

Hot Swap Drive Conversion Kit Install Guide:

**Intel® Entry Server Chassis SC5295-E
DP/WS/BRP**

**Intel® Entry Server Chassis SC5299-E
DP/WS/BRP**

A Guide for Technically Qualified Assemblers of Intel® Identified Subassemblies/Products

Intel Order Number: D20466-003



This document provides instructions for installing the following accessory kits:

APP3HSDBKIT

AXX6SCSIDB

AXX6SASDB

AXX6DRV3G

AXX6DRV3GEXP

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Safety Information

Important Safety Instructions

Read all caution and safety statements in this document before performing any of the instructions. See also Intel Server Boards and Server Chassis Safety Information on the *Intel[®] Server Deployment Toolkit CD* and/or at <http://support.intel.com/support/motherboards/server/sb/cs-010770.htm>.

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 auf der *Intel[®] Server Deployment Toolkit CD* oder unter <http://support.intel.com/support/motherboards/server/sb/cs-010770.htm>.

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 *Intel[®] Server Deployment Toolkit CD* ou bien rendez-vous sur le site <http://support.intel.com/support/motherboards/server/sb/cs-010770.htm>.

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 el *Intel[®] Server Deployment Toolkit CD* y/o en <http://support.intel.com/support/motherboards/server/sb/cs-010770.htm>.

重要安全指导

在执行任何指令之前，请阅读本文档中的所有注意事项及安全声明。和/或 <http://support.intel.com/support/motherboards/server/safecert.htm> 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.

Electrostatic discharge (ESD) and ESD protection: ESD can damage disk drives, boards, and other parts. We recommend that you perform all procedures in this chapter only at an ESD workstation. If one is not available, provide some ESD protection by wearing an antistatic wrist strap attached to chassis ground any unpainted metal surface on your server when handling parts.

ESD and handling boards: Always handle boards carefully. They can be extremely sensitive to ESD. Hold boards only by their edges. After removing a board from its protective wrapper or from the server, place the board component side up on a grounded, static free surface. Use a conductive foam pad if available but not the board wrapper. Do not slide board over any surface.

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.

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1 Hot Swap Drive Drive Conversion Kit Install Guide

Before You Begin

Before working with your server system, observe these safety guidelines:

1. Turn off all peripheral devices connected to the server.
2. Turn off the server by pressing the power button on the front of the chassis. Then unplug the AC power cord from the chassis or wall outlet.
3. Provide electrostatic discharge (ESD) protection by wearing an anti-static wrist strap attached to a chassis ground - any unpainted metal surface - when handling components.

Kits Contents

- One side filler panel
- One fan
- One fan bracket
- One latch plate

To complete the installation, you also need the following:

- For the Intel® Entry Server Chassis SC5295-E: either a hot swap drive cage kit with a SCSI backplane (part number AXX6SCSIDB) or a hot swap drive cage kit with a SATA backplane (part number AXX6SASDB)
- For the Intel® Entry Server Chassis SC5299-E: either a hot swap drive cage kit with a SCSI backplane (part number AXX6SCSIDB) or a hot swap drive cage kit with a SAS/SATA backplane without expander (part number AXX6DRV3G) or a SAS/SATA backplane with expander (part number AXX6DRV3GEXP)

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 References

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

Installation Instructions for Intel® Entry Server Chassis SC5295-E

Power Down Chassis

1. Read all caution and safety statements listed in this document before performing any of the steps. See the *Intel® Server Boards and Server Chassis Safety Information* document at <http://support.intel.com/support/motherboards/server/sb/cs-010770.htm> for a complete listing of all caution and safety statements.
2. Power down the server and unplug all peripheral devices and the AC power cable.

Remove Left Side Cover

3. If present, remove the two screws (see letter “A” in the following figure). Push in on latch with your right hand (see letter “B”), and with your left hand, grasp the rear cover clasp and slide the left side cover rearward to remove from chassis (see letter “C”).

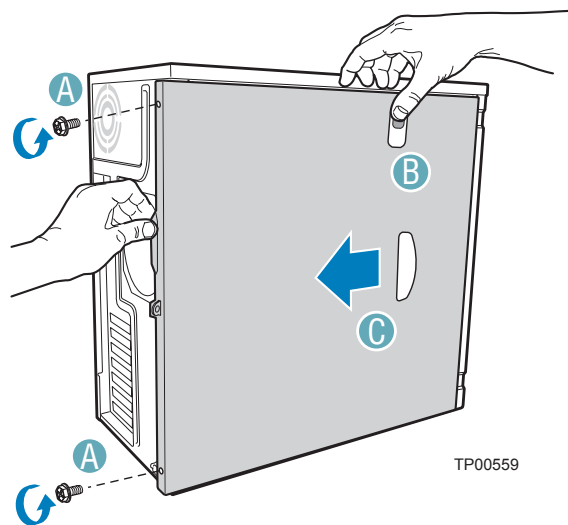


Figure 1. Removing Left Side Cover

Remove Front Bezel Assembly

4. Disengage the two bezel tabs from the left side of the chassis (see letter “A” in the following figure). Rotate the left side of the front bezel assembly outward slightly (see letter “B”). Disengage the three clips that attach the right side of the front bezel assembly to the chassis and remove (see letter “C”).

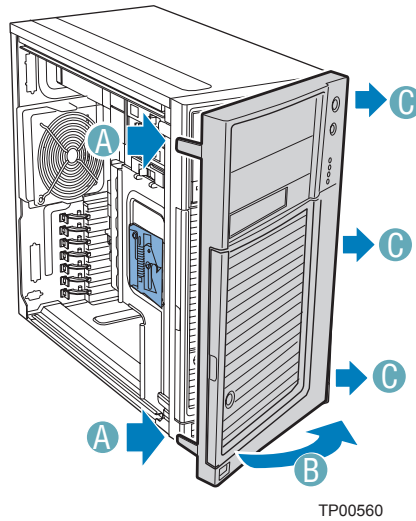


Figure 2. Removing Front Bezel Assembly

Remove Fixed Drive Cage

5. Loosen the thumb screw and remove the fixed drive cage EMI shield.

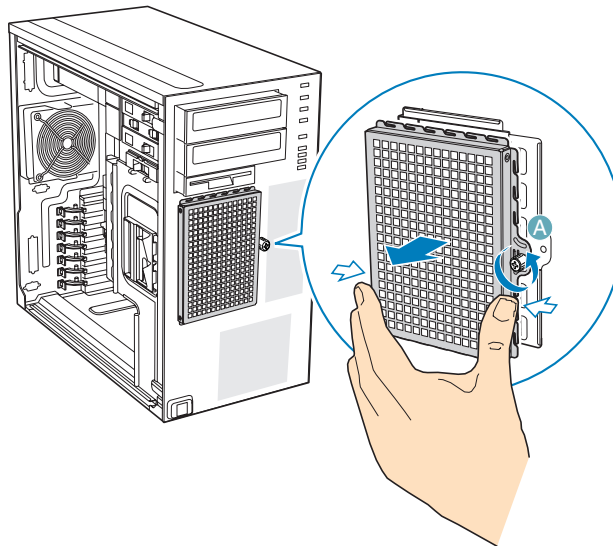
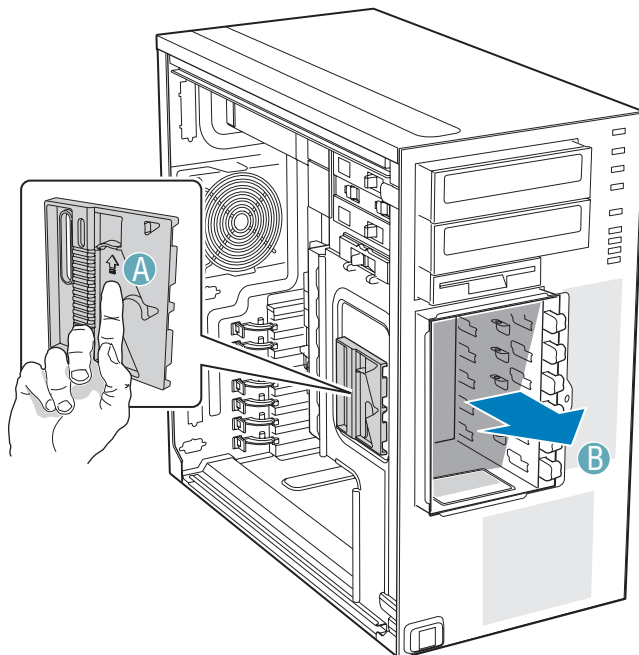


Figure 3. Removing Fixed Drive Cage EMI Shield from Chassis

6. Push the blue plastic release mechanism upward to release the fixed hard drive cage (see letter “A” in the following figure). Once released, pull the fixed hard drive cage from the chassis (see letter “B”).



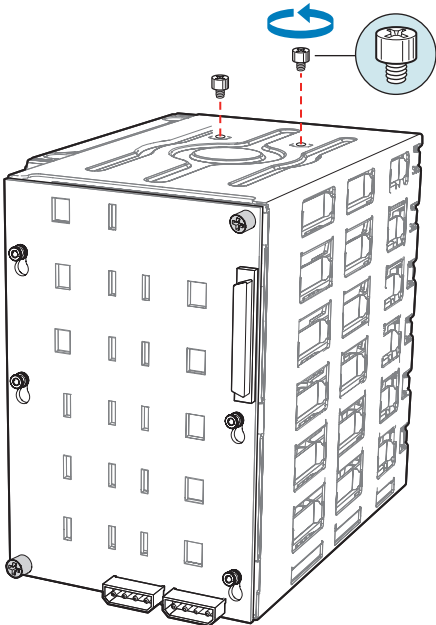
TP00878

Figure 4. Removing Fixed Hard Drive Cage from Chassis

Prepare Hot Swap Drive Cage for Installation

7. Gather together the components for the hot swap drive cage installation. You should have a hot swap drive cage with either a SATA or SCSI backplane, a side filler panel, a latch plate, a fan bracket, and a fan.

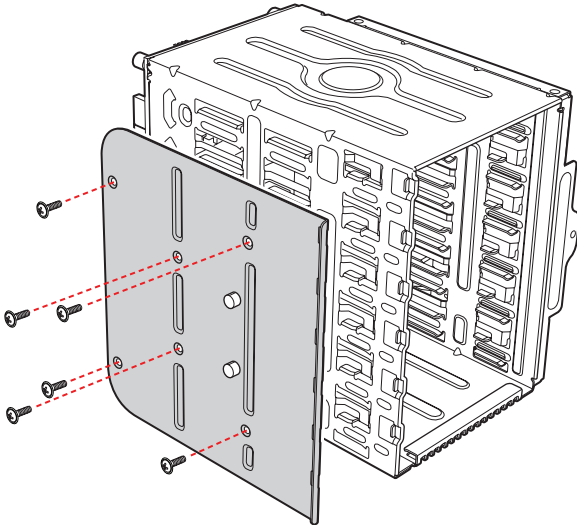
8. Remove the stud screws from the top of the hot swap drive cage.



TP01135

Figure 5. Removing Stud Screws from Hot Swap Drive Cage

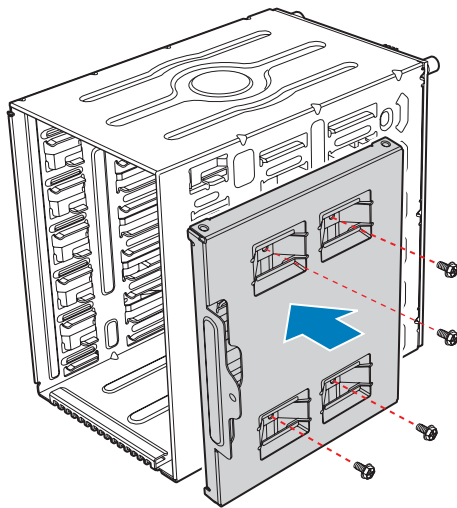
9. Attach the latch plate to the left side of the hot swap drive cage.



TP01060

Figure 6. Attaching Latch Plate to Hot Swap Drive Cage

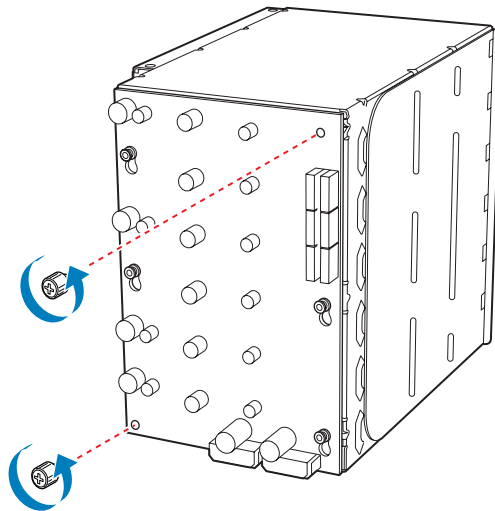
10. Attach the side filler panel to the right side of the hot swap drive cage.



TP01059

Figure 7. Attaching Filler Panel to Hot Swap Drive Cage

11. Remove the two thumb screws that secure the backplane to the hot swap drive cage.

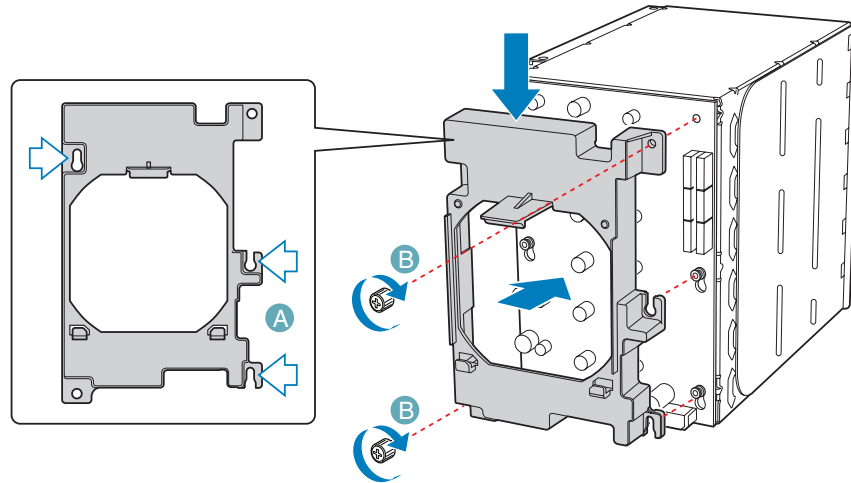


TP01716

Figure 8. Removing Thumb Screws from Backplane

- Align the fan bracket with the three pegs on the drive cage (see letter “A” in the following figure) and slide the fan bracket into position. Replace the two thumb screws (see letter “B”).

Caution: The backplane may have slipped once the thumb screws were removed. Ensure that the backplane is positioned correctly before re-tightening the thumb screws.

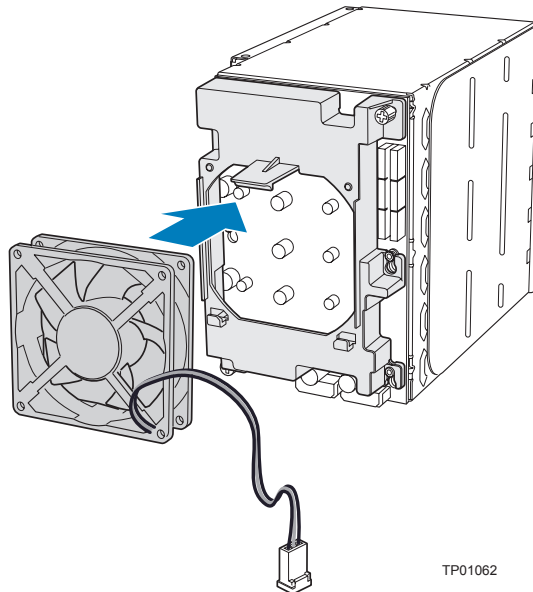


TP01061

Figure 9. Attaching Fan Bracket to Hot Swap Drive Cage (SATA drive cage illustrated)

- Attach the fan to the fan bracket by placing two corners of the fan into the two holding slots on the fan bracket. Press the fan into the fan bracket until it clicks into place.

Caution: Ensure that the label and directional airflow arrow on fan are pointed out (away from the backplane).

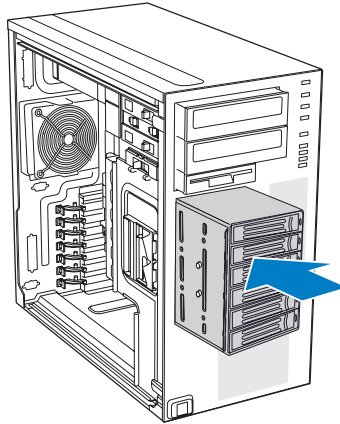


TP01062

Figure 10. Attaching Fan to Fan Bracket

Install Hot Swap Cage in Chassis

14. Slide the drive cage into the drive bay slot on the chassis. You should hear a click when the blue plastic retention mechanism locks into place. Be sure to feed the fan cable through the slot first so that it exits through the back of the drive cage. Connect the fan cable to its connector on the server board.



TP00999

Figure 11. Inserting Hot Swap Drive Cage into Chassis

15. Connect fan cable to the appropriate connector on the server board. See your server board documentation for information on the location of the fan cable connector.
16. Make backplane and server board/RAID controller card cable connections. Cable instructions will differ depending upon whether you are installing a SCSI or SATA hot swap drive cage.

a. [For a six-drive SATA hot swap drive cage:](#)

Warning: *It is critical that you connect the SATA data cables correctly from the SATA backplane to your server board or RAID Controller card. Failure to do so may result in data loss.*

- i. Connect the two power cables (see letter “A” in the following figure) to the power cable connectors on the SATA backplane.
- ii. Connect a SATA data cable (see letter “B”) to each appropriate SATA connector on the SATA backplane. The hard drives in the drive cage are numbered as follows when viewed from the front.

Drive Number	Position in a Pedestal-configured system	Position in a Rack-configured system
Drive 0	Bottom	Left
Drive 1	Second from bottom	Second from left
Drive 2	Third from bottom	Third from left
Drive 3	Third from top	Third from right
Drive 4	Second from top	Second from right
Drive 5	Top	Right

- iii. Make server board/RAID controller card connections. Refer to the documentation that came with your server board or RAID controller card for instructions on connecting backplane cables.

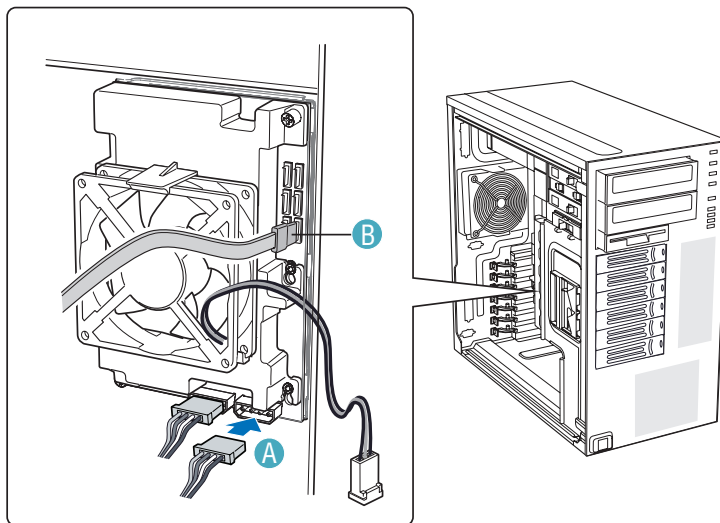


Figure 12. Cabling the SATA Hot Swap Drive Cage

- b. For a six-drive SCSI hot swap drive cage:
 - i. Connect the two power cables (see letter “A” in the following figure) to the two power cable connectors on the SCSI backplane.
 - ii. Connect the SCSI data cable (see letter “B”) to the SCSI connector on the SCSI backplane.
 - iii. (Optional, dependent on server board installed) Connect the IPMB header (see letter “C”) to the IPMB connector on the SCSI backplane.

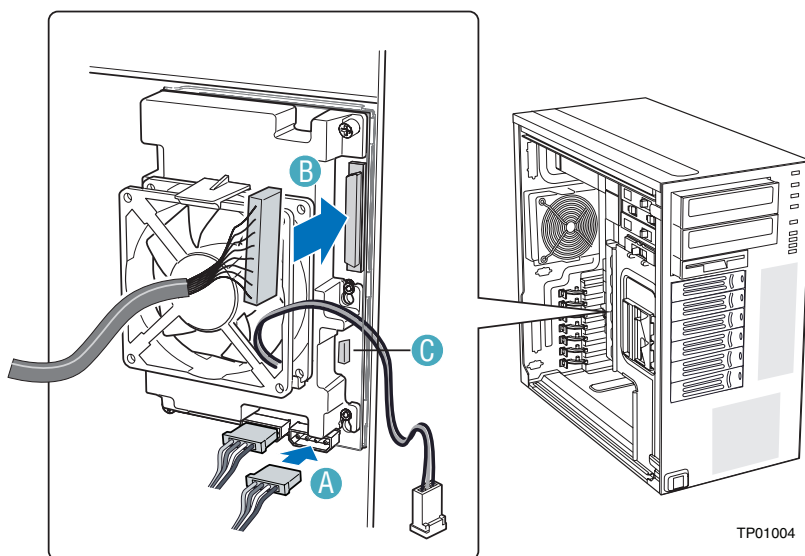
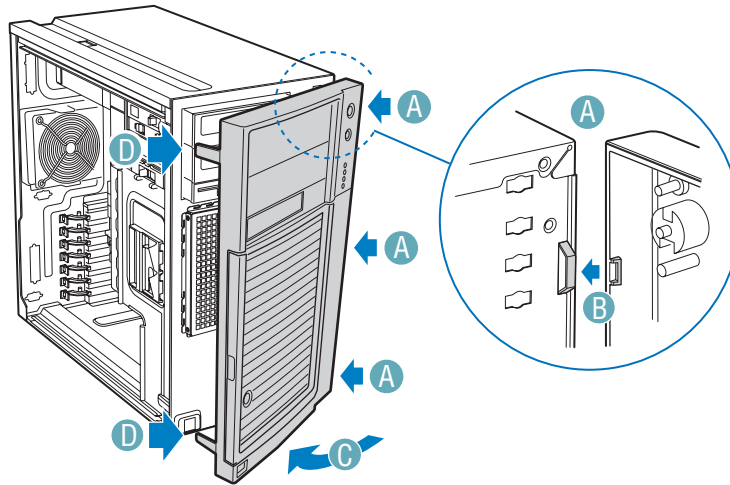


Figure 13. Cabling the SCSI Hot Swap Drive Cage

Reassemble Chassis

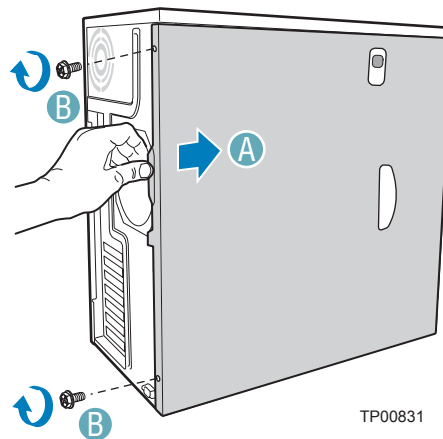
- Line up the three clips on the right-side of the front bezel assembly with the corresponding slots on the right-side of the chassis (see letter “A” in the following figure). Engage the clips with the slots (see letter “B”). Rotate the left side of the the front bezel assembly towards the chassis (see letter “C”). Snap the two bezel tabs into the corresponding recesses at the left edge of the chassis front panel (see letter “D”).



TP00832

Figure 14. Installing the Front Bezel Assembly

- Slide the left side cover on the chassis and latch securely (see letter “A” in the following figure). (Optional) Replace screws (see letter “B”).



TP00831

Figure 15. Installing Left Side Cover

Install Hot Swap Hard Drives

19. Open the drive bay access door.

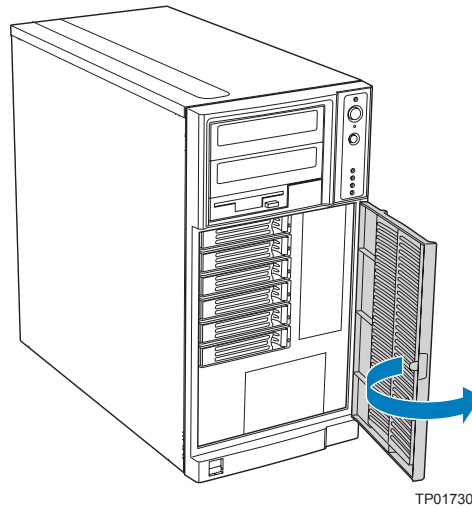


Figure 16. Opening Drive Bay Access Door

20. Remove a drive carrier from the hot swap drive cage. Press in on the green latch (see letter “A” in the following figure) at the end of the drive carrier to disengage the drive carrier from the drive cage. Pull out on the black lever (see letter “B”) to push the drive carrier partially out of the drive cage. Slide the drive carrier all the way out of the drive cage.

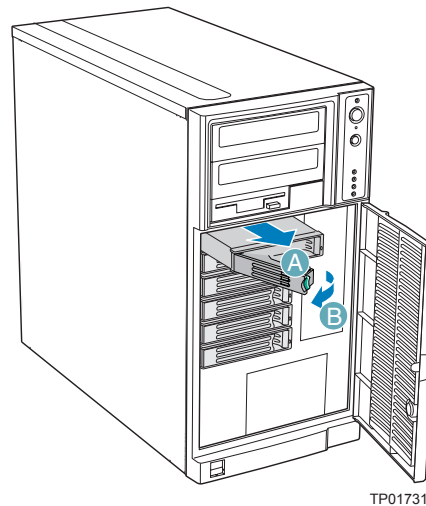
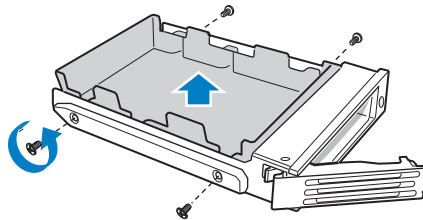


Figure 17. Releasing Drive Carrier from Hot Swap Drive Cage

21. Remove the four screws that attach the plastic retention device to the drive carrier. Two screws are located on each side of the retention device.

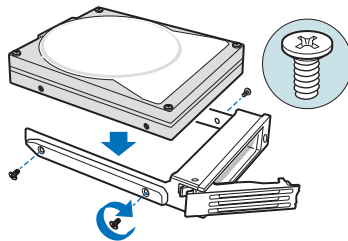
Note: Store the plastic retention device for future use.



TP00928

Figure 18. Removing Retention Device from Drive Carrier

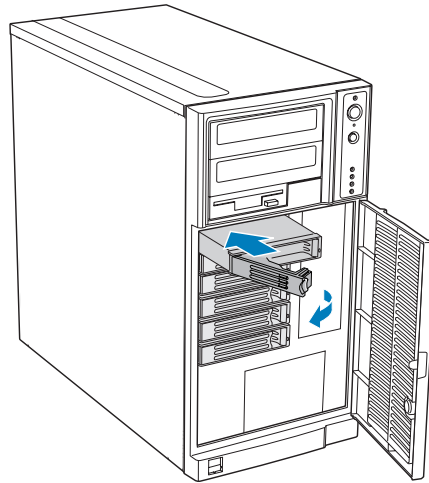
22. Remove the hard drive from its wrapper and place it on an anti-static surface.
23. Set any jumpers and/or switches on the drive according to the drive manufacturer's instructions.
24. With the drive circuit-side down, position the connector end of the drive so that it is facing the rear of the drive carrier.
25. Align the holes in the drive to the holes in the drive carrier and attach the drive to the carrier with the screws that were formerly attached to the plastic retention device.



TP00929

Figure 19. Installing Hard Drive into Drive Carrier

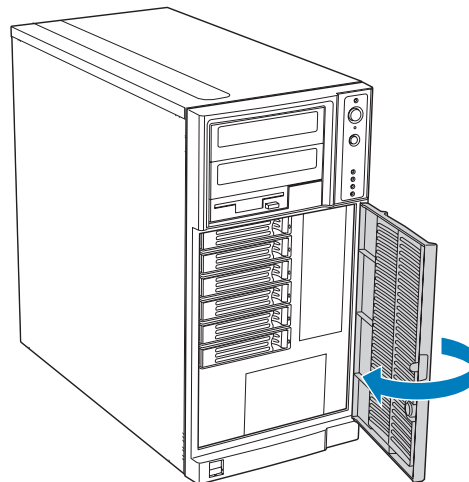
26. With the black lever in the fully open position, insert the drive carrier into the hot swap drive cage. The green latch at the front of the drive carrier must be to the left of the drive cage. Do not push on the black drive carrier lever until the lever begins to close by itself. Once the black drive carrier lever begins to close by itself, push on it to lock the drive carrier into place.



TP01728

Figure 20. Re-installing Drive Carrier in Hot Swap Drive Cage

27. Close the drive bay access door.



TP01729

Figure 21. Closing Drive Bay Access Door

Complete Setup

28. Reconnect all peripheral devices and the AC power.
29. Power up the server.

Installation Instructions for Intel® Entry Server Chassis SC5299-E

Power Down Chassis

1. Read all caution and safety statements listed in this document before performing any of the steps. See the *Intel® Server Boards and Server Chassis Safety Information* document at <http://support.intel.com/support/motherboards/server/sb/cs-010770.htm> for a complete listing of all caution and safety statements.
2. Power down the server and unplug all peripheral devices and the AC power cable.

Remove Left Side Cover

3. If present, remove the two screws (see letter “A” in the following figure). Push in on latch with your right hand (see letter “B”), and with your left hand, grasp the rear cover clasp and slide the left side cover rearward to remove from chassis (see letter “C”).

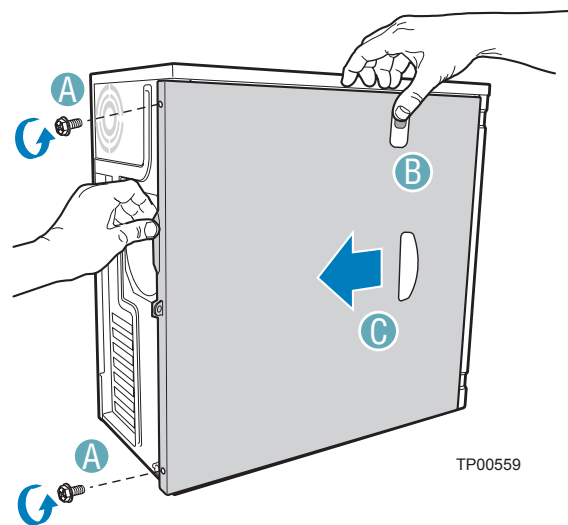
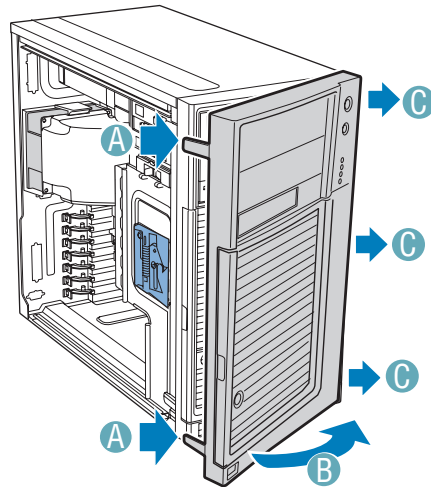


Figure 22. Removing Left Side Cover

Remove Front Bezel Assembly

4. Disengage the two bezel tabs from the left side of the chassis (see letter “A” in the following figure). Rotate the left side of the front bezel assembly outward slightly (see letter “B”). Disengage the three clips that attach the right side of the front bezel assembly to the chassis and remove (see letter “C”).

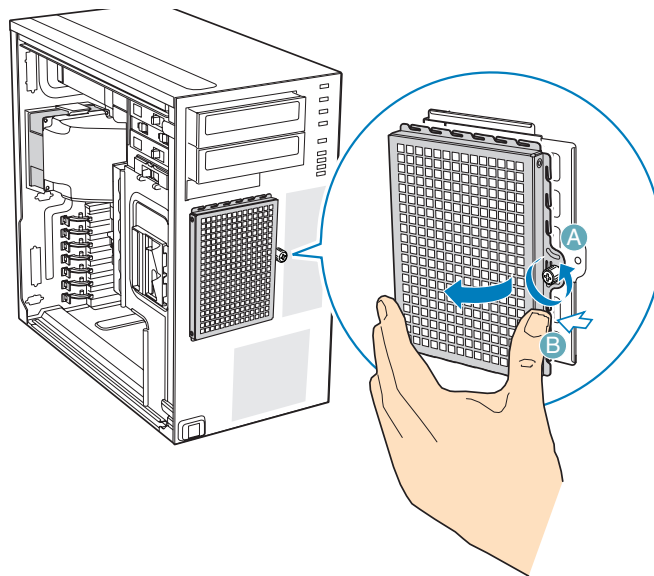


TP02034

Figure 23. Removing Front Bezel Assembly

Remove Fixed Drive Cage

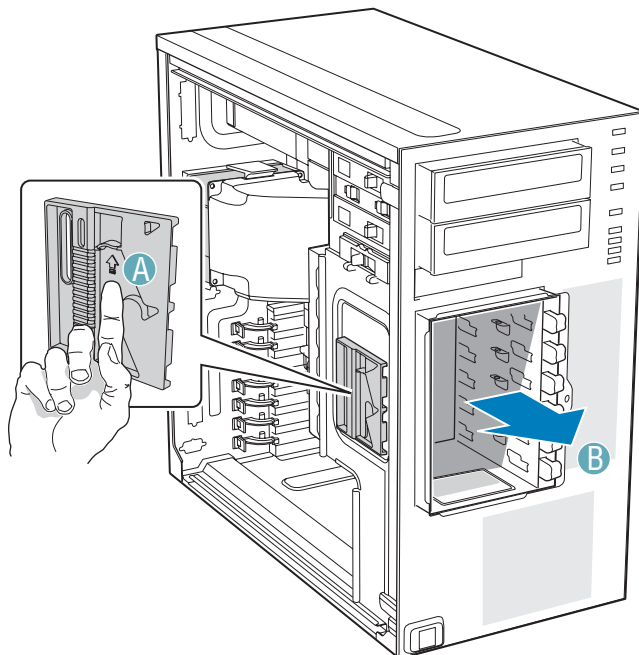
5. Loosen the thumb screw and remove the fixed drive cage EMI shield.



TP01869

Figure 24. Removing Fixed Drive Cage EMI Shield from Chassis

6. Push the blue plastic release mechanism upward to release the fixed hard drive cage (see letter “A” in the following figure). Once released, pull the fixed hard drive cage from the chassis (see letter “B”).



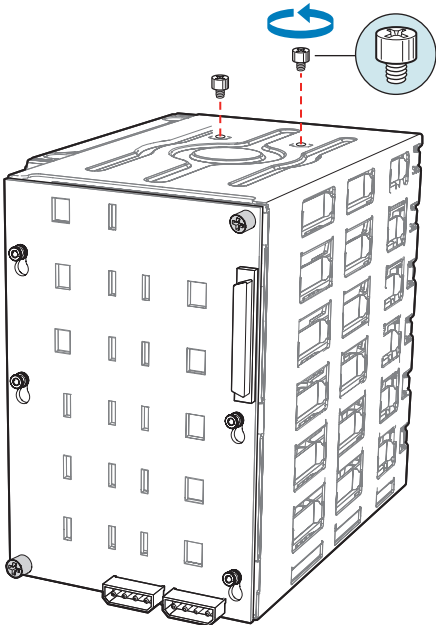
TP02038

Figure 25. Removing Fixed Hard Drive Cage from Chassis

Prepare Hot Swap Drive Cage for Installation

7. Gather together the components for the hot swap drive cage installation. You should have a hot swap drive cage with either a SATA or SCSI backplane, a side filler panel, a latch plate, a fan bracket, and a fan.

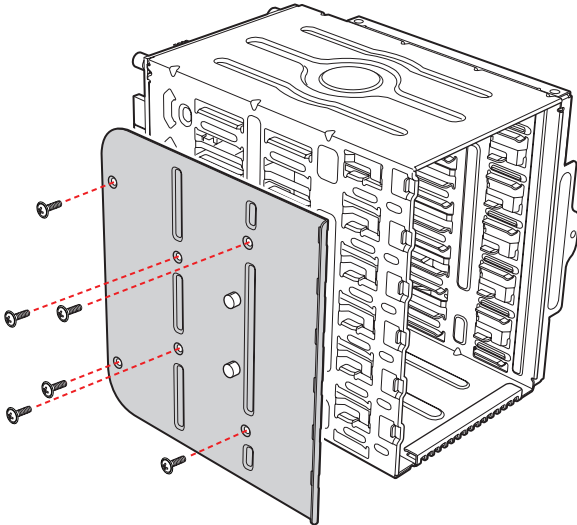
8. Remove the stud screws from the top of the hot swap drive cage.



TP01135

Figure 26. Removing Stud Screws from Hot Swap Drive Cage

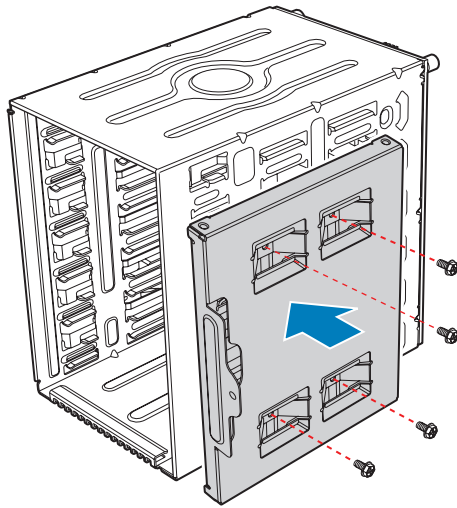
9. Attach the latch plate to the left side of the hot swap drive cage.



TP01060

Figure 27. Attaching Latch Plate to Hot Swap Drive Cage

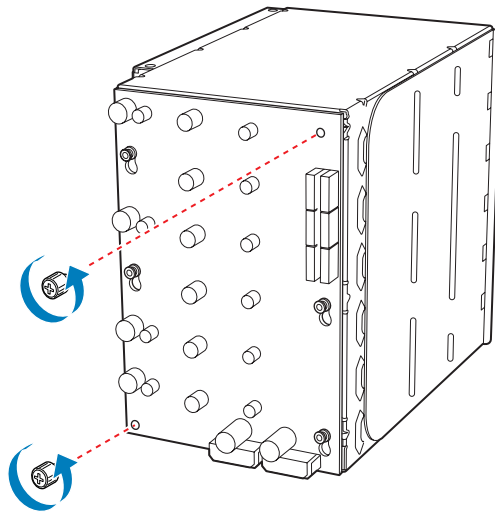
10. Attach the side filler panel to the right side of the hot swap drive cage.



TP01059

Figure 28. Attaching Filler Panel to Hot Swap Drive Cage

11. Remove the two thumb screws that secure the backplane to the hot swap drive cage.

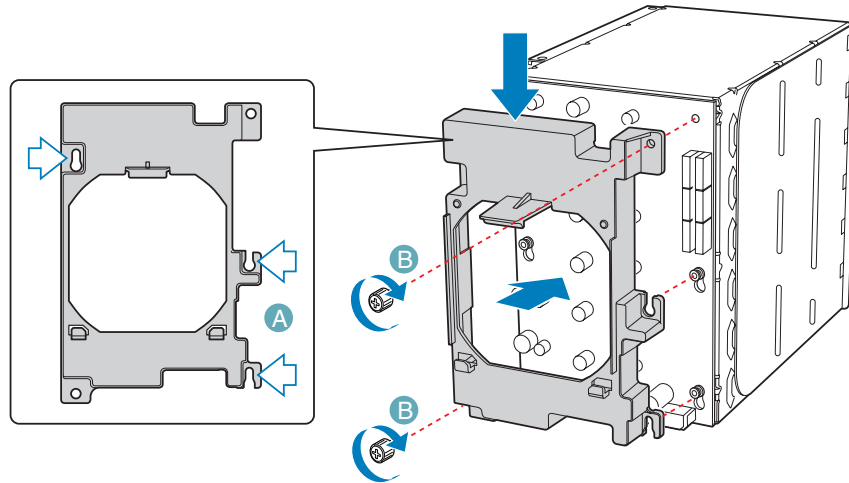


TP01716

Figure 29. Removing Thumb Screws from Backplane

- Align the fan bracket with the three pegs on the drive cage (see letter “A” in the following figure) and slide the fan bracket into position. Replace the two thumb screws (see letter “B”).

Caution: The backplane may have slipped once the thumb screws were removed. Ensure that the backplane is positioned correctly before re-tightening the thumb screws.

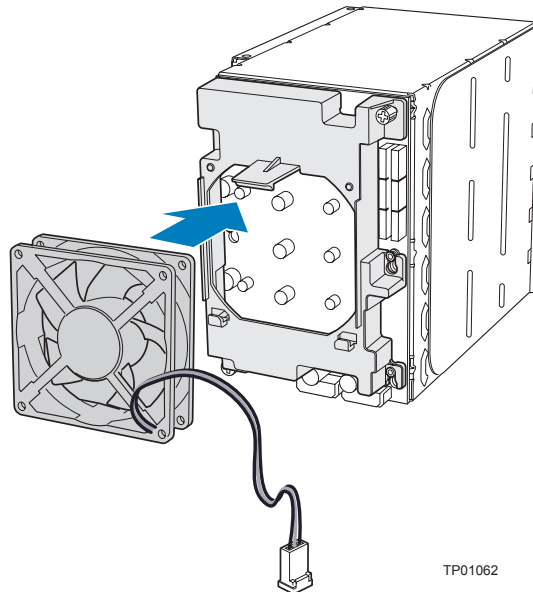


TP01061

Figure 30. Attaching Fan Bracket to Hot Swap Drive Cage (SATA drive cage illustrated)

- Attach the fan to the fan bracket by placing two corners of the fan into the two holding slots on the fan bracket. Press the fan into the fan bracket until it clicks into place.

Caution: Ensure that the label and directional airflow arrow on fan are pointed out (away from the backplane).

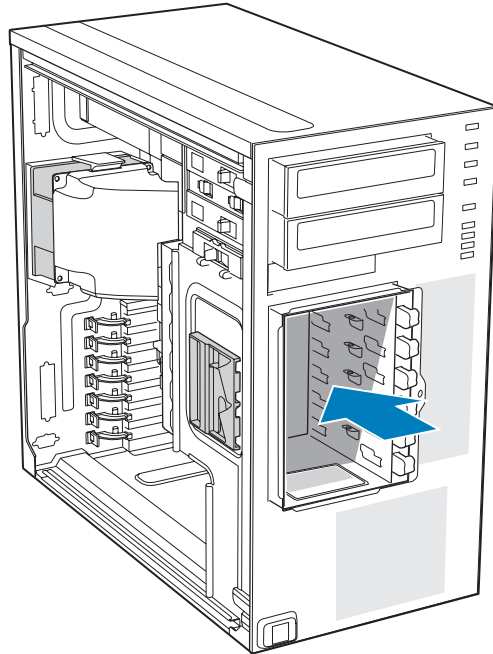


TP01062

Figure 31. Attaching Fan to Fan Bracket

Install Hot Swap Cage in Chassis

- Slide the drive cage into the drive bay slot on the chassis. You should hear a click when the blue plastic retention mechanism locks into place. Be sure to feed the fan cable through the slot first so that it exits through the back of the drive cage. Connect the fan cable to its connector on the server board.



TP02039

Figure 32. Inserting Hot Swap Drive Cage into Chassis

- Connect fan cable to the appropriate connector on the server board. See your server board documentation for information on the location of the fan cable connector.
- Make backplane and server board/RAID controller card cable connections. Cable instructions will differ depending upon whether you are installing a SCSI or SATA hot swap drive cage. Refer to the documentation that came with your server board and/or RAID controller card for instructions on connecting backplane cables to your server board or RAID controller card.

Warning: *It is critical that you connect the SAS/SATA data cables correctly from the SAS/SATA backplane to your server board or RAID controller card. Failure to do so may result in data loss.*

Note: *Connect the SES cable from the backplane to the RAID card (if one is installed).*

a. If you are installing a six-drive SCSI hot swap drive cage:

- i. Connect the two power cables (see letter “A” in the following figure) to the two power cable connectors on the SCSI backplane.
- ii. Connect the SCSI data cable (see letter “B”) to the SCSI connector on the SCSI backplane.
- iii. (Optional, dependent on server board installed) Connect the IPMB header (see letter “C”) to the IPMB connector on the SCSI backplane.
- iv. Connect the fan power to the server board. For the Intel® Server Board S5000VSA, use FAN1. For other Intel® server boards, refer to the *Quick Start User’s Guide* that came with the server board.

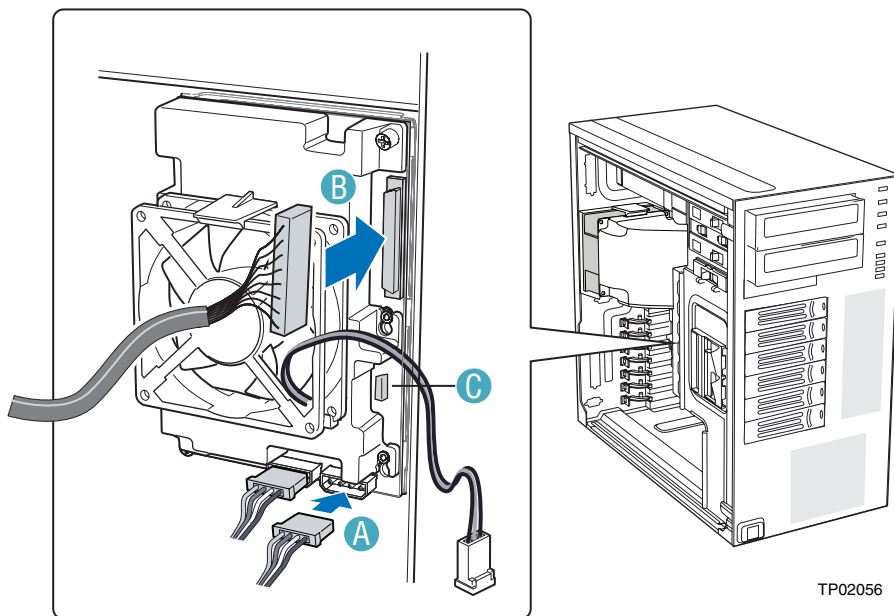


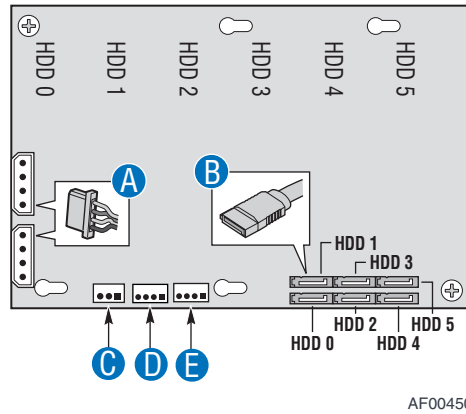
Figure 33. Cabling the SCSI Hot Swap Drive Cage

b. [If you are installing a six-drive SAS/SATA hot swap drive cage:](#)

Warning: It is critical that you connect the SAS/SATA data cables correctly from the SAS/SATA backplane to your server board or RAID Controller card. Failure to do so may result in data loss.

Note: The SAS/SATA cables are labeled to correspond with each drive. Make sure to connect the cables correctly to avoid confusion later.

The SAS/SATA connectors are laid out as follows on the SAS/SATA backplane.



A.	Power cable
B.	Data Cable
C.	SES
D.	SGPIO
E.	IPMB

Figure 34. Layout of Cable Connectors on the Backplane

Notes: SAS/SATA capable backplanes (non-expander) have three enclosure management headers. SATA only backplanes (non-expander) have two headers.

c. [If you are installing a SAS/SATA hot swap backplane without expander:](#)

Warning: *SATA controllers cannot be used with an expander backplane.*

- i. Connect the two power cables (see letter “A” in the following figure) to the power cable connectors on the SAS/SATA backplane.
- ii. Connect a SAS/SATA data cable (see letter “B”) to each appropriate SAS/SATA connector on the SAS/SATA backplane.
- iii. Connect the SGPIO cable (see letter “C”).
- iv. Connect the SES cable (see letter “D”).
- v. Connect the IPMB cable (see letter “E”).
- vi. Connect the fan power to the server board. For the Intel® Server Board S5000VSA, use FAN1. For other Intel® server boards, refer to the *Quick Start User's Guide* that came with the server board.

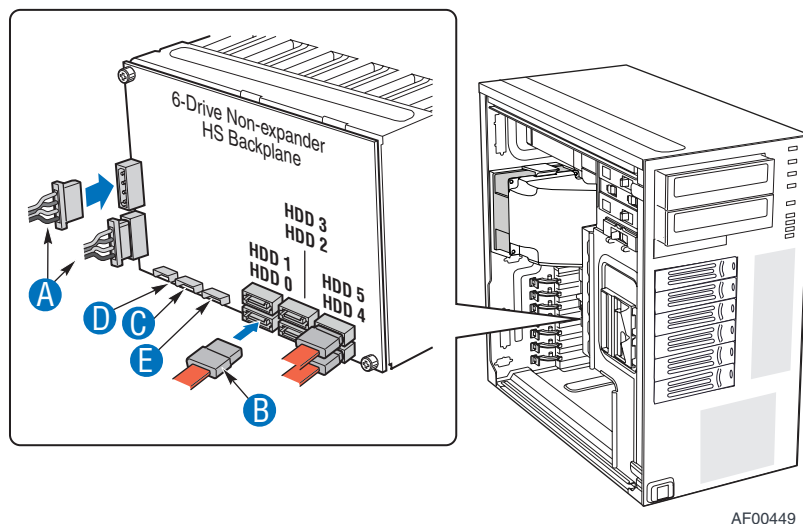


Figure 35. Making Six-drive SAS/SATA Hot-Swap Drive Cage Backplane Connections (fan bracket not shown in the illustration for clarity)

d. [If you are installing a SAS/SATA hot swap backplane with expander:](#)

Warning: *SATA controllers cannot be used with an expander backplane.*

- i. Connect the two power cables (see letter “A” in the following figure) to the power cable connectors on the SAS/SATA backplane.
- ii. Connect a SAS/SATA data cable (see letter “B”) to each appropriate SAS/SATA connector on the SAS/SATA backplane.
- iii. Connect the IPMB cable (see letter “C”).
- iv. Connect the fan power to the server board. For the Intel® Server Board S5000VSA, use FAN1. For other Intel® server boards, refer to the *Quick Start User’s Guide* that came with the server board.

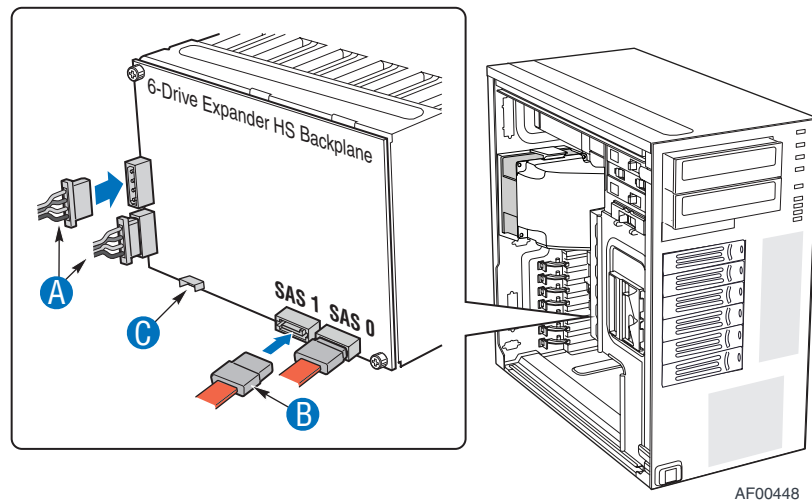
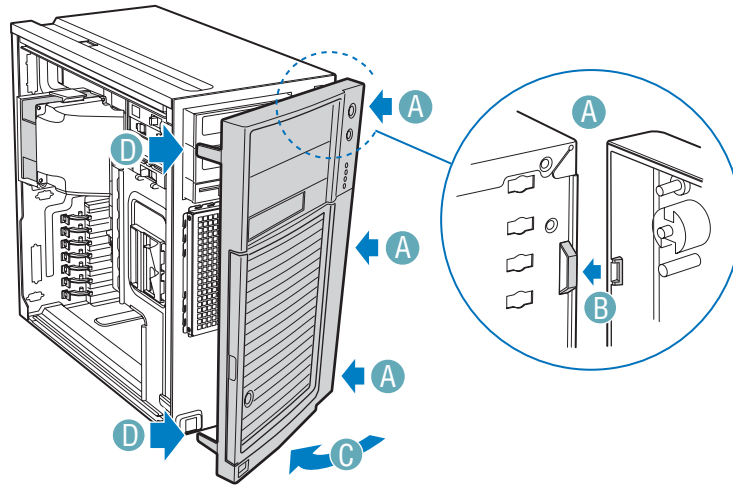


Figure 36. Making Six-drive Hot Swap Drive Cage Backplane with Expander Connections (fan bracket not shown in the illustration for clarity)

Reassemble Chassis

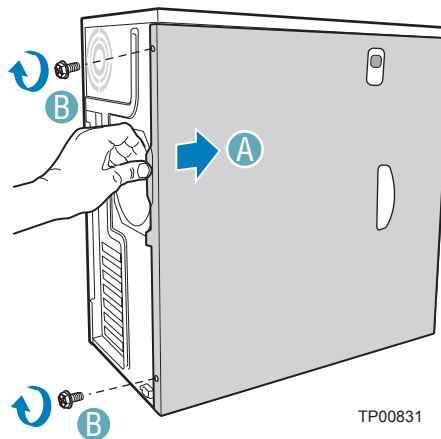
- Line up the three clips on the right-side of the front bezel assembly with the corresponding slots on the right-side of the chassis (see letter “A” in the following figure). Engage the clips with the slots (see letter “B”). Rotate the left side of the front bezel assembly towards the chassis (see letter “C”). Snap the two bezel tabs into the corresponding recesses at the left edge of the chassis front panel (see letter “D”).



TP02035

Figure 37. Installing the Front Bezel Assembly

- Slide the left side cover on the chassis and latch securely (see letter “A” in the following figure). (Optional) Replace screws (see letter “B”).



TP00831

Figure 38. Installing Left Side Cover

Install Hot Swap Hard Drives

19. Open the drive bay access door.

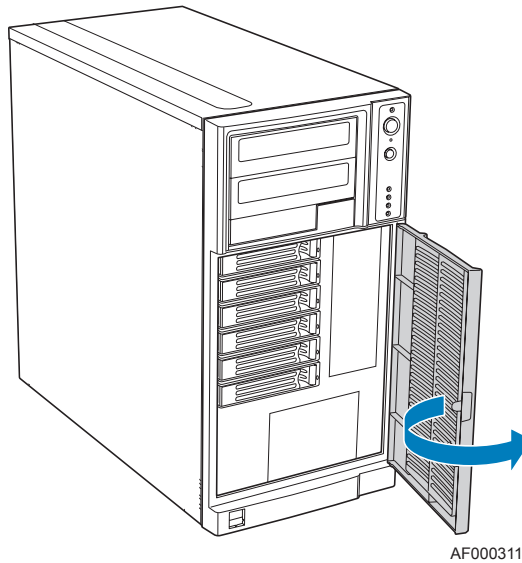


Figure 39. Opening Drive Bay Access Door

20. Remove a drive carrier from the hot swap drive cage. Press in on the green latch (see letter “A” in the following figure) at the end of the drive carrier to disengage the drive carrier from the drive cage. Pull out on the black lever (see letter “B”) to push the drive carrier partially out of the drive cage. Slide the drive carrier all the way out of the drive cage.

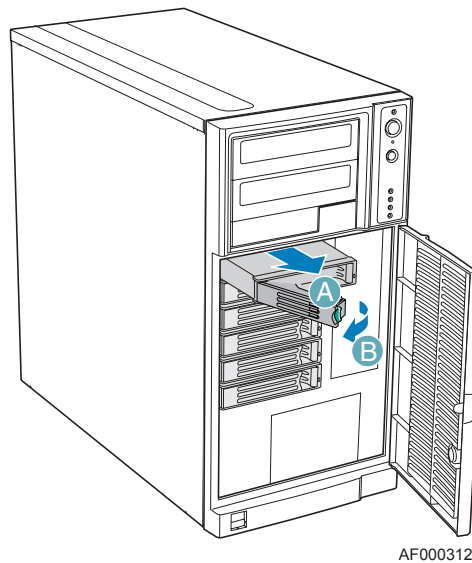
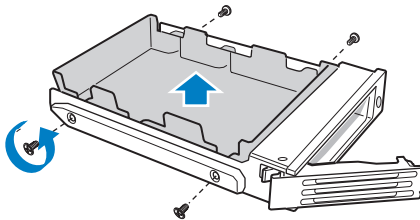


Figure 40. Releasing Drive Carrier from Hot Swap Drive Cage

21. Remove the four screws that attach the plastic retention device to the drive carrier. Two screws are located on each side of the retention device.

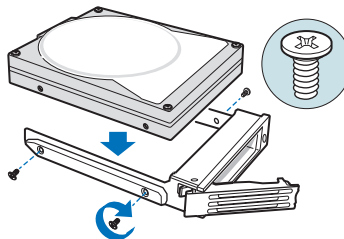
Note: Store the plastic retention device for future use.



TP00928

Figure 41. Removing Retention Device from Drive Carrier

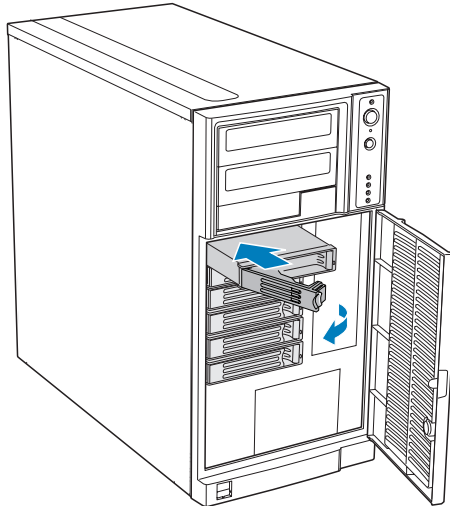
22. Remove the hard drive from its wrapper and place it on an anti-static surface.
23. Set any jumpers and/or switches on the drive according to the drive manufacturer's instructions.
24. With the drive circuit-side down, position the connector end of the drive so that it is facing the rear of the drive carrier.
25. Align the holes in the drive to the holes in the drive carrier and attach the drive to the carrier with the screws that were formerly attached to the plastic retention device.



TP00929

Figure 42. Installing Hard Drive into Drive Carrier

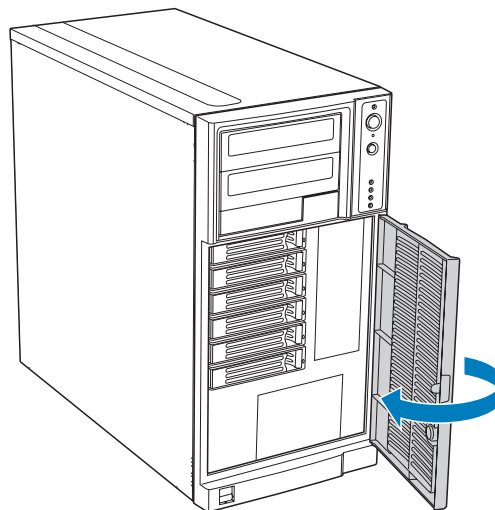
26. With the black lever in the fully open position, insert the drive carrier into the hot swap drive cage. The green latch at the front of the drive carrier must be to the left of the drive cage. Do not push on the black drive carrier lever until the lever begins to close by itself. Once the black drive carrier lever begins to close by itself, push on it to lock the drive carrier into place.



AF000313

Figure 43. Re-installing Drive Carrier in Hot Swap Drive Cage

27. Close the drive bay access door.



AF000314

Figure 44. Closing Drive Bay Access Door

Complete Setup

28. Reconnect all peripheral devices and the AC power.
29. Power up the server.