and/or other countries.

*Other names and brands may be claimed as the property of others.

Copyright © 2017 Intel Corporation. All rights reserved.

Product Family Regulatory Information

For supported product regulatory, product safety, and certification information, refer to the *Intel Server Products Safety and Regulatory Compliance* document, rev 1.5 or later. The Intel® Server Chassis Hr2000 product family will be identified and referenced as **Hr2000** in all product regulatory test reports, certificates, and compliance collaterals. Product family regulatory test reports, certificates, and compliance collaterals are available upon request. Contact your local Intel representative.

Safety Information

Important Safety Instructions

Read all caution and safety statements in this document before performing any of the instructions. See Intel® Server Boards and Server Chassis Safety Information at <https://www.intel.com/content/www/us/en/support/server-products/000007675.html>.



Perchlorate Material - special handling may apply. See <http://www.dtsc.ca.gov/hazardouswaste/perchlorate>.



Wichtige Sicherheitshinweise

Lesen Sie zunächst sämtliche Warnung und Sicherheitshinweise in diesem Dokument, bevor Sie eine der Anweisungen ausführen. Beachten Sie hierzu auch die Sicherheitshinweise zu Intel-Serverplatinen und Servergehäusen unter <https://www.intel.com/content/www/us/en/support/server-products/000007675.html>.

Consignes de sécurité

Lisez attention toutes les consignes de sécurité et les mises en garde indiquées dans ce document avant de suivre toute instruction. Consultez Intel Server Boards and Server Chassis Safety Information sur le site <https://www.intel.com/content/www/us/en/support/server-products/000007675.html>.

Instrucciones de seguridad importantes

Lea todas las declaraciones de seguridad y precaución de este documento antes de realizar cualquiera de las instrucciones. Vea Intel Server Boards and Server Chassis Safety Information en <https://www.intel.com/content/www/us/en/support/server-products/000007675.html>.

重要安全指导

在执行任何指令前，请阅读本文档中所有的注意事项及安全声明。或 <https://www.intel.com/content/www/us/en/support/server-products/000007675.html> 上的 *Intel Server Boards and Server Chassis Safety Information* (《Intel服务器主板与服务器机箱安全信息》)

Warnings

Heed safety instructions: Before working with your server product, whether you are using this guide or any other resource as a reference, pay close attention to the safety instructions. You must adhere to the assembly instructions in this guide to ensure and maintain compliance with existing product certifications and approvals. Use only the described, regulated components specified in this guide. Use of other products / components will void the UL listing and other regulatory approvals of the product and will most likely result in noncompliance with product regulations in the region(s) in which the product is sold.

System power on/off: The power button DOES NOT turn off the system AC power. To remove power from system, you must unplug the AC power cord from the wall outlet. Make sure the AC power cord is unplugged before you open the chassis, add, or remove any components.

Hazardous conditions, devices and cables: Hazardous electrical conditions may be present on power, telephone, and communication cables. Turn off the server and disconnect the power cord, telecommunications systems, networks, and modems attached to the server before opening it. Otherwise, personal injury or equipment damage can result.

Installing or removing jumpers: A jumper is a small plastic encased conductor that slips over two jumper pins. Some jumpers have a small tab on top that you can grip with your fingertips or with a pair of fine needle nosed pliers. If your jumpers do not have such a tab, take care when using needle nosed pliers to remove or install a jumper; grip the narrow sides of the jumper with the pliers, never the wide sides. Gripping the wide sides can damage the contacts inside the jumper, causing intermittent problems with the function controlled by that jumper. Take care to grip with, but not squeeze, the pliers or other tool you use to remove a jumper, or you may bend or break the pins on the board.

Electrostatic discharge (ESD) and ESD protection: Electrostatic discharge can cause damage to your computer or the components within it. ESD can occur without the user feeling a shock while working inside the system chassis or while improperly handling electronic devices like processors, memory or other storage devices, and add-in cards.



Intel recommends the following steps be taken when performing any procedures described within this document or while performing service to any computer system:

- Where available, all system integration and/or service should be performed at a properly equipped ESD workstation.
- Wear ESD protective gear like a grounded antistatic wrist strap, sole grounders, and/or conductive shoes.
- Wear an anti-static smock or gown to cover any clothing that may generate an electrostatic charge.
- Remove all jewelry.
- Disconnect all power cables and cords before opening the server chassis
- Power down the compute module and remove it from the server chassis, remove power feed from the server board before performing any integration or service
- Touch any unpainted metal surface of the chassis before performing any integration or service.
- Hold all circuit boards and other electronic components by their edges only.
- After removing electronic devices from the system or from their protective packaging, place them component side up on to a grounded anti-static surface or conductive foam pad. Do not place electronic devices on to the outside of any protective packaging.

Caution: Slide/rail mounted equipment is not to be used as a shelf or a work space.



Intel warrants that this product will perform to its published specifications. However, all computer systems are inherently subject to unpredictable system behavior under various environmental and other conditions.

This product is not intended to be the sole source for any critical data and the user must maintain a verified backup. Failure to do so or to comply with other user notices in the product user guide and specification documents may result in loss of or access to data.

Table of Contents

1. Introduction	12
1.1 About this Document	12
1.2 Document Organization	12
1.3 Additional Information and Software	12
2. Product Features	13
2.1 Product Feature Overview	14
2.2 Intel® Server Chassis Components	15
2.3 Drive Bays	17
2.4 Front Control Panel	18
2.5 Hot-Swap SAS/SATA Backplane	19
2.5.1 12 x 3.5" Hot-Swap Backplane	19
2.5.2 4 x 3.5" Hot-Swap Backplane	20
2.5.3 24 x 2.5" Hot-Swap Backplane	21
2.6 Backplane Interposer Board	22
3. Hardware Installations and Upgrades	23
3.1 Before Beginning	23
3.1.1 Tools and Supplies Needed	23
3.1.2 System Reference	23
3.2 Removing and Installing the Compute Module	23
3.2.1 Installing the Compute Module	23
3.2.2 Removing the Compute Module	24
3.3 Removing and Installing the Redundant Power Supply Unit	25
3.3.1 Removing the Power Supply Unit	25
3.3.2 Installing the Power Supply Unit	25
3.3.3 Installing the Power Supply Unit Cord Retention Strap	26
3.4 Removing and Installing Storage Devices	27
3.4.1 Removing a Drive Carrier	27
3.4.2 Installing a Drive Carrier	27
3.4.3 2.5" Storage Device Drive Carrier Assembly	28
3.4.4 3.5" Storage Device Drive Carrier Assembly	29
3.4.5 Installing a 2.5" Storage Drive/Drive Blank into a 3.5" Drive Carrier	30
3.5 Removing and Installing the Power Distribution Module Cover	33
3.5.1 Removing the Power Distribution Module Cover	33
3.5.2 Installing the Power Distribution Module Cover	34
3.6 Removing and Installing the Power Distribution Module	34
3.6.1 Removing the Power Distribution Module	34
3.6.2 Installing the Power Distribution Module	35
3.7 Removing and Installing the Chassis Drive Cage	35
3.7.1 Removing the Chassis Drive Cage	35
3.7.2 Installing the Chassis Drive Cage	36

3.8	Replacing the 12 x 3.5" Backplane Board	37
3.8.1	Removing the 12 x 3.5" Backplane Board	37
3.8.2	Installing the 12 x 3.5" Backplane Board.....	37
3.9	Replacing the 4 x 3.5" Backplane Board	38
3.9.1	Removing the 4 x 3.5" Backplane Board.....	38
3.9.2	Installing the 4 x 3.5" Backplane Board.....	38
3.10	Replacing the 24 x 2.5" Hot Swap Backplane SAS/PCIe* SFF Combo	39
3.10.1	Removing the 24 x 2.5" Hot Swap Backplane SAS/PCIe* SFF Combo.....	39
3.10.2	Installing the SAS/PCIe* SFF Combo 24 x 2.5" Hot Swap Backplane	39
3.11	Replacing the Power Interposer Board	40
3.11.1	Removing the Power Interposer Board (24 x 2.5" only).....	40
3.11.2	Installing the Power Interposer Board	40
3.12	Replacing the Front Control Panel Board	41
3.12.1	Removing the Front Control Panel Board.....	41
3.12.2	Installing the Front Control Panel Board.....	42
Appendix A.	Getting Help	43
C.1.	Warranty Information.....	43

List of Figures

Figure 1. Server chassis overview (H2312XXLR3).....	13
Figure 2. Server chassis rear view.....	13
Figure 3. Intel® Server Chassis H2204XXLRE (4x3.5")	14
Figure 4. Intel® Server Chassis H2312XXLR3 (12x3.5").....	14
Figure 5. Intel® Server Chassis H2224XXLR3 (24x2.5").....	14
Figure 6. Intel® Server Chassis H2204XXLRE exploded view	15
Figure 7. Intel® Server Chassis H2312XXLR3 major components (24 x 2.5" drive bay)	16
Figure 8. Intel® Server Chassis H2204XXLRE major components (4 x 3.5" drive bay).....	16
Figure 9. Intel® Server Chassis H2224XXLR3 major components (24 x 2.5" drive bay).....	17
Figure 10. Drive array scheme on the Intel® Server Chassis H2312XXLR3.....	17
Figure 11. Drive array scheme on the Intel® Server Chassis H2204XXLRE.....	17
Figure 12. Drive array scheme on the Intel® Server Chassis H2224XXLR3.....	18
Figure 13. Location of front control panel and LEDs	18
Figure 14. 12 x 3.5" backplane components (front view)	19
Figure 15. 12 x 3.5" backplane components (back view).....	19
Figure 16. 4 x 3.5" backplane components (front view)	20
Figure 17. 4 x 3.5" backplane components (back view)	20
Figure 18. 24 x 2.5" backplane components (front view)	21
Figure 19. 24 x 2.5" backplane components (back view).....	21
Figure 20. Backplane interposer board (front view)	22
Figure 21. Backplane interposer board (back view).....	22
Figure 22. Removing the dummy tray cover.....	23
Figure 23. Installing the compute module	24
Figure 24. Removing the compute module.....	24
Figure 25. Restoring the dummy tray cover.....	24
Figure 26. Removing the power supply unit.....	25
Figure 27. Installing the power supply unit.....	25
Figure 28. Power Cord Retention Strap Installation.....	26
Figure 29. Plugging the Power Cable.....	26
Figure 29. Removing a drive carrier from the chassis.....	27
Figure 30. Installing a drive carrier into a chassis.....	27
Figure 31. Removing a 2.5" storage drive / drive blank from a drive carrier.....	28
Figure 32. Installing a 2.5" storage drive/drive blank in a drive carrier	28
Figure 33. 2.5" drive carrier assembly alignment feature	29
Figure 34. Removing a 3.5" storage drive/drive blank from a drive carrier.....	29
Figure 35. Installing a 3.5" storage drive/drive blank in a drive carrier.....	30
Figure 36. Installing a 2.5" SSD in a 3.5" drive carrier – tab removal	31
Figure 37. Installing a 2.5" SSD in a 3.5" drive carrier – mount SSD to bracket.....	31
Figure 38. Installing a 2.5" SSD in a 3.5" drive carrier – mount bracket assembly to carrier	32
Figure 39. Installing a 2.5" SSD in a 3.5" drive carrier – secure SSD to carrier.....	32

Figure 40. Removing the power distribution module cover	33
Figure 41. Installing the power distribution module cover	34
Figure 42. Removing the power distribution module	34
Figure 43. Installing the power distribution module	35
Figure 44. Removing the drive cage	35
Figure 45. Installing the chassis drive cage – align the drive cage	36
Figure 46. Installing the chassis drive cage – insert drive cage	36
Figure 47. Installing the chassis drive cage	36
Figure 48. Removing the 12 x 3.5" backplane board from the drive cage	37
Figure 49. Installing the 12 x 3.5" backplane board to the drive cage	37
Figure 50. Removing the 4 x 3.5" backplane board from the drive cage	38
Figure 51. Installing the 4 x 3.5" backplane board to the drive cage	38
Figure 52. Removing the 24 x 2.5" hot swap backplane SAS/PCIe* SFF combo	39
Figure 53. Installing the 24 x 2.5" hot swap backplane SAS/PCIe* SFF combo	39
Figure 54. Removing the power interposer board	40
Figure 55. Installing the power interposer board	40
Figure 56. Removing the front control panel assembly from the rack handle	41
Figure 57. Disconnecting the front panel cable	41
Figure 58. Removing the front control panel board	41
Figure 59. Installing the front control panel board	42
Figure 60. Connecting the front panel cable	42
Figure 61. Installing the front control panel assembly to the rack handle	42

List of Tables

Table 1. Reference documents and software	12
Table 2. Chassis feature set	14

1. Introduction

1.1 About this Document

This document is written for system technicians who are responsible for troubleshooting, upgrading, and repairing the Intel® Server Chassis H2000P product family. This document provides a brief overview of the features of the Intel Server Chassis H2000P product family, a list of accessories or other components that may be needed, troubleshooting information, and instructions on how to add and replace the components on the Intel® Server Chassis H2000P product family. For the latest revision of this document, visit <http://www.intel.com/support>.

1.2 Document Organization

Chapter 2 – Provides a high level overview of the Intel Server Chassis H2000P product family including a list of the server chassis features and illustrations identifying the major chassis components.

Chapter 3 – Provides detailed guidance for the installation and removal of the Intel server chassis components including field replaceable units (FRUs)

Appendix - Provides information on getting additional help and warranties.

1.3 Additional Information and Software

For additional information about this family of products or any of their supported accessories, refer to the following resources available at <http://www.intel.com/support>.

Table 1. Reference documents and software

For this information	Use this document or tool
In-depth technical information	<i>Intel® Server Chassis H2000P Product Family Technical Product Specification</i>
Product list and supported spares and accessories	<i>Configuration Guide and Spares/Accessories List</i>
Server configuration and compatibility guidance	Intel® Server Configurator Tool at http://serverconfigurator.intel.com
System power budget guidance	Power Budget Tool at http://www.intel.com/support
Product safety and regulatory information	<i>Intel Server Products – Product Safety and Regulatory Compliance Document</i>

2. Product Features

This chapter briefly describes the main features of the Intel® Server Chassis H2000P product family. This includes illustrations of the product, a list of the product features, and diagrams showing the location of important components and connections.



Figure 1. Server chassis overview (H2312XXLR3)

Figure 2 shows an Intel server chassis fully populated with four compatible Intel compute modules.

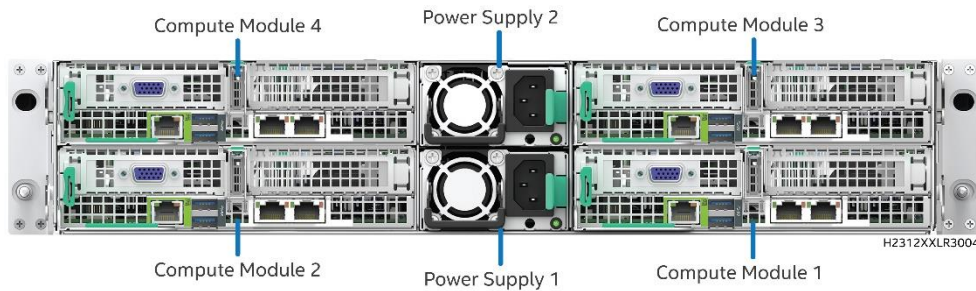


Figure 2. Server chassis rear view

2.1 Product Feature Overview

The Intel Server Chassis H2000P product family is a 2U multi-node rack mount server chassis designed to support Intel compute modules. Table 2 summarizes the features of the product family.

For additional information, refer to the *Intel® Server Chassis H2000P Technical Product Specification*.

Table 2. Chassis feature set

Feature	H2204XXLRE	H2312XXLR3	H2224XXLR3
Chassis Dimensions (mm)	L=733 W=438 H=86.9	L=771 W=438 H=86.9	L=733 W=438 H=86.9
Package Dimensions (mm) ¹	L=983 W=577 H=260	L=983 W=577 H=260	L=983 W=577 H=260
Net Weight	18.64 kg	21.5 kg	20.6 kg
Package Weight	26.75 kg	29.5 kg	28.9 kg
Compute Module Product Family Support	HNS2600BP	HNS2600BP HNS7200AP ³	HNS2600BP24
Cooling System	One internal power supply fan for each installed power supply unit		
Power Supply Options	2130 W AC common redundant power supply (CRPS), 80 PLUS* Platinum, supporting CRPS configuration		
Storage Bay Options	4x 3.5" SATA/SAS ²	12x 3.5" SATA/SAS	24x 2.5" SAS (includes 8x 2.5" PCIe* SFF devices)

¹ The outer dimensions of the package box.

² The H2204XXLRE chassis includes 4x3.5" drive carriers. However, to maintain thermal requirements to support 165W TDP processors, only 2.5" SSD drives are supported.

³ In the H2312XXLR2 chassis, the HNS7200AP compute module supports up to 8x SATA/SAS drives only.



Figure 3. Intel® Server Chassis H2204XXLRE (4x3.5")



Figure 4. Intel® Server Chassis H2312XXLR3 (12x3.5")



Figure 5. Intel® Server Chassis H2224XXLR3 (24x2.5")

Note: The H2204XXLRE chassis includes 4x3.5" drive carriers. However, to maintain thermal requirements to support thermal design power (TDP) of selected processors, only 2.5" SSD drives are supported. For additional details, refer to the *Intel® Server Chassis H2000P Product Family Technical Product Specification* and the product configuration guide for ordering information.

2.2 Intel® Server Chassis Components

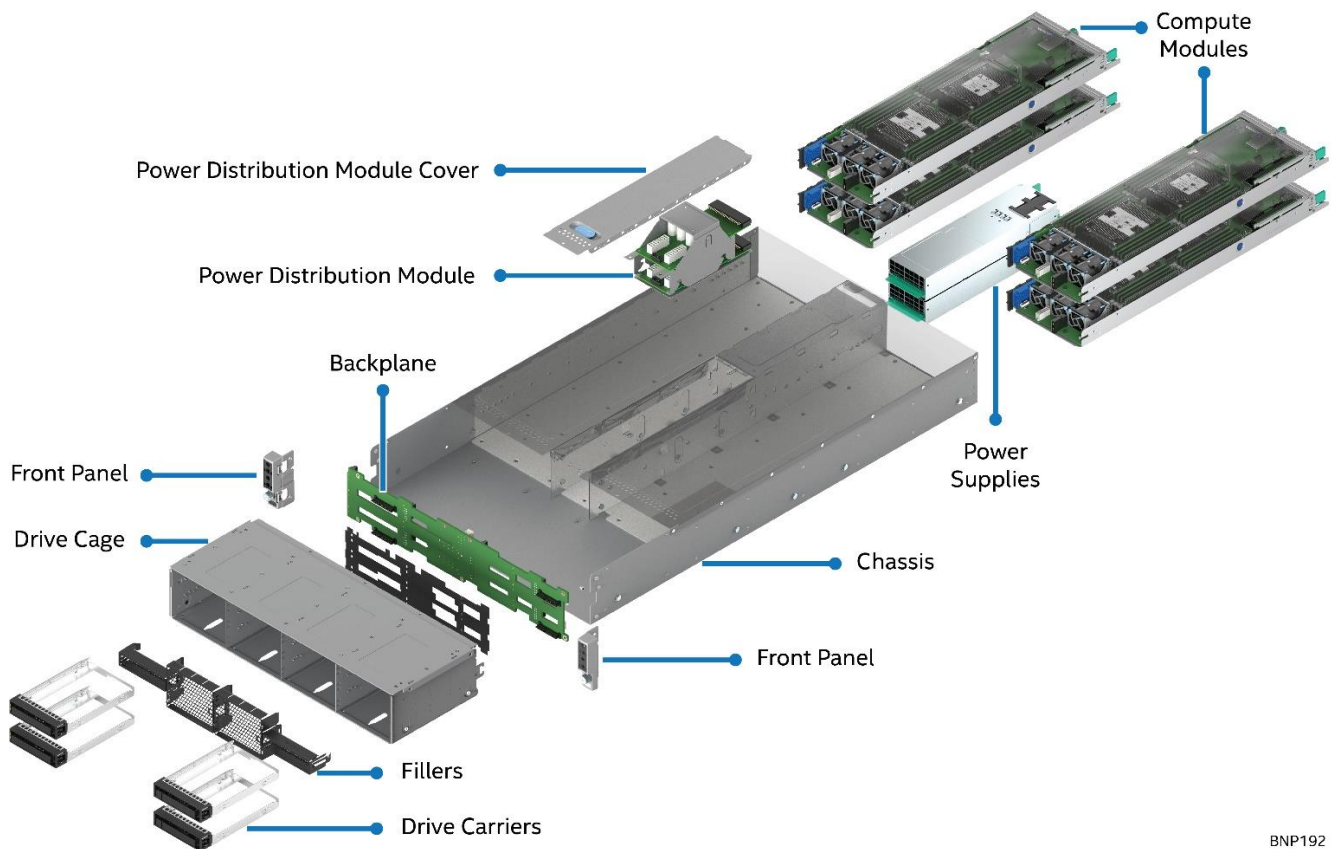
This section helps identify the components of the product. The Quick Reference Label provided on the chassis cover can also assist in identifying the components.

The Intel® Server Chassis H2000P product family supports four compute modules in the chassis.

Note: The blank compute module bay must be covered by a dummy traycover. When removed, keep the dummy tray cover properly for future use. For more information on the dummy cover, see Section **Error! Reference source not found.**

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.

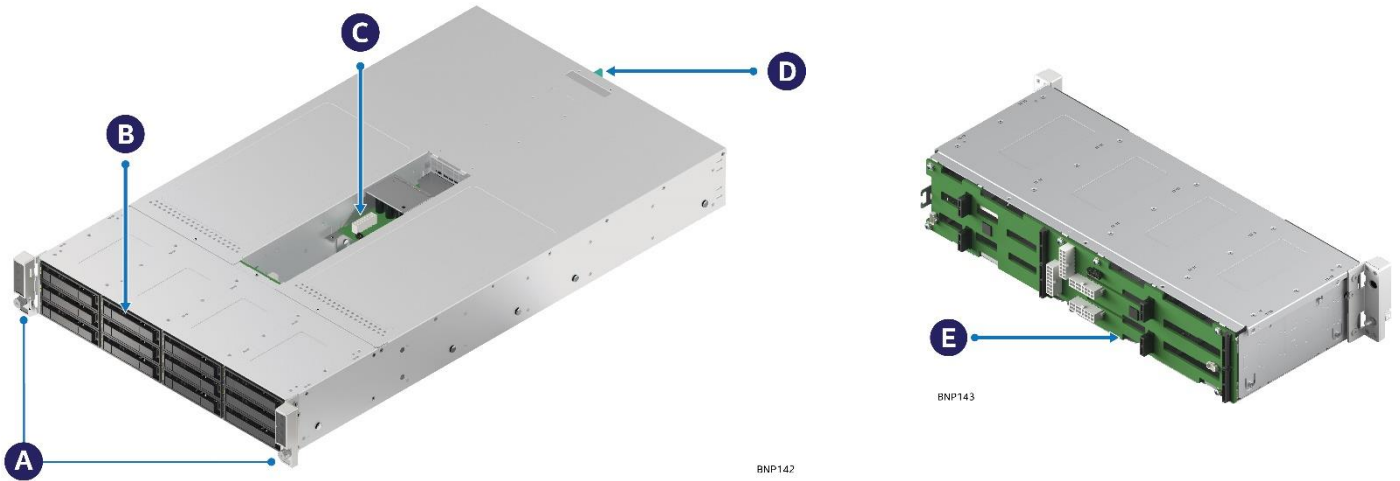
The following is a representation of the chassis main components, using the Intel Server Chassis H2204XXLRE and the Intel Compute Modules HNS2600BP product family, each part is described through the document.



BNP192

Figure 6. Intel® Server Chassis H2204XXLRE exploded view

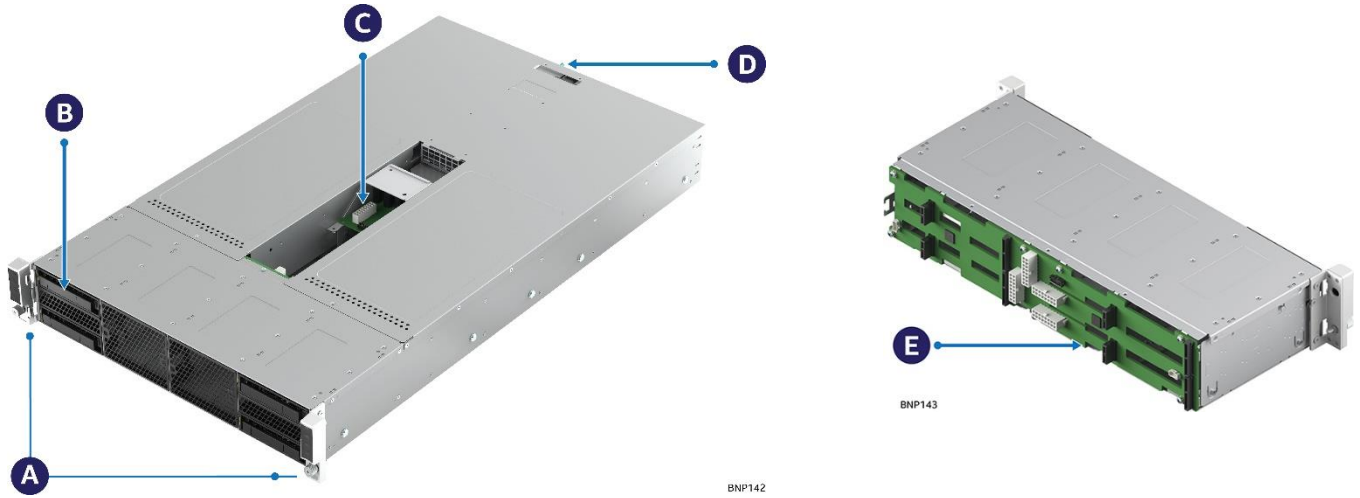
Note: The rack slide rails and power distribution module cover are not shown.



A – Front control panels
B – Drive bays
C – Power distribution module

D – Power supply modules
E –Hot swap backplane (attached to the drive cage)

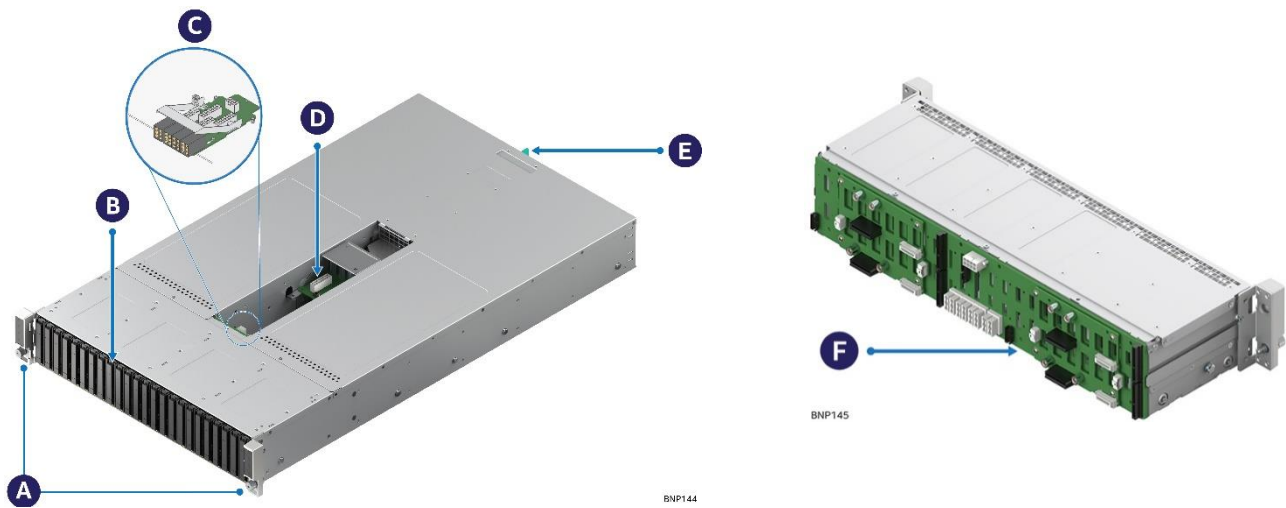
Figure 7. Intel® Server Chassis H2312XXLR3 major components (24 x 2.5" drive bay)



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 8. Intel® Server Chassis H2204XXLRE major components (4 x 3.5" drive bay)



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

Figure 9. Intel® Server Chassis H224XXLR3 major components (24 x 2.5" drive bay)

Note: The rack slide rails and power distribution module cover are not shown.

2.3 Drive Bays

Each compute module has a dedicated drive array based on the backplane controller design. Figure 10, Figure 11, and Figure 12 show the schemes for the drive arrays corresponding to the compute modules.

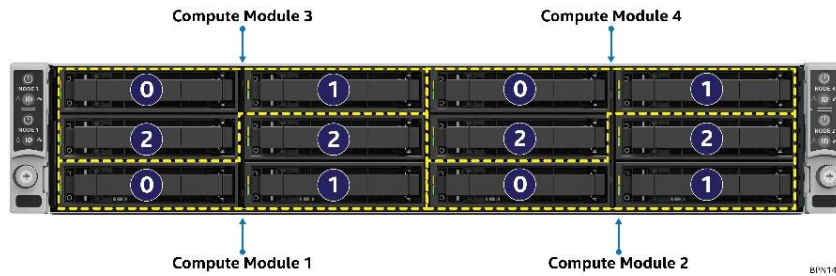


Figure 10. Drive array scheme on the Intel® Server Chassis H2312XXLR3

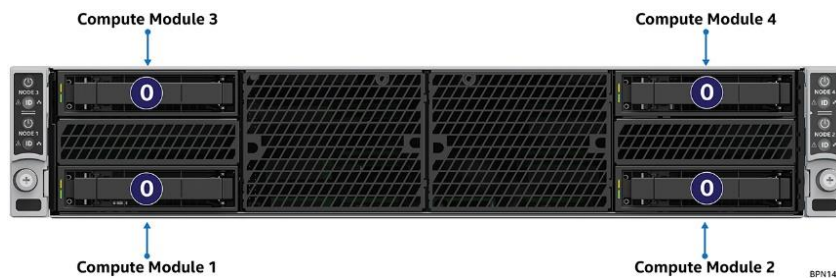


Figure 11. Drive array scheme on the Intel® Server Chassis H2204XXLR3

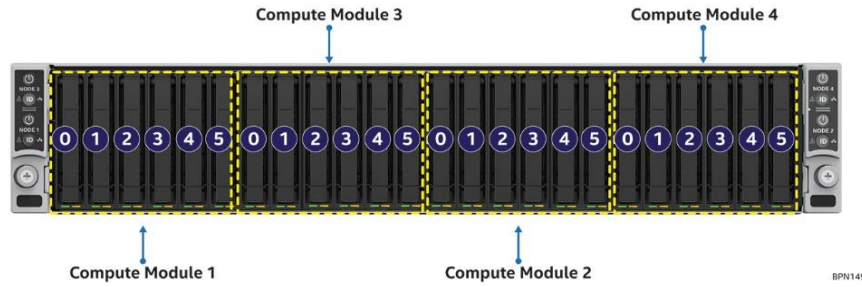


Figure 12. Drive array scheme on the Intel® Server Chassis H2224XXLR3

2.4 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. Figure 13 shows the locations and detailed view of the control panels.

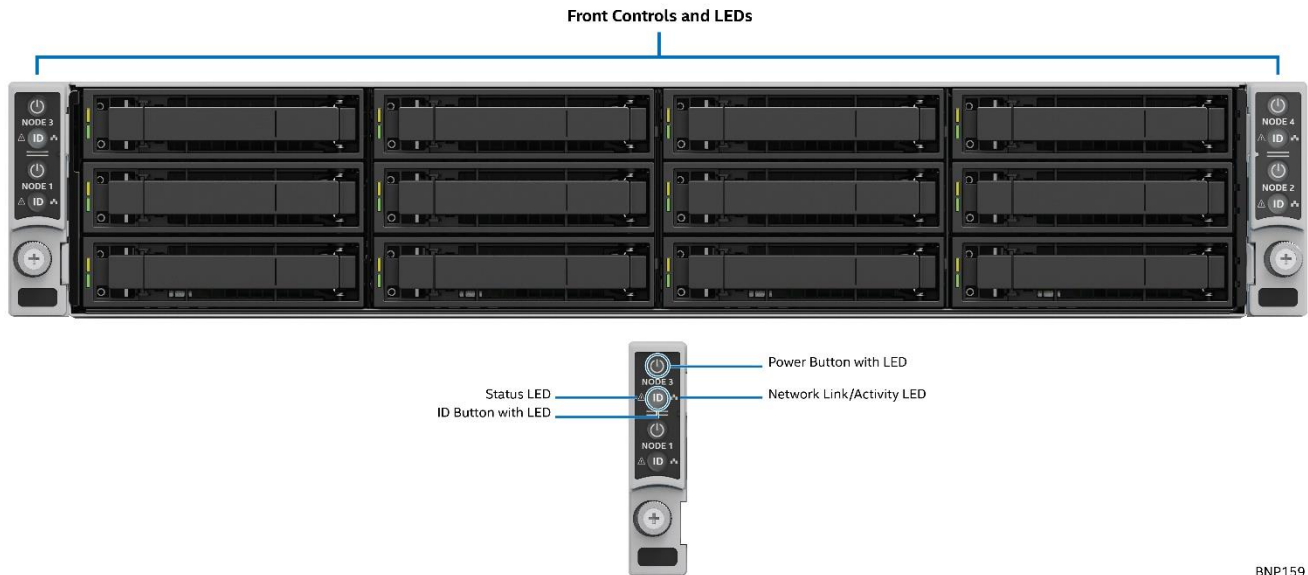
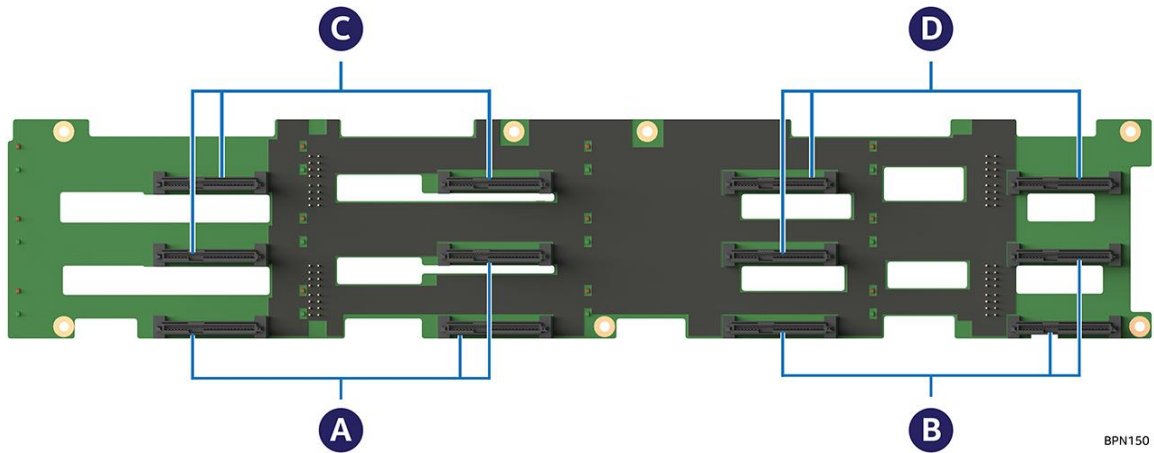


Figure 13. Location of front control panel and LEDs

2.5 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.

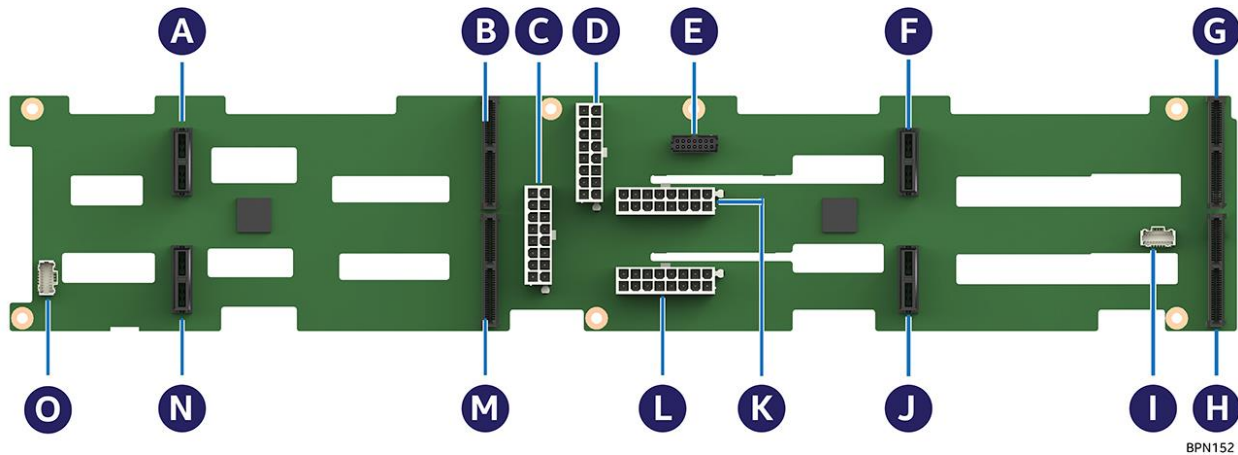
2.5.1 12 x 3.5" Hot-Swap Backplane



BPN150

- 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 14. 12 x 3.5" backplane components (front view)

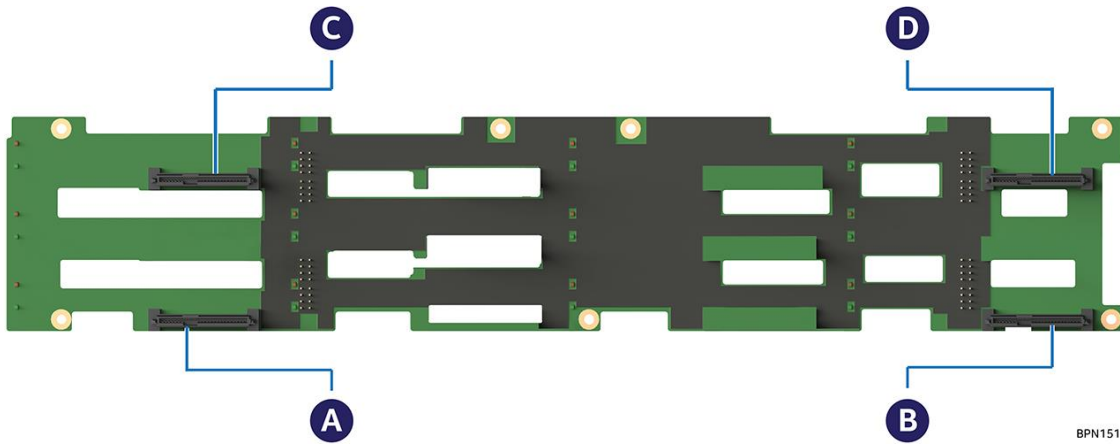


BPN152

- 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 nodes 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 nodes 2 and 4

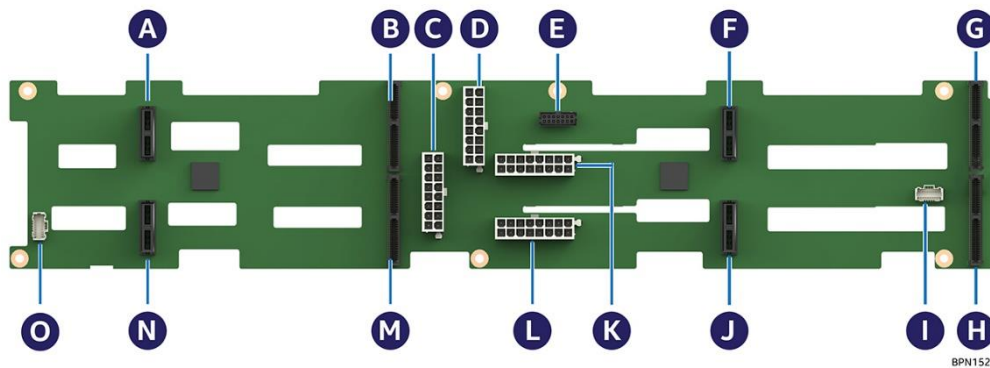
Figure 15. 12 x 3.5" backplane components (back view)

2.5.2 4 x 3.5" Hot-Swap Backplane



- 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

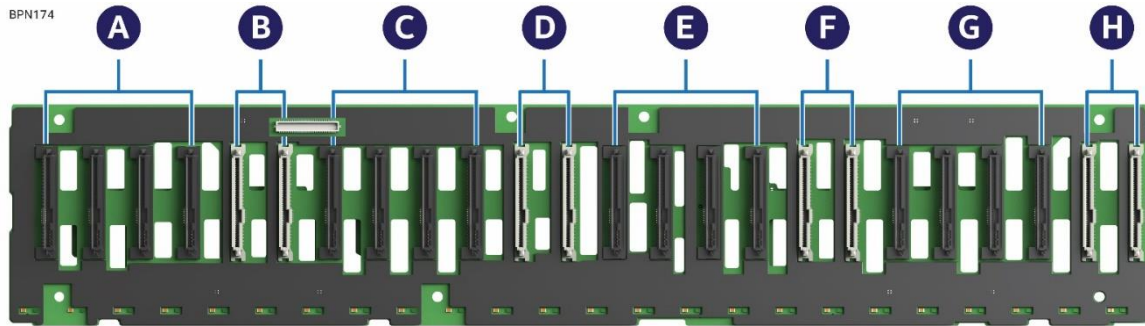
Figure 16. 4 x 3.5" backplane components (front view)



- 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 nodes 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 nodes 2 and 4

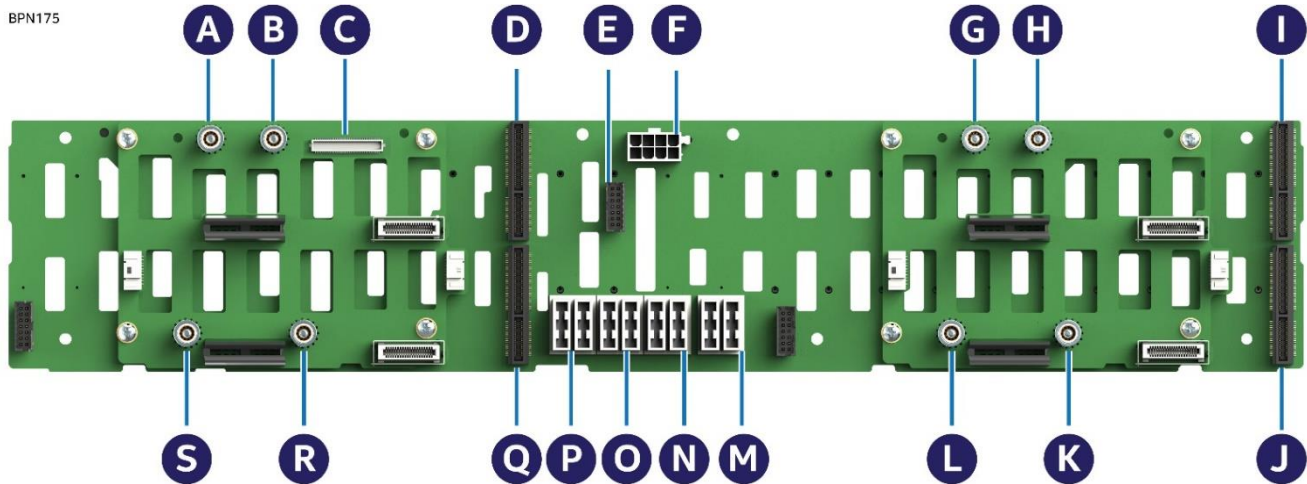
Figure 17. 4 x 3.5" backplane components (back view)

2.5.3 24 x 2.5" Hot-Swap Backplane



- A – SAS 0-3 SFF-8680 connectors (compute module 1)
- B – SAS 4-5/PCIe* SFF 0-1 SFF 8639 connectors (compute module 1)
- C – SAS 6-9 SFF-8680 connectors (compute module 3)
- D – SAS 10-11/PCIe* SFF 2-3 SFF-8639 connectors (compute module 3)
- E – SAS 12-15 SFF-8680 connectors (compute module 2)
- F – SAS 16-17/PCIe* SFF 4-5 SFF-8639 connectors (compute module 2)
- G – SAS 18-21 SFF-8680 connectors (compute module 4)
- H – SAS 22-23/PCIe* SFF 6-7 SFF-8639 connectors (compute module 4)

Figure 18. 24 x 2.5" backplane components (front view)



- A – Power mate pin (to BIB)
- B – Power mate pin (to BIB)
- C – 80-pin miscellaneous signal connector (to BIB)
- D – 100-pin bridge board connector
- E – 2x7-pin power control cable connector (to PDB)
- F – 2x4 pin P5V power cable connector (to PIB)
- G – Power mate pin (to BIB)
- H – Power mate pin (to BIB)
- I – 100-pin bridge board connector
- J – 100-pin bridge board connector
- K – Power mate pin (to BIB)
- L – Power mate pin (to BIB)
- M – 12 V power connector (to PIB)
- N – 12 V power connector (to PIB)
- O – 12 V power connector (to PIB)
- P – 12 V power connector (to PIB)
- Q – 100-pin bridge board connector
- R – Power mate pin (to BIB)
- S – Power mate pin (to BIB)

Figure 19. 24 x 2.5" backplane components (back view)

2.6 Backplane Interposer Board

The backplane interposer board (BIB) is only used in 24 x 2.5" drive chassis as the interposer between the backplane and the power docking board to connect the power and miscellaneous signals from the backplane to the compute modules.

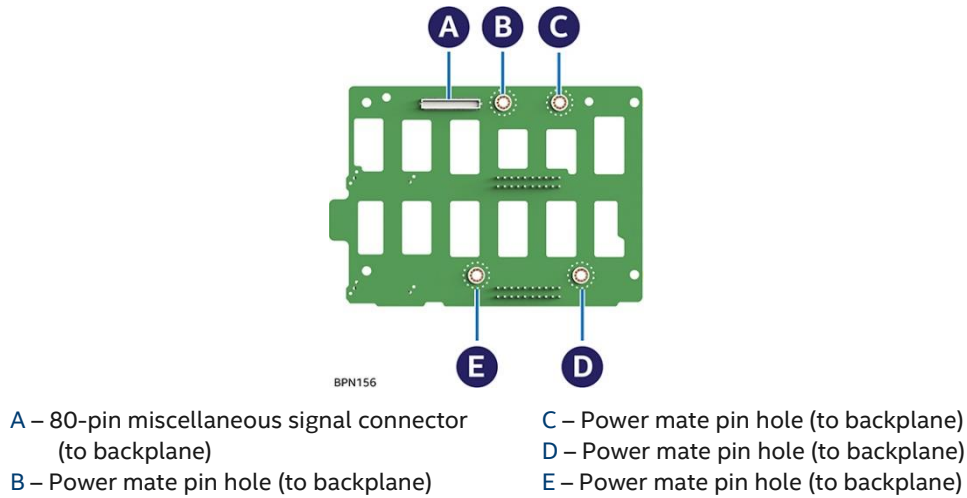


Figure 20. Backplane interposer board (front view)

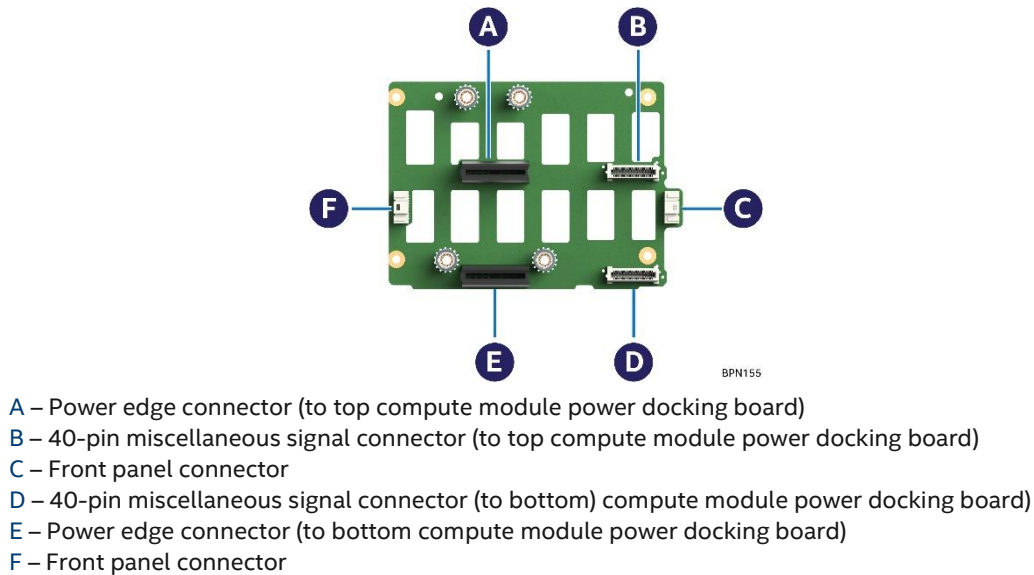


Figure 21. Backplane interposer board (back view)

3. Hardware Installations and Upgrades

This chapter provides instructions on removing and installing chassis components.

3.1 Before Beginning

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

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

Note: Before servicing the server chassis, power down the server and unplug all peripheral devices and the AC powercord.

3.1.1 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)

3.1.2 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.

3.2 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 side of the chassis.

3.2.1 Installing the Compute Module

To install the compute module:

1. While pressing the latch, pull out the dummy tray cover (Figure 22).

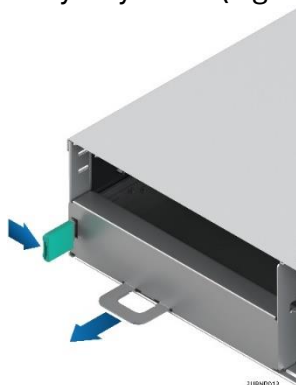


Figure 22. Removing the dummy tray cover

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 23).

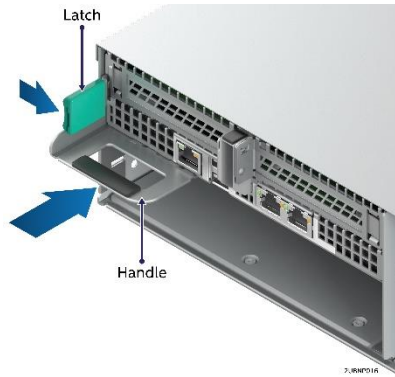


Figure 23. Installing the compute module

3.2.2 Removing the Compute Module

To remove the compute module:

1. While pressing the latch, pull out the handle with the compute module (Figure 24).

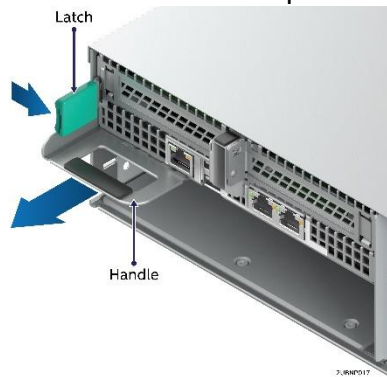


Figure 24. Removing the compute module

2. Restore the dummy tray cover (Figure 25).

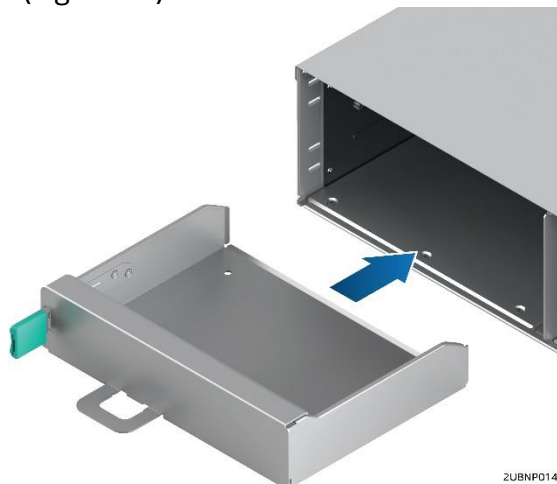


Figure 25. Restoring the dummy tray cover

3.3 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 does not provide power supply redundancy and results in multiple errors being logged.

3.3.1 Removing the Power Supply Unit

While pressing the latch, pull out the handle with the power supply unit (Figure 26).

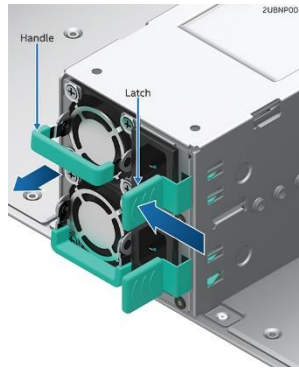


Figure 26. Removing the power supply unit

3.3.2 Installing the Power Supply Unit

To install the power supply unit, refer to Figure 27.

1. Align and slide the power supply unit into the power cage.

Note: While facing the rear side of the chassis, make sure the power supply is oriented with the securing latch to the right side as indicated in Figure 27.

2. While pressing the latch, push the power supply unit along the power cage rail until the latch locks in position.

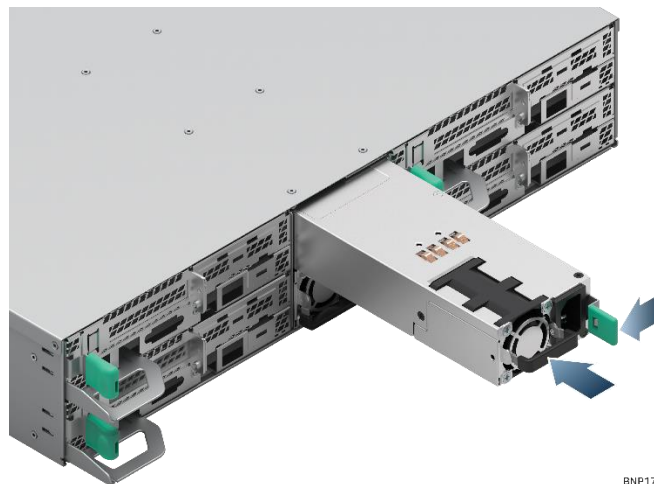


Figure 27. Installing the power supply unit

3.3.3 Installing the Power Supply Unit Cord Retention Strap

To minimize the risk of someone accidentally pulling out a power cord from the power supply, it is highly recommended that the supplied power cord retention strap be installed.

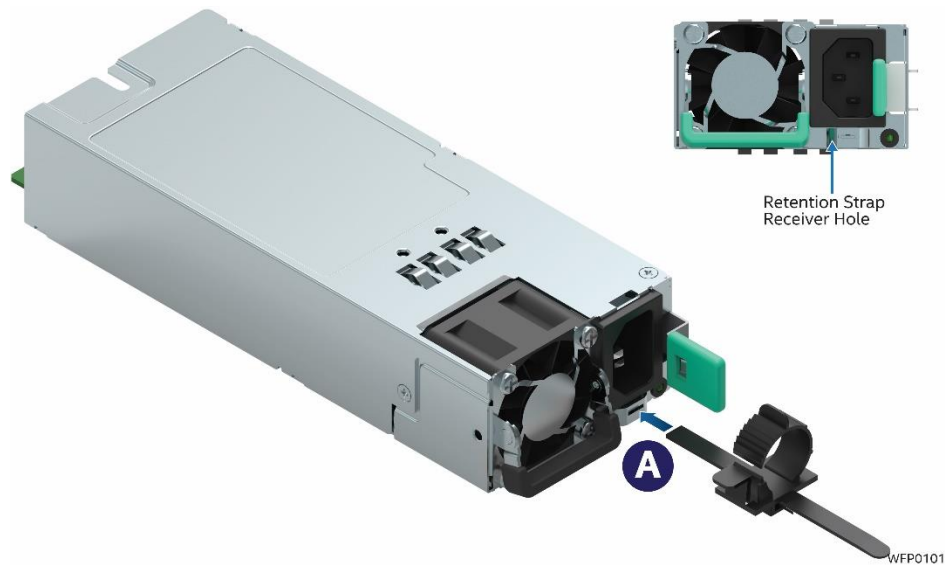


Figure 28. Power Cord Retention Strap Installation

1. Locate and retrieve the power cord retention strap from the system accessory kit.
2. Insert the locking tab end of the Retention Strap into the receiver hole located beneath the power supply socket on the back of the power supply module (see Letter 'A').

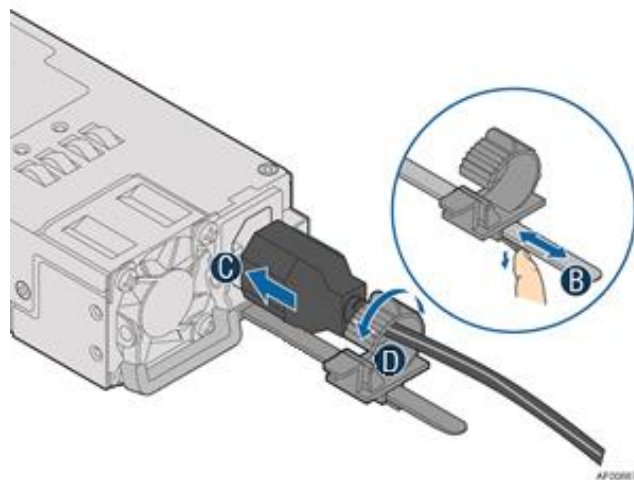


Figure 29. Plugging the Power Cable

3. While pushing up the locking tab on the bottom of the slider, adjust the slider to the desired position (see Letter 'B').
4. Install the power cord into the power supply socket on the back side of the power supply (see Letter 'C').
5. Pull the slider strap over the power cord and lock it securely into place (see Letter 'D').
6. To remove the power cord from the Retention Strap, push down on the slider tab to release the slider strap.
7. Pull the slider strap back over the power cord.
8. Remove power cord.

3.4 Removing and Installing Storage Devices

The 2U server product family has front drive bay chassis options that support 2.5" form factor drives (HDDs or SSDs) or 3.5" form factor HDDs with the option to support 2.5" SSDs. This section provides instruction for drive extraction from the chassis, drive installation into the chassis, and drive assembly.

Note: To maintain proper system cooling, all externally accessible drive bays must be populated with a carrier mounted with a storage device (HDD or SSD) or with a supplied drive blank.

3.4.1 Removing a Drive Carrier

To remove a drive carrier, press the button on the carrier face plate to release the lever (A) and pull the carrier out of the drive bay (B) as pictured in Figure 30.

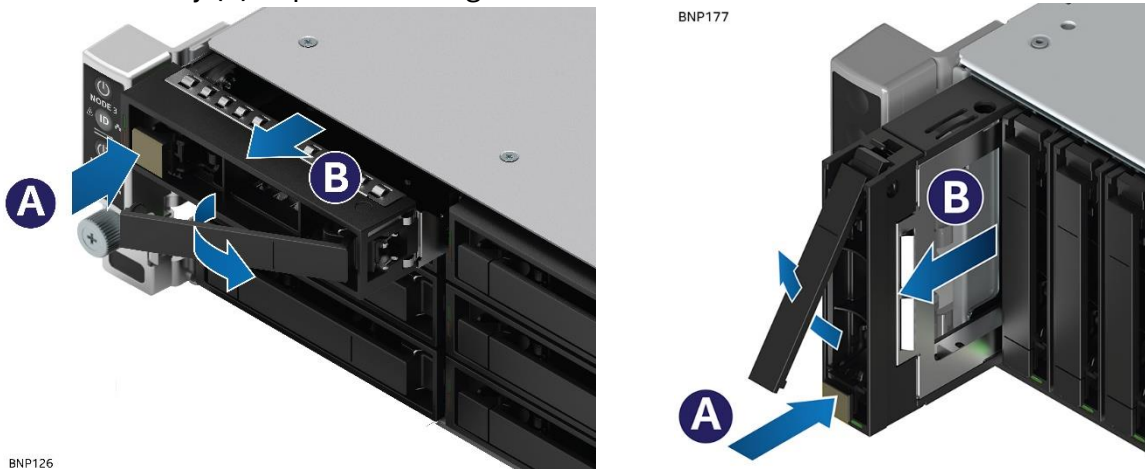


Figure 30. Removing a drive carrier from the chassis

3.4.2 Installing a Drive Carrier

To install a drive carrier, refer to Figure 31.

1. Align the drive assembly with the open drive bay.
2. With the lever open, insert the carrier assembly into the chassis (A) until the drive makes contact with the backplane.
3. Push in the lever to lock the drive into place (B).

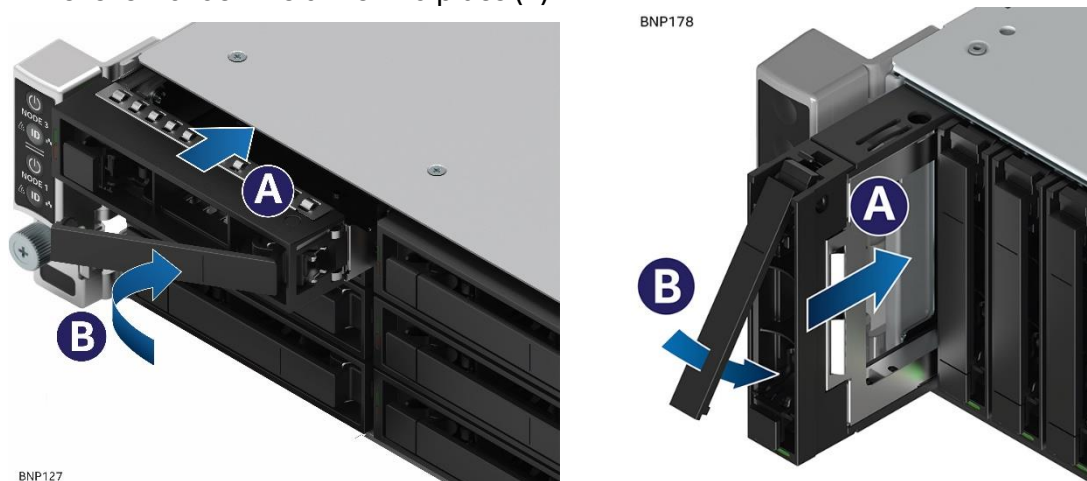


Figure 31. Installing a drive carrier into a chassis

3.4.3 2.5" Storage Device Drive Carrier Assembly

3.4.3.1 Removing a 2.5" Storage Drive / Drive Blank from a Drive Carrier

Remove the storage drive or drive blank from the carrier by gently rotating the top edge of a carrier rail outwards while at the same time pushing the storage drive or drive blank up from the bottom as shown in Figure 32.

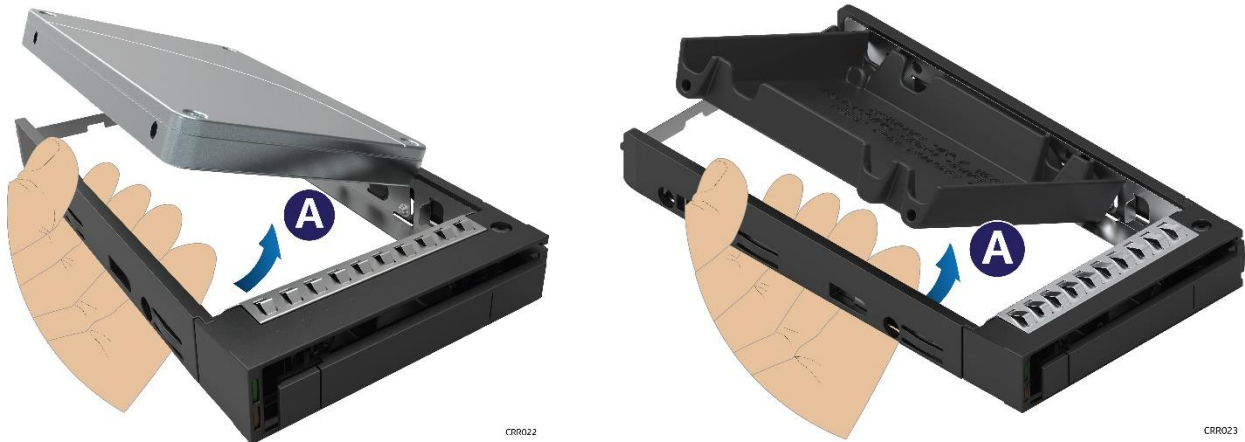


Figure 32. Removing a 2.5" storage drive / drive blank from a drive carrier

3.4.3.2 Installing a 2.5" Storage Drive / Drive Blank in a Drive Carrier

To install a storage drive or drive blank in a drive carrier, refer to Figure 33 and Figure 34.

1. With the rear storage drive connector positioned towards the back of the drive carrier, align the mounting holes on one side of the storage drive over the mounting tabs located on the drive carrier side rail (A).
2. Lower the other side of the storage drive into the carrier (B) and press down on the storage drive until all mounting tabs lock in place.

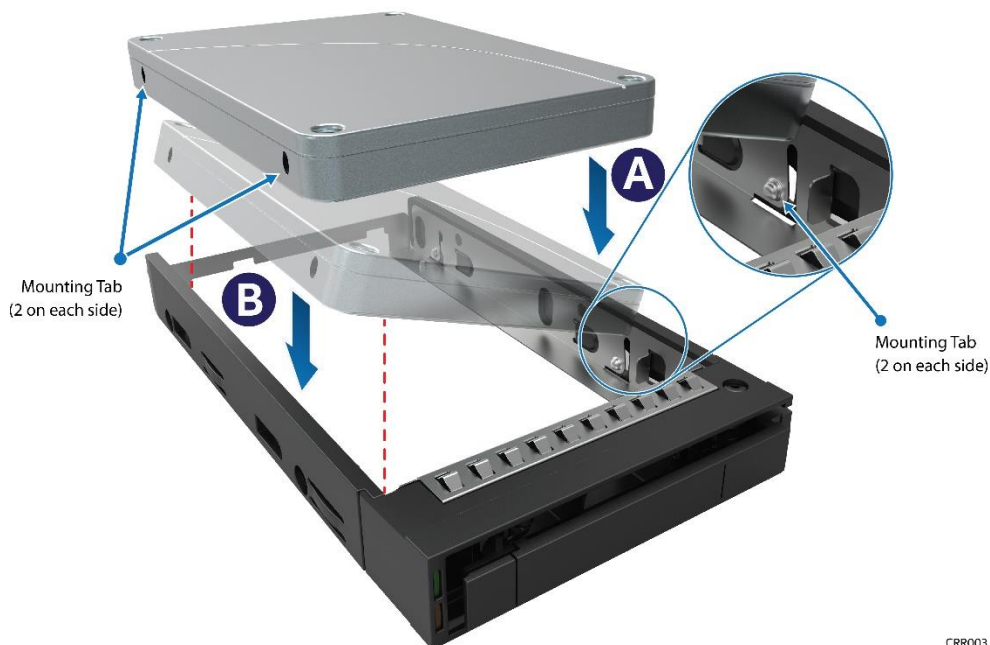


Figure 33. Installing a 2.5" storage drive/drive blank in a drive carrier

Note: The 2.5" drive blank and drive carrier each have an alignment feature (shown in Figure 34) to ensure proper assembly. When re-installing a drive blank into the drive carrier, ensure the features are aligned prior to installation. Failure to properly install a drive blank may result with the carrier assembly not fitting properly in to the chassis drive bay.

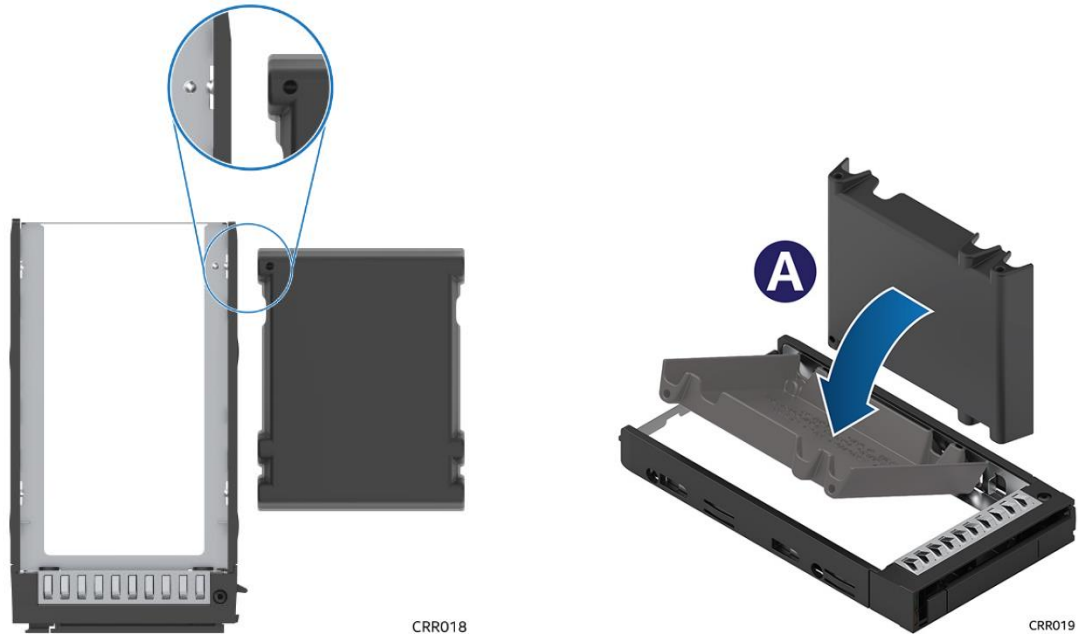


Figure 34. 2.5" drive carrier assembly alignment feature

3.4.4 3.5" Storage Device Drive Carrier Assembly

3.4.4.1 Removing a 3.5" Storage Drive/Drive Blank from a Drive Carrier

To remove the storage drive or drive blank from the carrier, refer to Figure 35.

1. Hold the carrier assembly top side down in one hand.
2. Using the other hand, gently rotate the bottom edge of the left rail upwards (A) while pushing the storage drive or drive blank down away from the drive carrier (B).

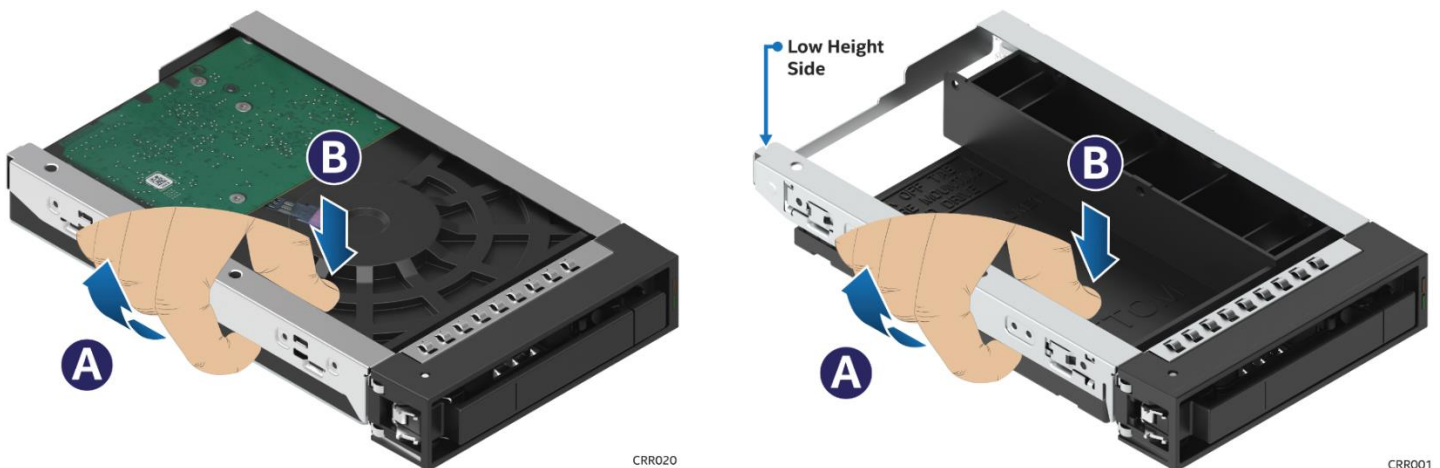


Figure 35. Removing a 3.5" storage drive/drive blank from a drive carrier

3.4.4.2 Installing a 3.5" Storage Drive/Drive Blank in a Drive Carrier

To install a storage drive or drive blank in a drive carrier, refer to Figure 36.

1. With the rear storage drive connector positioned towards the back of the drive carrier, align the mounting holes on the left side of the storage drive over the mounting tabs located on the drive carrier side rail (A).
2. Lower the other side of the storage drive into the drive carrier and press down on the storage drive until all mounting tabs lock in place (B).

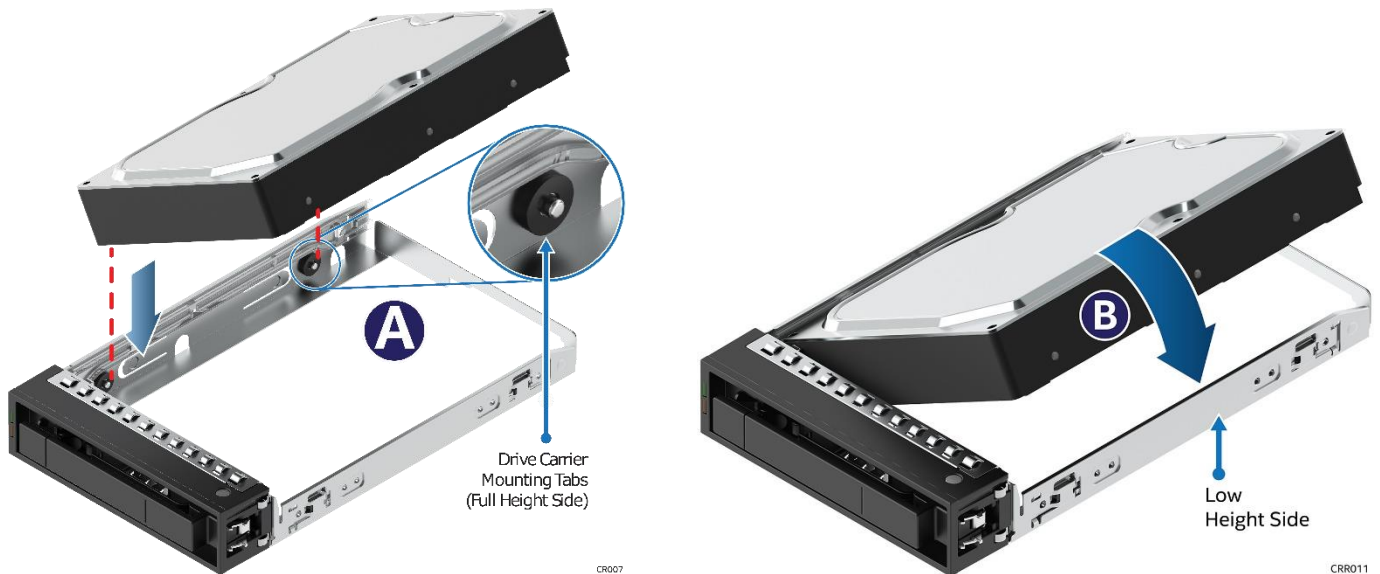


Figure 36. Installing a 3.5" storage drive/drive blank in a drive carrier

3.4.5 Installing a 2.5" Storage Drive/Drive Blank into a 3.5" Drive Carrier

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.

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

To install a 2.5" SSD into a 3.5" carrier:

1. Remove the drive blank from the drive carrier. For instructions, see Section 3.4.4.1.
2. Break off the small side tab from the drive blank, making the drive blank into a device bracket (Figure 37). Once the side tab is removed, it cannot be re-attached to the drive blank.

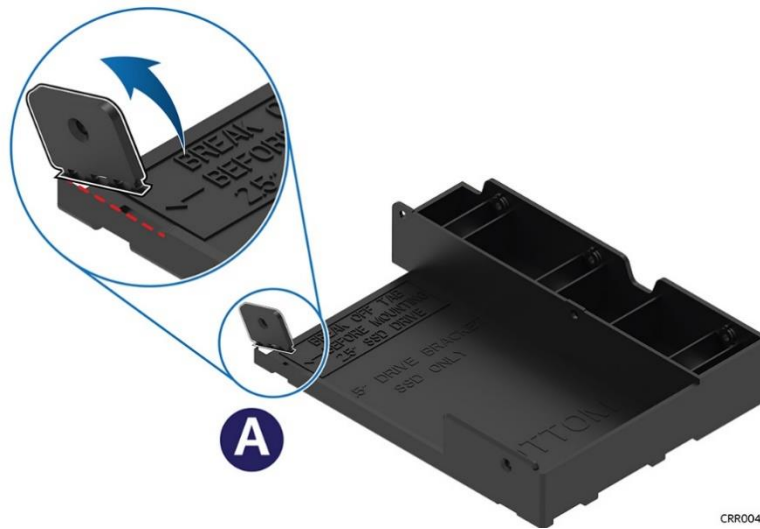


Figure 37. Installing a 2.5" SSD in a 3.5" drive carrier – tab removal

3. Mount and secure the 2.5" SSD to the drive bracket using two screws at the locations shown in Figure 38 (B).

Note: New drive carriers with drive blanks installed include a bag of four (4) mounting screws.

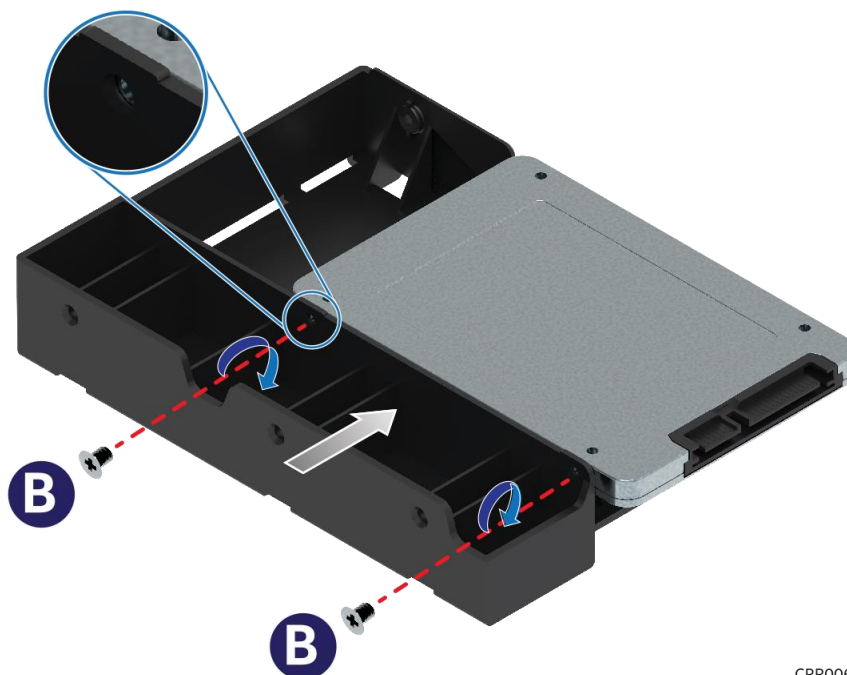


Figure 38. Installing a 2.5" SSD in a 3.5" drive carrier – mount SSD to bracket

4. With the rear drive connector positioned towards the back of the drive carrier, align the mounting holes on the left side of the drive over the mounting tabs located on the drive carrier side rail (Figure 39, C).
5. Lower the other side of the drive into the carrier and press down on the drive until all mounting tabs lock in place (Figure 39, D).

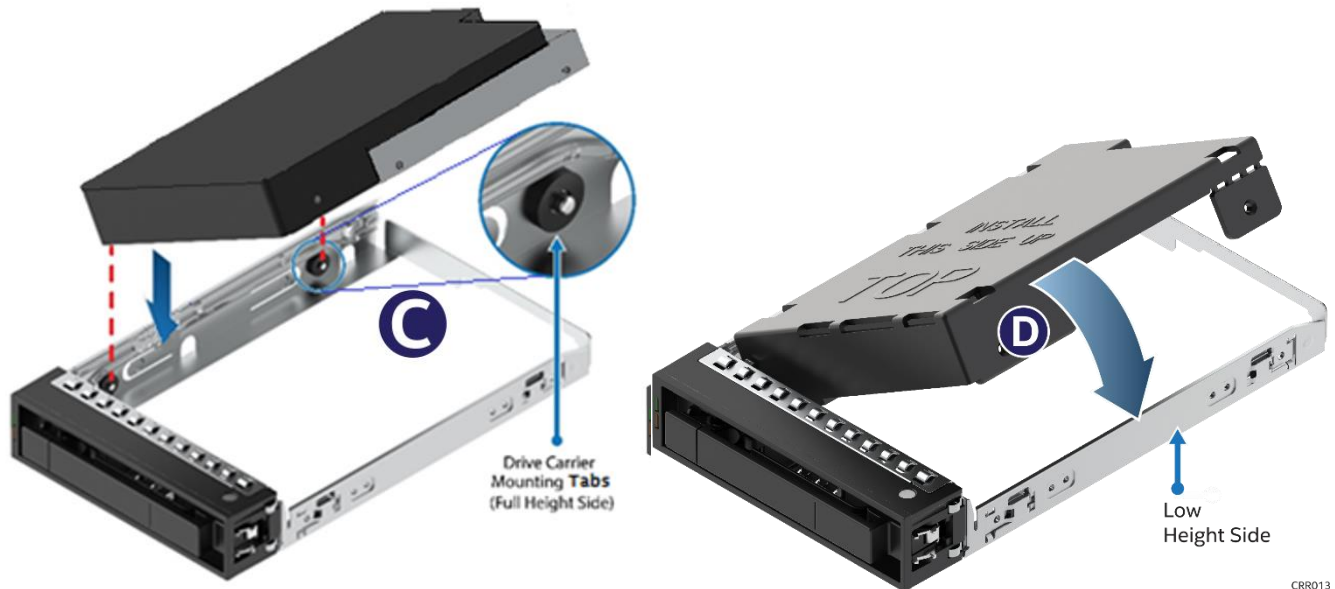


Figure 39. Installing a 2.5" SSD in a 3.5" drive carrier – mount bracket assembly to carrier

6. Turn the assembly over. Using two (2) screws, secure the SSD to the carrier side rail (Figure 40, E).

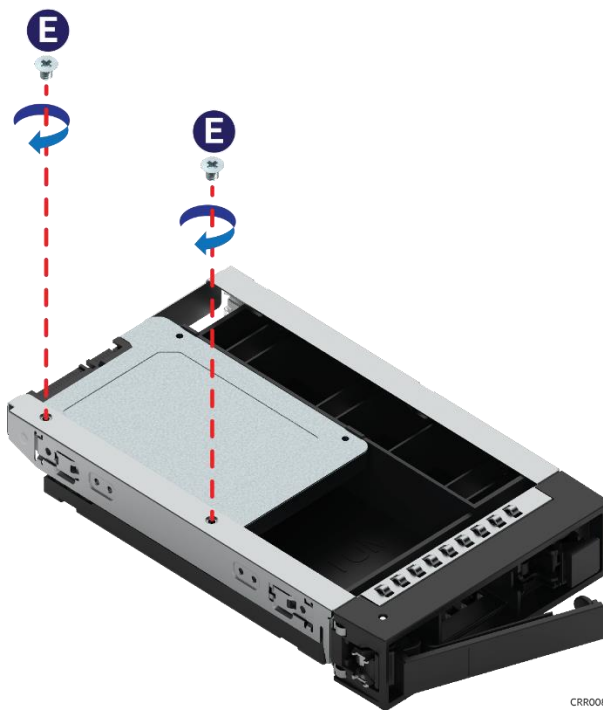


Figure 40. Installing a 2.5" SSD in a 3.5" drive carrier – secure SSD to carrier

3.5 Removing and Installing the Power Distribution Module Cover

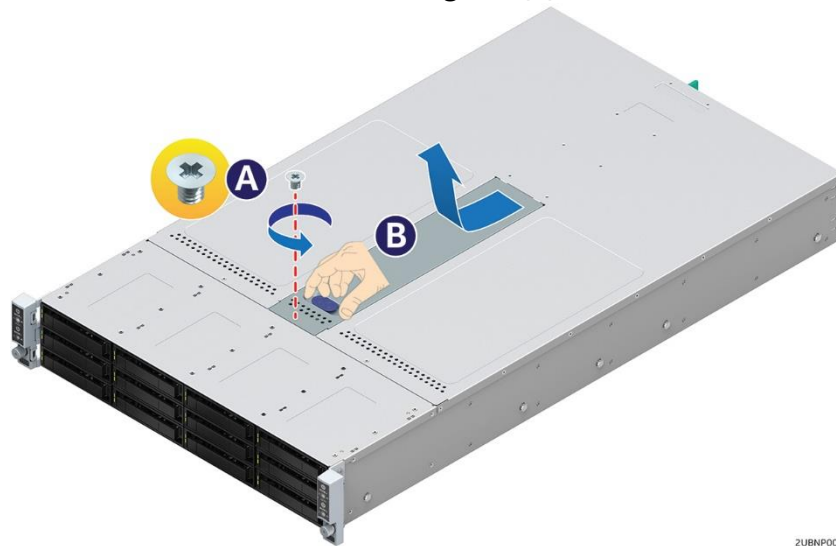
3.5.1 Removing the Power Distribution Module Cover

The server chassis must be operated with the power distribution module cover in place to ensure proper cooling. 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 the work surface.

To remove the power distribution module cover, refer to Figure 41.

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



2UBNP001

Figure 41. Removing the power distribution module cover

3.5.2 Installing the Power Distribution Module Cover

To install the power distribution module cover, refer to Figure 42.

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

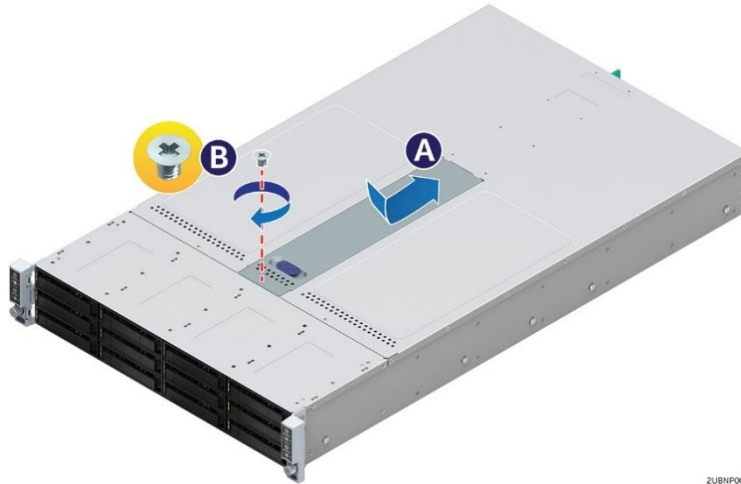


Figure 42. Installing the power distribution module cover

3.6 Removing and Installing the Power Distribution Module

3.6.1 Removing the Power Distribution Module

1. Remove the cover and the power supply units from the chassis.
2. Remove the power cables and PMBus* cable between the power distribution module and the backplane.
3. Remove the two screws (A) and slide the power distribution module and lift it (B) as pictured in Figure 43.

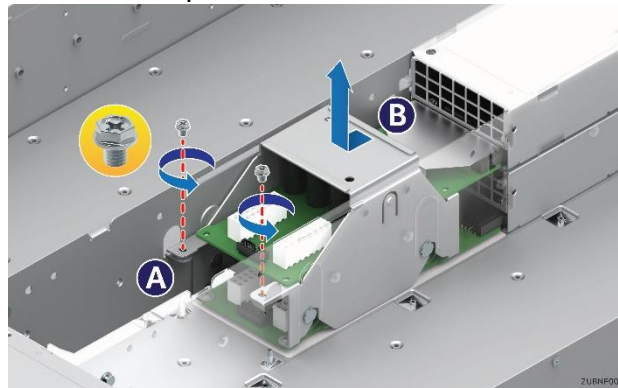


Figure 43. Removing the power distribution module

3.6.2 Installing the Power Distribution Module

1. Slide in the power distribution module (A) and fix the module with the two screws (B) as pictured in Figure 44.

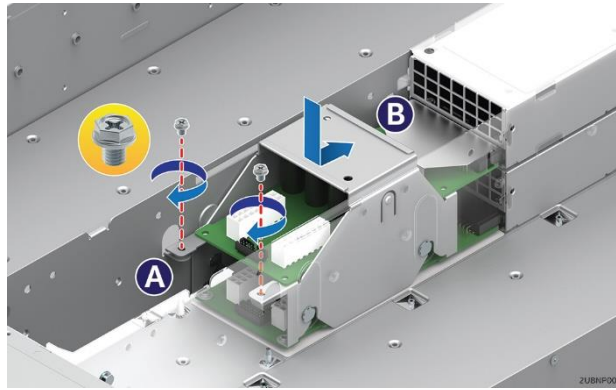


Figure 44. Installing the power distribution module

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

3.7 Removing and Installing the Chassis Drive Cage

3.7.1 Removing the Chassis Drive Cage

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 Section 3.5.1.
3. Disconnect all cables from the backplane board.
4. Remove the drive cage screws (A, B and C) and pull out the drive cage (D) as shown in Figure 45. When pulling out the drive cage, be careful not to damage the front panel cables.

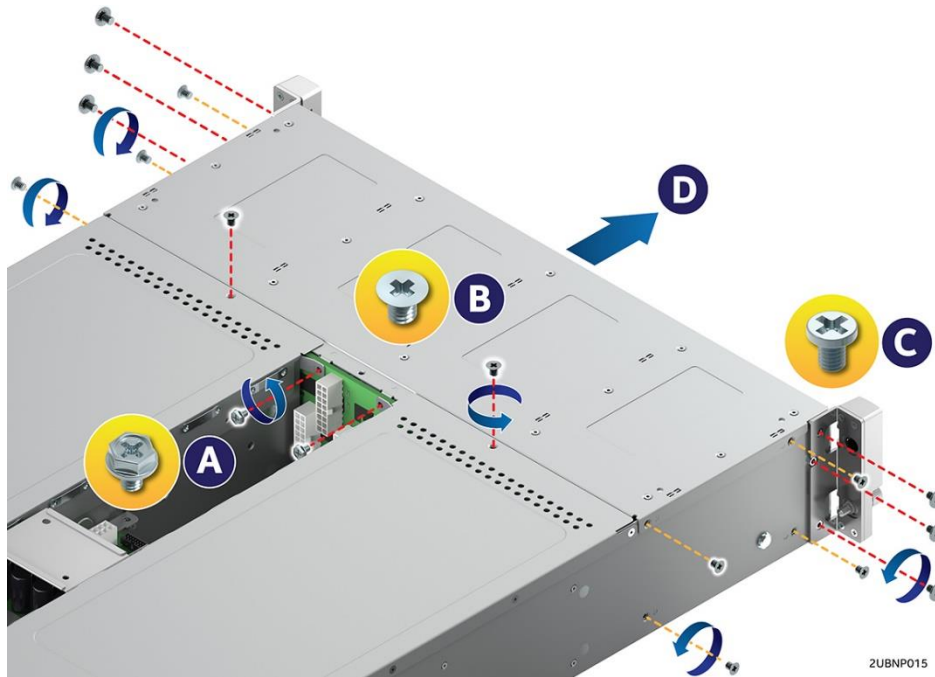


Figure 45. Removing the drive cage

3.7.2 Installing the Chassis Drive Cage

1. Align the drive cage and backplane assembly to the chassis (Figure 46).

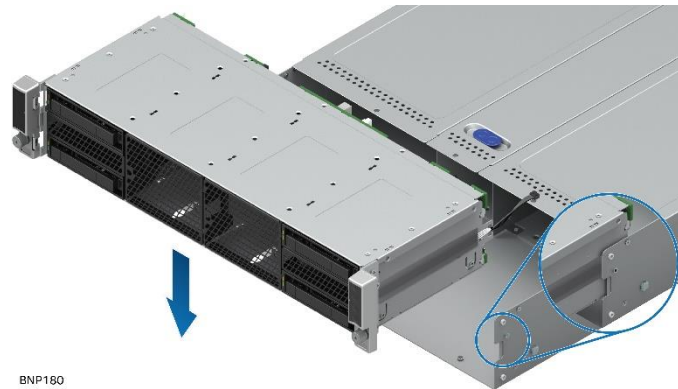


Figure 46. Installing the chassis drive cage – align the drive cage

2. Careful not to damage the front panel cables at the sides of the drive cage, seat the drive cage over the chassis and slide it until it snaps into place (Figure 47).



Figure 47. Installing the chassis drive cage – insert drive cage

3. Fix the drive cage assembly to the chassis by using the screws (D, E, and F) as shown in Figure 48.

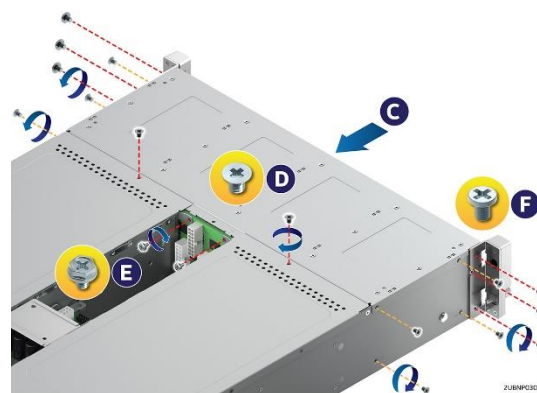


Figure 48. Installing the chassis drive cage

4. Reconnect the cables to the backplane board.
5. Install the power distribution module cover. For instructions, see Section 3.5.2.
6. Install all hot-swap drive carriers, if removed.

3.8 Replacing the 12 x 3.5" Backplane Board

3.8.1 Removing the 12 x 3.5" Backplane Board

1. Remove the drive cage from the chassis. For instructions, see Section 3.7.1.
2. Remove the screws from the backplane board (E) and detach the backplane board from the drive cage (F) as pictured in Figure 49.

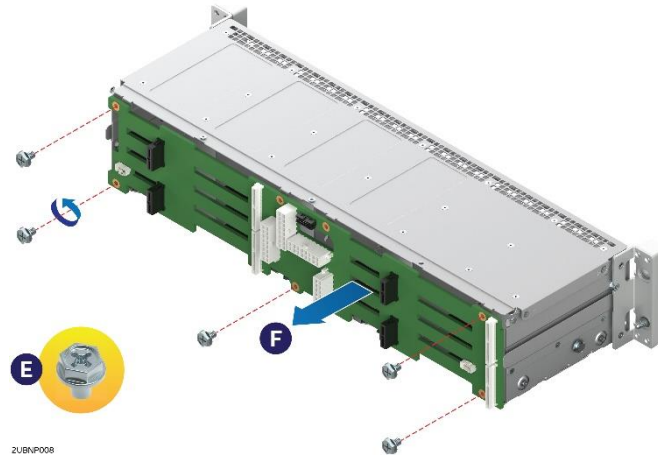


Figure 49. Removing the 12 x 3.5" backplane board from the drive cage

3.8.2 Installing the 12 x 3.5" Backplane Board

1. Attach the backplane board to the drive cage (A) and fix the backplane board with the screws (B) as pictured in Figure 50.

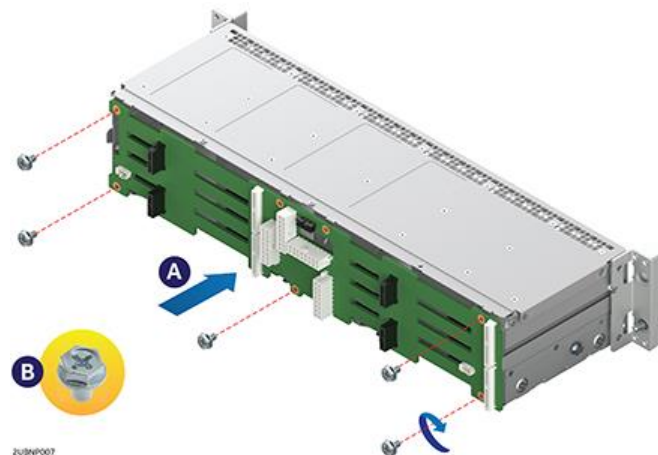


Figure 50. Installing the 12 x 3.5" backplane board to the drive cage

2. Install the drive cage in the chassis. For instructions, see Section 3.7.2.

3.9 Replacing the 4 x 3.5" Backplane Board

3.9.1 Removing the 4 x 3.5" Backplane Board

1. Remove the drive cage from the chassis. For instructions, see Section 3.7.1.
2. Remove the screws from the backplane board (E) and detach the backplane board from the drive cage (F) as pictured in Figure 51.

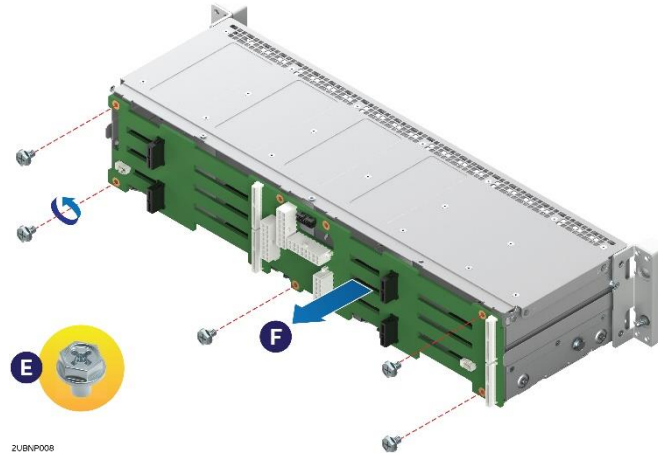


Figure 51. Removing the 4 x 3.5" backplane board from the drive cage

3.9.2 Installing the 4 x 3.5" Backplane Board

1. Attach the backplane board to the drive cage (A) and fix the backplane board with the screws (B) as pictured in Figure 52.

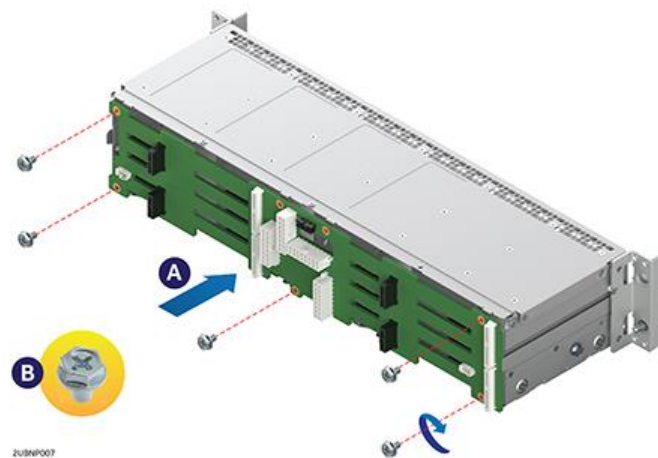


Figure 52. Installing the 4 x 3.5" backplane board to the drive cage

2. Install the drive cage in the chassis. For instructions, see Section 3.7.2.

3.10 Replacing the 24 x 2.5" Hot Swap Backplane SAS/PCIe* SFF Combo

3.10.1 Removing the 24 x 2.5" Hot Swap Backplane SAS/PCIe* SFF Combo

1. Remove the drive cage from the chassis. For instructions, see Section 3.7.1.
2. Disconnect the front panel cable from the backplane interposer board.
3. Remove the five screws from the backplane board (E), remove the screw and the bracket from the bottom of the drive cage (F), and detach the backplane board from the drive cage (G) as pictured in Figure 53.

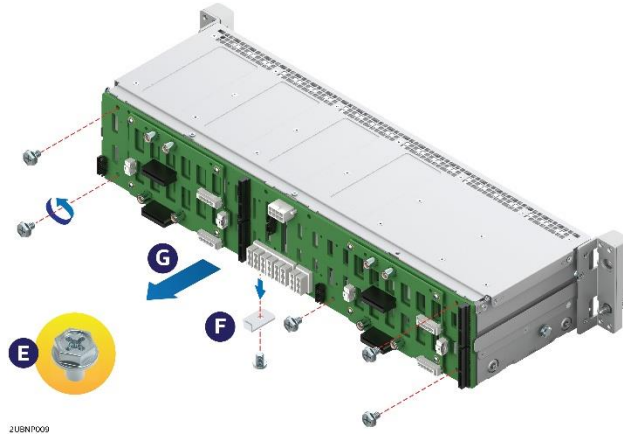


Figure 53. Removing the 24 x 2.5" hot swap backplane SAS/PCIe* SFF combo

3.10.2 Installing the SAS/PCIe* SFF Combo 24 x 2.5" Hot Swap Backplane

1. Attach the backplane board to the drive cage (A), fix the backplane board with the five screws (B), and install the bracket with the screw (C) as pictured in Figure 54.

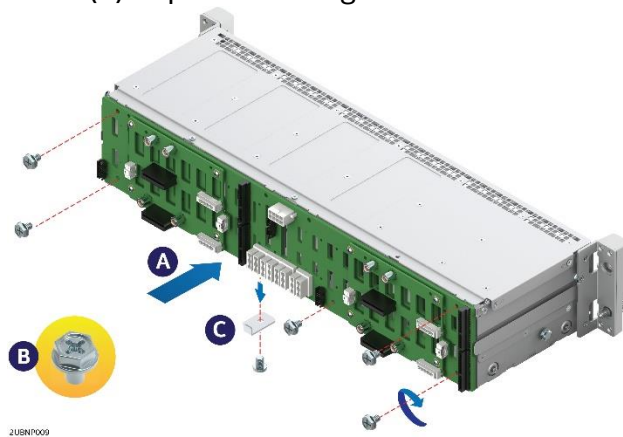


Figure 54. Installing the 24 x 2.5" hot swap backplane SAS/PCIe* SFF combo

2. Install the drive cage in the chassis. For instructions, see Section 3.7.2.

3.11 Replacing the Power Interposer Board

3.11.1 Removing the Power Interposer Board (24 x 2.5" only)

Loosen the screw (A), rotate the bracket clockwise (B), and lift up the power interposer board (C) as pictured in Figure 55.

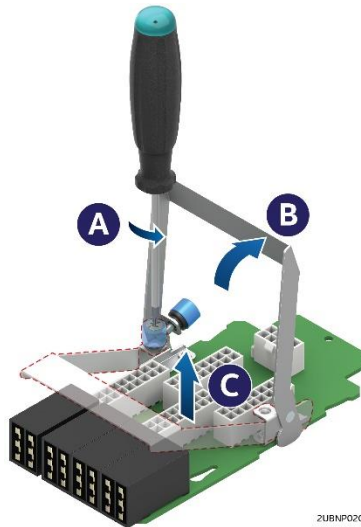


Figure 55. Removing the power interposer board

3.11.2 Installing the Power Interposer Board

Place the power interposer board into the compute module (A), rotate the bracket counterclockwise all the way (B), and tighten the screw (C) as pictured in Figure 56.

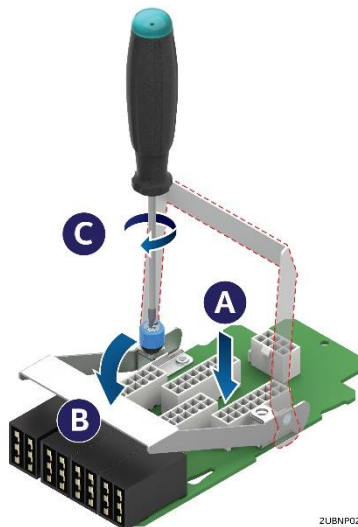


Figure 56. Installing the power interposer board

3.12 Replacing the Front Control Panel Board

3.12.1 Removing the Front Control Panel Board

1. Remove the four screws on the back of the rack handle (C) as pictured in Figure 57. Be careful of the front panel cable on the back.

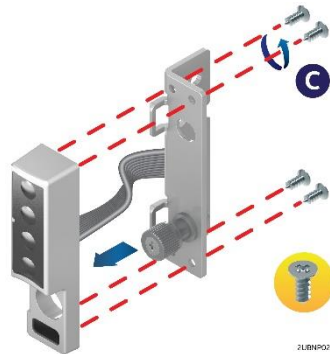


Figure 57. Removing the front control panel assembly from the rack handle

2. Disconnect the cable from the front control panel board (B) as pictured in Figure 58.

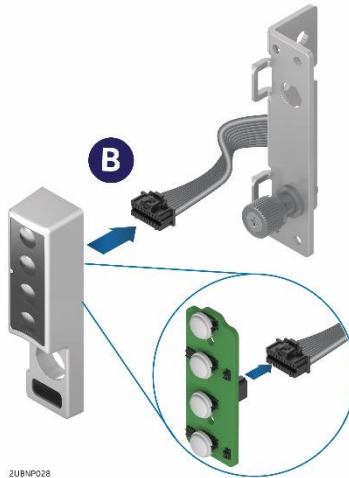


Figure 58. Disconnecting the front panel cable

3. Remove the two screws from the back of the front control panel board and remove the board as pictured in Figure 59.

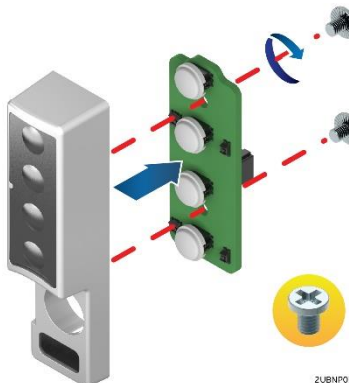


Figure 59. Removing the front control panel board

3.12.2 Installing the Front Control Panel Board

1. Install the front control panel board to the panel shell with the two screws as pictured in Figure 60.

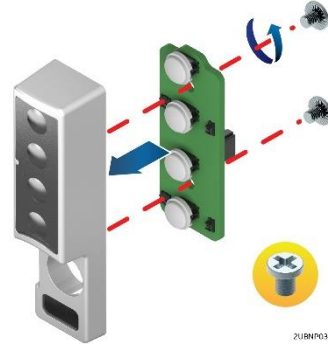


Figure 60. Installing the front control panel board

2. Connect the cable to the front control panel board (B) as pictured in Figure 61.

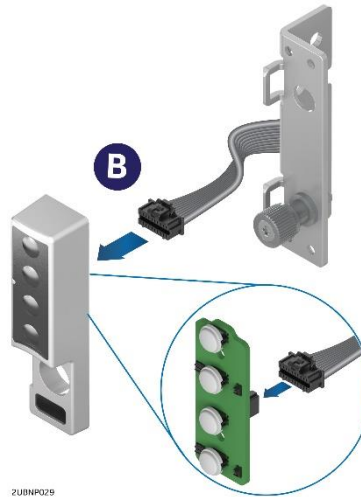


Figure 61. Connecting the front panel cable

3. Install the front control panel assembly to the rack handle with the four screws (C) as pictured in Figure 62.

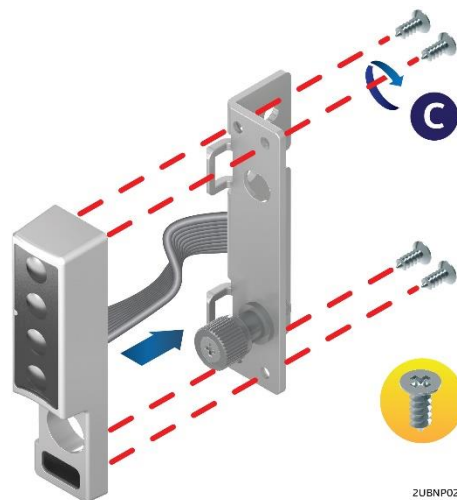


Figure 62. Installing the front control panel assembly to the rack handle

Appendix A. Getting Help

If there is an issue with the server chassis, follow these steps to obtain support:

1. Visit http://www.intel.com/p/en_US/support/contactsupport.

This web page provides 24x7 support to get the latest and most complete technical support information on all Intel® Enterprise Server and Storage Platforms. Information available at the support site includes:

- Latest BIOS, firmware, drivers, and utilities.
 - Product documentation and installation and quick start guides.
 - Full product specifications, technical advisories, and errata.
 - Compatibility documentation for memory, hardware add-in cards, and operating systems.
 - Server and chassis accessory parts list for ordering upgrades or spare parts.
 - A searchable knowledgebase to find for product information throughout the support site.
2. If a solution cannot be found at Intel's support site, send an email to Intel's technical support center using the online form available at <http://www.intel.com/support/feedback.htm?group=server>.
 3. Lastly, contact an Intel support representative using one of the support phone numbers available at <http://www.intel.com/support/feedback.htm?group=server> (charges may apply).

Intel also offers Channel Program members around-the-clock 24x7 technical phone support on Intel® Server Boards, Intel® Server Chassis, Intel® RAID Controller cards, and Intel® Server Management at <http://www.intel.com/reseller/>.

Note: Access to the 24x7 number requires a login to the reseller site.

C.1. Warranty Information

To obtain warranty information, visit http://www.intel.com/p/en_US/support/warranty.