

PCI Adapters for the E5-700

ESCALA Power7



REFERENCE
86 A1 04FF 05

ESCALA Power7

PCI Adapters for the E5-700

The ESCALA Power7 publications concern the following models:

- Bull Escala E5-700 (Power 750 / 8233-E8B)
- Bull Escala M6-700 (Power 770 / 9117-MMB)
- Bull Escala M6-705 (Power 770 / 9117-MMC)
- Bull Escala M7-700 (Power 780 / 9179-MHB)
- Bull Escala M7-705 (Power 780 / 9179-MHC)
- Bull Escala E1-700 (Power 710 / 8231-E2B)
- Bull Escala E1-705 (Power 710 / 8231-E1C)
- Bull Escala E2-700 / E2-700T (Power 720 / 8202-E4B)
- Bull Escala E2-705 / E2-705T (Power 720 / 8202-E4C)
- Bull Escala E3-700 (Power 730 / 8231-E2B)
- Bull Escala E3-705 (Power 730 / 8231-E2C)
- Bull Escala E4-700 / E4-700T (Power 740 / 8205-E6B)
- Bull Escala E4-705 (Power 740 / 8205-E6C)

References to Power 755 / 8236-E8C models are irrelevant.

Hardware

May 2012

BULL CEDOC
357 AVENUE PATTON
B.P.20845
49008 ANGERS CEDEX 01
FRANCE

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Safety notices

Safety notices may be printed throughout this guide.

- **DANGER** notices call attention to a situation that is potentially lethal or extremely hazardous to people.
- **CAUTION** notices call attention to a situation that is potentially hazardous to people because of some existing condition.
- **Attention** notices call attention to the possibility of damage to a program, device, system, or data.

World Trade safety information

Several countries require the safety information contained in product publications to be presented in their national languages. If this requirement applies to your country, a safety information booklet is included in the publications package shipped with the product. The booklet contains the safety information in your national language with references to the U.S. English source. Before using a U.S. English publication to install, operate, or service this product, you must first become familiar with the related safety information in the booklet. You should also refer to the booklet any time you do not clearly understand any safety information in the U.S. English publications.

Laser safety information

The servers can use I/O cards or features that are fiber-optic based and that utilize lasers or LEDs.

Laser compliance

The servers may be installed inside or outside of an IT equipment rack.

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the provided power cord. Do not use the provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. Attach the power cords to the outlets.
5. Turn on the devices.

(D005a)

DANGER

Observe the following precautions when working on or around your IT rack system:

- Heavy equipment—personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.
- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices.



- Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

CAUTION

- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers.)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.
- *(For fixed drawers.)* This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack.

(R001)

CAUTION:

Removing components from the upper positions in the rack cabinet improves rack stability during relocation. Follow these general guidelines whenever you relocate a populated rack cabinet within a room or building:

- Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must observe the following precautions:
 - Remove all devices in the 32U position and above.
 - Ensure that the heaviest devices are installed in the bottom of the rack cabinet.
 - Ensure that there are no empty U-levels between devices installed in the rack cabinet below the 32U level.
- If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.
- Inspect the route that you plan to take to eliminate potential hazards.
- Verify that the route that you choose can support the weight of the loaded rack cabinet. Refer to the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.
- Verify that all door openings are at least 760 x 230 mm (30 x 80 in.).
- Ensure that all devices, shelves, drawers, doors, and cables are secure.
- Ensure that the four leveling pads are raised to their highest position.
- Ensure that there is no stabilizer bracket installed on the rack cabinet during movement.
- Do not use a ramp inclined at more than 10 degrees.
- When the rack cabinet is in the new location, complete the following steps:
 - Lower the four leveling pads.
 - Install stabilizer brackets on the rack cabinet.
 - If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.
- If a long-distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also lower the leveling pads to raise the casters off of the pallet and bolt the rack cabinet to the pallet.

(R002)

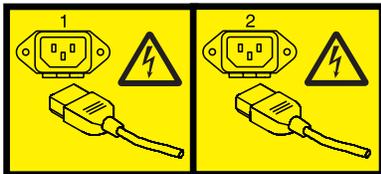
(L001)



(L002)



(L003)



or



All lasers are certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter J for class 1 laser products. Outside the U.S., they are certified to be in compliance with IEC 60825 as a class 1 laser product. Consult the label on each part for laser certification numbers and approval information.

CAUTION:

This product might contain one or more of the following devices: CD-ROM drive, DVD-ROM drive, DVD-RAM drive, or laser module, which are Class 1 laser products. Note the following information:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of the controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

(C026)

CAUTION:

Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. (C027)

CAUTION:

This product contains a Class 1M laser. Do not view directly with optical instruments. (C028)

CAUTION:

Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following information: laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam. (C030)

CAUTION:

The battery contains lithium. To avoid possible explosion, do not burn or charge the battery.

Do Not:

- ___ Throw or immerse into water
- ___ Heat to more than 100°C (212°F)
- ___ Repair or disassemble

Exchange only with the approved part. Recycle or discard the battery as instructed by local regulations. (C003a)

Power and cabling information for NEBS (Network Equipment-Building System) GR-1089-CORE

The following comments apply to the servers that have been designated as conforming to NEBS (Network Equipment-Building System) GR-1089-CORE:

The equipment is suitable for installation in the following:

- Network telecommunications facilities
- Locations where the NEC (National Electrical Code) applies

The intrabuilding ports of this equipment are suitable for connection to intrabuilding or unexposed wiring or cabling only. The intrabuilding ports of this equipment *must not* be metallically connected to the interfaces that connect to the OSP (outside plant) or its wiring. These interfaces are designed for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE) and require isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.

Note: All Ethernet cables must be shielded and grounded at both ends.

The ac-powered system does not require the use of an external surge protection device (SPD).

The dc-powered system employs an isolated DC return (DC-I) design. The DC battery return terminal *shall not* be connected to the chassis or frame ground.

Installing, removing, and replacing PCI adapters

Learn about installing, removing, and replacing Peripheral Component Interconnect (PCI), PCI-X, and PCI Express® (PCIe) adapters.

About this task

Model 33E/8B and 36E/8C PCI adapters

You can remove, replace, or install PCI adapters in the 33E/8B and 36E/8C.

If you are installing a new adapter, you will also need to refer to PCI adapter placement for slot placement information.

Installing a PCI adapter in the 33E/8B and 36E/8C server

You can install a PCI adapter.

About this task

Installing a PCI adapter in the 33E/8B and 36E/8C server with the power off

You can install a PCI adapter with the system power off.

About this task

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing a PCI adapter.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to install a PCI adapter in the server. For instructions, see *Installing a feature by using the Systems Director Management Console*.

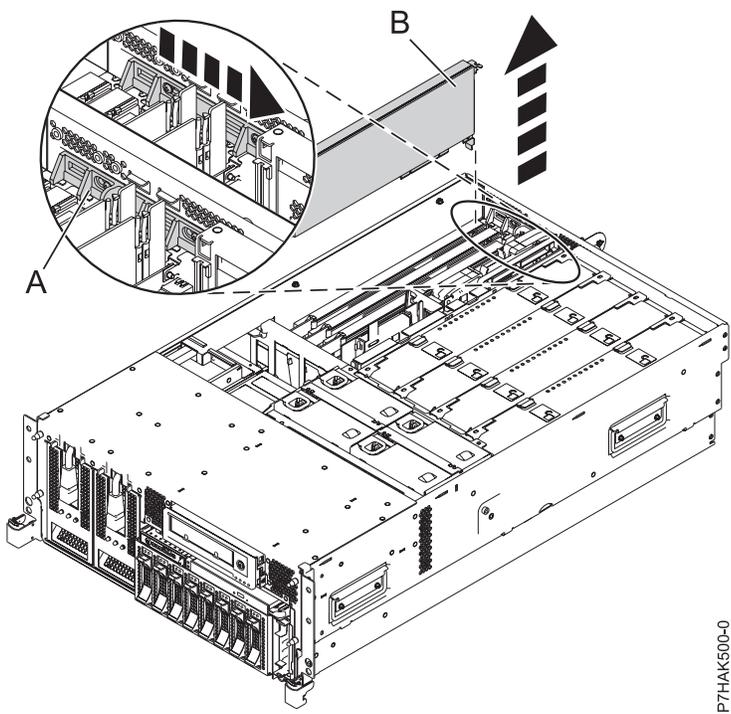
If you are installing a PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller (FC 5739 or 5778, CCIN 571F and 575B), remove the lower, right standoff from between the two sides of the adapter before installing it in the system unit.

If you do not have an HMC or SDMC, complete this procedure to install a PCI adapter with the system power off:

Procedure

1. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
2. Determine in which slot to place the PCI adapter. For system-specific adapter placement information, see the PCI adapter placement.
3. Perform the prerequisite tasks described in “Before you begin” on page 132.
4. Stop the system or logical partition. See *Stop the system or logical partition*.
5. Disconnect the power source from the system by unplugging the system.
6. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system, follow these steps to remove the service access cover.
 - a. Open the front rack door.
 - b. Place the system unit in the service position.

- c. Remove or open the service access cover.
 - 7. If necessary, remove the adapter from the antistatic package.
- Attention:** Avoid touching the components and gold connectors on the adapter.
- 8. Place the adapter, component-side up, on a flat, antistatic surface.
 - 9. Some PCI adapters are shipped from the manufacturer with a blue handle or support bracket along the back edge of the card. To use adapters of this type in this system, you must remove the blue handle or support bracket from the card.
 - 10. Slide the adapter latch (A) into the open position, as shown in the following figure.



P7HAK500-0

Figure 1. PCI adapter or filler plate removed from the rack-mounted system unit

- 11. If necessary, remove the adapter expansion slot filler.
- 12. Ensure that the slot is empty. If you are installing a double-wide adapter, remove the PCI adapter divider if one is present. See “Removing a PCI adapter divider from the 33E/8B and 36E/8C server” on page 46.
- 13. Carefully grasp the adapter (A) by its top edge, and align the adapter with the expansion slot and its connector on the system backplane. See the following figure.
- 14. Press the adapter firmly into its connector.
- 15. Slide the adapter latch (B) back into place as shown in the following figure.

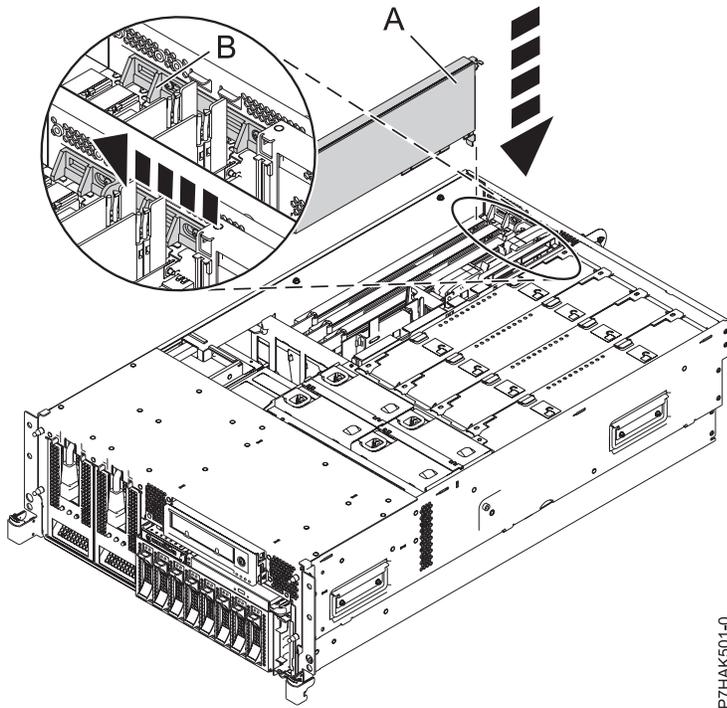


Figure 2. PCI adapter replaced in the rack-mounted system unit

16. Connect any adapter cables.
17. If you are servicing a rack-mounted system, route the cables through the cable-management arm.
18. Replace or close the service access cover and, if applicable, return the system to the operating position.
19. Reconnect the power source to the system.
20. Start the system or logical partition. Refer to Start the system or logical partition.
21. Verify that the new resource is functional.

Installing a PCI adapter in the 33E/8B and 36E/8C server, with the power on in an AIX environment

You can install a PCI adapter with the system power on in an AIX[®] environment.

About this task

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing a PCI adapter.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to install a PCI adapter in the server. For instructions, see Installing a feature by using the Systems Director Management Console.

If you are installing a PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller (FC 5739 or 5778, CCIN 571F and 575B), remove the lower, right standoff from between the two sides of the adapter before installing it in the system unit.

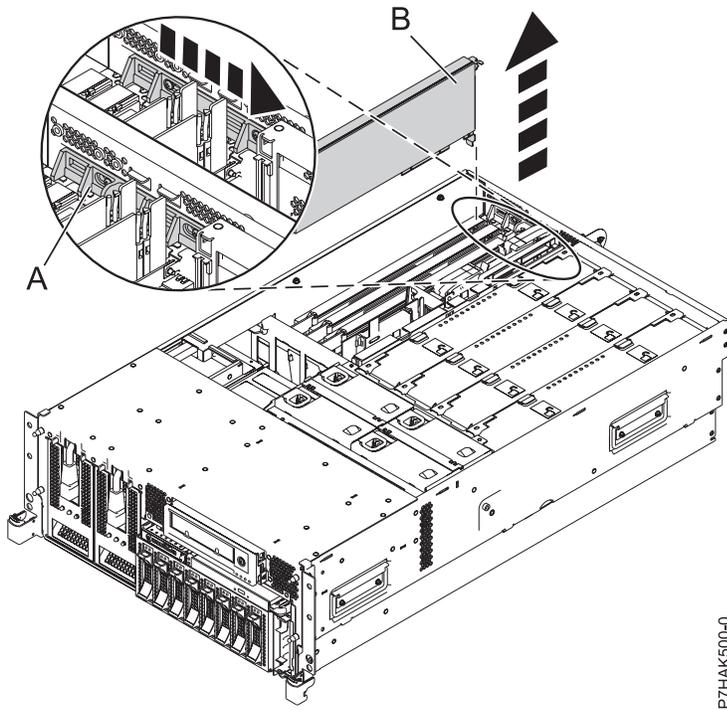
If you do not have an HMC or SDMC, complete the following steps to install a PCI adapter with the system power on in the AIX environment:

Procedure

1. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
2. Determine in which slot to place the PCI adapter. For system-specific adapter placement information, see the PCI adapter placement.
3. Perform the prerequisite tasks described in “Before you begin” on page 132.
4. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system, follow these steps to remove the service access cover.
 - a. Open the front rack door.
 - b. Place the system unit in the service position.
 - c. Remove or open the service access cover.
5. If necessary, remove the adapter expansion slot shield.
6. If necessary, remove the adapter from the antistatic package.

Attention: Avoid touching the components and gold connectors on the adapter.

7. Place the adapter, component-side up, on a flat, antistatic surface.
8. Some PCI adapters are shipped from the manufacturer with a blue handle or support bracket along the back edge of the card. To use adapters of this type in this system, you must remove the blue handle or support bracket from the card.
9. If you are installing a double-wide adapter, remove the PCI adapter divider if one is present. See “Removing a PCI adapter divider from the 33E/8B and 36E/8C server” on page 46.
10. Refer to “PCI hot-plug manager access for AIX” on page 150, and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.
11. From the PCI Hot-Plug Manager menu, select **Add a PCI Hot-Plug Adapter** and press Enter. The Add a Hot-Plug Adapter window displays.
12. Select the appropriate empty PCI slot from the ones listed on the screen, and press Enter.
13. Slide the adapter latch (**A**) into the open position, as shown in the following figure.



P7HAK500-0

Figure 3. PCI adapter or filler plate removed from the rack-mounted system unit

14. Remove the adapter filler plate if one is present.
15. Follow the instructions on the screen to install the adapter until the LED for the specified PCI slot is set to the Action state. See "Component LEDs" on page 152.
16. When you are instructed to install the adapter in the adapter slot, carefully grasp the adapter by the edges and align the adapter (A) in the slot guides. Insert the adapter fully into the adapter slot connector. If you are installing a full-length adapter, ensure that both ends of the adapter engage the card guides.
17. Press the adapter firmly into its connector.
18. Slide the adapter latch (B) back into place as shown in the following figure.

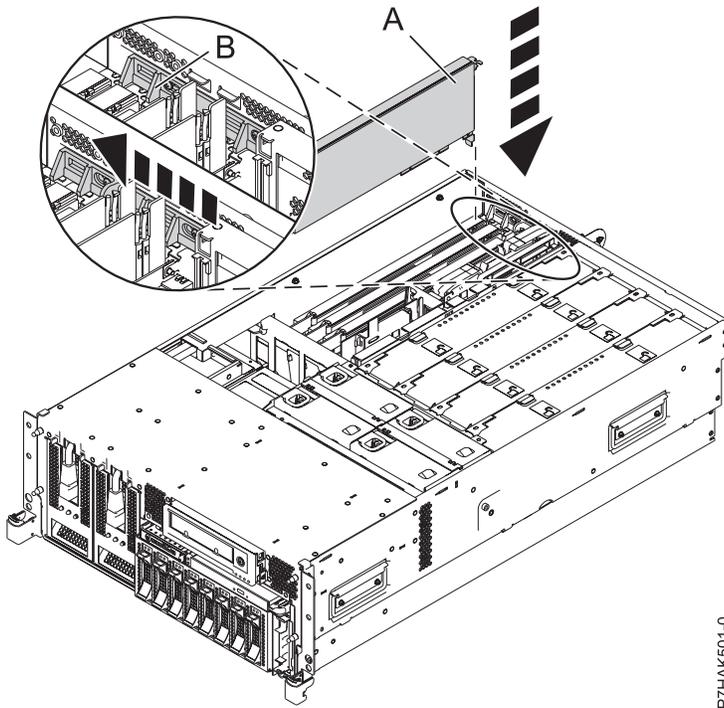


Figure 4. PCI adapter replaced in the rack-mounted system unit

19. Connect any adapter cables.
20. Replace or close the service access cover and, if applicable, return the system to the operating position.
21. Run the `cfgmgr` command to configure the adapter.
22. Verify that the new resource is functional. See Verify the installed part.

Installing a PCI adapter in the 33E/8B and 36E/8C server, with the power on in a Linux environment

You can install a PCI adapter with the system power on in the Linux environment.

About this task

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing a PCI adapter.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to install a PCI adapter in the server. For instructions, see Installing a feature by using the Systems Director Management Console.

If you are installing a PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller (FC 5739 or 5778, CCIN 571F and 575B), remove the lower, right standoff from between the two sides of the adapter before installing it in the system unit.

If you do not have an HMC or SDMC, complete the following steps to install a PCI adapter with the system power on in the Linux environment:

Procedure

1. Ensure that the system meets the “Prerequisites for hot-plugging PCI adapters in Linux” on page 153.

2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. “Verifying that the hot-plug PCI tools are installed for Linux” on page 153.
4. Determine in which slot to place the PCI adapter. For system-specific adapter placement information, see the PCI adapter placement.
5. Perform the prerequisite tasks described in “Before you begin” on page 132.
6. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system, follow these steps to remove the service access cover.
 - a. Open the front rack door.
 - b. Place the system unit in the service position.
 - c. Remove or open the service access cover.
7. If necessary, remove the adapter expansion slot shield.
8. If necessary, remove the adapter from the antistatic package.

Attention: Avoid touching the components and gold connectors on the adapter.

9. Place the adapter, component-side up, on a flat, antistatic surface.
10. If you are installing a double-wide adapter, remove the PCI adapter divider if one is present. See “Removing a PCI adapter divider from the 33E/8B and 36E/8C server” on page 46.
11. Log in to the system console as the root user.
12. Run the `lsslot` tool to list the hot-plug PCI slots that are available in the server or partition:

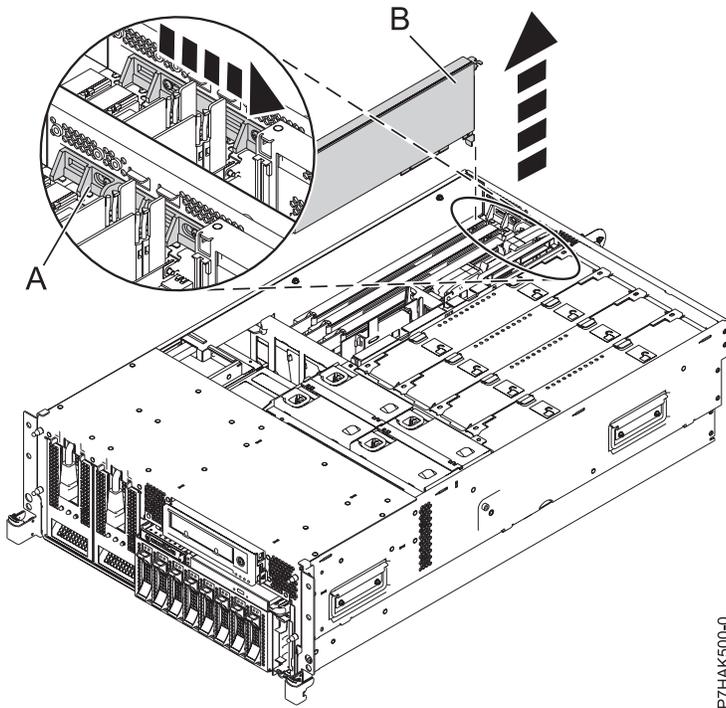
```
lsslot -c pci -a
```

The following is an example of the information displayed by this command:

```
# Slot      Description      Device(s)
U7879.001.DQD014E-P1-C1 PCI-X capable, 64 bit, 133MHz slot Empty
U7879.001.DQD014E-P1-C4 PCI-X capable, 64 bit, 133MHz slot Empty
U7879.001.DQD014E-P1-C5 PCI-X capable, 64 bit, 133MHz slot Empty
```

Select the appropriate empty PCI slot from the ones listed by the command.

13. Slide the adapter latch (**A**) into the open position, as shown in the following figure.



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Figure 5. PCI adapter or filler plate removed from the rack-mounted system unit

14. Ensure that the slot is empty. Remove the adapter filler plate if one is present.
 15. Run the `drmgr` command to enable an adapter to be installed. For example, to install an adapter into PCI slot U7879.001.DQD014E-P1-C3, enter the following command:


```
drmgr -c pci -r -s locationcode
```

 The following displays:
 The visual indicator for the specified PCI slot has been set to the identify state. Press Enter to continue or enter x to exit.
 16. Press Enter.
 The following displays:
 The visual indicator for the specified PCI slot has been set to the action state. Insert the PCI card into the identified slot, connect any devices to be configured and press Enter to continue. Enter x to exit.
 17. When you are instructed to install the adapter (A) in the adapter slot, carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
 18. Press the adapter firmly into its connector.
- Attention:** When you install an adapter into the system, be sure that it is completely and correctly seated in its connector.
19. Slide the adapter latch (B) back into place as shown in the following figure.

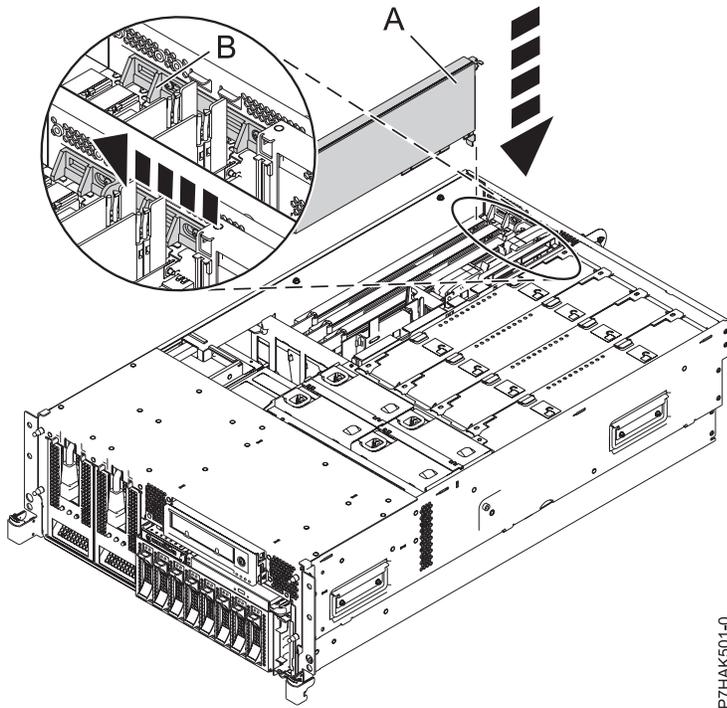


Figure 6. PCI adapter replaced in the rack-mounted system unit

20. Connect any adapter cables.
21. Run the `lsslot` command to verify that the slot is occupied.
 For example, enter `lsslot -c pci -s U7879.001.DQD014E-P1-C3`
 The following is an example of the information displayed by this command:

# Slot	Description	Device(s)
U7879.001.DQD014E-P1-C3	PCI-X capable, 64 bit, 133MHz slot	0001:40:01.0
22. If you are servicing a rack-mounted system, route the cables through the cable-management arm.
23. Replace or close the service access cover and, if applicable, return the system to the operating position.

Removing a PCI adapter from an 33E/8B and 36E/8C server

You can remove a PCI adapter.

About this task

Removing a PCI adapter from the 33E/8B and 36E/8C server with the power off

You can remove a PCI adapter with the system power off.

About this task

If your system is managed by the Hardware Management Console (HMC), use the HMC to remove a PCI adapter.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For instructions, see *Removing a part by using the Systems Director Management Console*.

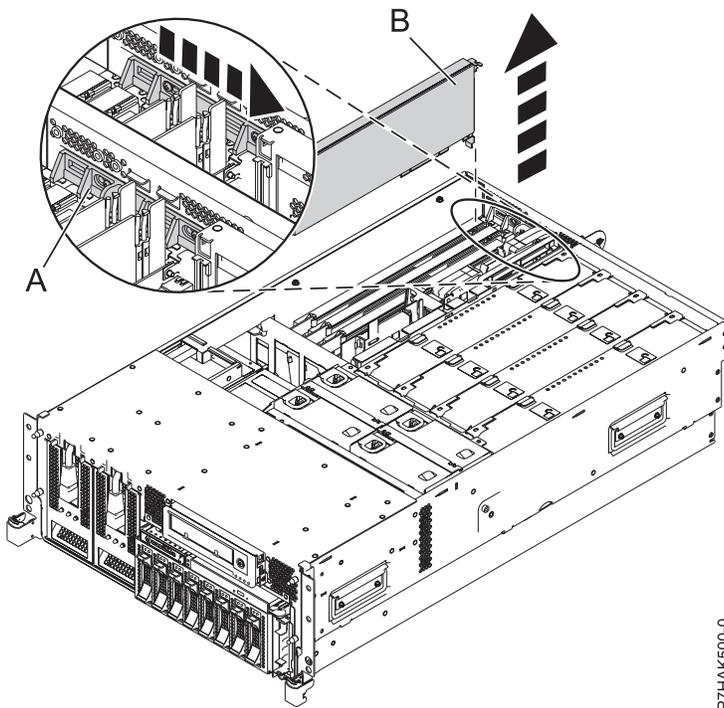
If you do not have an HMC or SDMC, complete the following steps to remove a PCI adapter with the system power off:

Procedure

1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. If you are removing a failing PCI adapter, see “Identifying a part” on page 135. If you are removing the PCI adapter for other reasons, continue to the next step.
4. Stop the system or logical partition.
5. Disconnect the power source from the system by unplugging the system.
6. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system, follow these steps to remove the service access cover.
 - a. Open the front rack door.
 - b. Place the system unit in the service position.
 - c. Remove or open the service access cover.
7. Determine which adapter you plan to remove, then label and disconnect all cables attached to that adapter.
8. Record the slot number and location of each adapter being removed.

Note: Adapter slots are numbered on the rear of the system.

9. Slide the adapter latch (A) into the open position, as shown in the following figure.



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Figure 7. PCI adapter or filler plate removed from the rack-mounted system unit

10. Carefully grasp the PCI adapter (B) by its top edge or upper corners, and remove it from the system. Store the adapter in a safe place.

11. If you are removing a PCI adapter as part of another procedure, return to that procedure. If not, continue to the next step.
12. If you plan to install another adapter into the vacated slot, go to “Replacing a PCI adapter in the 33E/8B and 36E/8C server with the power off” on page 15; otherwise, continue with the next step.
13. Seal the expansion slot using an expansion-slot cover.
14. Replace or close the service access cover and, if applicable, return the system to the operating position.
15. Reconnect the power source to the system.
16. Start the system or logical partition. Refer to Start the system or logical partition.
17. To replace the PCI adapter, see “Replacing a PCI adapter in the 33E/8B and 36E/8C server” on page 15.

Removing a PCI adapter from the 33E/8B and 36E/8C server, with the power on in the AIX environment

You can remove a PCI adapter with the system power on in the AIX environment.

About this task

To remove a failing adapter and replace it with the same adapter, see “Removing and replacing a PCI adapter in the 33E/8B and 36E/8C server, with the power on in the AIX environment” on page 17. If the adapter that is removed will be placed into a different slot or system, complete this removal procedure, and then install the adapter as described in “Installing a PCI adapter in the 33E/8B and 36E/8C server, with the power on in an AIX environment” on page 3.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for removing a PCI adapter.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For instructions, see Removing a part by using the Systems Director Management Console.

Note: Procedures performed on a PCI adapter with the system power on in the AIX environment, also known as hot-plug procedures, require the system administrator to take the PCI adapter offline before performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

If you do not have an HMC or SDMC, complete the following steps to remove a PCI adapter with the system power on in the AIX environment:

Procedure

1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. If you are removing a failing PCI adapter, see Identifying a failing part. If you are removing the PCI adapter for other reasons, continue to the next step.
4. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system, follow these steps to remove the service access cover.
 - a. Open the front rack door.
 - b. Place the system unit in the service position.
 - c. Remove or open the service access cover.
5. Determine which adapters you plan to remove.

6. Record the slot number and location of each adapter being removed. Adapter slots are numbered on the rear of the system unit.
7. Ensure that any processes or applications that might use the adapter are stopped.
8. Follow these steps to place the adapter in the action state using the PCI Hot-Plug Manager:
 - a. Enter the system diagnostics by logging in as root user or as the celogin user, type **diag** at the AIX command line.
 - b. When the DIAGNOSTIC OPERATING INSTRUCTIONS menu displays, press Enter.
 - c. At the FUNCTION SELECTION menu, select **Task Selection**, and then press Enter.
 - d. At the Task Selection list, select **PCI Hot Plug Manager**.
 - e. Select **Unconfigure a Device**, and then press Enter.
 - f. Press F4 (or Esc +4) to display the **Device Names** menu.
 - g. Select the adapter you are removing in the **Device Names** menu.
 - h. Use the Tab key to answer NO to **Keep Definition**. Use the Tab key again to answer YES to **Unconfigure Child Devices**, and then press Enter. The ARE YOU SURE window is displayed.
 - i. Press Enter to verify the information. Successful unconfiguration is indicated by the OK message displayed next to the **Command** field at the top of the screen.
 - j. Press F4 (or Esc +4) twice to return to the Hot Plug Manager menu.
 - k. Select **Replace/remove PCI Hot Plug adapter**.
 - l. Select the slot that has the device to be removed from the system.
 - m. Select **Remove**. A fast-blinking amber LED located at the back of the machine near the adapter indicates that the slot has been identified.
 - n. Label all cables attached to the adapter you plan to remove.
 - o. Press Enter. This places the adapter in the action state, meaning it is ready to be removed from the system.
 - p. Disconnect all cables attached to the adapter you plan to remove.
9. Label, and then disconnect all cables attached to the adapter you plan to remove.
10. Slide the adapter latch (**A**) into the open position, as shown in the following figure.

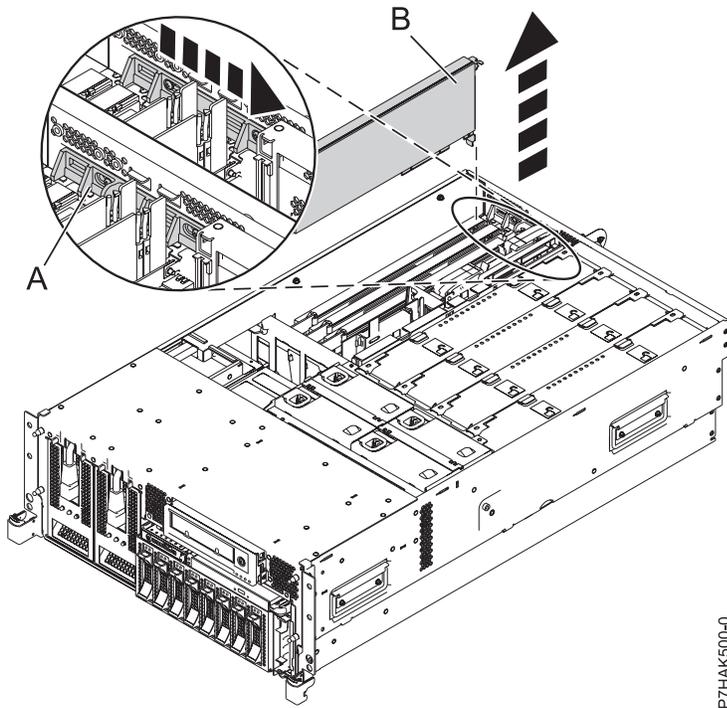


Figure 8. PCI adapter or filler plate removed from the rack-mounted system unit

11. Carefully grasp the PCI adapter (**B**) by its top edge or upper corners, and remove it from the system. Store the adapter in a safe place.
12. If you plan to install another adapter into the vacated slot, go to “Installing a PCI adapter in the 33E/8B and 36E/8C server, with the power on in an AIX environment” on page 3; otherwise, continue with the next step.
13. Seal the expansion slot using an expansion-slot cover.
14. Lower the plastic retainer seat over the PCI adapter faceplate.
15. Rotate the locking latch clockwise until it clicks into the locked position.
16. Continue to follow the screen instructions until you receive a message that the adapter removal is successful. Successful removal is indicated by the OK message displayed next to the Command field at the top of the screen.
17. If you have other adapters to remove, press the F3 key to return to the PCI Hot-Plug Manager menu and then return to step 9 on page 12.
If you do not have other adapters to remove, continue with the next step.
18. Press F10 to exit the Hot-Plug Manager.
19. Run the `diag -a` command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.
20. Replace or close the service access cover and, if applicable, return the system to the operating position.
21. To replace the PCI adapter, see “Replacing a PCI adapter in the 33E/8B and 36E/8C server” on page 15.

Removing a PCI adapter from the 33E/8B and 36E/8C server, with the power on in the Linux environment

You can remove a PCI adapter with the system power on in the Linux environment.

About this task

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for removing a PCI adapter.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For instructions, see Removing a part by using the Systems Director Management Console.

If you do not have an HMC or SDMC, complete the following steps to remove a PCI adapter with the system power on in the Linux environment:

Procedure

1. Ensure that the system meets the “Prerequisites for hot-plugging PCI adapters in Linux” on page 153.
2. “Verifying that the hot-plug PCI tools are installed for Linux” on page 153.
3. Perform the prerequisite tasks described in “Before you begin” on page 132.
4. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
5. If you are removing a failing PCI adapter, see Identifying a failing part. If you are removing the PCI adapter for other reasons, continue to the next step.
6. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system, follow these steps to remove the service access cover.
 - a. Open the front rack door.
 - b. Place the system unit in the service position.
 - c. Remove or open the service access cover.
7. Determine which adapter you plan to remove, then label and disconnect all cables attached to that adapter.
8. Record the slot number and location of each adapter being removed.

Note: Adapter slots are numbered on the rear of the system.

9. Label, and then disconnect all cables attached to the adapter you plan to remove.

Note: Before performing a PCI hot-plug removal of storage devices, ensure that the file systems on those devices are unmounted.

10. Run the **drmgr** command to enable an adapter to be removed:
For example, to remove the PCI adapter in slot U7879.001.DQD014E-P1-C3, run this command:

```
drmgr -c pci -r -s locationcode
```


Follow the instructions on the display to complete the task.
11. Slide the adapter latch (A) into the open position, as shown in the following figure.

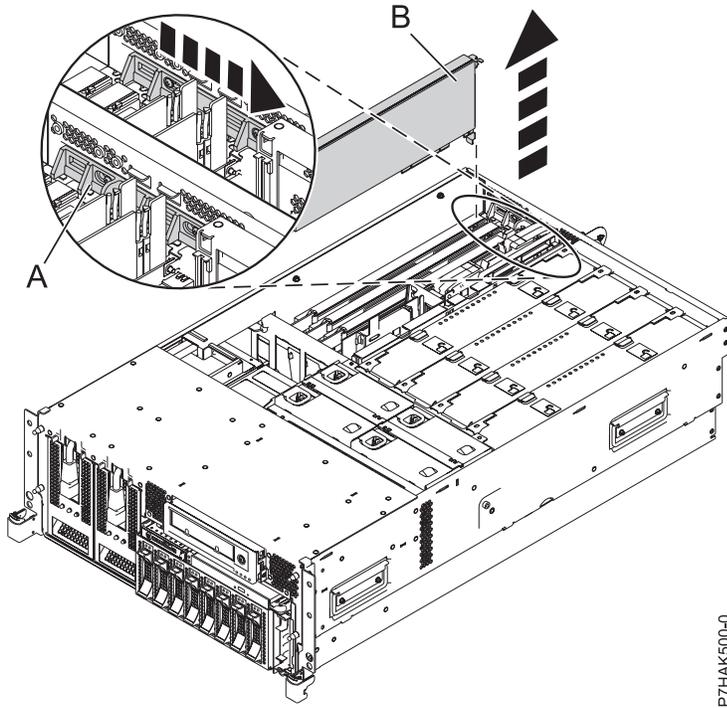


Figure 9. PCI adapter or filler plate removed from the rack-mounted system unit

12. Carefully grasp the PCI adapter (**B**) by its top edge or upper corners, and remove it from the system. Store the adapter in a safe place.
13. If you are removing a PCI adapter as part of another procedure, return to that procedure. If not, continue to the next step.
14. If you plan to install another adapter into the vacated slot, go to “Replacing a PCI adapter in the 33E/8B and 36E/8C server with the power on in the Linux environment” on page 21; otherwise, continue with the next step.
15. Seal the expansion slot using an expansion-slot cover.
16. Replace or close the service access cover and, if applicable, return the system to the operating position.
17. Reconnect the power source to the system.
18. Start the system or logical partition. Refer to Start the system or logical partition.
19. To replace the PCI adapter, see “Replacing a PCI adapter in the 33E/8B and 36E/8C server.”

Results

Replacing a PCI adapter in the 33E/8B and 36E/8C server

You can replace a PCI adapter.

About this task

Replacing a PCI adapter in the 33E/8B and 36E/8C server with the power off

You can replace a PCI adapter with the system power off.

About this task

You must have already completed the procedure “Removing a PCI adapter from the 33E/8B and 36E/8C server with the power off” on page 9 in order to have the slot powered off.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for replacing a PCI adapter.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For instructions, see Replacing a part by using the Systems Director Management Console.

If you do not have an HMC or SDMC, complete the following steps to replace a PCI adapter with the system power off:

Procedure

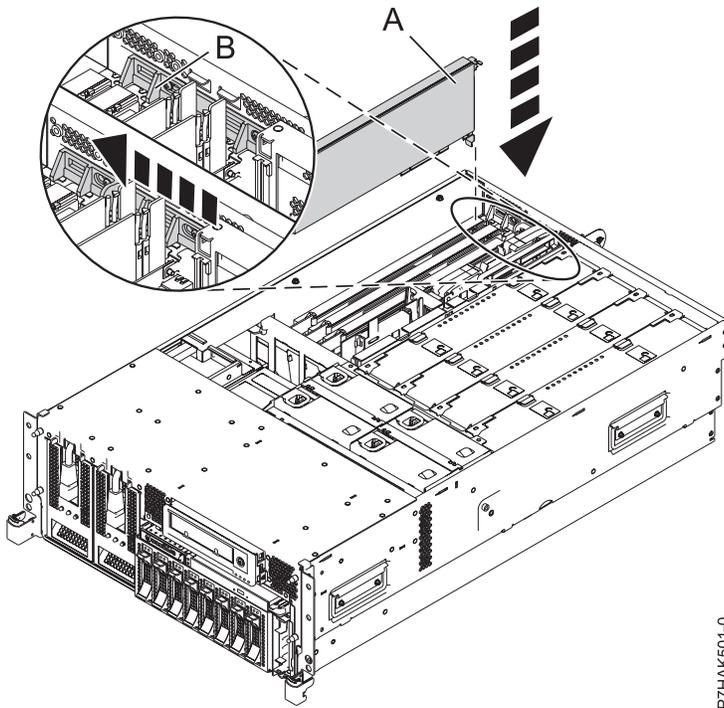
1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. If necessary, remove the adapter from the antistatic package.

Attention: Avoid touching the components and gold connectors on the adapter.

4. Place the adapter, component-side up, on a flat, static-protective surface.
5. Carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
6. Press the adapter **(A)** firmly into its connector.

Attention: When you install an adapter into the system, be sure that it is completely and correctly seated in its connector.

7. Slide the adapter latch **(B)** back into place as shown in the following figure.



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Figure 10. PCI adapter replaced in the rack-mounted system unit

8. Connect the adapter cables.
9. If you are servicing a rack-mounted system, route the cables through the cable-management arm.

10. Replace or close the service access cover and, if applicable, return the system to the operating position.
11. Reconnect the power source to the system.
12. Start the system or logical partition. Refer to Start the system or logical partition.
13. Verify that the new resource is functional. See Verify the installed part.

Removing and replacing a PCI adapter in the 33E/8B and 36E/8C server, with the power on in the AIX environment

You can replace a PCI adapter with the system power on in the AIX environment.

About this task

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for replacing a PCI adapter.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For instructions, see Replacing a part by using the Systems Director Management Console.

Read the following notes to determine if this is the correct procedure for the task to be performed.

Notes:

- Use this procedure if you intend to remove a failing PCI adapter and replace it with the same type of adapter.
- If you plan to remove a failing adapter and leave the slot empty, see “Removing a PCI adapter from the 33E/8B and 36E/8C server, with the power on in the AIX environment” on page 11.
- This procedure should not be used to remove an existing adapter and install a different type of adapter. To install a different adapter, remove the existing adapter as described in “Removing a PCI adapter from the 33E/8B and 36E/8C server, with the power on in the AIX environment” on page 11, then install the new adapter as described in “Installing a PCI adapter in the 33E/8B and 36E/8C server, with the power on in an AIX environment” on page 3.
- Procedures performed on a PCI adapter with the system power on in AIX, also known as hot-plug procedures, require the system administrator to take the PCI adapter offline before performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

If you do not have an HMC or SDMC, complete the following steps to replace a PCI adapter with the system power on in the AIX environment:

Procedure

1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. If you are removing a failing PCI adapter, see Identifying a failing part. If you are removing the PCI adapter for other reasons, continue to the next step.
4. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system, follow these steps to remove the service access cover.
 - a. Open the front rack door.
 - b. Place the system unit in the service position.
 - c. Remove or open the service access cover.
5. Determine which adapters you plan to remove.

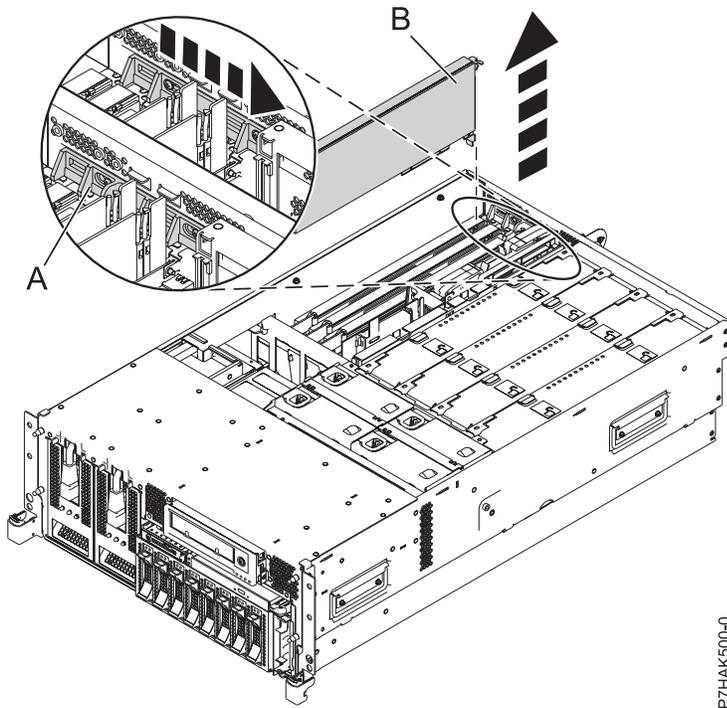
6. Record the slot number and location of each adapter being removed.

Note: Adapter slots are numbered on the rear of the system unit.

7. Ensure that any processes or applications that might use the adapter are stopped.
8. Enter the system diagnostics by logging in as root user or as the celogin user, type **diag** at AIX command line.
9. When the DIAGNOSTIC OPERATING INSTRUCTIONS menu displays, press Enter.
10. At the FUNCTION SELECTION menu, select **Task Selection**, then press enter.
11. At the Task Selection list, select **PCI Hot Plug Manager**.
12. Select **Unconfigure a Device**, then press Enter.
13. Press F4 (or Esc +4) to display the **Device Names** menu.
14. Select the adapter you are removing in the **Device Names** menu.
15. Use the Tab key to answer YES to **Keep Definition**. Use the Tab key again to answer YES to **Unconfigure Child Devices**, then press Enter.
16. The **ARE YOU SURE** screen displays. Press Enter to verify the information. Successful unconfiguration is indicated by the OK message displayed next to the Command field at the top of the screen.
17. Press F3 (or Esc +3) twice to return to the **Hot Plug Manager** menu.
18. Select **Replace/remove PCI Hot Plug adapter**.
19. Select the slot that has the device to be removed from the system.
20. Select **Replace**.

Note: A fast-blinking amber LED located at the back of the machine near the adapter indicates that the slot has been identified.

21. Press Enter. This places the adapter in the action state, meaning that it is ready to be removed from the system.
22. Label, and then disconnect all cables attached to the adapter you plan to remove.
23. Slide the adapter latch (**A**) into the open position, as shown in the following figure.



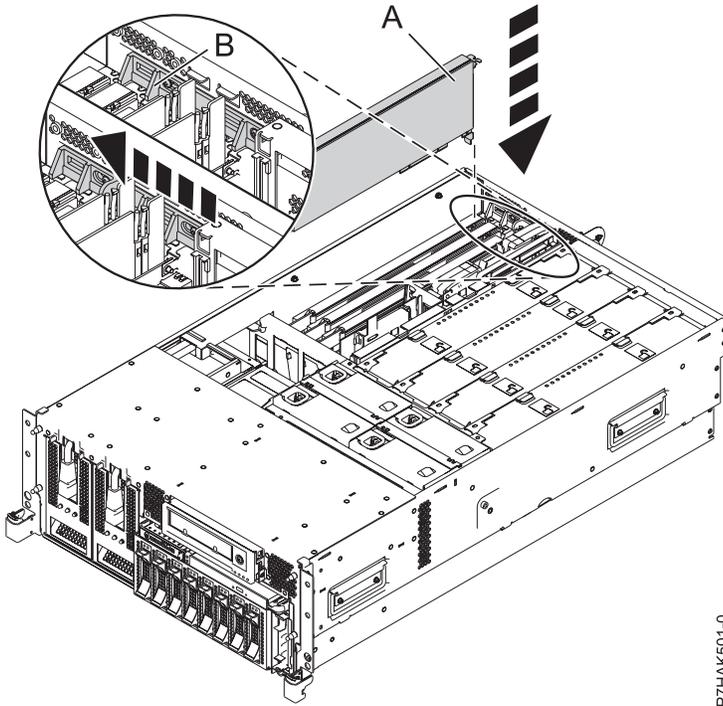
P7HAK500-0

Figure 11. PCI adapter or filler plate removed from the rack-mounted system unit

24. Carefully grasp the PCI adapter (**B**) by its top edge or upper corners, and remove it from the system. Store the adapter in a safe place.
25. If necessary, remove the replacement adapter from the antistatic package.

Attention: Avoid touching the components and gold connectors on the adapter.
26. Carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
27. Press the adapter (**A**) firmly into its connector. See the following figure.

Attention: When you install an adapter into the system, be sure that it is completely and correctly seated in its connector.
28. Slide the adapter latch (**B**) back into place as shown in the following figure.



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Figure 12. PCI adapter replaced in the rack-mounted system unit

29. Connect the adapter cables.
30. Press enter and continue to follow the instructions in the system diagnostics until you receive a message that the replacement is successful. Successful replacement is indicated by the OK message displayed next to the **Command** field at the top of the menu.
31. Press the F3 (or Esc+3) key to return to the **PCI Hot-Plug Manager** menu.
32. Press the F3 (or Esc+3) key to return to the **TASK** selection list.
33. Select **Log Repair Action**.
34. Select the resource just replaced, press Enter, press Commit (F7 or ESC 7), then press Enter.
35. Press F3 (or Esc+3) to return to **TASK Selection List**.
36. Select **Hot Plug Task**, press enter.
37. Select **PCI Hot Plug Manager**, then select **Configure a defined device**, then press Enter.
38. Select the device just replaced from the list, then press Enter. The device is now configured.
39. Press the F10 key to exit the diagnostic program.

Note: If you are running the stand-alone diagnostics, do not exit the program completely.

40. Verify the PCI adapter by using the following instructions:
 - a. Did you replace the adapter with the system power on?
 - Yes - Go to the next step.
 - No - Load the diagnostic program by doing the following:
 - If AIX is available, boot AIX, log in as root or CELOGIN, then enter the **diag** command.
 - If AIX is not available, boot the stand-alone diagnostics
 - b. Type the **diag** command if you are not already displaying the diagnostic menus
 - c. Select **Advance Diagnostic Routines**, then select **Problem Determination**.
 - d. Select the name of the resource just replaced from the menu. If the resource just replaced is not shown, choose the resource associated with it. Press Enter, then press **Commit** ((F7 or Esc+7)).

- e. Did the Problem Determination identify any problems?
 - No: Continue to the next step.
 - Yes: A problem is identified
 - If you are a customer, record the error information, then contact your service provider.
 - If you are an authorized service provider, return to map 210-5.
- 41. Press the F10 key to exit the diagnostic program.
- 42. Replace or close the service access cover and, if applicable, return the system to the operating position.
- 43. Verify that the new resource is functional. See Verify the installed part.

Replacing a PCI adapter in the 33E/8B and 36E/8C server with the power on in the Linux environment

You can replace a PCI adapter with the system power on in the Linux environment.

About this task

You must have already completed the procedure “Removing a PCI adapter from the 33E/8B and 36E/8C server, with the power on in the Linux environment” on page 13.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing a PCI adapter.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For instructions, see Replacing a part by using the Systems Director Management Console.

If you do not have an HMC or SDMC, complete the following steps to replace a PCI adapter with the system power on in the Linux environment:

Procedure

1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. If necessary, remove the adapter from the antistatic package.

Attention: Avoid touching the components and gold connectors on the adapter.

4. Place the adapter, component-side up, on a flat, static-protective surface.
5. Run the **drmgr** command to enable an adapter to be replaced:

For example, to replace the PCI adapter in slot U7879.001.DQD014E-P1-C3 run this command:

```
drmgr -c pci -r -s locationcode
```

Follow the instructions on the display to complete the task.

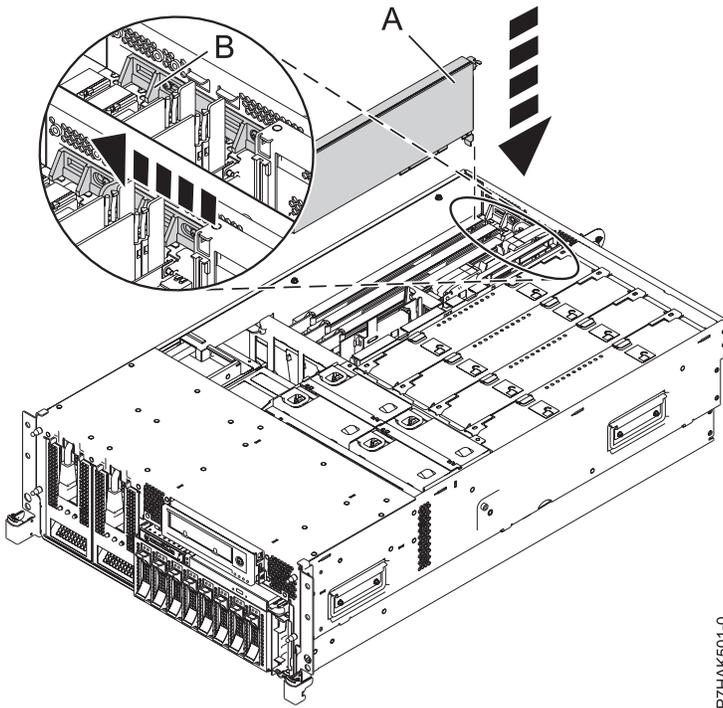
6. Press the adapter firmly into its connector.

Attention: When you install an adapter into the system, be sure that it is completely and correctly seated in its connector.

7. Carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
8. Press the adapter (**A**) firmly into its connector.

Attention: When you install an adapter into the system, be sure that it is completely and correctly seated in its connector.

- Slide the adapter latch (B) back into place as shown in the following figure.



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Figure 13. PCI adapter replaced in the rack-mounted system unit

- Connect the adapter cables.
- Run the `lsslot` command to verify that the slot is occupied.
For example, Enter `lsslot -c pci -s U7879.001.DQD014E-P1-C3`
The following is an example of the information displayed by this command:

# Slot	Description	Device(s)
U7879.001.DQD014E-P1-C3	PCI-X capable, 64 bit, 133MHz slot	0001:40:01.0
- If you are servicing a rack-mounted system, route the cables through the cable-management arm.
- Replace or close the service access cover and, if applicable, return the system to the operating position.
- Verify that the new resource is functional. See Verify the installed part.

Model 33E/8B and 36E/8C PCIe RAID and SSD SAS adapters

You can remove, replace, or install PCIe RAID and SSD SAS adapters in the 33E/8B and 36E/8C.

The PCIe RAID and SSD SAS adapter is a double-wide adapter. Although it plugs into a single PCIe slot, two adjacent PCIe slots are required for installation (slot 3 for plugging, slot 2 for expansion).

Related information:

[SAS RAID enablement and cache battery pack](#)

Installing a PCIe RAID and SSD SAS adapter in the 33E/8B and 36E/8C server

You can install a PCI adapter.

About this task

Installing a PCI RAID and SSD SAS adapter in the 33E/8B and 36E/8C server with the power off

You can install a PCIe RAID and SSD SAS adapter with the system power off.

Before you begin

Attention: If you are servicing a failing part, see the service procedures for “Removing a PCI RAID and SSD SAS adapter from the 33E/8B and 36E/8C server with the power off” on page 31 and “Replacing a PCI RAID and SSD SAS adapter in the 33E/8B and 36E/8C server with the power off” on page 38. This procedure is intended for installing a new or upgraded PCIe RAID and SSD SAS adapter.

About this task

The PCIe RAID and SSD SAS adapter is a double-wide adapter. Although it plugs into a single PCIe slot, two adjacent PCIe slots are required for installation (slot 3 for plugging, slot 2 for expansion).

Before installing or replacing a feature, ensure that the software required to support the feature is installed on your system. If your system is managed by the HMC, use the HMC to complete the steps for installing a feature in the server. For information about using the HMC to install a feature, see “Installing a part by using the HMC” on page 154.

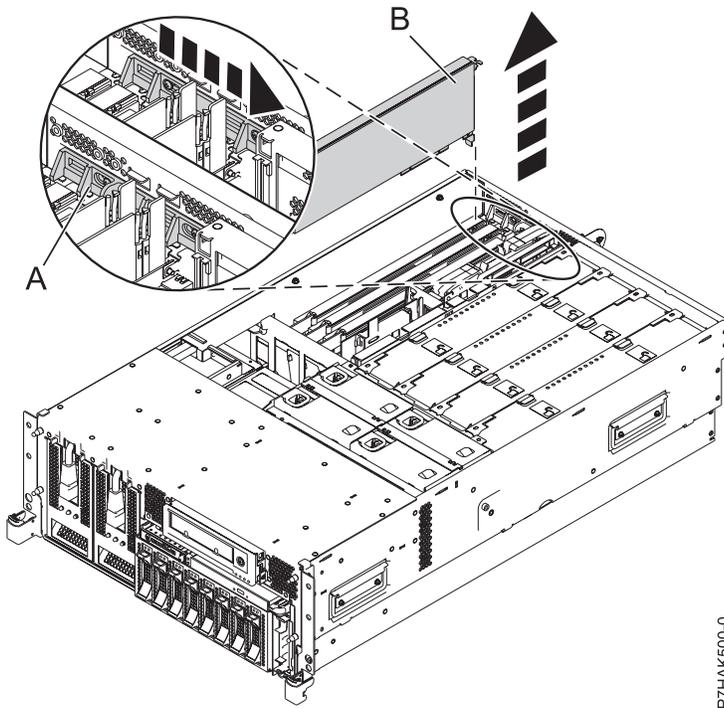
If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to install a PCIe RAID and SSD SAS adapter in the server. For instructions, see Installing a feature by using the Systems Director Management Console.

If you do not have an HMC or SDMC, complete the following steps to install a PCIe RAID and SSD SAS with the system power off:

Procedure

1. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
2. Perform the prerequisite tasks described in “Before you begin” on page 132.
3. Stop the system or logical partition. See Stop the system or logical partition.
4. Disconnect the power source from the system by unplugging the system.
5. If you are installing, removing, or replacing a PCIe adapter in a rack-mounted system, follow these steps to remove the service access cover.
 - a. Open the front rack door.
 - b. Place the system unit in the service position.
 - c. Remove or open the service access cover.
6. Determine that slots 2 and 3 are open for the PCIe adapter.
7. If necessary, remove the adapter from the antistatic package.

Attention: Avoid touching the components and gold connectors on the adapter.
8. Place the adapter, component-side up, on a flat, antistatic surface.
9. Some PCI adapters are shipped from the manufacturer with a blue handle or support bracket along the back edge of the card. To use adapters of this type in this system, you must remove the blue handle or support bracket from the card.
10. Slide the adapter latch (A) into the open position, as shown in the following figure.



P7HAK500-0

Figure 14. PCI adapter or filler plate removed from the rack-mounted system unit

11. If necessary, remove the adapter expansion slot filler.
12. Remove the PCI adapter divider if one is present. See “Removing a PCI adapter divider from the 33E/8B and 36E/8C server” on page 46.
13. Remove the solid expansion slot cover and install the perforated expansion slot cover that shipped with your PCIe adapter. Press the expansion slot cover firmly into position in the adjacent slot to the left of the adapter slot.
14. Carefully grasp the adapter (A) by its top edge, and align the adapter with the expansion slot and its connector on the system backplane. See the following figure.
15. Press the adapter firmly into its connector.
16. Slide the adapter latch (B) back into place as shown in the following figure.

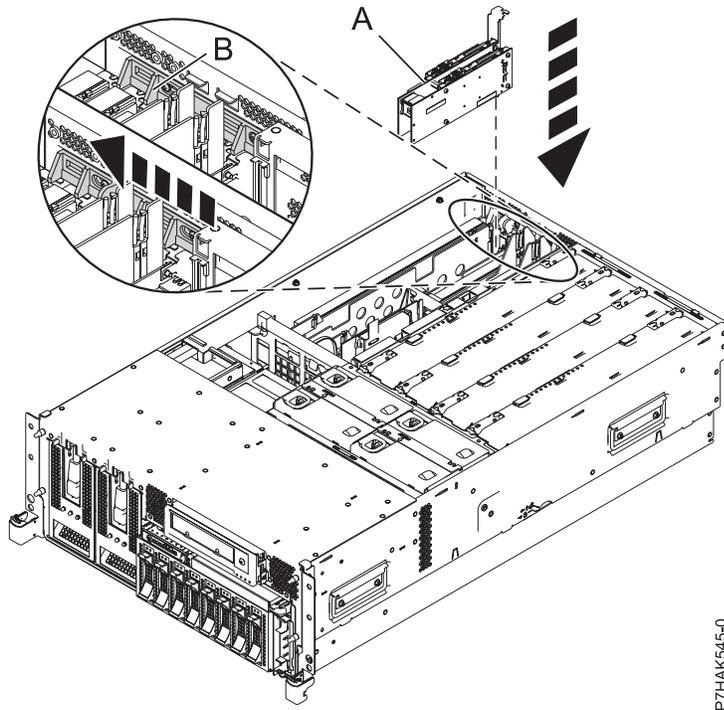


Figure 15. PCIe RAID and SSD SAS adapter replaced in the rack-mounted system unit

17. If you are servicing a rack-mounted system, route the cables through the cable-management arm.
18. Replace or close the service access cover and, if applicable, return the system to the operating position.
19. Reconnect the power source to the system.
20. Start the system or logical partition. Refer to Start the system or logical partition.
21. Verify that the new resource is functional.

Related information:

 SAS RAID enablement and cache battery pack

Installing a PCI RAID and SSD SAS adapter in the 33E/8B and 36E/8C server, with the power on in the AIX environment

You can install a PCI RAID and SSD SAS adapter with the system power on in the AIX environment.

About this task

The PCIe RAID and SSD SAS adapter is a double-wide adapter. Although it plugs into a single PCIe slot, two adjacent PCIe slots are required for installation (slot 3 for plugging, slot 2 for expansion).

Before installing or replacing a feature, ensure that the software required to support the feature is installed on your system. If your system is managed by the HMC, use the HMC to complete the steps for installing a feature in the server. For information about using the HMC to install a feature, see “Installing a part by using the HMC” on page 154.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to install a PCI RAID and SSD SAS adapter in the server. For instructions, see Installing a feature by using the Systems Director Management Console.

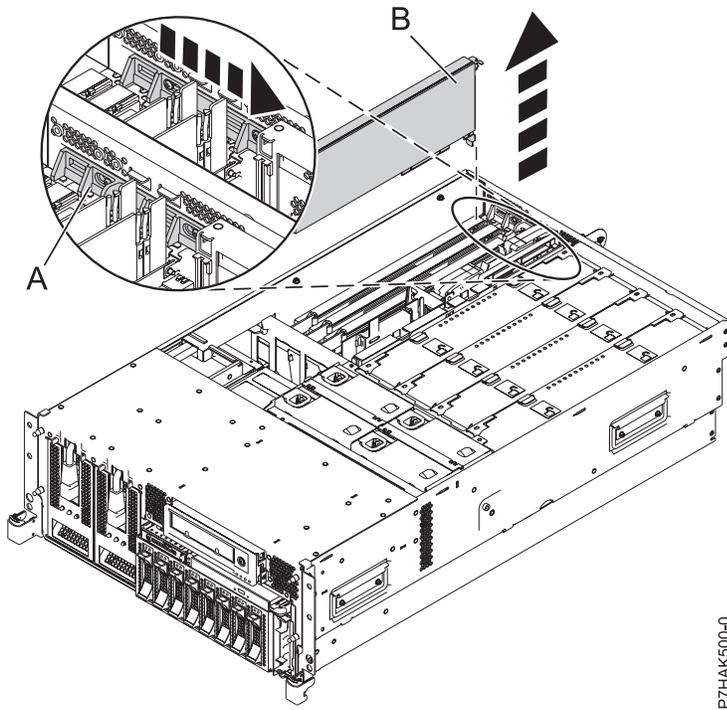
If you do not have an HMC or SDMC, complete the following steps to install a PCIe RAID and SSD SAS with the system power on in the AIX environment:

Procedure

1. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
2. Determine in which slot to place the PCI adapter. For system-specific adapter placement information, see the PCI adapter placement.
3. Perform the prerequisite tasks described in “Before you begin” on page 132.
4. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system, follow these steps to remove the service access cover.
 - a. Open the front rack door.
 - b. Place the system unit in the service position.
 - c. Remove or open the service access cover.
5. If necessary, remove the adapter expansion slot shield.
6. If necessary, remove the adapter from the antistatic package.

Attention: Avoid touching the components and gold connectors on the adapter.

7. Place the PCIe adapter, component-side up, on a flat, antistatic surface.
8. Some PCIe adapters are shipped from the manufacturer with a blue handle or support bracket along the back edge of the card. To use adapters of this type in this system, you must remove the blue handle or support bracket from the card.
9. Remove the PCI adapter divider if one is present. See “Removing a PCI adapter divider from the 33E/8B and 36E/8C server” on page 46.
10. Refer to “PCI hot-plug manager access for AIX” on page 150, and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.
11. From the PCI Hot-Plug Manager menu, select **Add a PCI Hot-Plug Adapter** and press Enter. The Add a Hot-Plug Adapter window displays.
12. Select slot 3 from the appropriate empty PCI slots listed on the screen, and press Enter.
13. Slide the adapter latch (**A**) into the open position, as shown in the following figure.



P7HAK500-0

Figure 16. PCI adapter or filler plate removed from the rack-mounted system unit

14. Remove the adapter filler plate if one is present.
15. Remove the solid expansion slot cover and install the perforated expansion slot cover that shipped with your PCIe adapter. Press the expansion slot cover firmly into position in the adjacent slot to the left of the adapter slot.
16. Follow the instructions on the screen to install the adapter until the LED for the specified PCIe slot is set to the Action state. See “Component LEDs” on page 152.
17. When you are instructed to install the adapter in the adapter slot, carefully grasp the adapter by the edges and align the adapter (A) in the slot guides. Insert the adapter fully into the adapter slot connector. If you are installing a full-length adapter, ensure that both ends of the adapter engage the card guides.
18. Press the adapter firmly into its connector.
19. Slide the adapter latch (B) back into place as shown in the following figure.

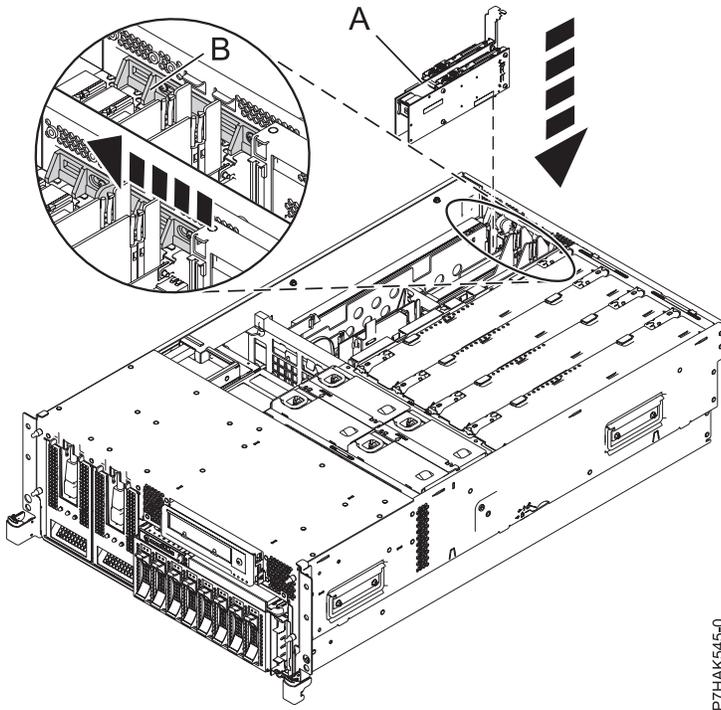


Figure 17. PCI RAID and SSD SAS adapter replaced in the rack-mounted system unit

20. Replace or close the service access cover and, if applicable, return the system to the operating position.
21. Run the `cfgmgr` command to configure the adapter.
22. Verify that the new resource is functional. See Verify the installed part.

Related information:

[SAS RAID enablement and cache battery pack](#)

Installing a PCI RAID and SSD SAS adapter in the 33E/8B and 36E/8C server, with the power on in the Linux environment

You can install a PCI RAID and SSD SAS adapter with the system power on in the Linux environment.

About this task

The PCIe RAID and SSD SAS adapter is a double-wide adapter. Although it plugs into a single PCIe slot, two adjacent PCIe slots are required for installation (slot 3 for plugging, slot 2 for expansion).

Before installing or replacing a feature, ensure that the software required to support the feature is installed on your system. If your system is managed by the HMC, use the HMC to complete the steps for installing a feature in the server. For information about using the HMC to install a feature, see “Installing a part by using the HMC” on page 154.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to install a PCIe RAID and SSD SAS adapter in the server. For instructions, see Installing a feature by using the Systems Director Management Console.

If you do not have an HMC or SDMC, complete the following steps to install a PCIe RAID and SSD SAS with the system power on in the Linux environment:

Procedure

1. Ensure that the system meets the “Prerequisites for hot-plugging PCI adapters in Linux” on page 153.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. “Verifying that the hot-plug PCI tools are installed for Linux” on page 153.
4. Determine in which slot to place the PCI adapter. For system-specific adapter placement information, see the PCI adapter placement.
5. Perform the prerequisite tasks described in “Before you begin” on page 132.
6. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system, follow these steps to remove the service access cover.
 - a. Open the front rack door.
 - b. Place the system unit in the service position.
 - c. Remove or open the service access cover.
7. If necessary, remove the adapter expansion slot shield.
8. If necessary, remove the adapter from the antistatic package.

Attention: Avoid touching the components and gold connectors on the adapter.

9. Place the PCIe adapter, component-side up, on a flat, antistatic surface.
10. Remove the PCI adapter divider if one is present. See “Removing a PCI adapter divider from the 33E/8B and 36E/8C server” on page 46.
11. Log in to the system console as the root user.
12. Run the `lsslot` tool to list the hot-plug PCI slots that are available in the server or partition:

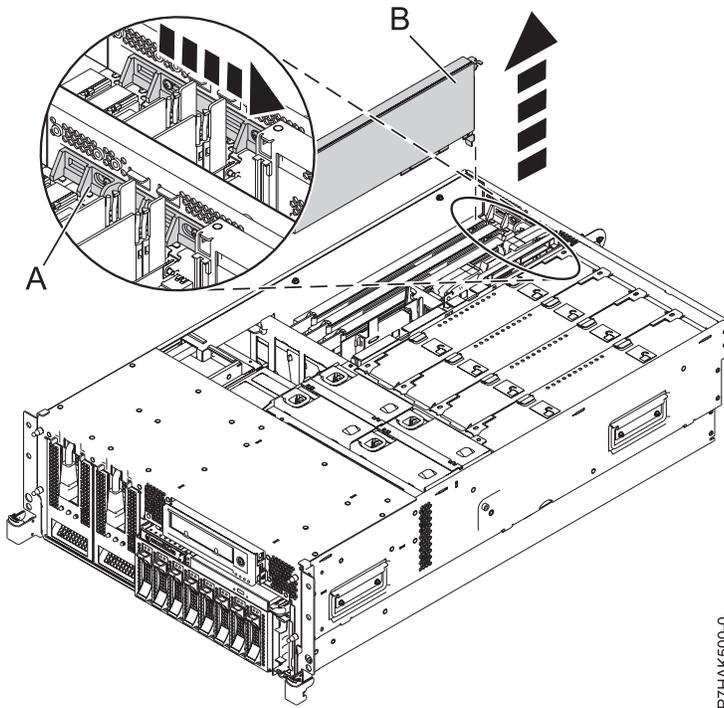
```
lsslot -c pci -a
```

The following is an example of the information displayed by this command:

# Slot	Description	Device(s)
U7879.001.DQD014E-P1-C1	PCI-X capable, 64 bit, 133MHz slot	Empty
U7879.001.DQD014E-P1-C4	PCI-X capable, 64 bit, 133MHz slot	Empty
U7879.001.DQD014E-P1-C5	PCI-X capable, 64 bit, 133MHz slot	Empty

Select the appropriate empty PCI slot from the ones listed by the command.

13. Slide the adapter latch (**A**) into the open position, as shown in the following figure.



P7HAK500-0

Figure 18. PCI adapter or filler plate removed from the rack-mounted system unit

14. Ensure that the slot is empty. Remove the adapter filler plate if one is present.
 15. Run the `drmgr` command to enable an adapter to be installed. For example, to install an adapter into PCI slot U7879.001.DQD014E-P1-C3, enter the following command:


```
drmgr -c pci -r -s locationcode
```

 The following displays:

The visual indicator for the specified PCI slot has been set to the identify state. Press Enter to continue or enter x to exit.
 16. Press Enter.

The following displays:

The visual indicator for the specified PCI slot has been set to the action state. Insert the PCI card into the identified slot, connect any devices to be configured and press Enter to continue. Enter x to exit.
 17. Remove the solid expansion slot cover and install the perforated expansion slot cover that shipped with your PCIe adapter. Press the expansion slot cover firmly into position in the adjacent slot to the left of the adapter slot.
 18. When you are instructed to install the adapter (A) in the adapter slot, carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
 19. Press the adapter firmly into its connector.
- Attention:** When you install an adapter into the system, be sure that it is completely and correctly seated in its connector.
20. Slide the adapter latch (B) back into place as shown in the following figure.

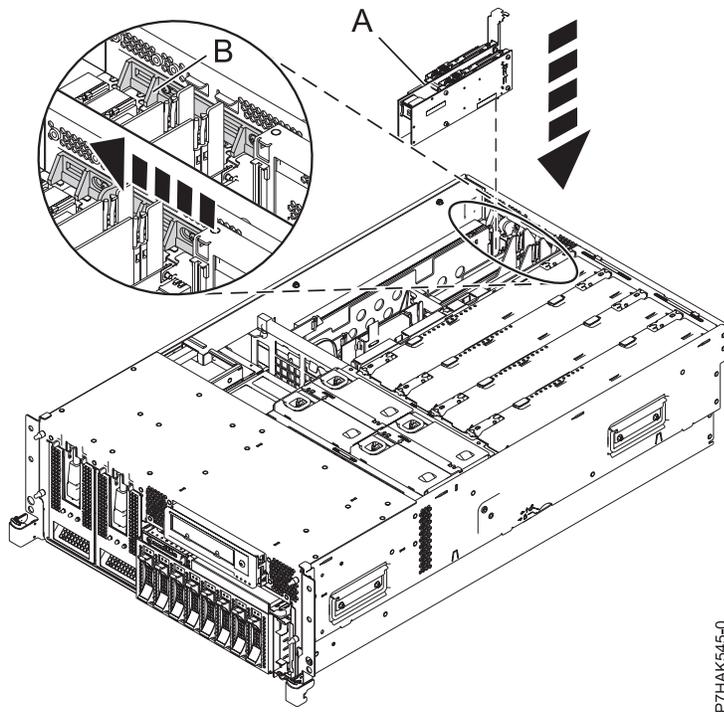


Figure 19. PCI RAID and SSD SAS adapter replaced in the rack-mounted system unit

21. Run the `lsslot` command to verify that the slot is occupied.

For example, enter `lsslot -c pci -s U7879.001.DQD014E-P1-C3`

The following is an example of the information displayed by this command:

```
# Slot      Description      Device(s)
U7879.001.DQD014E-P1-C3 PCI-X capable, 64 bit, 133MHz slot 0001:40:01.0
```

22. If you are servicing a rack-mounted system, route the cables through the cable-management arm.

23. Replace or close the service access cover and, if applicable, return the system to the operating position.

24. Verify that the new resource is functional. See *Verify the installed part*.

Related information:

 SAS RAID enablement and cache battery pack

Removing a PCIe RAID and SSD SAS adapter from an 33E/8B and 36E/8C server

You can remove a PCI adapter.

About this task

Removing a PCI RAID and SSD SAS adapter from the 33E/8B and 36E/8C server with the power off

You can remove a PCI RAID and SSD SAS adapter with the system power off.

Before you begin

Attention: If you are removing a PCIe adapter in order to install a new or upgraded PCIe adapter, see Installing a PCIe RAID and SSD SAS adapter in the 8233-E8B and 8236-E8C server with the power off to obtain slot locations and required prerequisites. If you are removing a PCIe adapter as part of a service procedure, continue to use the following procedure.

About this task

When an SSD on the PCIe adapter fails, the entire adapter must be removed from the system before replacing the individual SSD. For information about replacing SSDs, see Replacing an SSD module on the PCIe RAID and SSD SAS adapter.

To remove a PCIe adapter with the system power off, do the following steps:

Procedure

1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
4. If you are removing a failing PCI adapter, see “Identifying a part” on page 135. If you are removing the PCI adapter for other reasons, continue to the next step.
5. Stop the system or logical partition.
6. Disconnect the power source from the system by unplugging the system.
7. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system, follow these steps to remove the service access cover.
 - a. Open the front rack door.
 - b. Place the system unit in the service position.
 - c. Remove or open the service access cover.
8. Attach the wrist strap.

Attention:

- Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge (ESD) from damaging your hardware.
 - When using a wrist strap, follow all electrical safety procedures. A wrist strap is for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
 - If you do not have a wrist strap, just before removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.
9. Locate the PCIe adapter you plan to remove.
 10. Record the slot number and location of each adapter being removed.

Note: Adapter slots are numbered on the rear of the system.

11. Slide the adapter latch (A) into the open position, as shown in the following figure.

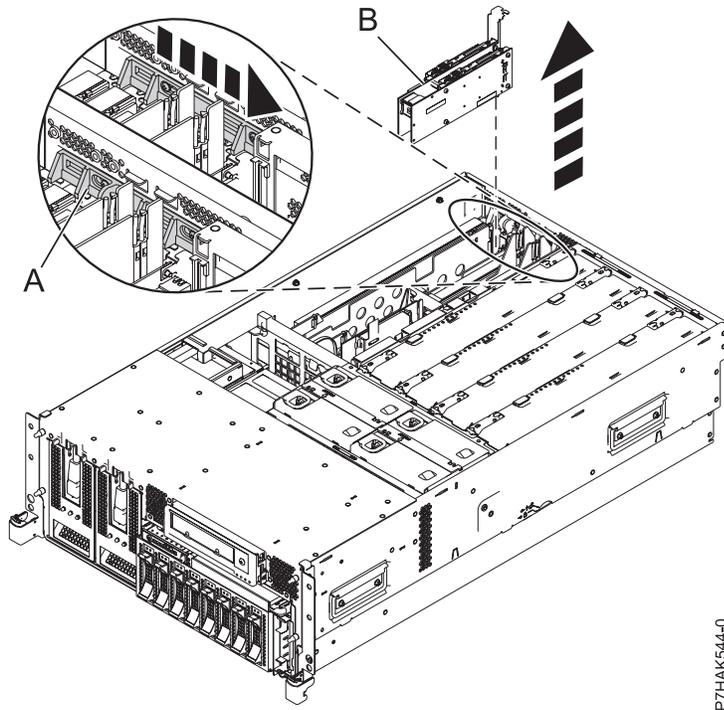


Figure 20. PCI RAID and SSD SAS adapter removed from the rack-mounted system unit

12. Carefully grasp the PCIe adapter (**B**) by its top edge or upper corners, and remove it from the system. Store the adapter in a safe place.
13. If you are removing a PCIe adapter as part of another procedure, return to that procedure. If not, continue to the next step.
14. If you plan to install another PCIe adapter into the vacated slot, go to “Replacing a PCIe RAID and SSD SAS adapter in the 33E/8B and 36E/8C server with the power off” on page 38; otherwise, continue with the next step.
15. Seal the expansion slot using an expansion-slot cover.
16. Replace or close the service access cover and, if applicable, return the system to the operating position.
17. Reconnect the power source to the system.
18. Start the system or logical partition. Refer to Start the system or logical partition.

Related information:

 SAS RAID enablement and cache battery pack

Removing a PCIe RAID and SSD SAS adapter from the 33E/8B and 36E/8C server, with the power on in the AIX environment

You can remove a PCIe RAID and SSD SAS adapter with the system power on in the AIX environment.

About this task

When an SSD on the PCIe adapter fails, the entire adapter must be removed from the system before replacing the individual SSD. For information about replacing SSDs, see Replacing an SSD module on the PCIe RAID and SSD SAS adapter.

To remove a failing PCIe adapter and replace it with another PCIe adapter, see “Removing and replacing a PCI RAID and SSD SAS adapter in the 33E/8B and 36E/8C server, with the power on in the AIX

environment” on page 40. If the adapter that is removed will be placed into a different slot or system, complete this removal procedure, then install the adapter as described in “Installing a PCI RAID and SSD SAS adapter in the 33E/8B and 36E/8C server, with the power on in the AIX environment” on page 25.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for removing a PCIe RAID and SSD SAS adapter.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to remove the PCIe RAID and SSD SAS adapter from the server. For instructions, see Removing a part by using the Systems Director Management Console.

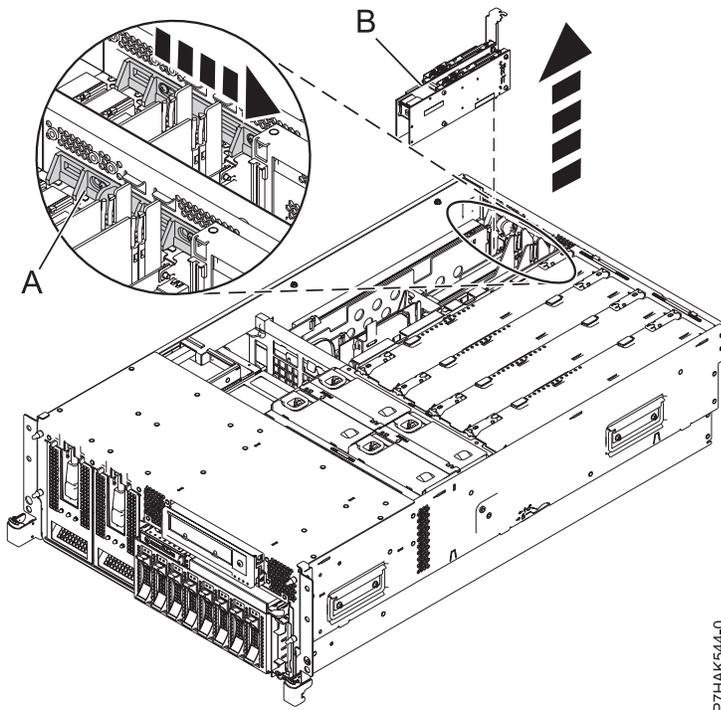
Note: Procedures performed on a PCIe adapter with the system power on in AIX, also known as hot-plug procedures, require the system administrator to take the PCIe adapter offline before performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

If you do not have an HMC or SDMC, complete the following steps to remove a PCIe RAID and SSD SAS adapter with the system power on in the AIX environment:

Procedure

1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. If you are removing a failing PCIe adapter, see . If you are removing the PCI adapter for other reasons, continue to the next step.
4. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system, follow these steps to remove the service access cover.
 - a. Open the front rack door.
 - b. Place the system unit in the service position.
 - c. Remove or open the service access cover.
5. Determine which adapter you plan to remove.
6. Record the slot number and location of each adapter being removed. Adapter slots are numbered on the rear of the system unit.
7. Ensure that any processes or applications that might use the adapter are stopped.
8. Follow these steps to place the adapter in the action state using the PCI Hot-Plug Manager:
 - a. Enter the system diagnostics by logging in as root user or as the celogin user, type **diag** at the AIX command line.
 - b. When the DIAGNOSTIC OPERATING INSTRUCTIONS menu displays, press Enter.
 - c. At the FUNCTION SELECTION menu, select **Task Selection**, and then press Enter.
 - d. At the Task Selection list, select **PCI Hot Plug Manager**.
 - e. Select **Unconfigure a Device**, and then press Enter.
 - f. Press F4 (or Esc +4) to display the **Device Names** menu.
 - g. Select the adapter you are removing in the **Device Names** menu.
 - h. Use the Tab key to answer NO to **Keep Definition**. Use the Tab key again to answer YES to **Unconfigure Child Devices**, and then press Enter. The ARE YOU SURE window is displayed.
 - i. Press Enter to verify the information. Successful unconfiguration is indicated by the OK message displayed next to the **Command** field at the top of the screen.
 - j. Press F4 (or Esc +4) twice to return to the Hot Plug Manager menu.
 - k. Select **Replace/remove PCI Hot Plug adapter**.

- l. Select the slot that has the device to be removed from the system.
 - m. Select **Remove**. A fast-blinking amber LED located at the back of the machine near the adapter indicates that the slot has been identified.
 - n. Label all cables attached to the adapter you plan to remove.
 - o. Press Enter. This places the adapter in the action state, meaning it is ready to be removed from the system.
 - p. Disconnect all cables attached to the adapter you plan to remove.
9. Slide the adapter latch (A) into the open position, as shown in the following figure.



P7HAK644-0

Figure 21. PCI RAID and SSD SAS adapter removed from the rack-mounted system unit

- 10. Carefully grasp the PCIe adapter (B) by its top edge or upper corners, and remove it from the system. Store the adapter in a safe place.
- 11. If you plan to install another adapter into the vacated slot, go to “Installing a PCI RAID and SSD SAS adapter in the 33E/8B and 36E/8C server, with the power on in the AIX environment” on page 25; otherwise, continue with the next step.
- 12. Seal the expansion slot using an expansion-slot cover.
- 13. Lower the plastic retainer seat over the PCI adapter faceplate.
- 14. Rotate the locking latch clockwise until it clicks into the locked position.
- 15. Continue to follow the screen instructions until you receive a message that the adapter removal is successful. Successful removal is indicated by the OK message displayed next to the Command field at the top of the screen.
- 16. Press F10 to exit the Hot-Plug Manager.
- 17. Run the `diag -a` command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.
- 18. Replace or close the service access cover and, if applicable, return the system to the operating position.

19. To replace the PCIe adapter, see “Removing and replacing a PCI RAID and SSD SAS adapter in the 33E/8B and 36E/8C server, with the power on in the AIX environment” on page 40.

Related information:

 SAS RAID enablement and cache battery pack

Removing a PCIe RAID and SSD SAS adapter from the 33E/8B and 36E/8C server, with the power on in the Linux environment

You can remove a PCIe RAID and SSD SAS adapter with the system power on in the Linux environment.

About this task

When an SSD on the PCIe adapter fails, the entire adapter must be removed from the system before replacing the individual SSD. For information about replacing SSDs, see Replacing an SSD module on the PCIe RAID and SSD SAS adapter.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for removing a PCIe RAID and SSD SAS adapter.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to remove the PCIe RAID and SSD SAS adapter from the server. For instructions, see Removing a part by using the Systems Director Management Console.

Note: Procedures performed on a PCIe adapter with the system power on in AIX, also known as hot-plug procedures, require the system administrator to take the PCIe adapter offline before performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

If you do not have an HMC or SDMC, complete the following steps to remove a PCIe RAID and SSD SAS adapter with the system power on in the Linux environment:

Procedure

1. Ensure that the system meets the “Prerequisites for hot-plugging PCI adapters in Linux” on page 153.
2. “Verifying that the hot-plug PCI tools are installed for Linux” on page 153.
3. Perform the prerequisite tasks described in “Before you begin” on page 132.
4. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
5. If you are removing a failing PCIe adapter, see . If you are removing the PCIe adapter for other reasons, continue to the next step.
6. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system, follow these steps to remove the service access cover.
 - a. Open the front rack door.
 - b. Place the system unit in the service position.
 - c. Remove or open the service access cover.
7. Determine which adapter you plan to remove.

Note: Before performing a PCI hot-plug removal of storage devices, ensure that the file systems on those devices are unmounted.

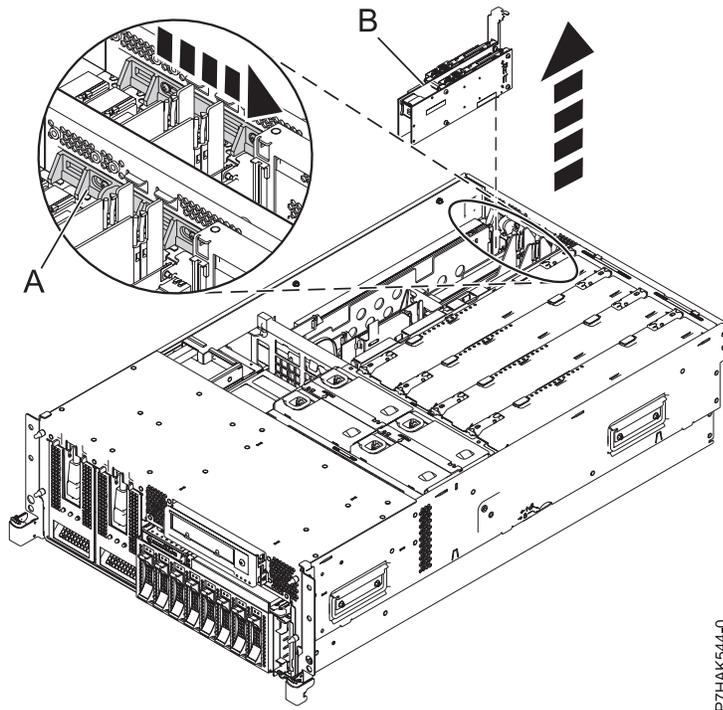
8. Record the slot number and location of each adapter being removed.

Note: Adapter slots are numbered on the rear of the system.

9. Run the **drmgr** command to enable an adapter to be removed:
 For example, to remove the PCI adapter in slot U7879.001.DQD014E-P1-C3, run this command:

```
drmgr -c pci -r -s locationcode
```

 Follow the instructions on the display to complete the task.
10. Slide the adapter latch (A) into the open position, as shown in the following figure.



PTHAK544-0

Figure 22. PCI RAID and SSD SAS adapter removed from the rack-mounted system unit

11. Carefully grasp the PCIe adapter (B) by its top edge or upper corners, and remove it from the system. Store the adapter in a safe place.
12. If you are removing a PCIe adapter as part of another procedure, return to that procedure. If not, continue to the next step.
13. If you plan to install another adapter into the vacated slot, go to “Installing a PCI RAID and SSD SAS adapter in the 33E/8B and 36E/8C server, with the power on in the Linux environment” on page 28; otherwise, continue with the next step.
14. Seal the expansion slot using an expansion-slot cover.
15. Replace or close the service access cover and, if applicable, return the system to the operating position.
16. Reconnect the power source to the system.
17. Start the system or logical partition. Refer to Start the system or logical partition.
18. To replace the PCIe adapter, see “Replacing a PCI RAID and SSD SAS adapter in the 33E/8B and 36E/8C server with the power on in the Linux environment” on page 44.

Results

Related information:

 SAS RAID enablement and cache battery pack

Replacing a PCIe RAID and SSD SAS adapter in the 33E/8B and 36E/8C server

You can replace a PCI adapter.

About this task

Replacing a PCIe RAID and SSD SAS adapter in the 33E/8B and 36E/8C server with the power off

You can replace a PCIe RAID and SSD SAS adapter with the system power off.

Before you begin

Attention: If you are installing a new or upgraded adapter, see “Installing a PCI RAID and SSD SAS adapter in the 33E/8B and 36E/8C server with the power off” on page 23 to obtain slot locations and required prerequisites. If you are replacing an adapter as part of a service procedure, continue to use the following procedure.

About this task

Use this procedure if you intend to remove a failing PCI RAID and SSD SAS adapter and replace it with the same type of adapter. The PCIe RAID and SSD SAS adapter is a double-wide adapter. Although it plugs into a single PCIe slot, two adjacent PCIe slots are required for installation.

You must have already completed the procedure “Removing a PCI RAID and SSD SAS adapter from the 33E/8B and 36E/8C server with the power off” on page 31 in order to have the slot powered off.

To replace a PCIe RAID and SSD SAS adapter with the system power off, do the following steps:

Procedure

1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. Stop the system or logical partition. See Stop the system or logical partition.
4. Disconnect the power source from the system by unplugging the system.
5. If you are installing, removing, or replacing a PCIe adapter in a rack-mounted system, follow these steps to remove the service access cover.
 - a. Open the front rack door.
 - b. Place the system unit in the service position.
 - c. Remove or open the service access cover.
6. Attach the wrist strap.

Attention:

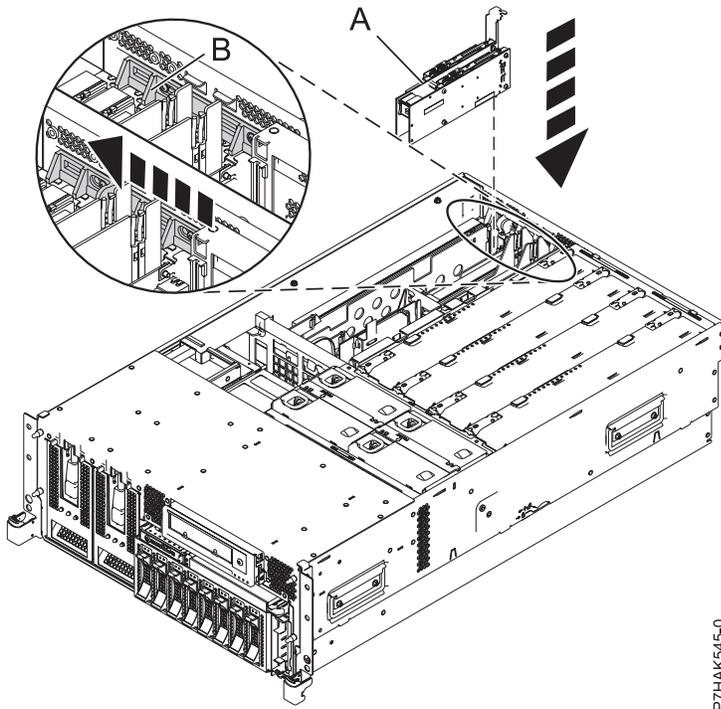
- Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge (ESD) from damaging your hardware.
 - When using a wrist strap, follow all electrical safety procedures. A wrist strap is for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
 - If you do not have a wrist strap, just before removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.
7. Determine that slots 2 and 3 are open for the PCIe adapter.
 8. If necessary, remove the adapter from the antistatic package.

Attention: Avoid touching the components and gold connectors on the adapter.

9. Place the PCIe adapter, component-side up, on a flat, static-protective surface.
10. Label the location of each SSD as you transfer the SSDs from the replaced adapter to the same location on the new adapter you are installing. For information about replacing SSDs, see Replacing an SSD module on the PCIe RAID and SSD SAS adapter. Repeat this step for each SSD.
11. After all SSDs have been transferred to the new adapter, carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
12. Press the PCIe adapter **(A)** firmly into its connector.

Attention: When you install an adapter into the system, be sure that it is completely and correctly seated in its connector.

13. Slide the adapter latch **(B)** back into place as shown in the following figure.



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Figure 23. PCI RAID and SSD SAS adapter replaced in the rack-mounted system unit

14. If you are servicing a rack-mounted system, route the cables through the cable-management arm.

15. Replace or close the service access cover and, if applicable, return the system to the operating position.
16. Reconnect the power source to the system.
17. Start the system or logical partition. Refer to Start the system or logical partition.
18. Verify the installed part or repair.
 - If you replaced the part because of a service action, verify the installed part as described in .
 - If you installed the part for any other reason, verify the installed part as described in .

Related information:

 SAS RAID enablement and cache battery pack

Removing and replacing a PCI RAID and SSD SAS adapter in the 33E/8B and 36E/8C server, with the power on in the AIX environment

You can replace a PCIe RAID and SSD SAS adapter with the system power on in the AIX environment.

About this task

Read the following notes to determine if this topic contains the correct procedure for the task to be performed.

Notes:

- Use this procedure if you intend to remove a failing PCIe RAID and SSD SAS adapter and replace it with the same type of adapter.
- If you plan to remove a failing adapter and leave the slot empty, see “Removing a PCI adapter from the 33E/8B and 36E/8C server, with the power on in the AIX environment” on page 11.
- Do not use this procedure to remove an existing adapter and install a different type of adapter. To install a different adapter, remove the existing adapter as described in “Removing a PCIe RAID and SSD SAS adapter from the 33E/8B and 36E/8C server, with the power on in the AIX environment” on page 33, then install the new adapter as described in “Installing a PCI adapter in the 33E/8B and 36E/8C server, with the power on in an AIX environment” on page 3.
- Procedures performed on a PCIe adapter with the system power on in AIX, also known as hot-plug procedures, require the system administrator to take the PCIe adapter offline before performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

The PCIe RAID and SSD SAS adapter is a double-wide adapter. Although it plugs into a single PCIe slot, two adjacent PCIe slots are required for installation.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for replacing a PCIe RAID and SSD SAS adapter.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to replace the PCIe RAID and SSD SAS adapter in the server. For instructions, see Replacing a part by using the Systems Director Management Console.

If you do not have an HMC or SDMC, complete the following steps to replace a PCIe RAID and SSD SAS adapter with the system power on in the AIX environment:

Procedure

1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.

3. If you are removing a failing PCIe adapter, see . If you are removing the PCIe adapter for other reasons, continue to the next step.
4. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system, follow these steps to remove the service access cover.
 - a. Open the front rack door.
 - b. Place the system unit in the service position.
 - c. Remove or open the service access cover.
5. Locate the PCIe adapters you plan to remove.
6. Record the slot numbers and location of the adapter being removed.

Note: PCI RAID and SSD SAS adapter slots are 3 and 2.

7. Ensure that any processes or applications that might use the adapter are stopped.
8. Enter the system diagnostics by logging in as root user or as the celogin user, type **diag** at AIX command line.
9. When the DIAGNOSTIC OPERATING INSTRUCTIONS menu displays, press Enter.
10. At the FUNCTION SELECTION menu, select **Task Selection**, then press enter.
11. At the Task Selection list, select **PCI Hot Plug Manager**.
12. Select **Unconfigure a Device**, then press Enter.
13. Press F4 (or Esc +4) to display the **Device Names** menu.
14. Select the adapter you are removing in the **Device Names** menu.
15. Use the Tab key to answer YES to **Keep Definition**. Use the Tab key again to answer YES to **Unconfigure Child Devices**, then press Enter.
16. The **ARE YOU SURE** screen displays. Press Enter to verify the information. Successful unconfiguration is indicated by the OK message displayed next to the Command field at the top of the screen.
17. Press F3 (or Esc +3) twice to return to the **Hot Plug Manager** menu.
18. Select **Replace/remove PCI Hot Plug adapter**.
19. Select slot 3 as the slot that has the device to be removed from the system.
20. Select **Replace**.

Note: A fast-blinking amber LED located at the back of the machine near the adapter indicates that the slot has been identified.

21. Press Enter. This places the adapter in the action state, meaning that it is ready to be removed from the system.
22. Slide the adapter latch (**A**) into the open position, as shown in the following figure.

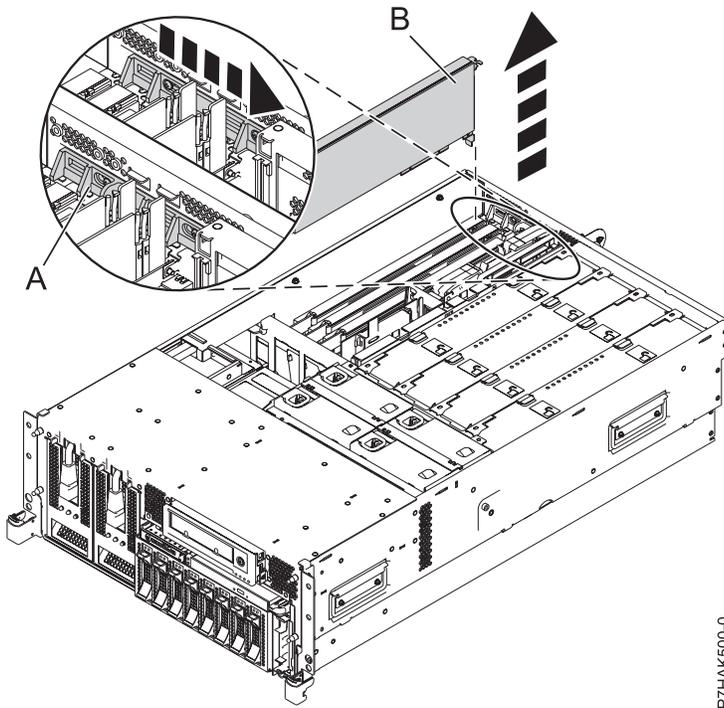


Figure 24. PCI adapter or filler plate removed from the rack-mounted system unit

23. Carefully grasp the PCIe adapter (B) by its top edge or upper corners, and remove it from the system. Store the adapter in a safe place.
24. If necessary, remove the replacement adapter from the antistatic package.

Attention: Avoid touching the components and gold connectors on the adapter.

25. Label the location of each SSD as you transfer the SSDs from the replaced adapter to the same location on the new adapter you are installing. For information about replacing SSDs, see Replacing an SSD module on the PCIe RAID and SSD SAS adapter. Repeat this step for each SSD.
26. After all SSDs have been transferred to the new adapter, carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
27. Press the adapter (A) firmly into its connector. See the following figure.

Attention: When you install an adapter into the system, be sure that it is completely and correctly seated in its connector.

28. Slide the adapter latch (B) back into place as shown in the following figure.

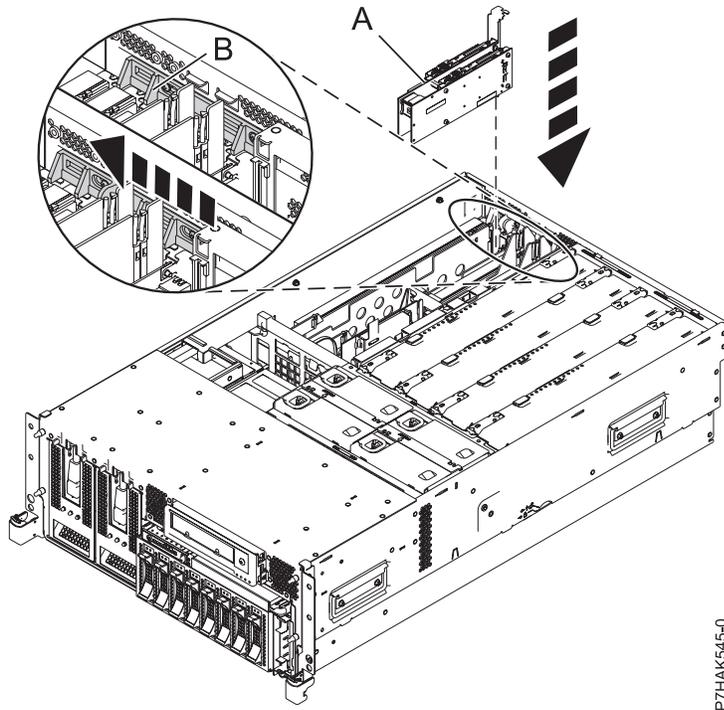


Figure 25. PCI RAID and SSD SAS adapter replaced in the rack-mounted system unit

29. Press enter and continue to follow the instructions in the system diagnostics until you receive a message that the replacement is successful. Successful replacement is indicated by the OK message displayed next to the **Command** field at the top of the menu.
30. Press the F3 (or Esc+3) key to return to the **PCI Hot-Plug Manager** menu.
31. Press the F3 (or Esc+3) key to return to the **TASK** selection list.
32. Select **Log Repair Action**.
33. Select the resource just replaced, press Enter, press Commit (F7 or ESC 7), then press Enter.
34. Press F3 (or Esc+3) to return to **TASK Selection List**.
35. Select **Hot Plug Task**, press enter.
36. Select **PCI Hot Plug Manager**, then select **Configure a defined device**, then press Enter.
37. Select the device just replaced from the list, then press Enter. The device is now configured.
38. Press the F10 key to exit the diagnostic program.

Note: If you are running the stand-alone diagnostics, do not exit the program completely.

39. Verify the PCIe adapter by using the following instructions:
 - a. Did you replace the adapter with the system power on?
 - Yes - Go to the next step.
 - No - Load the diagnostic program by doing the following:
 - If AIX is available, boot AIX, log in as root or CELOGIN, then enter the **diag** command.
 - If AIX is not available, boot the stand-alone diagnostics
 - b. Type the **diag** command if you are not already displaying the diagnostic menus
 - c. Select **Advance Diagnostic Routines**, then select **Problem Determination**.
 - d. Select the name of the resource just replaced from the menu. If the resource just replaced is not shown, choose the resource associated with it. Press Enter, then press **Commit** ((F7 or Esc+7)).
 - e. Did the Problem Determination identify any problems?

- No: Continue to the next step.
 - Yes: A problem is identified
 - If you are a customer, record the error information, then contact your service provider.
 - If you are an authorized service provider, return to map 210-5.
40. Press the F10 key to exit the diagnostic program.
 41. Replace or close the service access cover and, if applicable, return the system to the operating position.
 42. Verify the installed part or repair.
 - If you replaced the part because of a service action, verify the installed part as described in .
 - If you installed the part for any other reason, verify the installed part as described in .

Related information:

 SAS RAID enablement and cache battery pack

Replacing a PCI RAID and SSD SAS adapter in the 33E/8B and 36E/8C server with the power on in the Linux environment

You can replace a PCI RAID and SSD SAS adapter with the system power on in the Linux environment.

About this task

Use this procedure if you intend to remove a failing PCI RAID and SSD SAS adapter and replace it with the same type of adapter. The PCIe RAID and SSD SAS adapter is a double-wide adapter. Although it plugs into a single PCIe slot, two adjacent PCIe slots are required for installation.

You must have already completed the procedure “Removing a PCIe RAID and SSD SAS adapter from the 33E/8B and 36E/8C server, with the power on in the Linux environment” on page 36.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for replacing a PCIe RAID and SSD SAS adapter.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to replace the PCIe RAID and SSD SAS adapter in the server. For instructions, see Replacing a part by using the Systems Director Management Console.

If you do not have an HMC or SDMC, complete the following steps to replace a PCIe RAID and SSD SAS adapter with the system power on in the Linux environment:

Procedure

1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. If necessary, remove the PCIe adapter from the antistatic package.

Attention: Avoid touching the components and gold connectors on the adapter.

4. Place the adapter, component-side up, on a flat, static-protective surface.
5. Label the location of each SSD as you transfer the SSDs from the replaced adapter to the same location on the new adapter you are installing. For information about replacing SSDs, see Replacing an SSD module on the PCIe RAID and SSD SAS adapter. Repeat this step for each SSD.
6. Run the **drmgr** command to enable an adapter to be replaced:

For example, to replace the PCI adapter in slot U7879.001.DQD014E-P1-C3 run this command:

```
drmgr -c pci -r -s locationcode
```

Follow the instructions on the display to complete the task.

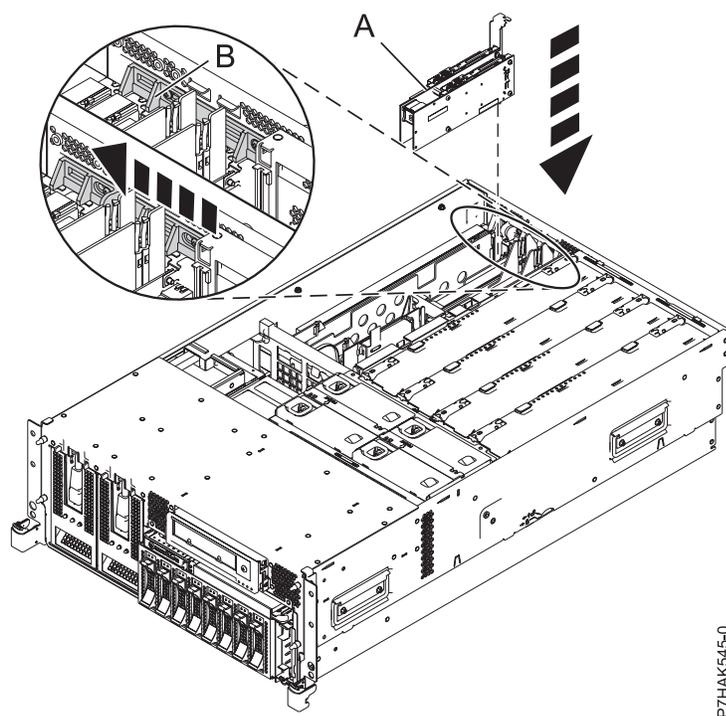
7. Press the adapter firmly into its connector.

Attention: When you install an adapter into the system, be sure that it is completely and correctly seated in its connector.

8. Carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
9. Press the adapter (**A**) firmly into its connector.

Attention: When you install an adapter into the system, be sure that it is completely and correctly seated in its connector.

10. Slide the adapter latch (**B**) back into place as shown in the following figure.



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Figure 26. PCI RAID and SSD SAS adapter replaced in the rack-mounted system unit

11. Run the `lsslot` command to verify that the slot is occupied.

For example, Enter `lsslot -c pci -s U7879.001.DQD014E-P1-C3`

The following is an example of the information displayed by this command:

```
# Slot      Description      Device(s)
U7879.001.DQD014E-P1-C3 PCI-X capable, 64 bit, 133MHz slot 0001:40:01.0
```

12. If you are servicing a rack-mounted system, route the cables through the cable-management arm.
13. Replace or close the service access cover and, if applicable, return the system to the operating position.
14. Verify the installed part or repair.
 - If you replaced the part because of a service action, verify the installed part as described in .
 - If you installed the part for any other reason, verify the installed part as described in .

Related information:

 [SAS RAID enablement and cache battery pack](#)

Model 33E/8B and 36E/8C PCI adapter dividers

You might need to remove, replace, or install PCI adapter dividers. Use the procedures in this section to perform these tasks.

Removing a PCI adapter divider from the 33E/8B and 36E/8C server

You can remove a PCI adapter divider.

About this task

The following procedure describes the removal of PCI adapter dividers with the system power off. This procedure can be done with the system power on by omitting the steps related to powering off the system.

To remove a divider, do the following steps:

Procedure

1. Perform prerequisite tasks as described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. Stop the system or logical partition. See Stop the system or logical partition.
4. Disconnect the power source from the system by unplugging the system.
5. Remove the unit's cover if you are installing or removing a PCI adapter divider.
6. Slide the adapter latch (**A**) into the open position, as shown in the following figure.

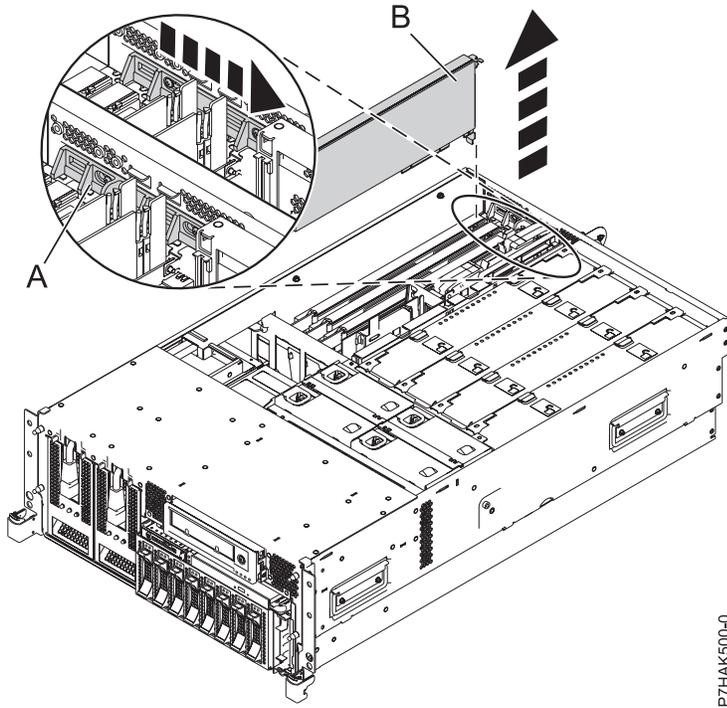


Figure 27. PCI adapter or filler plate removed from the rack-mounted system unit

7. Flex the front edge (**A**) of the PCI adapter divider out of the bracket and toward the rest of the divider.
8. Pull the back edge of the divider away from the retention notches (**B**).

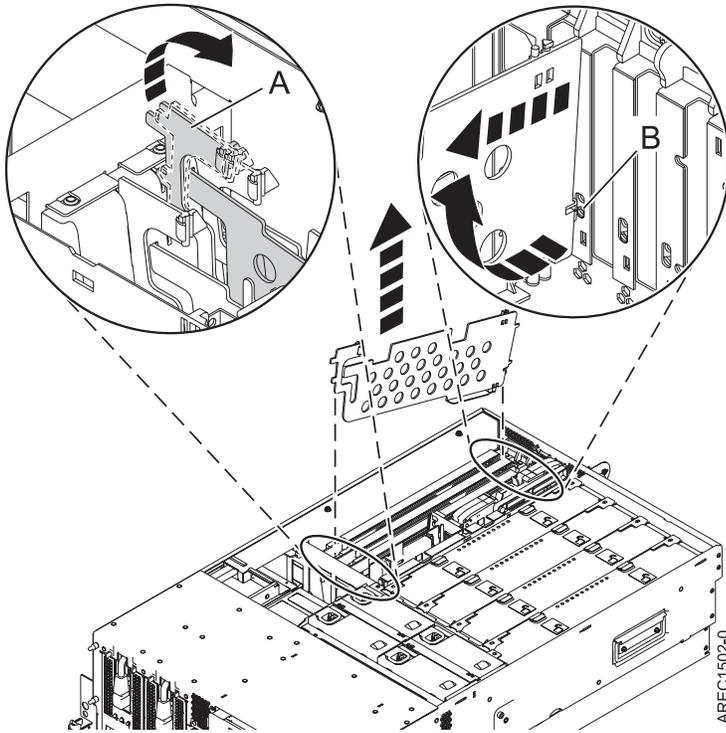


Figure 28. PCI-adapter divider removed from the system unit

9. If you are removing the PCI adapter divider as part of another procedure, return to that procedure now. To replace the divider, see “Installing a PCI adapter divider in the 33E/8B and 36E/8C server” on page 49. To close up the system, continue to the next step.
10. Slide the adapter latch (**B**) back into place as shown in the following figure.

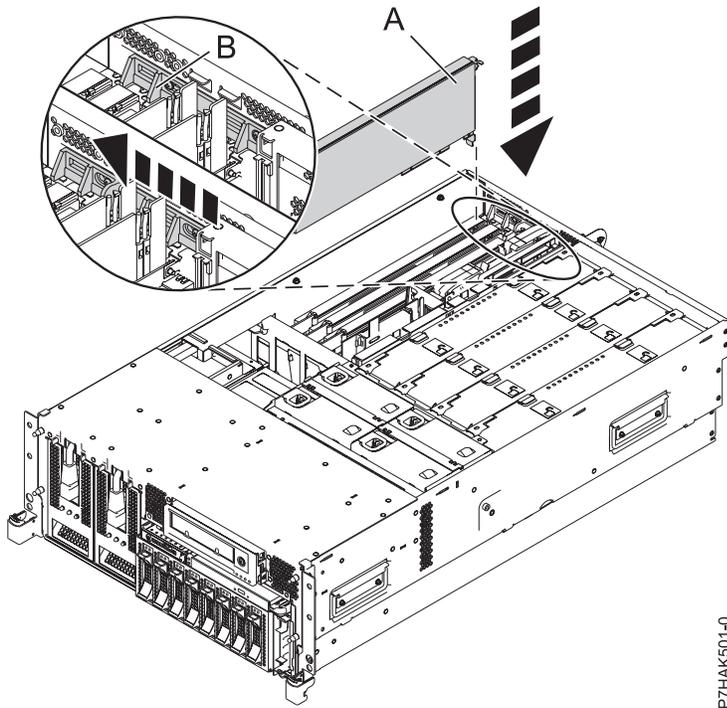


Figure 29. PCI adapter replaced in the rack-mounted system unit

11. Replace or close the service access cover and, if applicable, return the system to the operating position.
12. Reconnect the power source to the system.
13. Start the system or logical partition. Refer to Start the system or logical partition.

Installing a PCI adapter divider in the 33E/8B and 36E/8C server

You can install a PCI adapter divider.

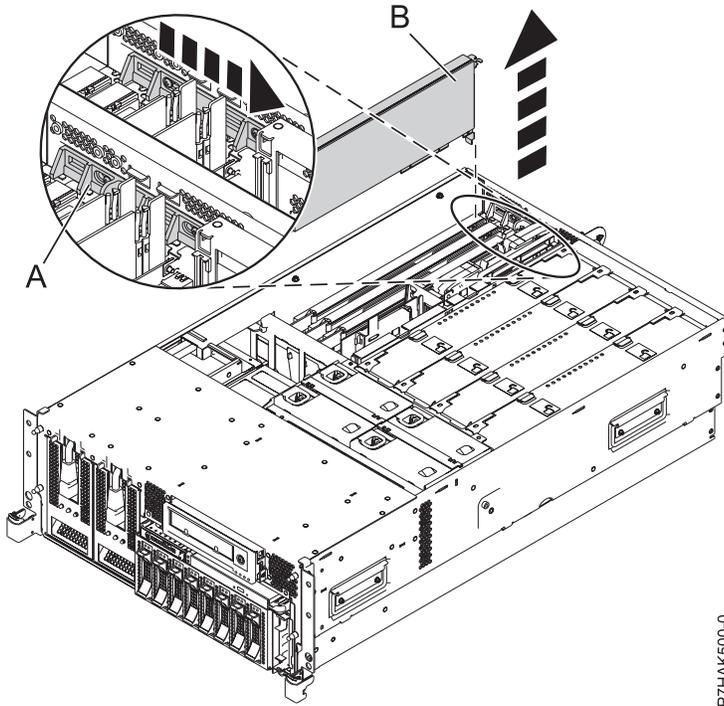
About this task

The following procedure describes the installation of a PCI adapter divider with the system power off. This procedure can be done with the system power on by omitting the steps related to powering on the system.

To install a divider, do the following steps:

Procedure

1. Locate the PCI adapter divider slot that you want to use. To access the divider slots, see the first 6 steps in “Removing a PCI adapter divider from the 33E/8B and 36E/8C server” on page 46.
2. Slide the adapter latch (A) into the open position, as shown in the following figure.



P7HAK500-0

Figure 30. PCI adapter or filler plate removed from the rack-mounted system unit

3. Carefully grasp the PCI adapter divider by its top edge and align the back edge of the divider with the retention notches (**A**).
4. Insert the front edge of the divider (**B**) into the slots and then press the divider into place.

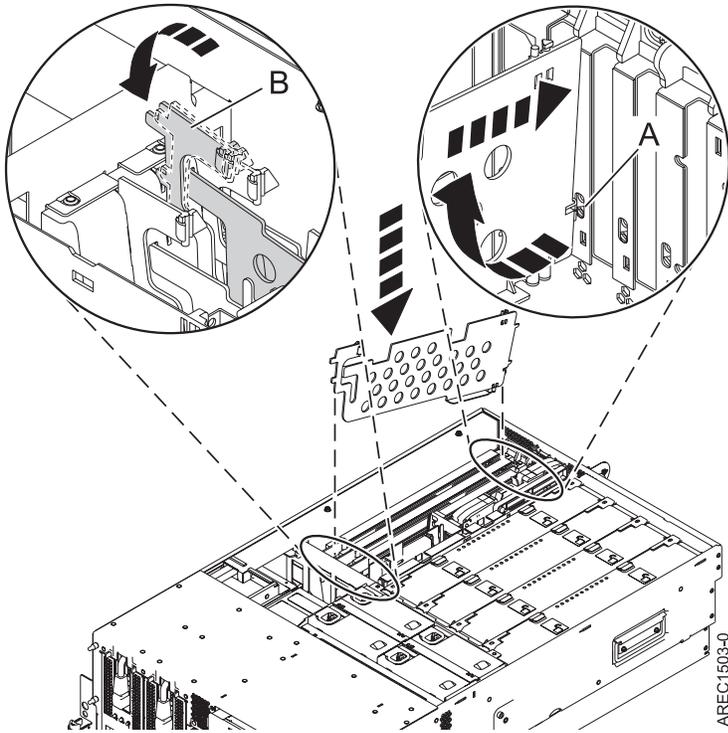


Figure 31. PCI-adapter divider replaced in the system unit

5. Slide the adapter latch (B) back into place as shown in the following figure.

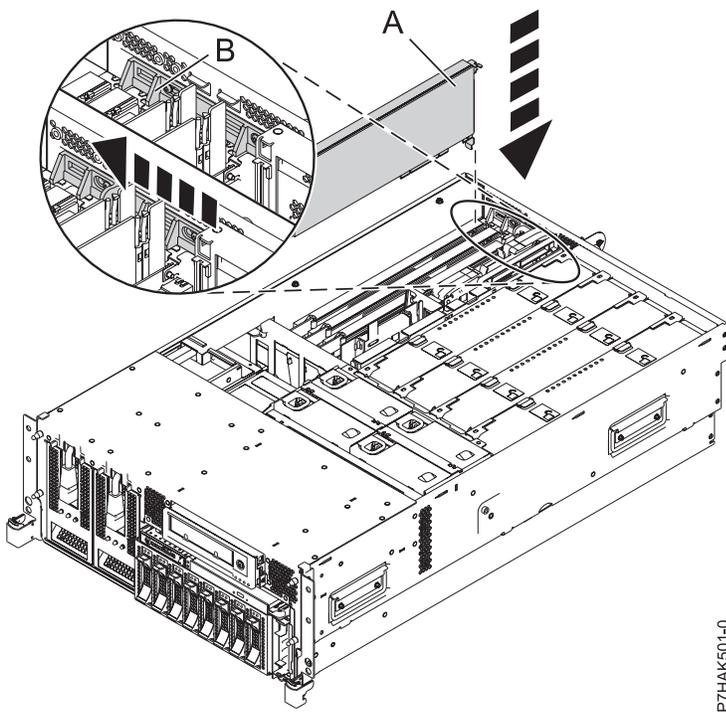


Figure 32. PCI adapter replaced in the rack-mounted system unit

6. Replace or close the service access cover and, if applicable, return the system to the operating position.
7. Reconnect the power source to the system.
8. Start the system or logical partition. Refer to Start the system or logical partition.

Model 57/96 expansion units, PCI adapters and cassettes

You can remove, replace, or install PCI adapter cassettes.

Important:

- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in OS logical partitions will post errors at initial program load (IPL) if there is no device or wrap plug attached to each of the adapter's ports. Make sure that every Fibre Channel Adapter (2766, 2787, 280E, 5735, 576B, or 5774) that is installed in OS logical partition has either a wrap plug or a device attached to each of the adapter's ports. If you are exchanging a 2766, 2787, 280E, 5735, 576B, or 5774 Fibre Channel IOA, the external storage subsystem must be updated to use the worldwide port name of the new 2766, 2787, 280E, 5735, 576B, or 5774 IOA. For instructions, see "Updating the worldwide port name for a new 2766, 2787, 280E, 5735, 576B, or 5774 IOA." on page 154
- If you are replacing a 2748, 2757, 2763, 2767, 2778, 2780, 2782, 5702, 5709, or 570B storage IOA, take note of the following: Depending on the configuration of the system, the storage IOA cache might have been disabled to allow the attachment of OEM storage that emulates a load source drive. If you are replacing a storage IOA that has its cache disabled, configure the replacement IOA the same way as the IOA that you removed. If you remove hardware from the replacement IOA, return that hardware with the failed IOA.

Installing a PCI adapter contained in a cassette

You can install a PCI adapter.

Installing a PCI adapter contained in a cassette with the power off

You can install a PCI adapter.

About this task

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing a PCI adapter. For instructions, see Installing a feature using the Hardware Management Console.

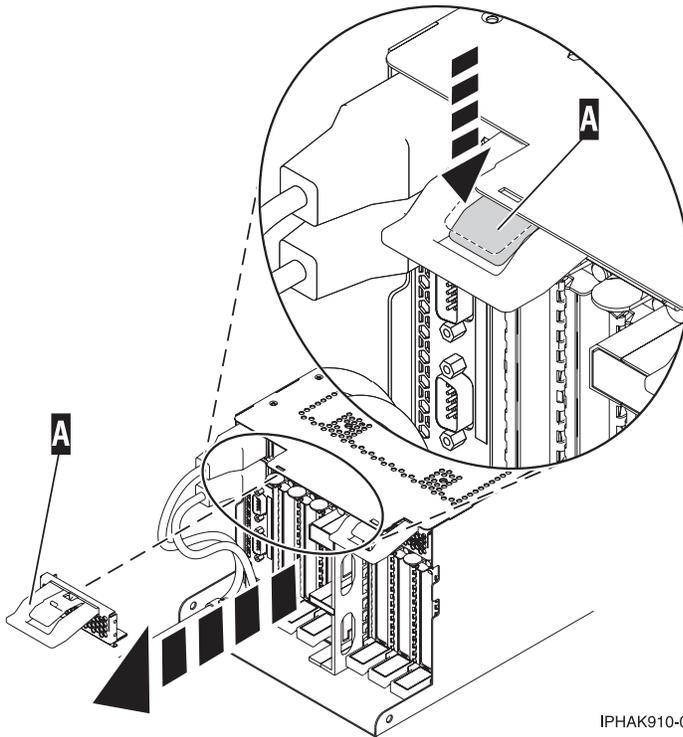
If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to install features in the server. For instructions, see Installing a feature by using the Systems Director Management Console.

If you do not have an HMC or SDMC, complete this procedure to install a PCI adapter, complete the following steps to install a PCI adapter with the system power off:

Procedure

1. Perform prerequisite tasks as described in "Before you begin" on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Safety notices" on page 140 and "Handling static-sensitive devices" on page 145.
3. To determine in which slot to place the PCI adapter, refer to the placement guide for information regarding slot restrictions for the adapters that can be used in this system.
4. Stop the system or logical partition. See Stop the system or logical partition.
5. Disconnect the power source from the system by unplugging the system.
6. Determine the location of PCI adapter in the system.

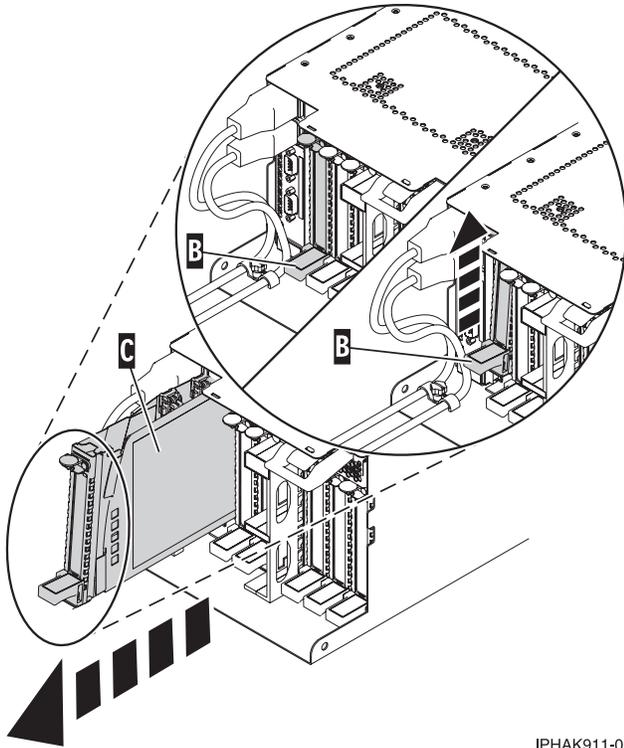
7. Remove the PCI adapter cassette as described in the following substeps.
 - a. Remove the PCI adapter EMC shield (**A**) as shown in the following figure.



IPHAK910-0

Figure 33. Remove the EMC shield

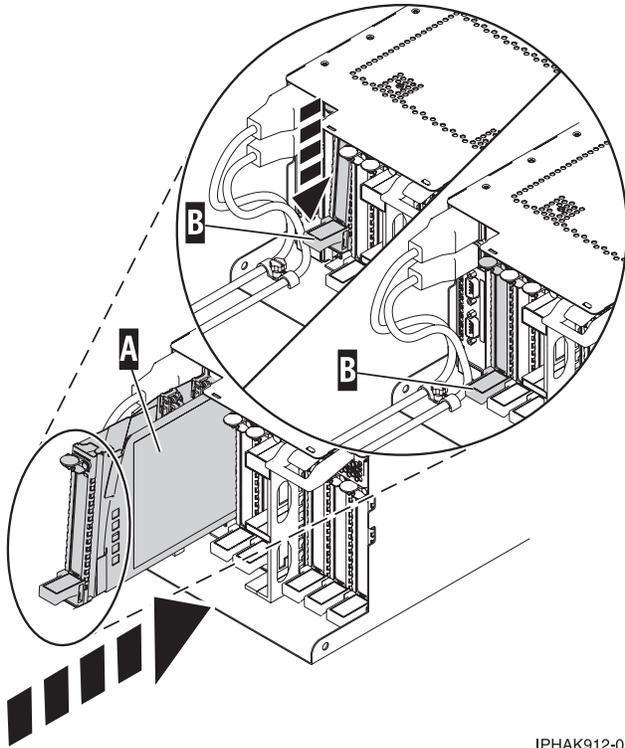
- b. Lift up the lower cassette handle (**B**) as shown in the following figure. Pull the PCI cassette (**C**) out of the system.



IPHAK911-0

Figure 34. PCI adapter cassette removed from the system unit

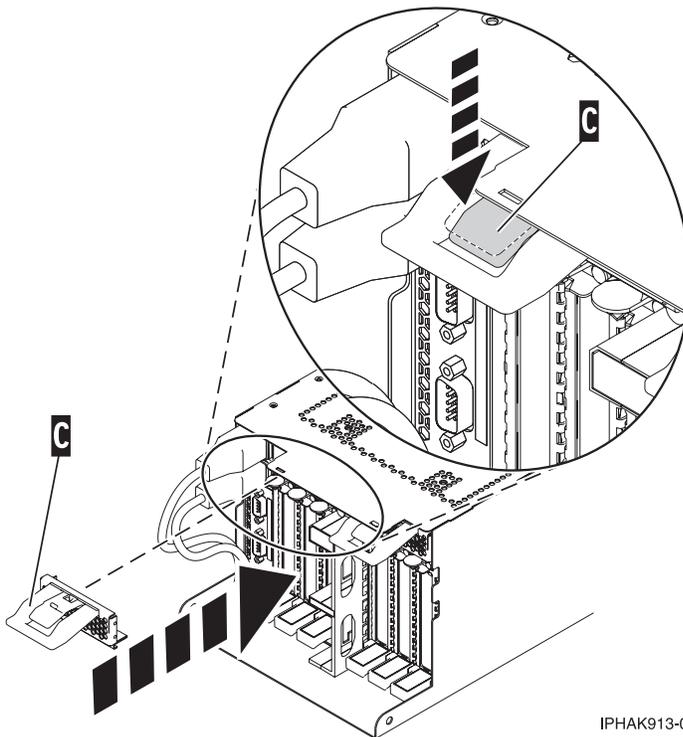
8. Install the adapter into the PCI adapter cassette. See the following topics:
 - “PCI adapter single-width, third generation cassette” on page 82
 - “PCI adapter double-wide cassette” on page 95
9. Ensure the lower cassette handle is pressed up toward the retainer clip. This places the adapter in the correct position to be locked in the system.
10. Install the PCI adapter cassette as described in the following substeps:
 - a. Slide the cassette (**B**) into the cassette slot as shown in the following figure. When the cassette is fully inserted into the system, firmly press downward on the lower cassette handle (**B**) to lock the adapter in its connector.



IPHAK912-0

Figure 35. PCI adapter cassette installed in the system unit

- b. Replace the EMC shield (C) as shown in the following figure.



IPHAK913-0

Figure 36. PCI adapter EMC shield in the closed position

11. Start the system or logical partition. Refer to Start the system or logical partition.
12. Verify that the new resource is functional. See Verify the installed part.

Installing a PCI adapter contained in a cassette with the power on in the AIX environment

You can install a PCI adapter with the power on in the AIX environment.

About this task

If your system is managed by the Hardware Management Console (HMC), use the HMC to install a PCI adapter. For instructions, see Installing a feature using the Hardware Management Console.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to install features in the server. For instructions, see Installing a feature by using the Systems Director Management Console.

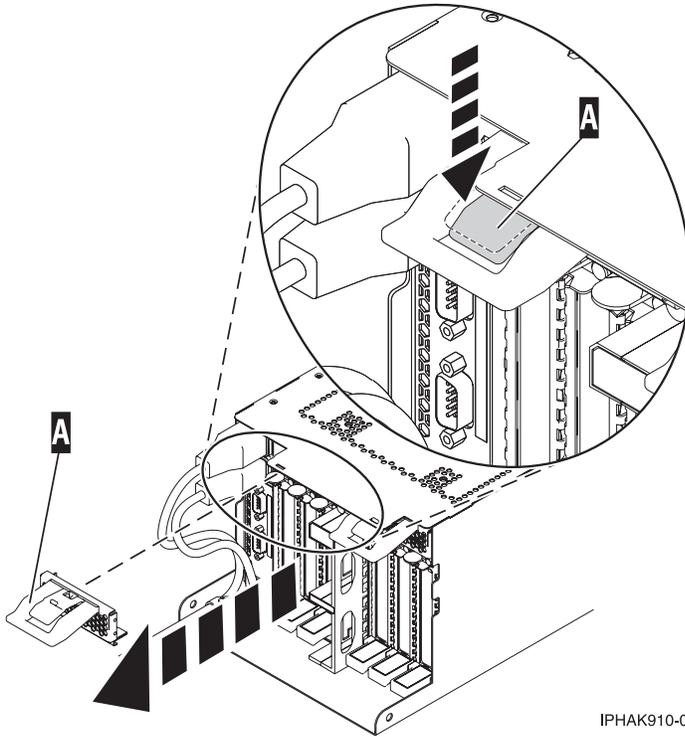
Notes:

- If the system is partitioned, you must determine the partition owning the I/O slot. Once the adapter is installed, the I/O slot must be powered on in the operating system.
- If an I/O slot on a partitioned system is not owned by a partition, then the I/O slot cannot be powered on.
- Adding an I/O slot to a partition using dynamic logical partitioning (DLPAR) will power on the I/O slot as part of the DLPAR add. For information about DLPAR, see Dynamic Logical Partitioning.
- To learn more about working in a partitioned environment, see Logical partitioning.

If you do not have an HMC or SDMC, complete the following steps to install a PCI adapter with the system power on in the AIX environment:

Procedure

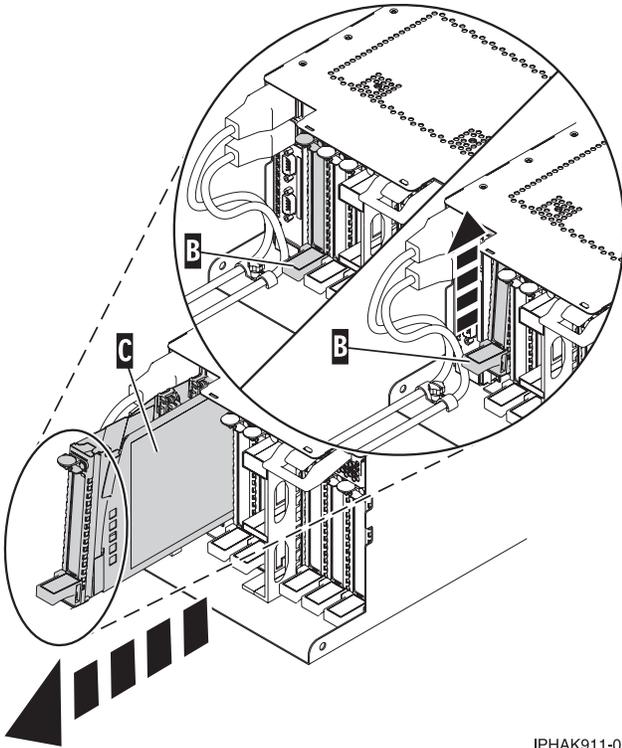
1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. To determine in which slot to place the PCI adapter, refer to the placement guide for information regarding slot restrictions for the adapters that can be used in this system.
4. Refer to “PCI hot-plug manager access for AIX” on page 150, and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.
5. From the PCI Hot-Plug Manager menu, select **Add a PCI Hot-Plug Adapter** and press Enter. The Add a Hot-Plug Adapter window displays.
6. Select the appropriate PCI slot from the ones listed on the screen, and press Enter.
7. Locate the PCI adapter slot and cassette you want to use.
8. If the cassette you want to use does not contain a PCI adapter, continue to the next step. If the cassette you want to use does contain an active PCI adapter, see “Removing a PCI adapter contained in a cassette from the system with the power on in the AIX environment” on page 66.
9. Remove the PCI adapter cassette as described in the following substeps.
 - a. Remove the PCI adapter EMC shield (**A**) as shown in the following figure.



IPHAK910-0

Figure 37. Remove the EMC shield

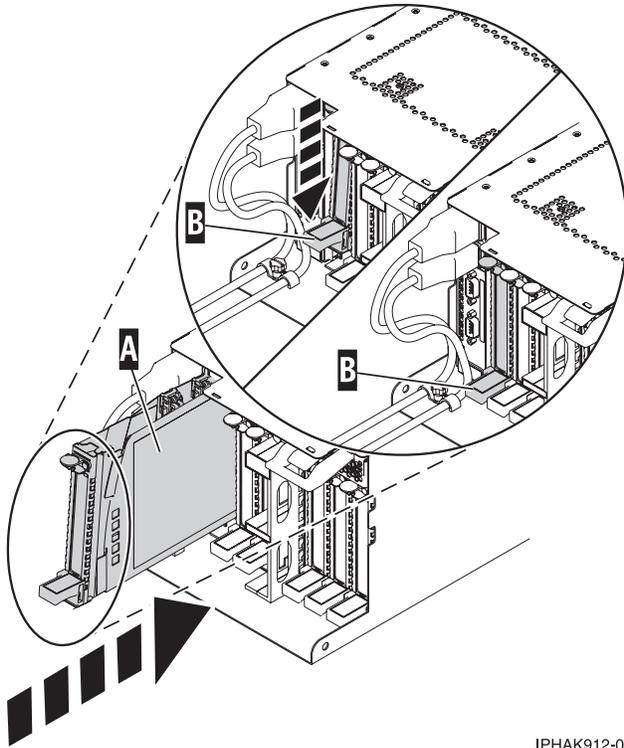
- b. Lift up the lower cassette handle (B) as shown in the following figure. Pull the PCI cassette (C) out of the system.



IPHAK911-0

Figure 38. PCI adapter cassette removed from the system unit

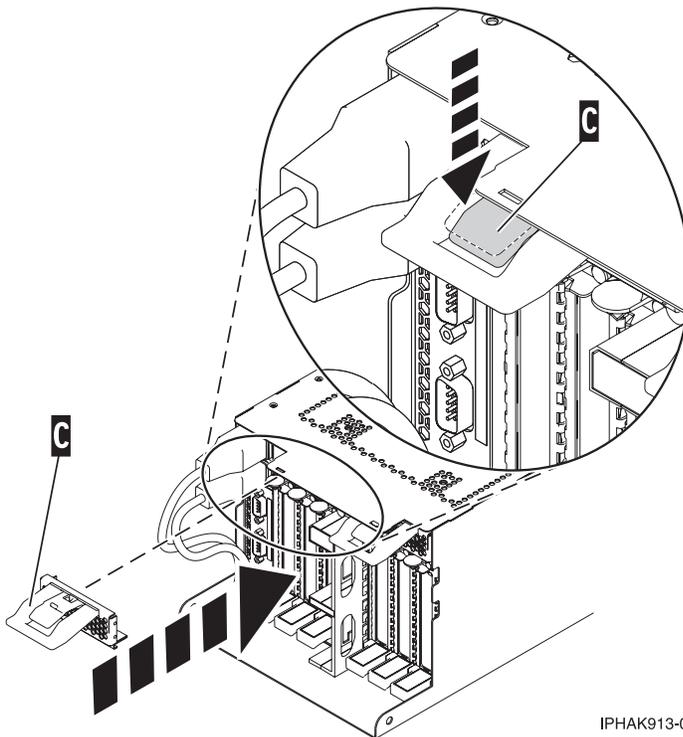
10. Install the adapter into the PCI adapter cassette. See the following topics:
 - “PCI adapter single-width, third generation cassette” on page 82
 - “PCI adapter double-wide cassette” on page 95
11. Ensure the lower cassette handle is pressed up toward the retainer clip. This places the adapter in the correct position to be docked in the system.
12. Install the PCI adapter cassette as described in the following substeps: If not, skip to step 13 on page 60
 - a. Slide the cassette (**B**) into the cassette slot as shown in the following figure. When the cassette is fully inserted into the system, firmly press downward on the lower cassette handle (**B**) to lock the adapter in its connector.



IPHAK912-0

Figure 39. PCI adapter cassette installed in the system unit

- b. Replace the EMC shield (C) as shown in the following figure.



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Figure 40. PCI adapter EMC shield in the closed position

13. Run the `cfgmgr` command to configure the adapter.
14. Verify that the new resource is functional. See Verify the installed part.

Results

Installing a PCI adapter contained in a cassette with the power on in the Linux environment

You can install a PCI adapter with the power on in the Linux environment.

About this task

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing a PCI adapter. For instructions, see Installing a feature using the Hardware Management Console.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to install features in the server. For instructions, see Installing a feature by using the Systems Director Management Console.

Notes:

- If the system is partitioned, you must determine the partition owning the I/O slot. Once the adapter is installed, the I/O slot must be powered on in the operating system.
- If an I/O slot on a partitioned system is not owned by a partition, then the I/O slot cannot be powered on.
- Adding an I/O slot to a partition using dynamic logical partitioning (DLPAR) will power on the I/O slot as part of the DLPAR add. For information about DLPAR, see Dynamic Logical Partitioning.
- To learn more about working in a partitioned environment, see Logical partitioning.

If you do not have an HMC or SDMC, complete the following steps to install a PCI adapter with the system power on in the Linux environment:

Procedure

1. Perform prerequisite tasks as described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. To determine in which slot to place the PCI adapter, refer to the placement guide for information regarding slot restrictions for the adapters that can be used in this system.
4. Log in to the system console as the root user.
5. Use the `lsslot` tool to list the hot-plug PCI slots that are available in the server or partition:

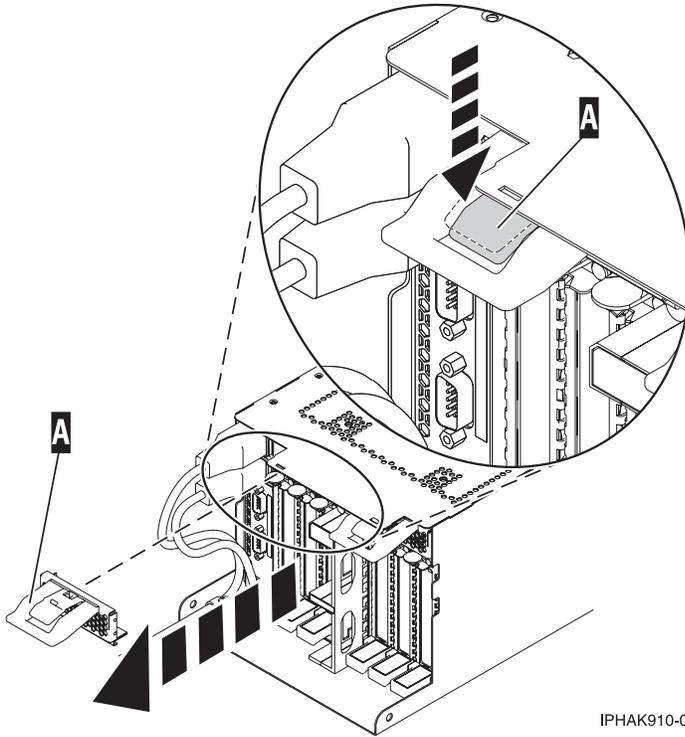
```
lsslot -c pci -a
```

The following is an example of the information displayed by this command:

```
# Slot      Description      Device(s)
U7879.001.DQD014E-P1-C1 PCI-X capable, 64 bit, 133MHz slot Empty
U7879.001.DQD014E-P1-C4 PCI-X capable, 64 bit, 133MHz slot Empty
U7879.001.DQD014E-P1-C5 PCI-X capable, 64 bit, 133MHz slot Empty
```

Select the appropriate empty PCI slot from the ones listed by the command.

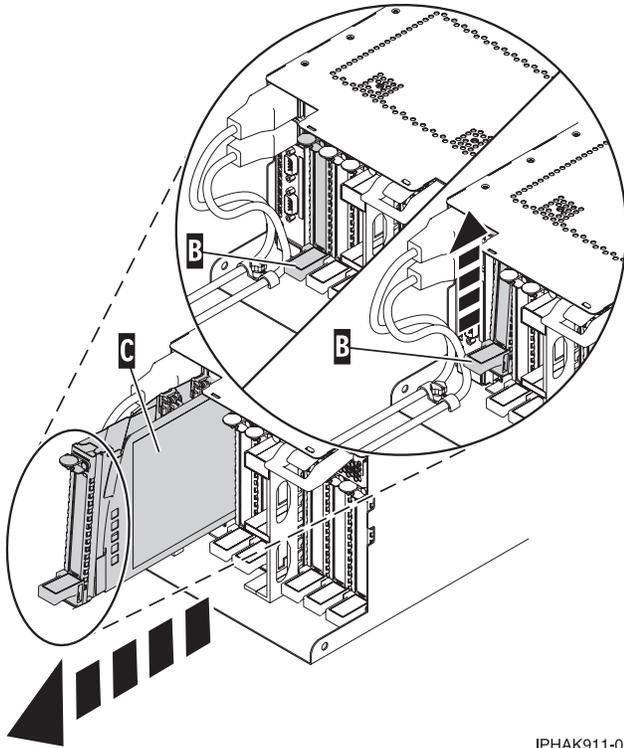
6. Remove the PCI adapter cassette as described in the following substeps.
 - a. Remove the PCI adapter EMC shield (**A**) as shown in the following figure.



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Figure 41. Remove the EMC shield

- b. Lift up the lower cassette handle (B) as shown in the following figure. Pull the PCI cassette (C) out of the system.



IPHAK911-0

Figure 42. PCI adapter cassette removed from the system unit

7. Install the adapter into the PCI adapter cassette. See the following topics:
 - “PCI adapter single-width, third generation cassette” on page 82
 - “PCI adapter double-wide cassette” on page 95
8. Ensure the lower cassette handle is pressed up toward the retainer clip. This places the adapter in the correct position to be locked in the system.
9. Run the **drmgr** command to enable an adapter to be installed.

For example, to install an adapter in slot U7879.001.DQD014E-P1-C3, run:

```
drmgr -c pci -r -s locationcode
```

The following displays:

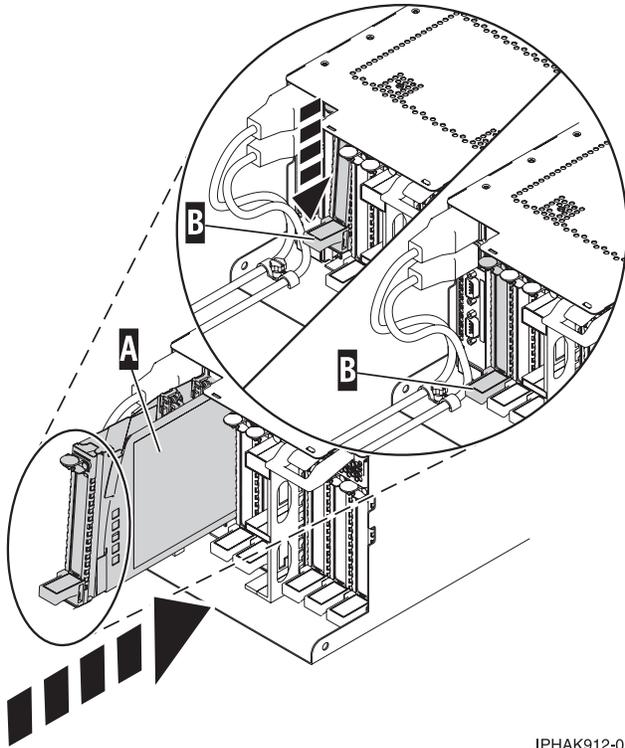
The visual indicator for the specified PCI slot has been set to the identify state. Press Enter to continue or enter x to exit.

10. Press Enter.

The following displays:

The visual indicator for the specified PCI slot has been set to the action state. Insert the PCI card into the identified slot, connect any devices to be configured and press Enter to continue. Enter x to exit.

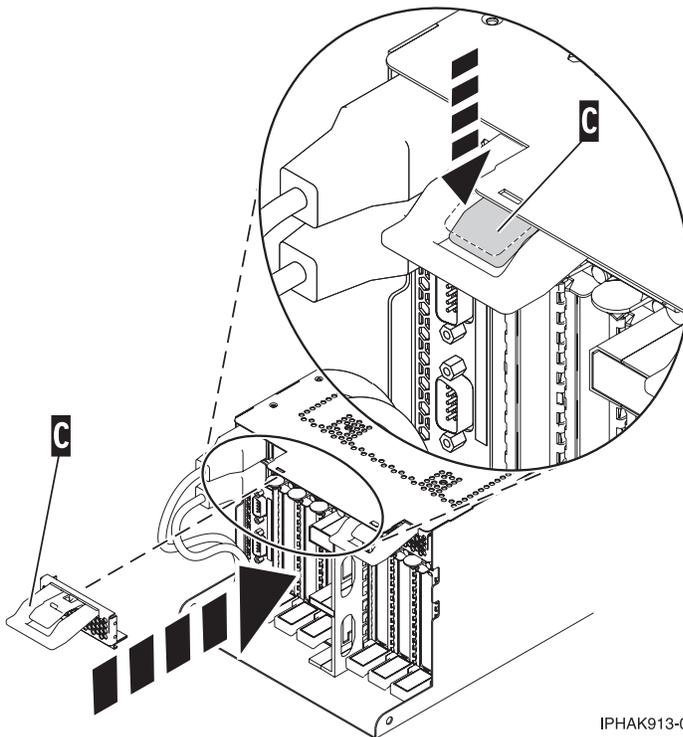
11. Install the PCI adapter cassette as described in the following substeps: If not, skip to step 12 on page 64.
 - a. Slide the cassette (**B**) into the cassette slot as shown in the following figure. When the cassette is fully inserted into the system, firmly press downward on the lower cassette handle (**B**) to lock the adapter in its connector.



IPHAK912-0

Figure 43. PCI adapter cassette installed in the system unit

- b. Replace the EMC shield (C) as shown in the following figure.



IPHAK913-0

Figure 44. PCI adapter EMC shield in the closed position

12. Use the `lsslot` command to verify that U7879.001.DQD014E-P1-C3 is occupied.

Enter `lsslot -c pci -s U7879.001.DQD014E-P1-C3`

The following is an example of the information displayed by this command:

# Slot	Description	Device(s)
U7879.001.DQD014E-P1-C3	PCI-X capable, 64 bit, 133MHz slot	0001:40:01.0

Removing a PCI adapter contained in a cassette from the system

You can remove a PCI adapter.

Removing a PCI adapter contained in a cassette from the system with the power off

You can remove a PCI adapter with the system power off.

About this task

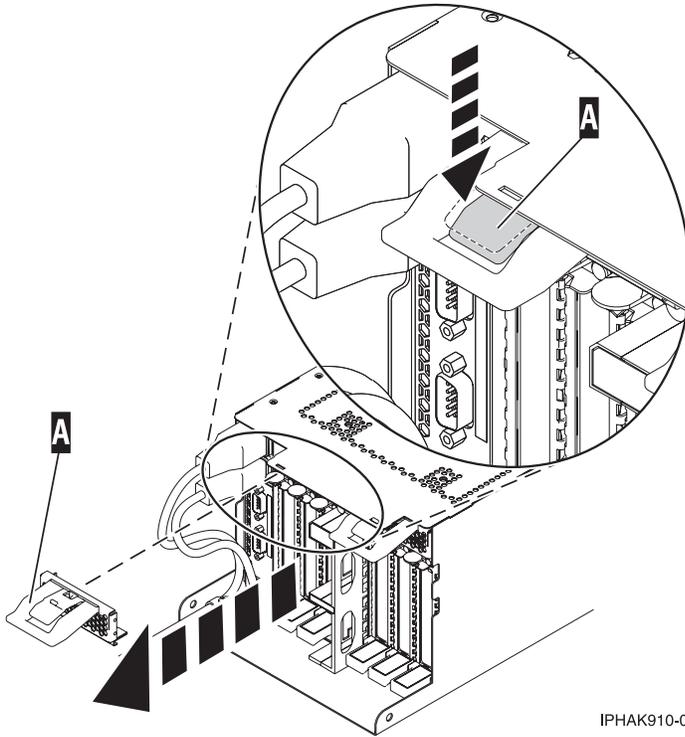
If your system is managed by the Hardware Management Console (HMC), use the HMC to remove a PCI adapter. For instructions, see “Removing a part by using the HMC” on page 155.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For instructions, see Removing a part by using the Systems Director Management Console.

If you do not have an HMC or SDMC, complete the following steps to remove a PCI adapter with the system power off:

Procedure

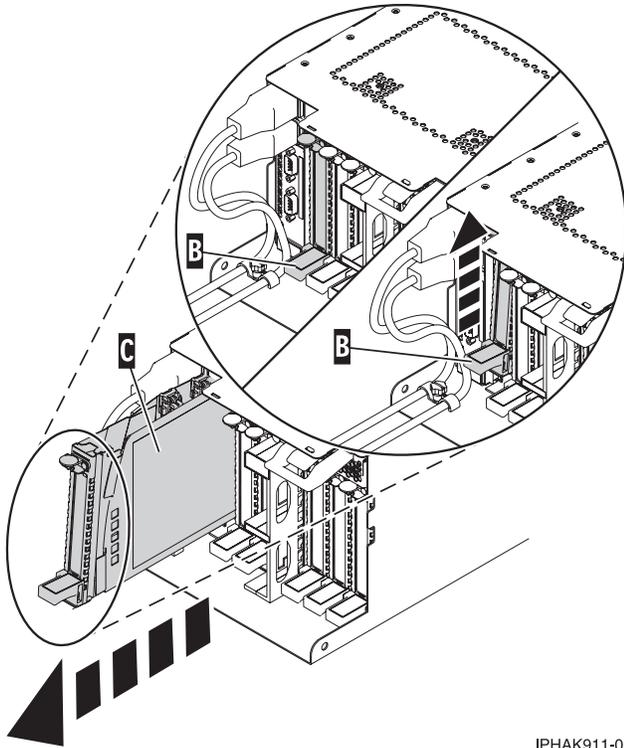
1. Perform the prerequisite tasks as described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. Stop the system or logical partition. See Stop the system or logical partition.
4. Disconnect the power source from the system by unplugging the system.
5. Determine the location of PCI adapter in the system.
6. Remove the PCI adapter cassette from the system. Follow these substeps:
 - a. Remove the PCI adapter EMC shield (A) as shown in the following figure.



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Figure 45. Remove the EMC shield

- b. Lift up the lower cassette handle (B) as shown in the following figure. Pull the PCI cassette (C) out of the system.



IPHAK911-0

Figure 46. PCI adapter cassette removed from the system unit

7. Place the cassette with the cover facing up on an approved ESD surface.

Note: The cover will have a label on it.

8. To remove the adapter from the cassette, refer to “PCI adapter single-width and double-width cassettes” on page 114.

Removing a PCI adapter contained in a cassette from the system with the power on in the AIX environment

You can remove a PCI adapter with the system power on in the AIX environment.

About this task

Notes:

1. Use this procedure to remove a PCI adapter and leave the slot in the system unit empty.
2. If the adapter that is removed will be placed into a different slot or system, complete this removal procedure, then install the adapter as described in “Installing a PCI adapter contained in a cassette with the power on in the AIX environment” on page 56.
3. Procedures performed on a PCI adapter with the system power on in AIX, also known as hot-plug procedures, require the system administrator to take the PCI adapter offline prior to performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

If your system is managed by the Hardware Management Console (HMC), use the HMC to remove a PCI adapter. For instructions, see “Removing a part by using the HMC” on page 155.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For instructions, see Removing a part by using the Systems Director Management Console.

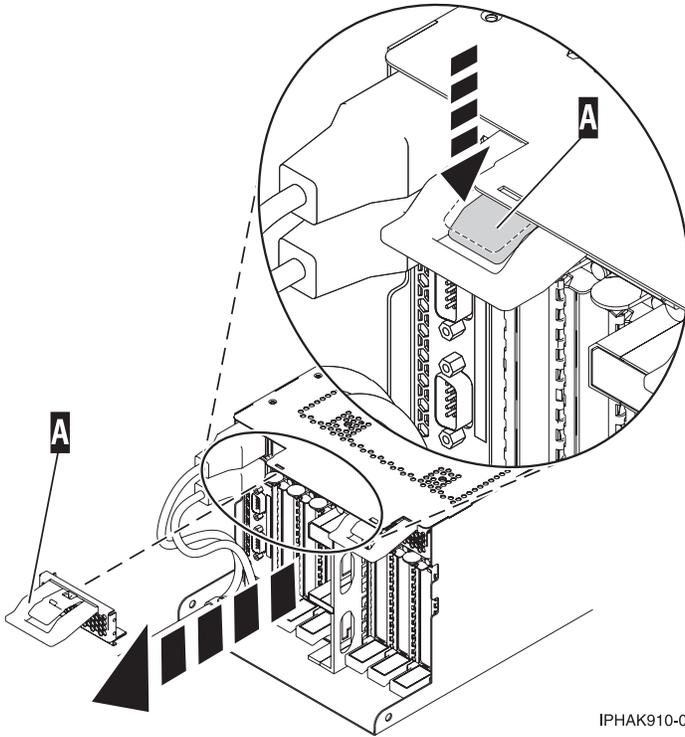
If you do not have an HMC or SDMC, complete the following steps to remove a PCI adapter with the system power on in the AIX environment:

Procedure

1. Perform the prerequisite tasks as described in “Before you begin” on page 132.
2. Determine the location of PCI adapter in the system.
3. Record the slot number and location of each adapter being removed.

Note: Adapter slots are numbered on the rear of the system unit.

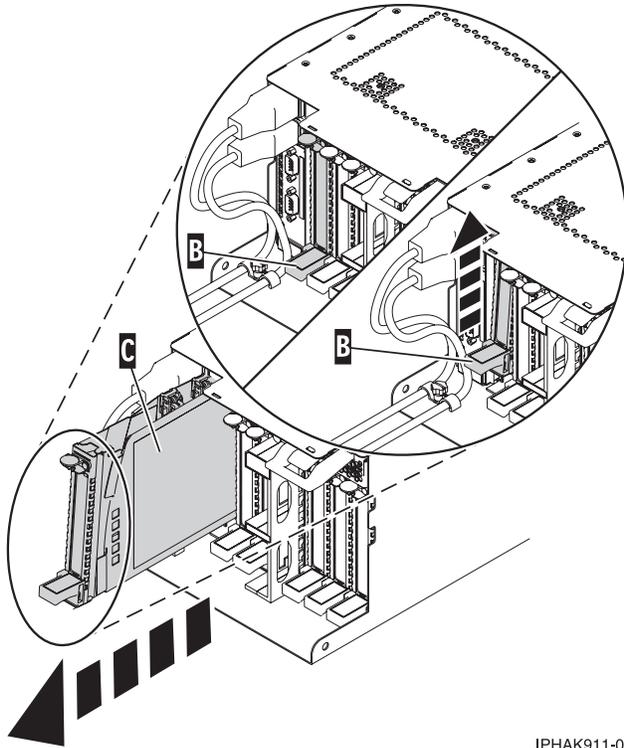
4. Ensure that any processes or applications that might use the adapter are stopped.
5. Enter the system diagnostics by logging in as root user or as the celogin user, type **diag** at AIX command line.
6. When the DIAGNOSTIC OPERATING INSTRUCTIONS menu displays, press Enter.
7. At the FUNCTION SELECTION menu, select **Task Selection**, then press enter.
8. At the Task Selection list, select **PCI Hot Plug Manager**.
9. Select **Unconfigure a Device**, then press Enter.
10. Press F4 (or Esc +4) to display the **Device Names** menu.
11. Select the adapter you are removing in the **Device Names** menu.
12. Use the Tab key to answer N0 to **Keep Definition**. Use the Tab key again to answer YES to **Unconfigure Child Devices**, then press Enter. The **ARE YOU SURE** screen displays.
13. Press Enter to verify the information. Successful unconfiguration is indicated by the OK message displayed next to the Command field at the top of the screen.
14. Press F4 (or Esc +4) twice to return to the **Hot Plug Manager** menu.
15. Select **replace/remove PCI Hot Plug adapter**.
16. Select the slot that has the device to be removed from the system.
17. Select **remove**. A fast-blinking amber LED located at the back of the machine near the adapter indicates that the slot has been identified.
18. Label all cables attached to the adapter you plan to remove.
19. Press Enter. This places the adapter in the action state, meaning it is ready to be removed from the system.
20. Disconnect all cables attached to the adapter you plan to remove.
21. Before handling any PCI adapter, see “Handling static-sensitive devices” on page 145.
22. Remove the PCI adapter cassette from the system. Follow these substeps:
 - a. Remove the PCI adapter EMC shield (**A**) as shown in the following figure.



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Figure 47. Remove the EMC shield

- b. Lift up the lower cassette handle (B) as shown in the following figure. Pull the PCI cassette (C) out of the system.



IPHAK911-0

Figure 48. PCI adapter cassette removed from the system unit

23. Place the cassette with the cover facing up on an approved ESD surface.

Note: The cover will have a label on it.

24. Continue to follow the screen instructions until you receive a message that the adapter removal is successful. Successful removal is indicated by the OK message displayed next to the Command field at the top of the screen.
25. If you have other adapters to remove, press the F3 key to return to the PCI Hot-Plug Manager menu and then return to step 20 on page 67.
or
If you do not have other adapters to remove, continue with the next step.
26. Press F10 to exit the Hot-Plug Manager.
27. Run the **diag -a** command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.
28. Place an empty cassette into the unused PCI slot for proper air flow. The procedure is complete.
 - To install an adapter in the system, see “Installing a PCI adapter contained in a cassette with the power on in the AIX environment” on page 56.

Removing a PCI adapter contained in a cassette from the system with the power on in the Linux environment

You can remove a PCI adapter with the system power on in the Linux environment.

About this task

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for removing a PCI adapter. For instructions, see “Removing a part by using the HMC” on page 155.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For instructions, see Removing a part by using the Systems Director Management Console.

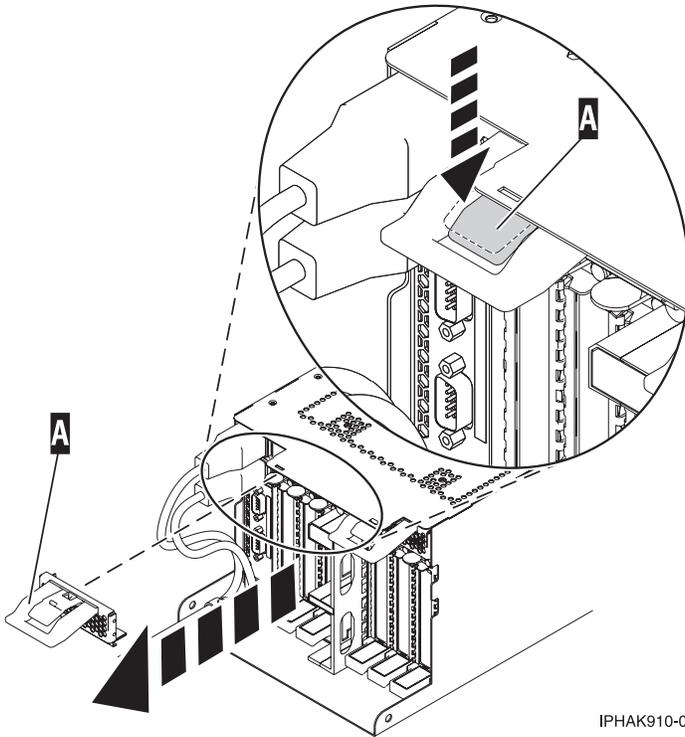
If you do not have an HMC or SDMC, complete the following steps to remove a PCI adapter with the system power on in the Linux environment:

Procedure

1. Ensure that the system meets the “Prerequisites for hot-plugging PCI adapters in Linux” on page 153.
2. Verify that the Linux, hot-plug PCI tools are installed. See “Verifying that the hot-plug PCI tools are installed for Linux” on page 153.
3. Perform the prerequisite tasks as described in “Before you begin” on page 132.
4. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
5. Determine the location of PCI adapter in the system.
6. Label, and then disconnect all cables attached to the adapter you plan to remove.
7. Run the **drmgr** command to enable an adapter to be removed:
For example, to remove the PCI adapter in slot U7879.001.DQD014E-P1-C3 run this command:

```
drmgr -c pci -r -s locationcode
```


Follow the instructions on the display to complete the task.
8. Remove the PCI adapter cassette from the system. Follow these steps:
 - a. Remove the PCI adapter EMC shield (A) as shown in the following figure.



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Figure 49. Remove the EMC shield

- b. Lift up the lower cassette handle (B) as shown in the following figure. Pull the PCI cassette (C) out of the system.

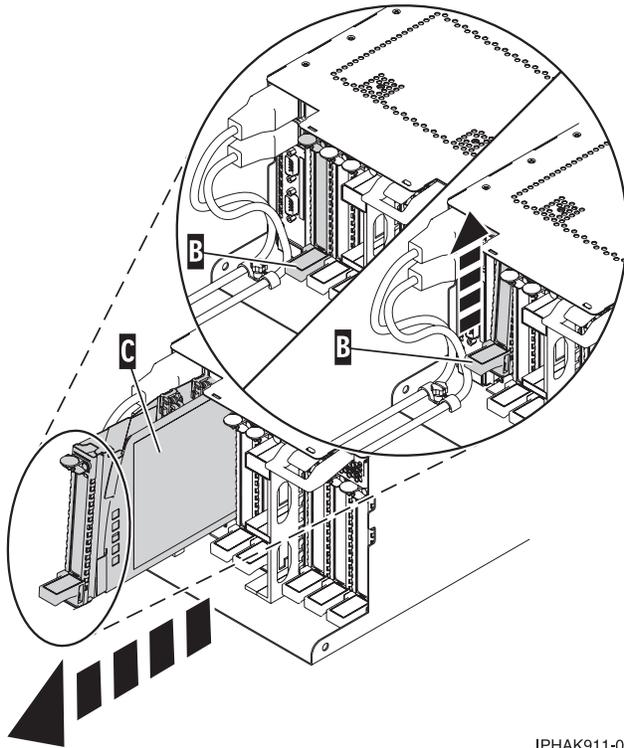


Figure 50. PCI adapter cassette removed from the system unit

9. Place the cassette with the cover facing up on an approved ESD surface.

Note: The cover will have a label on it.

10. Remove the adapter from the PCI adapter cassette.

Results

To replace the adapter in the system, see “Replacing a PCI adapter contained in a cassette in the system with the power on in the Linux environment” on page 79.

Replacing a PCI adapter contained in a cassette in the system

You can replace a PCI adapter.

Important:

- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in OS logical partitions will post errors at initial program load (IPL) if there is no device or wrap plug attached to each of the adapter's ports. Make sure that every Fibre Channel Adapter (2766, 2787, 280E, 5735, 576B, or 5774) that is installed in OS logical partition has either a wrap plug or a device attached to each of the adapter's ports. If you are exchanging a 2766, 2787, 280E, 5735, 576B, or 5774 Fibre Channel IOA, the external storage subsystem must be updated to use the worldwide port name of the new 2766, 2787, 280E, 5735, 576B, or 5774 IOA. For instructions, see “Updating the worldwide port name for a new 2766, 2787, 280E, 5735, 576B, or 5774 IOA.” on page 154
- If you are replacing a 2748, 2757, 2763, 2767, 2778, 2780, 2782, 5702, 5709, or 570B storage IOA, take note of the following: Depending on the configuration of the system, the storage IOA cache might have been disabled to allow the attachment of OEM storage that emulates a load source drive. If you are

replacing a storage IOA that has its cache disabled, configure the replacement IOA the same way as the IOA that you removed. If you remove hardware from the replacement IOA, return that hardware with the failed IOA.

Replacing a PCI adapter contained in a cassette in the system with the power off

You can replace a PCI adapter with the system power off.

About this task

Attention: You must have already completed the procedure “Removing a PCI adapter contained in a cassette from the system with the power off” on page 64 in order to have the slot powered off.

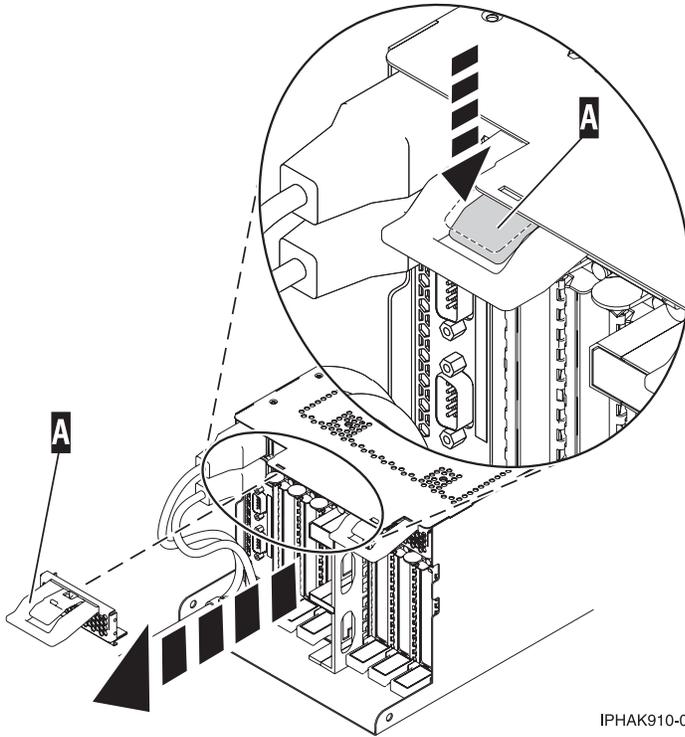
If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for replacing a PCI adapter. For instructions, see Exchanging a part using the Hardware Management Console.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For instructions, see Replacing a part by using the Systems Director Management Console.

If you do not have an HMC or SDMC, complete the following steps to replace a PCI adapter with the system power off:

Procedure

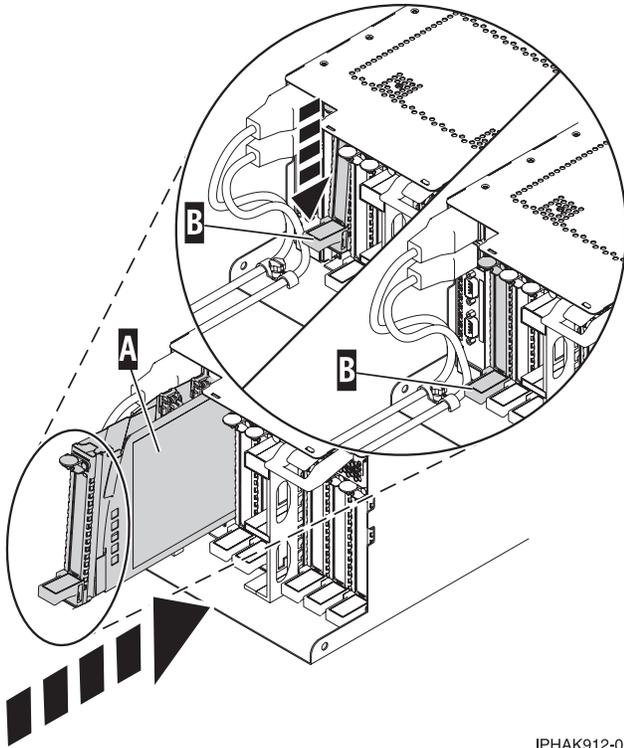
1. Perform prerequisite tasks as described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. If the adapter needs to be placed in a PCI adapter cassette, see one of the following topics:
 - “PCI adapter single-width, third generation cassette” on page 82
 - “PCI adapter double-wide cassette” on page 95
4. At the back of the system, identify the cassette slot you want to use.
5. Ensure the lower cassette handle is pressed up toward the retainer clip. This places the adapter in the correct position to be docked in the system.
6. Replace the PCI adapter cassette in the system. Follow these substeps:
 - a. Remove the PCI adapter EMC shield (**A**) as shown in the following figure.



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Figure 51. Remove the EMC shield

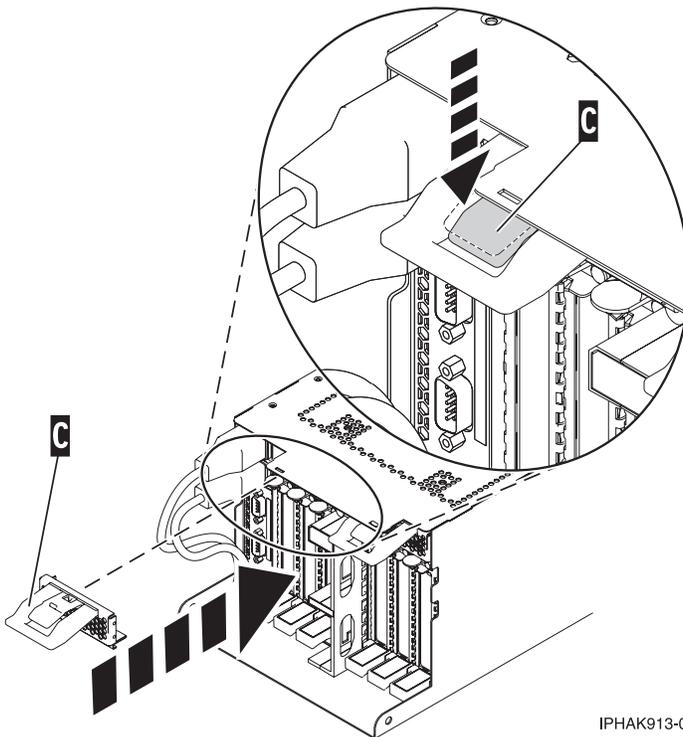
- b. Slide the cassette (**B**) into the cassette slot as shown in the following figure. When the cassette is fully inserted into the system, firmly press downward on the lower cassette handle (**B**) to lock the adapter in its connector.



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Figure 52. PCI adapter cassette installed in the system unit

c. Replace the EMC shield (C) as shown in the following figure.



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Figure 53. PCI adapter EMC shield in the closed position

7. Reconnect the system to the power source.
8. Start the system or logical partition. Refer to Start the system or logical partition.
9. Verify that the new resource is functional. See Verify the installed part.

Removing and replacing a PCI adapter contained in a cassette in the system with the power on in the AIX environment

You can replace a PCI adapter with the system power on in the AIX environment.

About this task

Important:

1. Use this procedure if you intend to remove a failing PCI adapter and replace it with the same type of adapter.
2. If you plan to remove a failing adapter and leave the slot empty, see “Removing a PCI adapter contained in a cassette from the system with the power on in the AIX environment” on page 66.
3. This procedure should not be used to remove an existing adapter and install a different type of adapter. To install a different adapter, remove the existing adapter as described in “Removing a PCI adapter contained in a cassette from the system with the power on in the AIX environment” on page 66, then install the new adapter as described in “Installing a PCI adapter contained in a cassette with the power on in the AIX environment” on page 56.
4. Procedures performed on a PCI adapter with the system power on in AIX, also known as hot-plug procedures, require the system administrator to take the PCI adapter offline prior to performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for replacing a PCI adapter. For instructions, see Exchanging a part using the Hardware Management Console.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For instructions, see Replacing a part by using the Systems Director Management Console.

If you do not have an HMC or SDMC, complete the following steps to replace a PCI adapter with the system power on in the AIX environment:

Procedure

1. Perform the prerequisite tasks as described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. Determine the location of the PCI adapter in the system.
4. Record the slot number and location of each adapter being removed.

Note: Adapter slots are numbered on the rear of the system unit.

5. Ensure that any processes or applications that might use the adapter are stopped.
6. Enter the system diagnostics by logging in as root user or as the celogin user, type **diag** at AIX command line.
7. When the DIAGNOSTIC OPERATING INSTRUCTIONS menu displays, press Enter.
8. At the FUNCTION SELECTION menu, select **Task Selection**, then press enter.
9. At the Task Selection list, select **PCI Hot Plug Manager**.
10. Select **Unconfigure a Device**, then press Enter.

11. Press F4 (or Esc +4) to display the **Device Names** menu.
12. Select the adapter you are removing in the **Device Names** menu.
13. Use the Tab key to answer YES to **Keep Definition**. Use the Tab key again to answer YES to **Unconfigure Child Devices**, then press Enter. The **ARE YOU SURE** screen displays.
14. Press Enter to verify the information. Successful unconfiguration is indicated by the OK message displayed next to the Command field at the top of the screen.
15. Press F3 (or Esc +3) twice to return to the **Hot Plug Manager** menu.
16. Select **replace/remove PCI Hot Plug adapter**.
17. Select the slot that has the device to be removed from the system.
18. Select **Replace**.

Note: A fast-blinking amber LED located at the back of the machine near the adapter indicates that the slot has been identified.

19. Press Enter. This places the adapter in the action state, meaning it is ready to be removed from the system.
20. Label, and then disconnect all cables attached to the adapter you plan to remove.
21. Remove the PCI adapter cassette from the system. Follow these substeps:
 - a. Remove the PCI adapter EMC shield (**A**) as shown in the following figure.

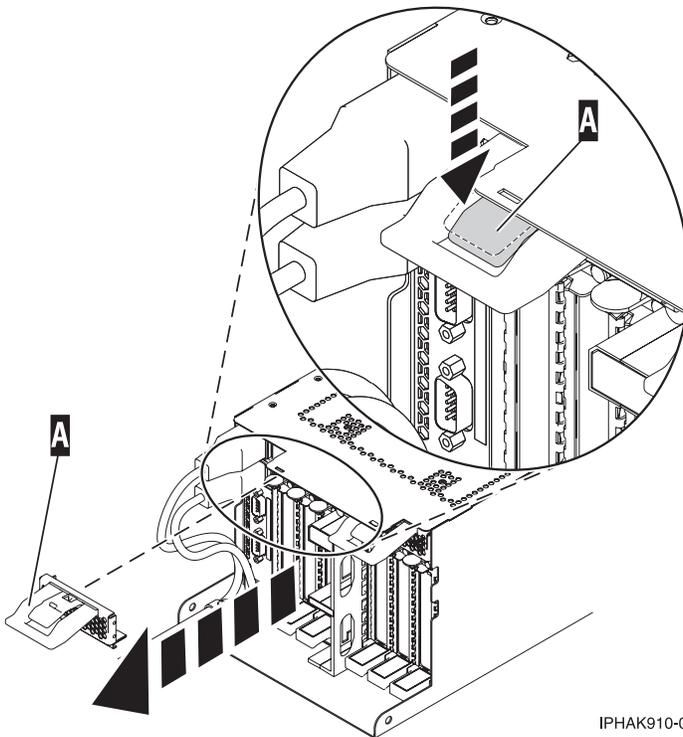
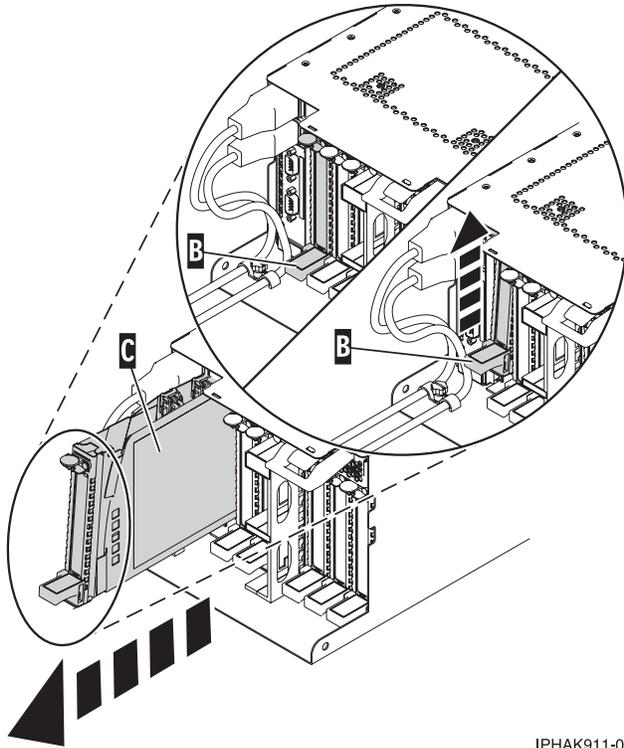


Figure 54. Remove the EMC shield

- b. Lift up the lower cassette handle (**B**) as shown in the following figure. Pull the PCI cassette (**C**) out of the system.



IPHAK911-0

Figure 55. PCI adapter cassette removed from the system unit

22. Place the cassette with the cover facing up on an approved ESD surface.

Note: The cover will have a label on it.

23. Install the adapter into the PCI adapter cassette. See the following topics:

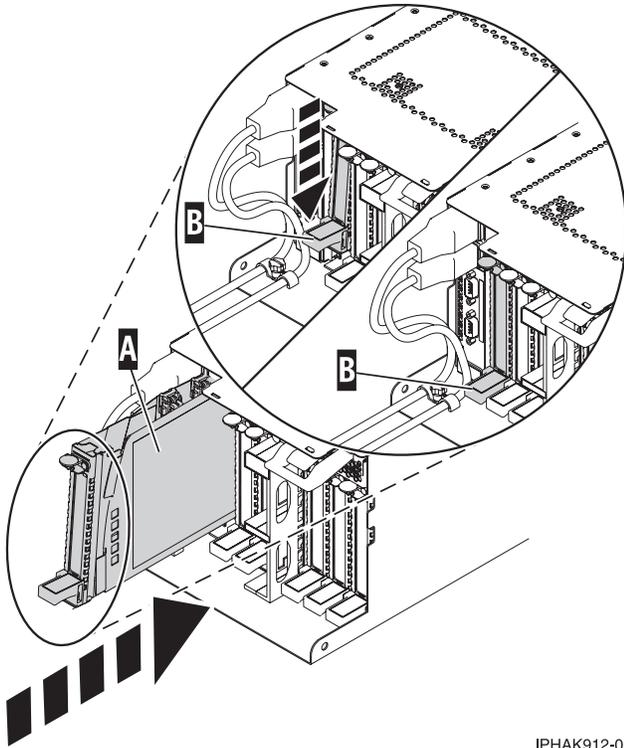
- “PCI adapter single-width, third generation cassette” on page 82
- “PCI adapter double-wide cassette” on page 95

24. At the back of the system, lift the cassette cover flap and identify the cassette slot you want to use.

25. Ensure the lower cassette handle is pressed up toward the retainer clip. This places the adapter in the correct position to be docked in the system.

26. Install the PCI adapter cassette as described in the following substeps:

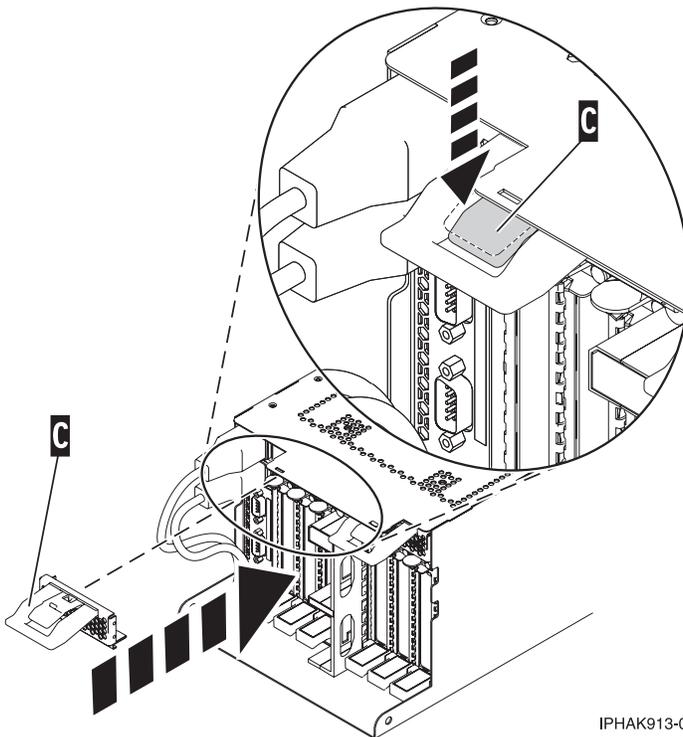
- a. Slide the cassette (**B**) into the cassette slot as shown in the following figure. When the cassette is fully inserted into the system, firmly press downward on the lower cassette handle (**B**) to lock the adapter in its connector.



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Figure 56. PCI adapter cassette installed in the system unit

- b. Replace the EMC shield (C) as shown in the following figure.



IPHAK913-0

Figure 57. PCI adapter EMC shield in the closed position

27. Press Enter and continue to follow the screen instructions until you receive a message that the replacement is successful. Successful replacement is indicated by the OK message displayed next to the **Command** field at the top of the screen.
28. Press the F3 (or Esc+3) key to return to the **PCI Hot-Plug Manager** menu.
29. Press the F3 (or Esc+3) key to return to the **TASK** selection list.
30. Select **Log Repair Action**.
31. Select the resource just replaced, press Enter, press Commit (F7 or ESC 7), then press Enter.
32. Press F3 (or Esc+3) to return to **TASK Selection List**.
33. Select **Hot Plug Task**, press enter.
34. Select **PCI Hot Plug Manager**, then select **Configure a defined device**, then press Enter.
35. Select the device just replaced from the list, then press Enter. The device is now configured.
36. Press the F10 key to exit the diagnostic program.
37. Verify the PCI adapter by using the following instructions:
 - a. Did you replace the adapter with the system power on?
 - Yes - Go to the next step.
 - No - Load the diagnostic program by doing the following:
 - If AIX is available, boot AIX, log in as root or CELOGIN, then enter the **diag** command.
 - b. Type the **diag** command if you are not already displaying the diagnostic menus
 - c. Select **Advance Diagnostic Routines**, then select **Problem Determination**.
 - d. Select the name of the resource just replaced from the menu. If the resource just replaced is not shown, choose the resource associated with it. Press Enter, then press **Commit** ((F7 or Esc+7)).
 - e. Did the Problem Determination identify any problems?
 - No: Continue to the next step.
 - Yes: A problem is identified
 - If you are a customer, record the error information, then contact your service provider.
 - If you are an authorized service provider, return to map 210-5.
38. Press the F10 key to exit the diagnostic program.

Replacing a PCI adapter contained in a cassette in the system with the power on in the Linux environment

You can replace a PCI adapter.

About this task

You must have already completed the procedure “Removing a PCI adapter contained in a cassette from the system with the power on in the Linux environment” on page 69 in order to have the slot powered off.

Note: Use this procedure only when you are replacing an adapter with an identical adapter. If you are replacing an adapter with an adapter that is not identical to the adapter removed, go to “Removing a PCI adapter contained in a cassette from the system with the power on in the Linux environment” on page 69 and “Installing a PCI adapter contained in a cassette with the power on in the Linux environment” on page 60.

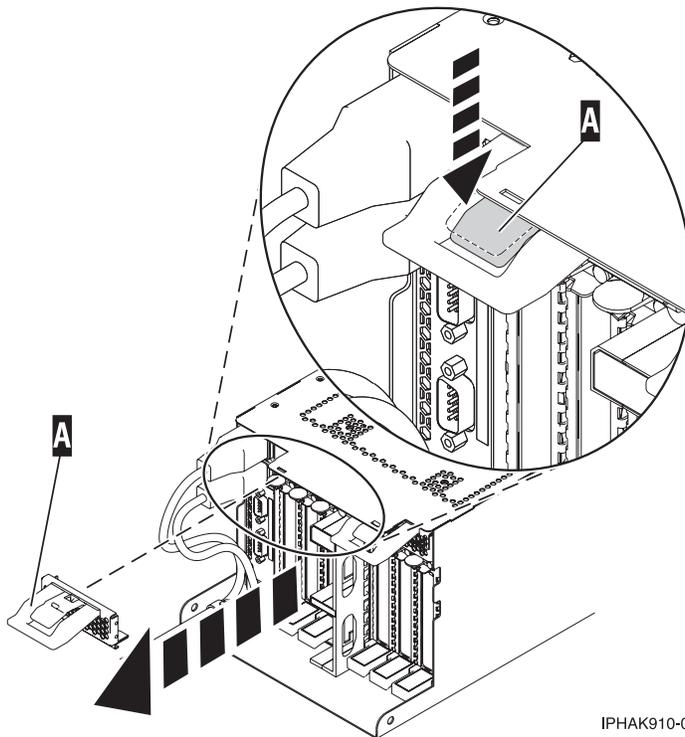
If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for replacing a PCI adapter. For instructions, see Exchanging a part using the Hardware Management Console.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For instructions, see Replacing a part by using the Systems Director Management Console.

If you do not have an HMC or SDMC, complete the following steps to replace a PCI adapter with the system power on in the Linux environment:

Procedure

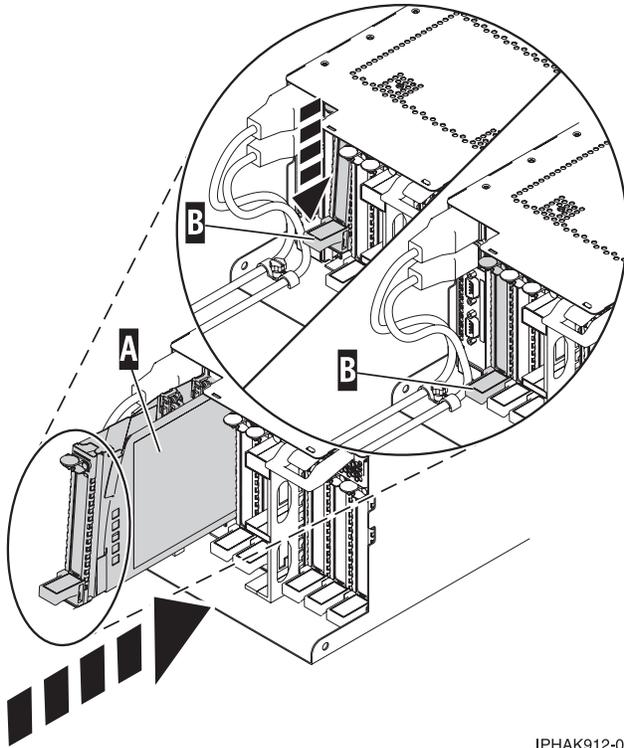
1. Perform prerequisite tasks as described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. If the adapter needs to be placed in the PCI adapter cassette, see “PCI adapter single-width and double-width cassettes” on page 114.
4. At the back of the system, lift the cassette cover flap and identify the cassette slot you want to use.
5. Ensure the lower cassette handle is pressed up toward the retainer clip. This places the adapter in the correct position to be docked in the system.
6. Run the `drmgr` command to enable an adapter to be replaced:
For example, to replace the PCI adapter in slot U7879.001.DQD014E-P1-C3 run this command:
`drmgr -c pci -r -s locationcode`
Follow the instructions on the display to complete the task.
7. Remove the PCI adapter cassette from the system. Follow these substeps.
 - a. Remove the PCI adapter EMC shield (A) as shown in the following figure.



IPHAK910-0

Figure 58. Remove the EMC shield

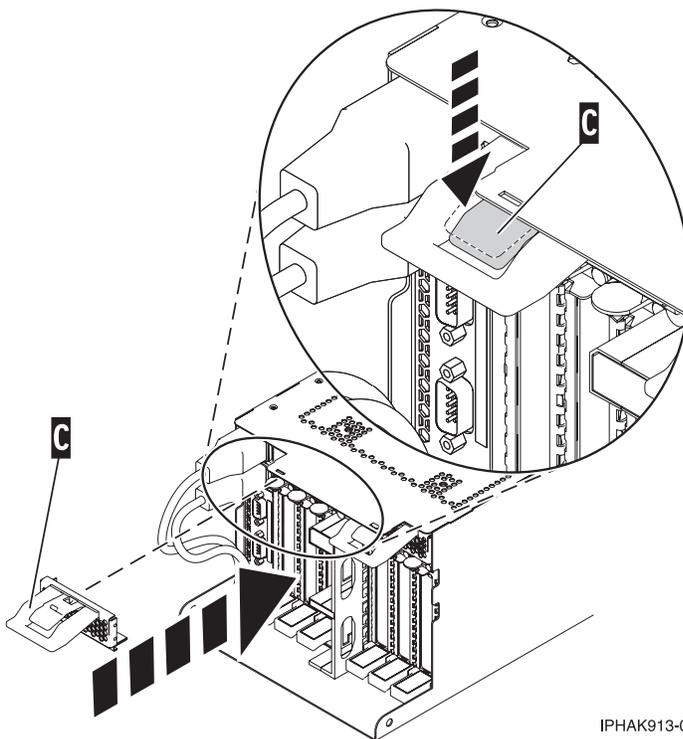
- b. Slide the cassette (B) into the cassette slot as shown in the following figure. When the cassette is fully inserted into the system, firmly press downward on the lower cassette handle (B) to lock the adapter in its connector.



IPHAK912-0

Figure 59. PCI adapter cassette installed in the system unit

c. Replace the EMC shield (C) as shown in the following figure.



IPHAK913-0

Figure 60. PCI adapter EMC shield in the closed position

8. Run the lsslot command to verify that the slot is occupied.

For example, Enter `lsslot -c pci -s U7879.001.DQD014E-P1-C3`

The following is an example of the information displayed by this command:

# Slot	Description	Device(s)
U7879.001.DQD014E-P1-C3	PCI-X capable, 64 bit, 133MHz slot	0001:40:01.0

PCI adapter single-width, third generation cassette

You might need to remove, replace, or install PCI adapters in a single-width cassette. Use the procedures in this section to perform these tasks.

Placing a PCI adapter in a single-width, third generation cassette

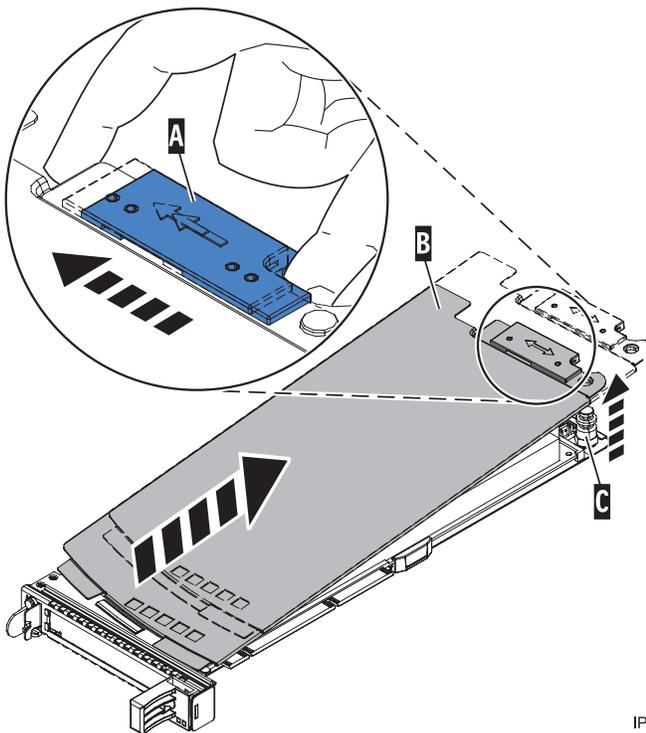
You can place a PCI adapter in a single-width cassette.

About this task

To place a PCI adapter in a cassette, do the following steps:

Procedure

1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. Remove any shipping handles or brackets attached to the adapter.
4. Remove the cassette cover by doing the following:
 - a. Slide the cover latch (A) to disengage it from the pivot pin (C) as shown in the following figure.
 - b. Lift the cover (B) off of the pivot pin.
 - c. Slide the cover off of the cassette.



IPHA520-0

Figure 61. PCI adapter single-width cassette cover removed

5. Ensure the cassette is prepared to receive an adapter by doing the following:
 - a. Ensure the cassette is empty by doing one of the following:
 - “Removing an adapter from the PCI adapter single-width, third generation cassette” on page 92.
 - Remove the adapter filler panel from the cassette.
 - b. Ensure that all of the adapter retainers (A) have been pushed out to the edges of the cassette to allow the placement of the adapter. See Figure 62.

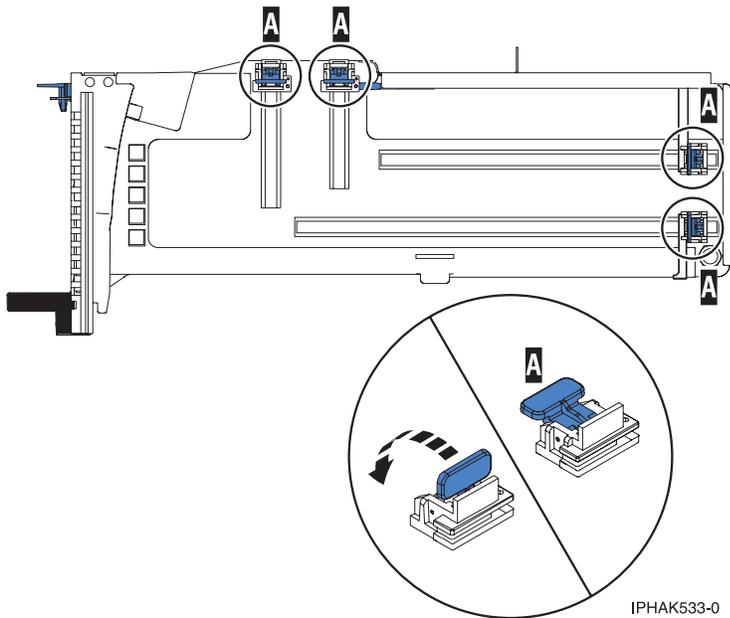


Figure 62. Adapter retainers

- c. Rotate the tailstock clamp into the open position.

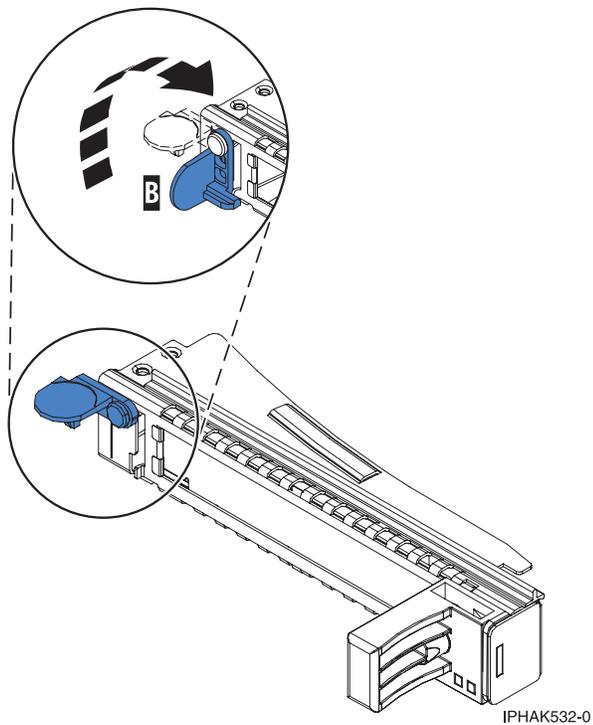
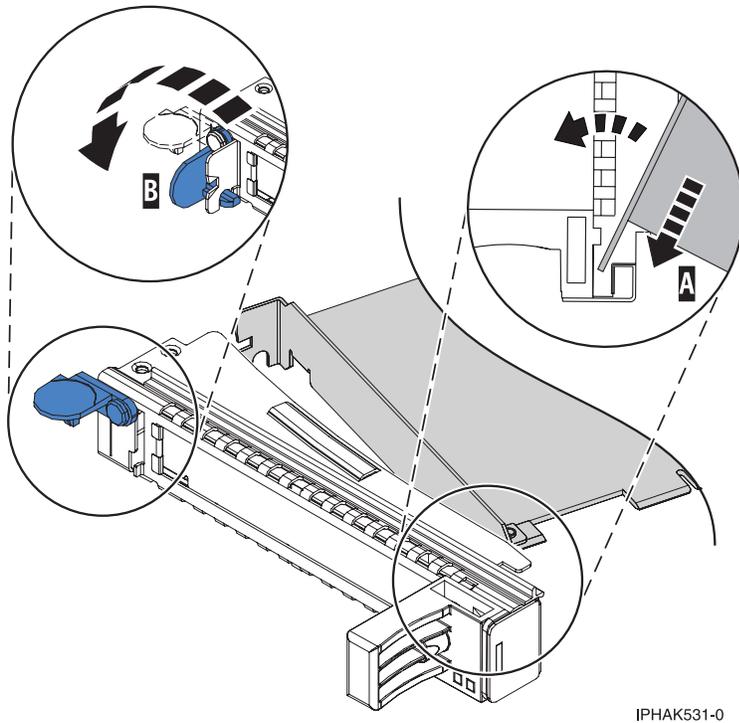


Figure 63. Tailstock clamp in the open position

6. Place the adapter in the cassette by doing the following:
 - a. With the tailstock clamp in the open position, insert the adapter firmly into the tailstock retaining channel (A). See Figure 64 on page 85.
 - b. Rotate the adapter toward the top of the cassette and into place.
 - c. Close the tailstock clamp (B). See Figure 64 on page 85.



IPHAK531-0

Figure 64. Adapter removed from the PCI adapter single-width cassette

- d. Position the adapter retainers to support the adapter, and then rotate the retainer clip into the closed position.

Notes:

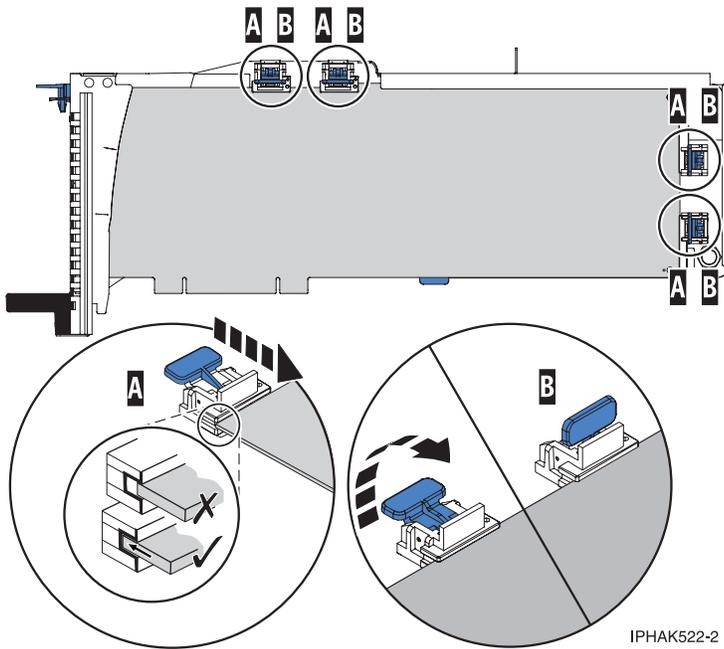
- 1) Two retainers are located at the top of the cassette, along the top edge of the adapter. Two more retainers are located at the edge of the cassette opposite of the adapter tailstock.
- 2) When the adapter retainer clip is in the horizontal position, the adapter retainers are unlocked and can slide toward the adapter.
- 3) Place the retainers on the adapter according to the length of the adapter being used. Select the appropriate instructions:

Adapter-cassette retainer placement for large adapters

- a) Place and lock the retainers **(B)**. See Figure 65 on page 86.

Attention: Use of the lower corner support retainer might interfere with the docking of the PCI card when positioned within the system. Ensure the retainer does not interfere with the adapter connectors on the system backplane.

- b) Ensure the adapter edge is seated in each retainer groove **(A)**. If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.

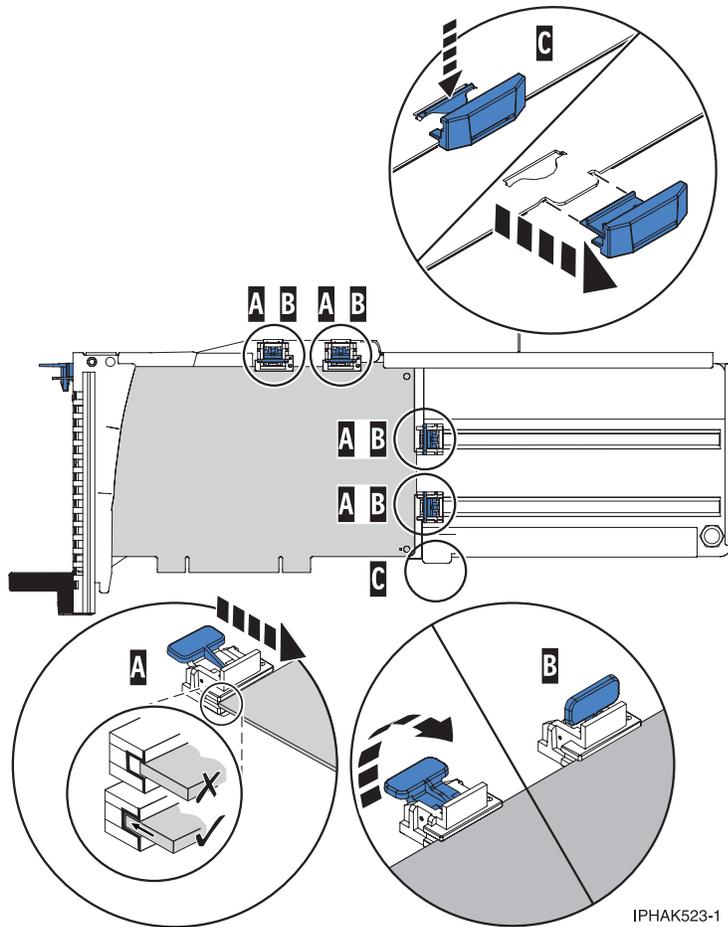


IPHA522-2

Figure 65. Large adapter in the PCI adapter cassette with the supports and stabilizer in place

Adapter-cassette retainer placement for medium-length adapters

- a) Remove the adapter stabilizer (C). See Figure 66 on page 87.
- b) Place and lock the retainers (B).
- c) Ensure the adapter edge is seated in each retainer groove (A). If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.

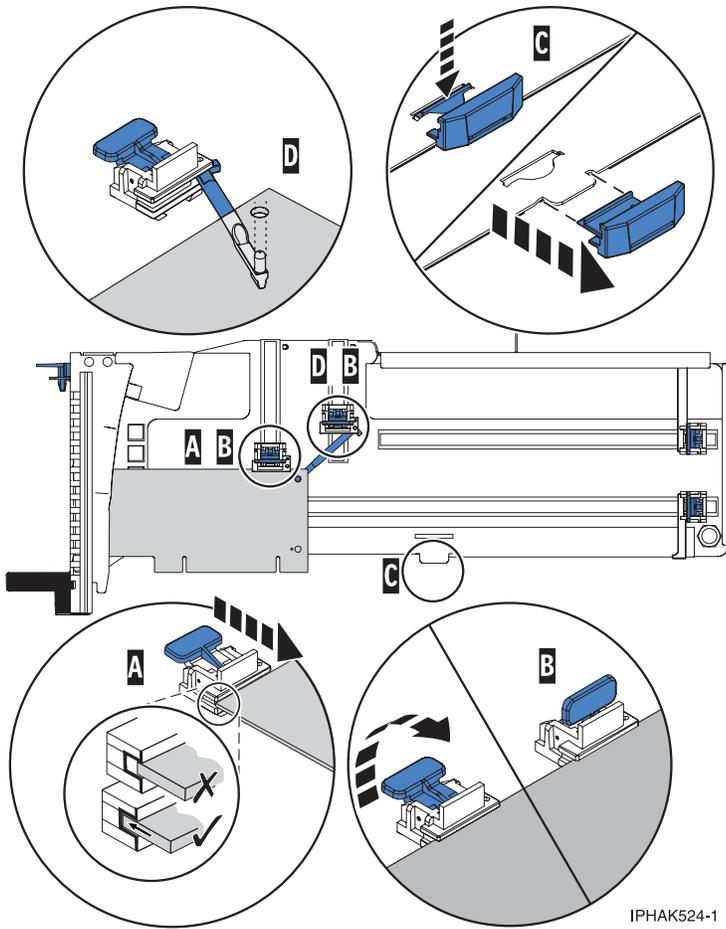


IPHAK523-1

Figure 66. Medium-length adapter in the PCI adapter cassette with the supports in place

Adapter-cassette retainer placement for small adapters

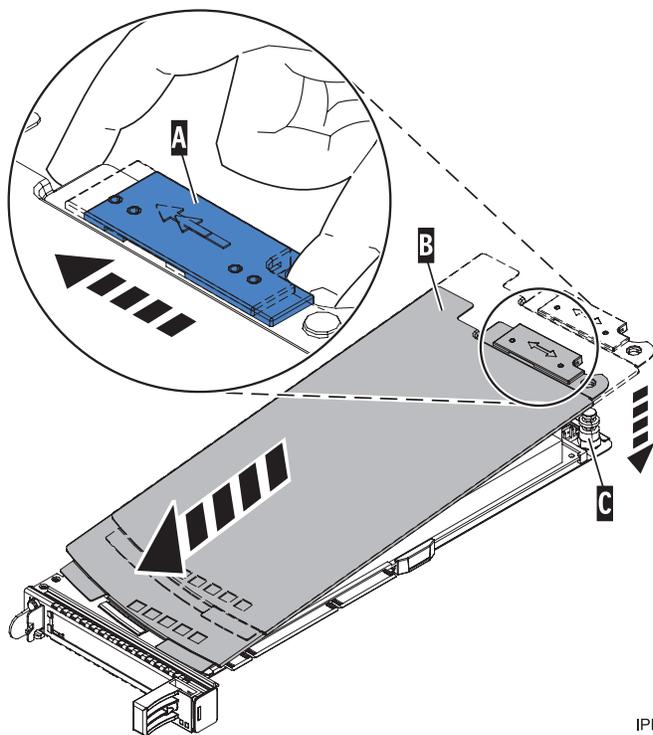
- Remove the adapter stabilizer (C). See Figure 67 on page 88.
- Place the hookarm (D) into the hole in the corner of the adapter. This supports the card when it is undocked from the connector on the system backplane.
- Place and lock the retainers (B).
- Ensure the adapter edge is seated in each retainer groove (A). If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.



IPHA524-1

Figure 67. Small adapter in the PCI adapter cassette with the supports and the hookarm in place

7. Replace the cassette cover by doing the following:
 - a. Slide the cover (B) into position on the cassette as shown in the following figure.
 - b. While holding the cover latch (A) in the open position, place the cover over the pivot pin (C).
 - c. Release the cover latch to lock the cover into place.



IPHA530-0

Figure 68. PCI adapter cassette cover replaced

Placing a 4-Port USB PCI Express Adapter in a single-width, third generation cassette

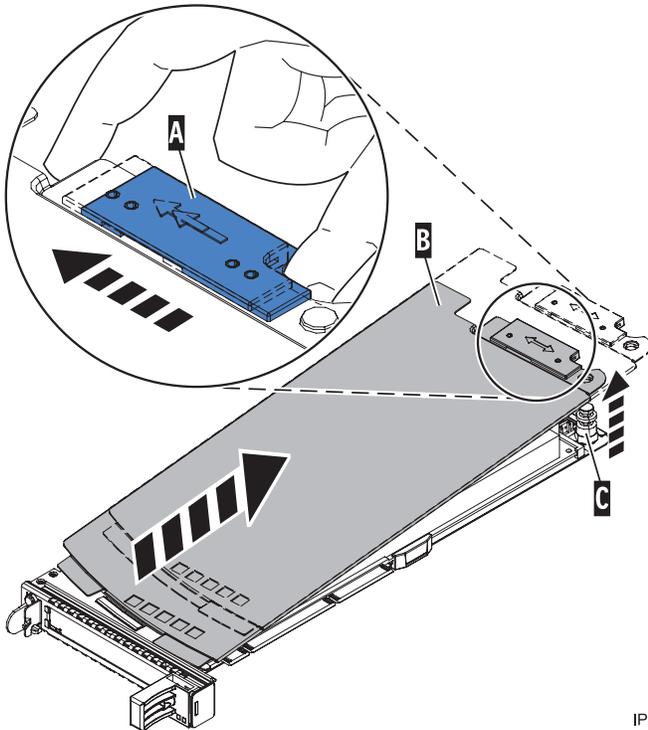
You can place a 4-Port USB PCI Express Adapter (FC 2728; CCIN 57D1) in a single-width cassette.

About this task

To place a PCI adapter in a cassette, do the following steps:

Procedure

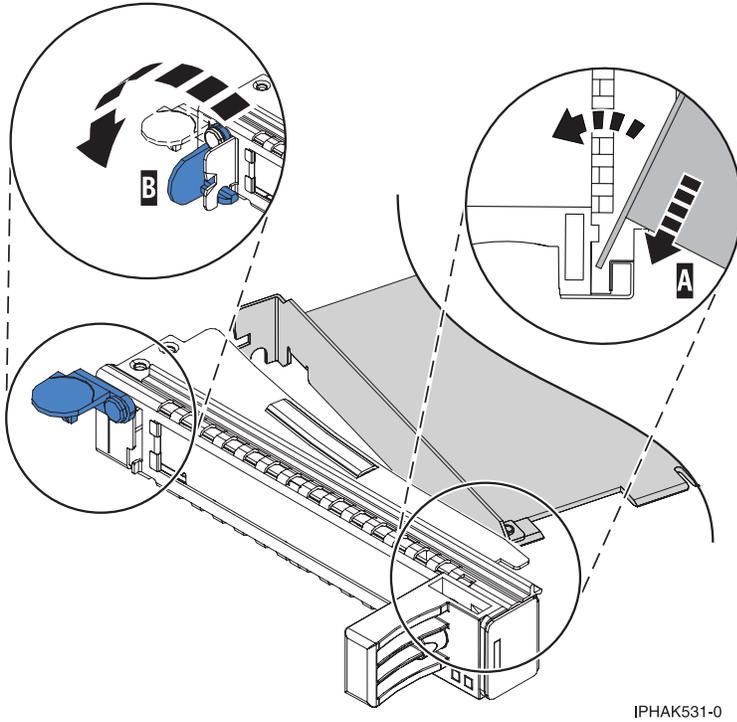
1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. Remove the cassette from the system.
4. Remove the cassette cover by doing the following steps:
 - a. Slide the cover latch (A) to disengage it from the pivot pin (C) as shown in the following figure.
 - b. Lift the cover (B) off of the pivot pin.
 - c. Slide the cover off of the cassette.



IPHAK520-0

Figure 69. PCI adapter single-width cassette cover removed

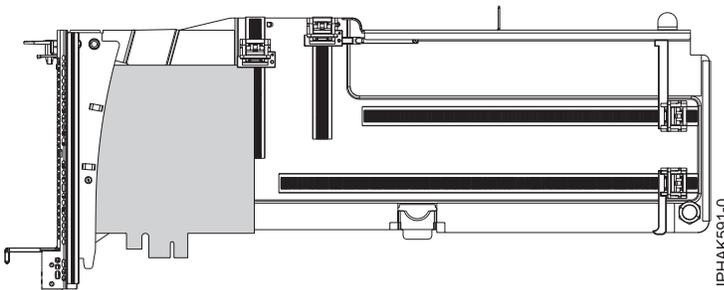
5. Ensure that the cassette is empty.
6. Place the adapter in the cassette by doing the following steps:
 - a. With the tailstock clamp in the open position, insert the adapter firmly into the tailstock retaining channel **(A)**. See Figure 70 on page 91.
 - b. Rotate the adapter toward the top of the cassette and into place.
 - c. Close the tailstock clamp **(B)**. See Figure 70 on page 91.



IPHAK531-0

Figure 70. Placing the PCI adapter single-width cassette

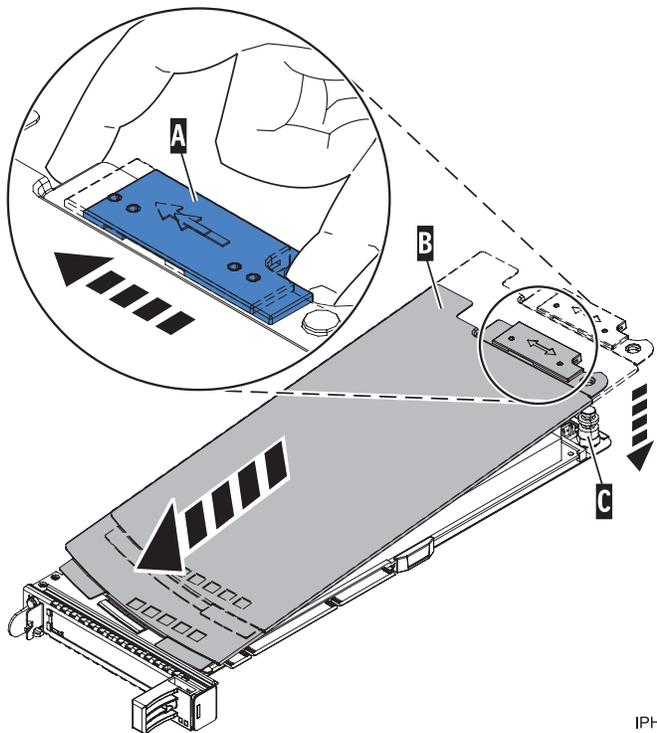
- d. Position the adapter retainer to support the adapter.



IPHAK591-0

Figure 71. Side view of adapter in cassette

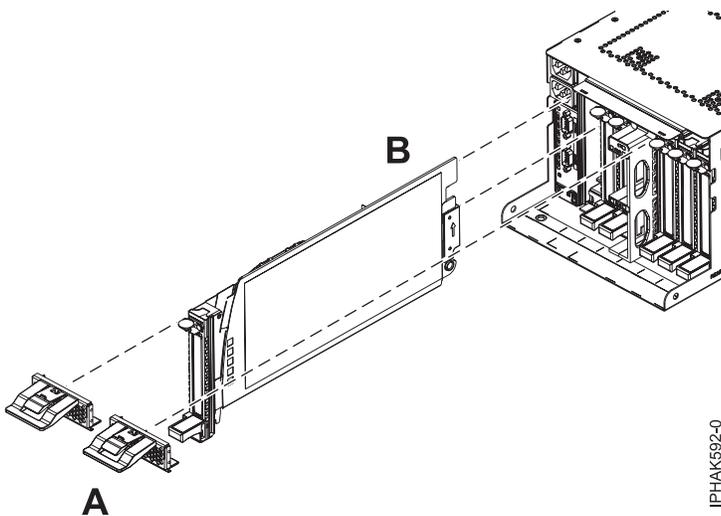
7. Replace the cassette cover by doing the following steps:
 - a. Slide the cover (**B**) into position on the cassette as shown in the following figure.
 - b. While holding the cover latch (**A**) in the open position, place the cover over the pivot pin (**C**).
 - c. Release the cover latch to lock the cover into place.



IPHAK530-0

Figure 72. PCI adapter cassette cover replaced

8. Replace the PCI adapter cassette (B) in the system. See the following figure.
9. Install the EMC grill (A).



IPHAK592-0

Figure 73. Replace the cassette and install the EMC grill

Removing an adapter from the PCI adapter single-width, third generation cassette

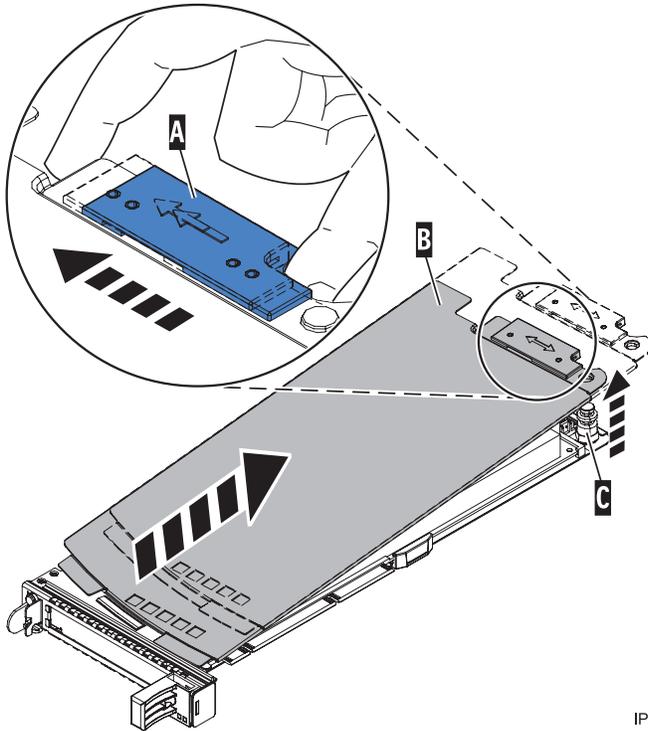
You can remove a PCI adapter from a single-width cassette.

About this task

To remove an adapter from the single-width cassette, do the following steps:

Procedure

1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. Remove the cassette from the system.
4. Remove the cassette cover by doing the following:
 - a. Slide the cover latch (A) to disengage it from the pivot pin (C) as shown in the following figure.
 - b. Lift the cover (B) off the pivot pin.
 - c. Slide the cover off the cassette.



IPHA520-0

Figure 74. PCI adapter cassette cover removed

5. Remove the adapter from the cassette by doing the following:
 - a. Unlock the adapter retainers by rotating the retainer clip (A) into the horizontal position. See Figure 75 on page 94.

Notes:

- 1) The edge of the adapter located at the end of the cassette that contains the cassette handles is called the adapter **tailstock**.
 - 2) Two retainers are located at the top of the cassette, along the top edge of the adapter. Two more retainers are located at the edge of the cassette opposite of the adapter tailstock.
 - 3) When the retainer clip is in the horizontal position, the adapter retainers are unlocked and can slide away from the card.
 - 4) If the corner support retainer is used, unlock it, and then slide the corner support retainer away from the card.
- b. Push the adapter retainers (B) away from the adapter.
 - c. Unlock the adapter tailstock clamp (C).

- d. Rotate the adapter out of the cassette by grasping the edge of the adapter opposite the tailstock, and then firmly rotate the adapter toward the bottom of the cassette.
- e. Lift the adapter out of the tailstock retaining channel.

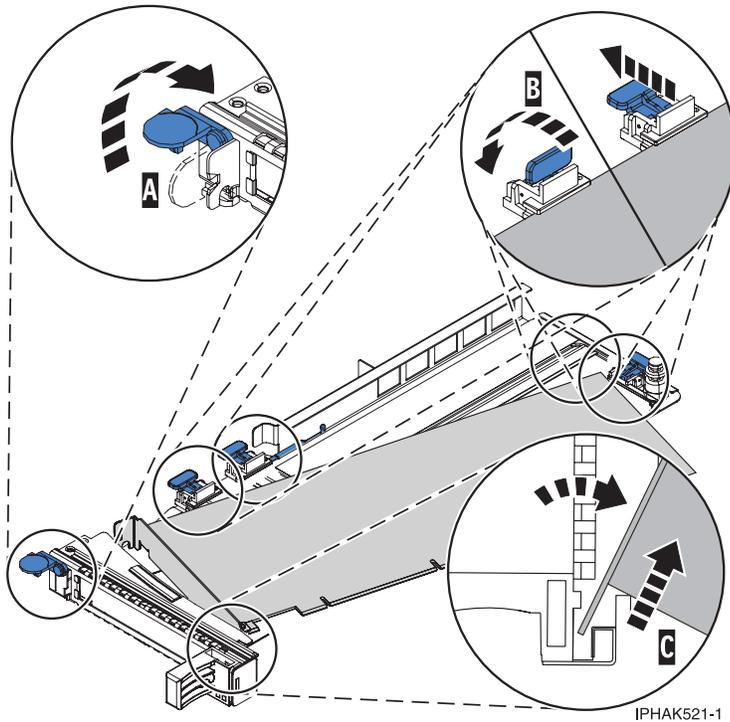
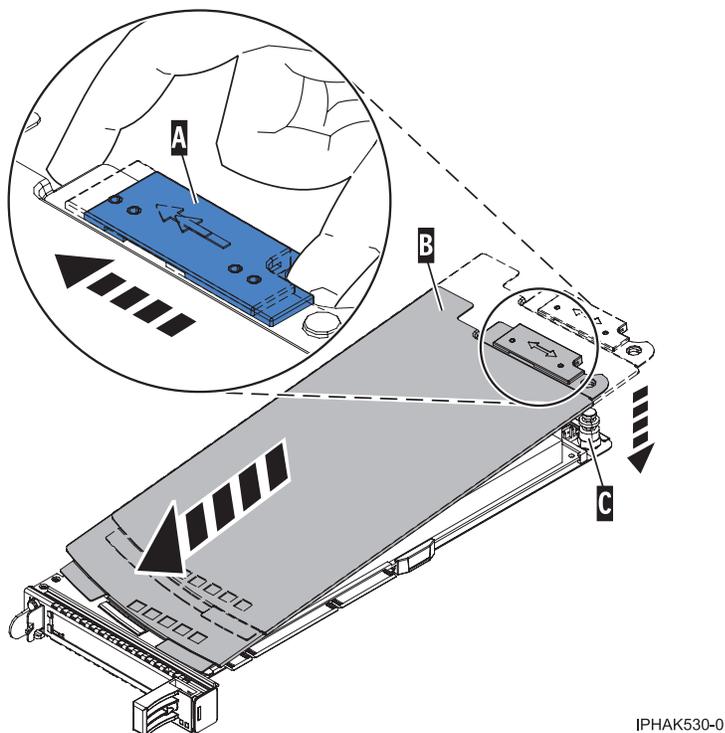


Figure 75. Adapter removed from the PCI adapter cassette

- f. Put the adapter in a safe place.
- Attention:** A cassette containing either a PCI adapter or filler panel must be placed in the PCI adapter slot of the system unit for proper air flow and cooling.
- g. Place a PCI adapter or filler panel in the cassette. See “Placing a PCI adapter in a single-width, third generation cassette” on page 82.
 - h. Replace the cassette cover by doing the following:
 - 1) Slide the cover (B) into position on the cassette.
 - 2) While holding the cover latch (A) in the open position, place the cover over the pivot pin (C).
 - 3) Release the cover latch to lock the cover into place.



IPHAK530-0

Figure 76. PCI adapter cassette cover replaced

Results

PCI adapter double-wide cassette

You might need to remove, replace, or install PCI adapters in a double-wide cassette. Use the procedures in this section to perform these tasks.

Removing an adapter from the PCI adapter double-wide cassette

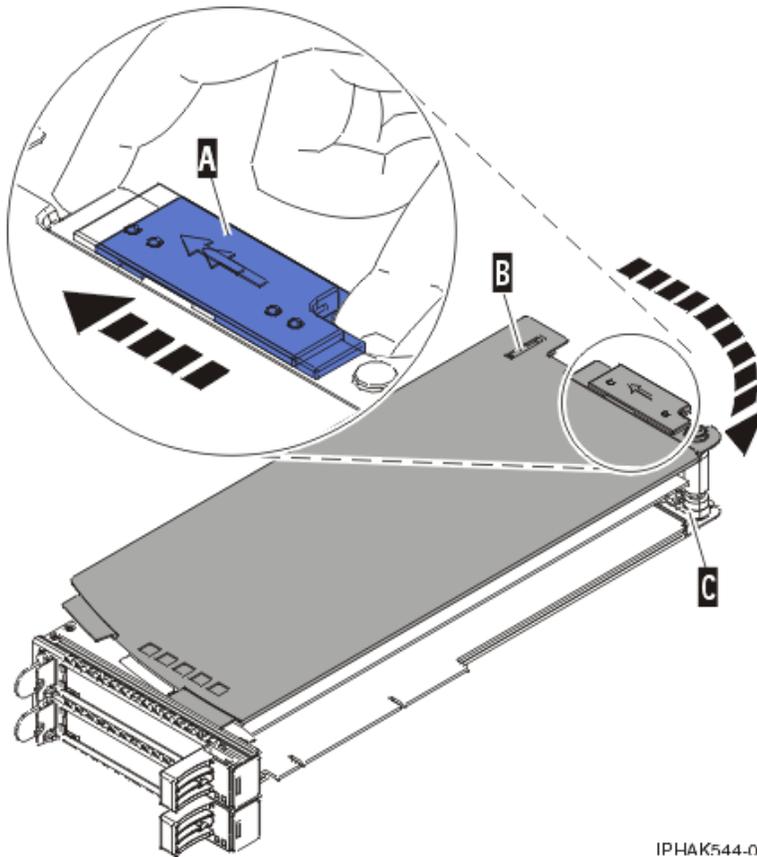
You might need to remove a PCI adapter from a double-wide cassette.

About this task

To remove an adapter from the cassette, do the following:

Procedure

1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. Remove the PCI adapter contained in a cassette from the system.
4. Remove any shipping handles or brackets attached to the adapter.
5. Remove the cassette cover by doing the following:
 - a. Slide the cover latch **A** to disengage it from the pivot pin **C** as shown in the following figure.
 - b. Lift the cover **B** off of the pivot pin.
 - c. Slide the cover off of the cassette.



IPHAK544-0

Figure 77. PCI adapter cassette cover removed

- d. Unscrew pivot pin C and put it in a safe place
6. Remove the adapter from the cassette by doing the following:
 - a. Unlock the adapter retainers by rotating the retainer clip A into the horizontal position. See Figure 78 on page 97.

Notes:

- 1) The edge of the adapter located at the end of the cassette that contains the cassette handles is called the adapter *tailstock*.
 - 2) Two retainers are located at the top of the cassette, along the top edge of the adapter. Two more retainers are located at the edge of the cassette opposite of the adapter tailstock.
 - 3) When the retainer clip is in the horizontal position, the adapter retainers are unlocked and can slide away from the card.
 - 4) If the corner support retainer is used, unlock it, and then slide the corner support retainer away from the card.
- b. Push the adapter retainers B away from the adapter.
 - c. Unlock the adapter tailstock clamp C.
 - d. Rotate the adapter out of the cassette by grasping the edge of the adapter opposite the tailstock and then firmly rotating the adapter toward the bottom of the cassette.
 - e. Lift the adapter out of the tailstock retaining channel.

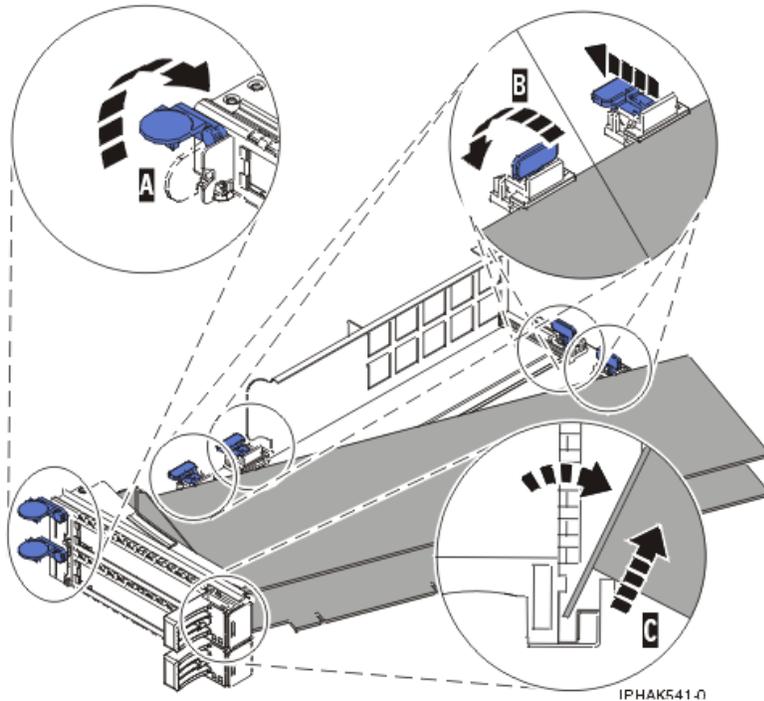


Figure 78. Adapter removed from the PCI adapter cassette

- f. Put the adapter in a safe place.

Attention: A cassette containing either a PCI adapter or filler panel must be placed in the PCI adapter slot of the system unit for proper air flow and cooling.

- g. Place the adapter in the PCI adapter double-wide cassette. For information, see “Placing an adapter in the PCI adapter double-wide cassette” on page 98.

Note: If the cassette is not going to contain a PCI adapter, use this same procedure to place an adapter filler panel in the cassette.

- h. Replace the cassette cover by doing the following:

- 1) Screw pivot pin **C** into place.
- 2) Slide the cover **B** into position on the cassette.
- 3) While holding the cover latch **A** in the open position, place the cover over the pivot pin **C**.
- 4) Release the cover latch to lock the cover into place.

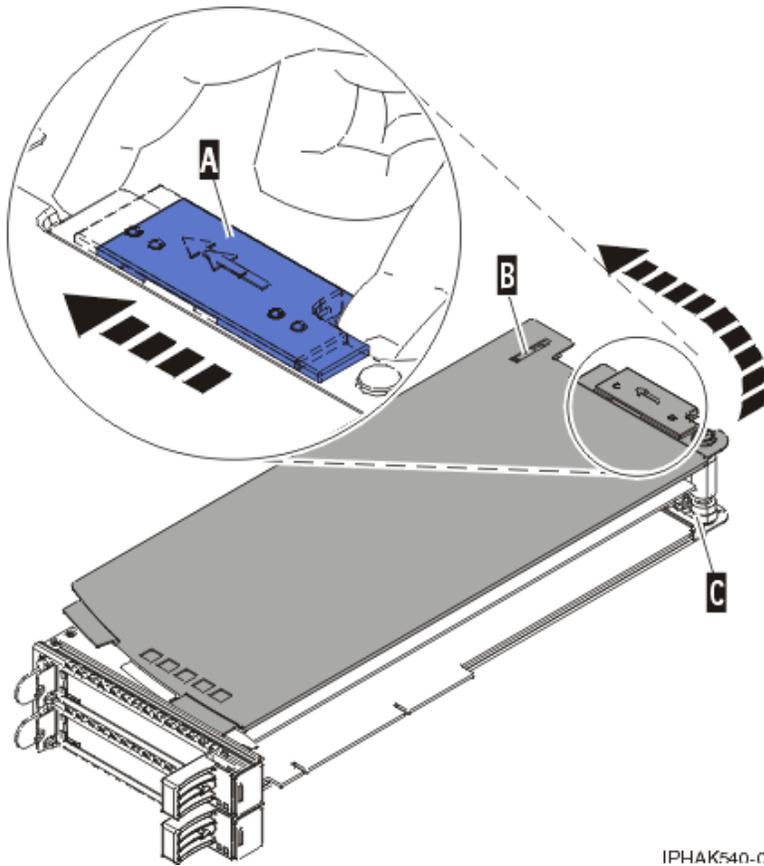


Figure 79. PCI adapter cassette cover replaced

Placing an adapter in the PCI adapter double-wide cassette

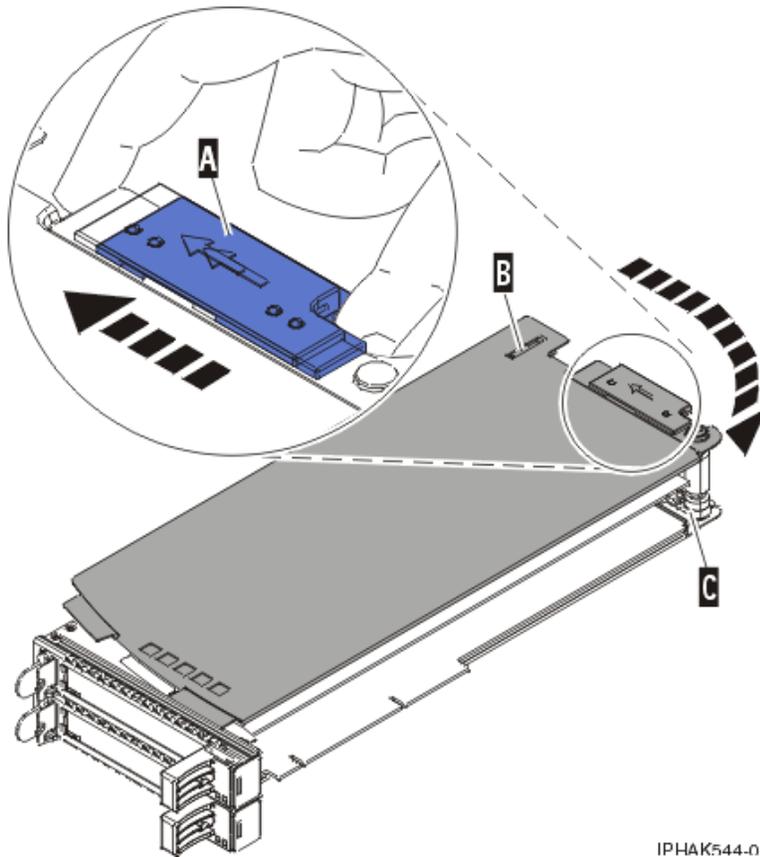
You might need to place a PCI adapter in a double-wide cassette.

About this task

To place an adapter in a cassette, do the following:

Procedure

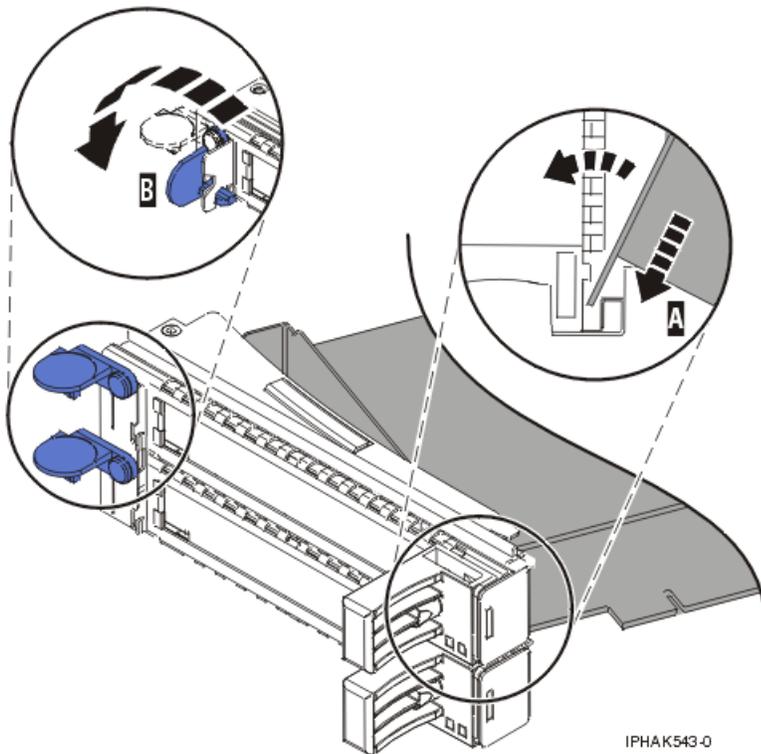
1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Remove the PCI adapter contained in a cassette from the system.
3. Remove the cassette cover by doing the following:
 - a. Slide the cover latch **A** to disengage it from the pivot pin **C** as shown in the following figure.
 - b. Lift the cover **B** off of the pivot pin.
 - c. Slide the cover off of the cassette.



IPHAK544-0

Figure 80. PCI adapter cassette cover removed

- d. Unscrew pivot pin C and put it in a safe place
4. Ensure the cassette is prepared to receive an adapter by doing the following:
 - a. Ensure the cassette is empty by doing one of the following:
 - Remove the adapter from the PCI adapter double-wide cassette. For information, see “Removing an adapter from the PCI adapter double-wide cassette” on page 95.
 - Remove the adapter filler panel from the cassette.
 - b. Ensure that all of the adapter retainers have been pushed out to the edges of the cassette to allow the placement of the adapter.
 - c. Place the tailstock clamp in the open position by pressing the cassette handle towards the retainer clip.
5. Place the adapter in the cassette by doing the following:
 - a. With the tailstock clamp in the open position, insert the adapter firmly into the tailstock retaining channel A. See Figure 81 on page 100.
 - b. Rotate the adapter toward the top of the cassette and into place.
 - c. Close the tailstock clamp.



IPHAK543-0

Figure 81. Adapter replaced in the PCI adapter cassette

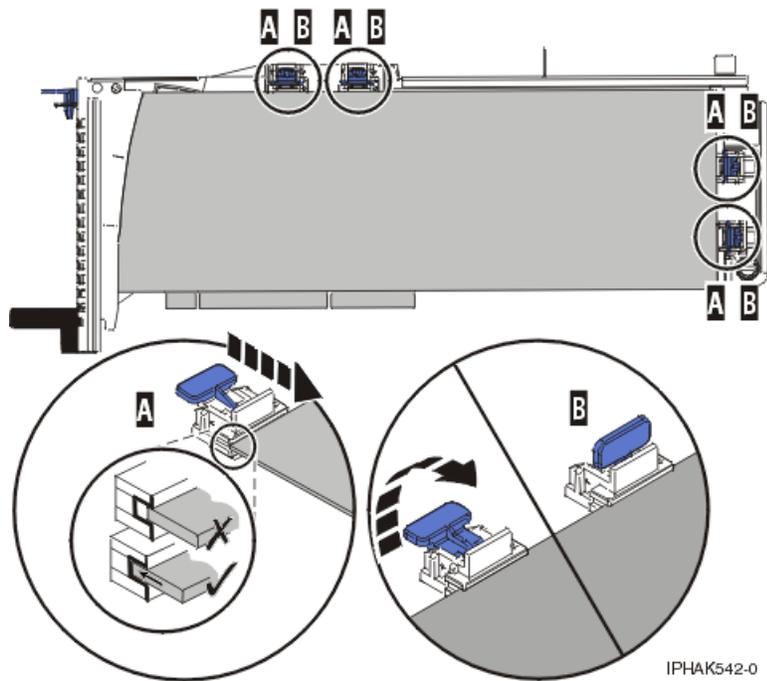
- d. Position the adapter retainers to support the adapter, and then rotate the retainer clip **B** into the closed position. See Figure 81.

Notes:

- 1) Two retainers are located at the top of the cassette, along the top edge of the adapter. Two more retainers are located at the edge of the cassette opposite of the adapter tailstock.
- 2) When the adapter retainer clip is in the horizontal position, the adapter retainers are unlocked and can slide toward the adapter.
- 3) Place and lock the retainers **B**. See Figure 82 on page 101.

Attention: Use of the lower corner support retainer might interfere with the docking of the PCI card when positioned within the system. Ensure the retainer does not interfere with the adapter connectors on the system backplane.

- 4) Ensure the adapter edge is seated in each retainer groove **A**. If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.



IPHAK542-0

Figure 82. Long adapter in the PCI adapter cassette with the supports and stabilizer in place

6. After the retainers are placed, replace the cassette cover by doing the following:
 - a. Screw pivot pin C into place.
 - b. Slide the cover B into position on the cassette as shown in the following figure.
 - c. While holding the cover latch A in the open position, place the cover over the pivot pin C.
 - d. Release the cover latch to lock the cover into place.

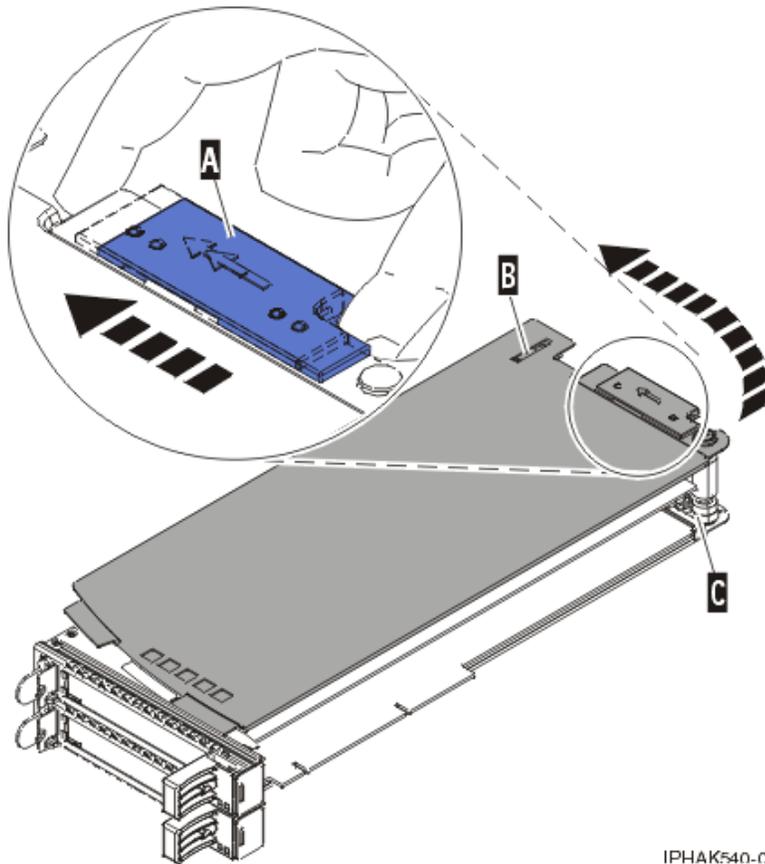


Figure 83. PCI adapter cassette cover replaced

7. Replace the PCI adapter contained in a cassette in the system.

Attention: A cassette containing either a PCI adapter or filler panel must be placed in the PCI adapter slot of the system unit for proper air flow and cooling.

Model 58/02 and 58/77 expansion units, PCI adapters, and cassettes

You can install, remove, replace PCI adapter cassettes in the 58/02 and 58/77 expansion units.

Preparing to install, remove, or replace a PCI adapter cassette

Learn about steps you must do before you install, remove, or replace a PCI adapter cassette in a 58/02 or 58/77 expansion unit.

About this task

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing a PCI adapter. For instructions, see *Installing a feature using the Hardware Management Console*.

If your system is managed by the Systems Director Management Console (SDMC), use the SDMC to install, remove, and replace features. For information about using the SDMC, see *Installing a feature by using the Systems Director Management Console*, *Removing a part by using the Systems Director Management Console*, or *Replacing a part by using the Systems Director Management Console*.

Notes:

- If the system is partitioned, you must determine the partition owning the I/O slot. Once the adapter is installed, the I/O slot must be powered on in the operating system.
- If an I/O slot on a partitioned system is not owned by a partition, then the I/O slot cannot be powered on.
- Adding an I/O slot to a partition using dynamic logical partitioning (DLPAR) will power on the I/O slot as part of the DLPAR add. For information about DLPAR, see *Dynamic Logical Partitioning*.
- To learn more about working in a partitioned environment, see *Logical partitioning*.

If you do not have an HMC or SDMC, complete the following steps to install, remove or replace a PCI adapter:

Procedure

1. Perform prerequisite tasks as described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. If you are installing a new adapter, determine in which slot to place the new adapter. See the PCI adapter placement.
4. If you are removing a failing PCI adapter, see *Identifying a failing part*.
5. If you are installing a PCI adapter in a rack-mounted system or expansion unit, open the rear rack door.
6. Determine the location of PCI adapter cassette in the system.

Installing a PCI adapter contained in a cassette

You can install a PCI adapter cassette in a 58/02 or 58/77 expansion unit.

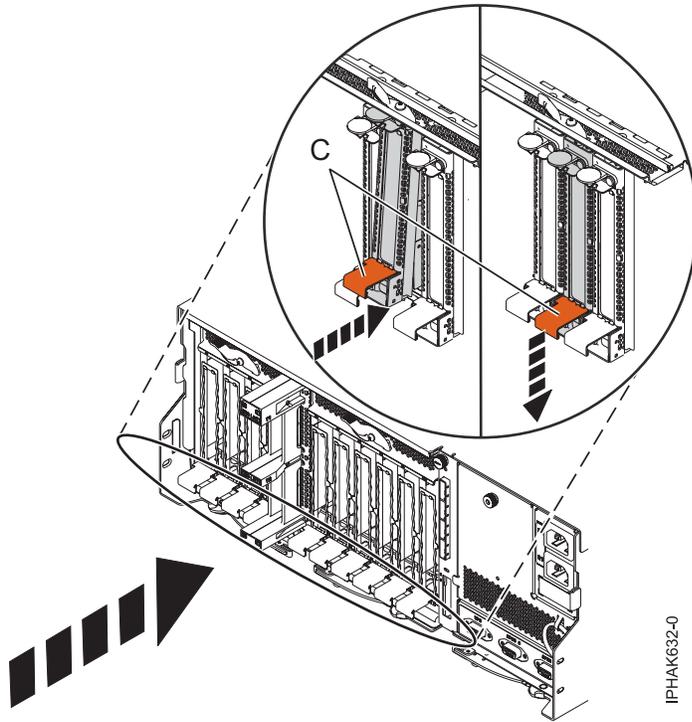
Installing a PCI adapter cassette

You can install a PCI adapter cassette in a 58/02 or 58/77 expansion unit.

About this task

Procedure

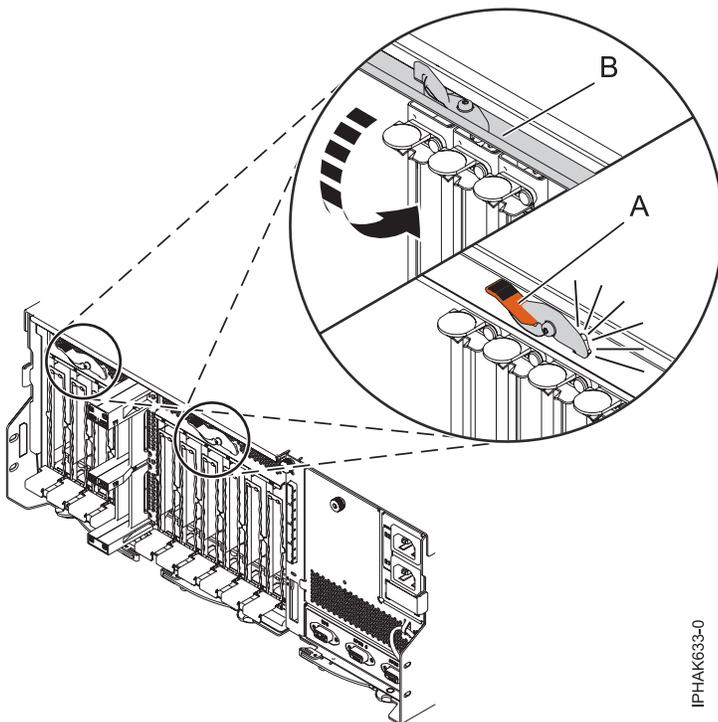
1. Ensure that the lower cassette handle (C) is pressed up toward the retainer clip. This places the adapter in the correct position to be docked in the system. See the following figure.
2. Slide the cassette into the cassette slot.
3. When the cassette is fully inserted into the system, firmly press downward on the lower cassette handle (C) to lock the adapter in its connector.



IPHAK632-0

Figure 84. Installing the PCI adapter cassette

4. Lower the access door (B) into the closed position. Latch (A) automatically latches to hold the access door closed.



IPHAK633-0

Figure 85. Closing the access door

5. Return to the procedure that sent you here.

Installing a PCI adapter cassette with the power off

You can install a PCI adapter cassette in a 58/02 or 58/77 expansion unit with the power off.

Before you begin

Before you begin: Prepare to install a PCI adapter cassette. See “Preparing to install, remove, or replace a PCI adapter cassette” on page 102.

About this task

To install an adapter with the system power off, do the following steps:

Procedure

1. Stop the system or logical partition. See Stop the system or logical partition.
2. Disconnect the power source from the system by unplugging the system.
3. Remove the PCI adapter cassette from the system. Refer to “Removing a PCI adapter cassette from the expansion unit” on page 107.
4. Install the adapter into the PCI adapter cassette. Refer to “PCI adapter single-width and double-width cassettes” on page 114.
5. Install the PCI adapter cassette in the system. Refer to “Installing a PCI adapter contained in a cassette” on page 103.
6. Start the system or logical partition. Refer to Start the system or logical partition.
7. Verify that the new resource is functional. See Verify the installed part.

Installing a PCI adapter contained in a cassette with the power on in the AIX environment

You can install a PCI adapter cassette in a 58/02 or 58/77 expansion unit that is running the AIX environment with the system power on.

Before you begin

Before you begin: Prepare to install a PCI adapter cassette. See “Preparing to install, remove, or replace a PCI adapter cassette” on page 102.

About this task

To install an adapter with the system power on in the AIX environment, do the following steps:

Procedure

1. Refer to “PCI hot-plug manager access for AIX” on page 150, and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.
2. From the PCI Hot-Plug Manager menu, select **Add a PCI Hot-Plug Adapter** and press Enter. The Add a Hot-Plug Adapter window displays.
3. Select the appropriate PCI slot from the ones listed on the screen, and press Enter.
4. Locate the PCI adapter slot and cassette you want to use.
5. If the cassette you want to use does not contain a PCI adapter, continue to the next step. If the cassette you want to use does contain an active PCI adapter, see “Removing a PCI adapter contained in a cassette from the expansion unit with the power on in AIX” on page 109.
6. Remove the PCI adapter cassette from the system. Refer to “Removing a PCI adapter cassette from the expansion unit” on page 107.

7. Install the adapter into the PCI adapter cassette. Refer to “PCI adapter single-width and double-width cassettes” on page 114.
8. Follow the instructions on the screen to install the adapter until the LED for the specified PCI slot is set to the Action state. See “Component LEDs” on page 152.
9. Install the PCI adapter cassette in the system. Refer to “Installing a PCI adapter contained in a cassette” on page 103.
10. Run the **cfgmgr** command to configure the adapter.
11. Verify that the new resource is functional. See Verify the installed part.

Installing a PCI adapter contained in a cassette with the power on in the Linux environment

You can install a PCI adapter cassette in a 58/02 or 58/77 expansion unit that is running the Linux environment with the system power on.

Before you begin

Before you begin: Prepare to install a PCI adapter cassette. See “Preparing to install, remove, or replace a PCI adapter cassette” on page 102.

About this task

To install an adapter with the system power on in the Linux environment, do the following steps:

Procedure

1. Log in to the system console as the root user.
2. Use the `lsslot` tool to list the hot-plug PCI slots that are available in the server or logical partition:

```
lsslot -c pci -a
```

The following is an example of the information displayed by this command:

Slot	Description	Devices
U7879.001.DQD014E-P1-C1	PCI-X capable, 64 bit, 133MHz slot	Empty
U7879.001.DQD014E-P1-C4	PCI-X capable, 64 bit, 133MHz slot	Empty
U7879.001.DQD014E-P1-C5	PCI-X capable, 64 bit, 133MHz slot	Empty

Select the appropriate empty PCI slot from the ones listed by the command.

3. Remove the PCI adapter cassette from the system. Refer to “Removing a PCI adapter cassette from the expansion unit” on page 107.
4. Install the adapter into the PCI adapter cassette. Refer to “PCI adapter single-width and double-width cassettes” on page 114.
5. Ensure the lower cassette handle is pressed up toward the retainer clip. This places the adapter in the correct position to be locked in the system.
6. Run the **drmgr** command to enable an adapter to be installed.

For example, to install an adapter in slot U7879.001.DQD014E-P1-C3, run:

```
drmgr -c pci -r -s locationcode
```

The following displays:

The visual indicator for the specified PCI slot has been set to the identify state. Press Enter to continue or enter x to exit.

7. Press Enter.

The following displays:

The visual indicator for the specified PCI slot has been set to the action state. Insert the PCI card into the identified slot, connect any devices to be configured and press Enter to continue. Enter x to exit.

8. Install the PCI adapter cassette in the system. Refer to “Installing a PCI adapter contained in a cassette” on page 103.
9. Use the `lsslot` command to verify that U7879.001.DQD014E-P1-C3 is occupied.

Enter `lsslot -c pci -s U7879.001.DQD014E-P1-C3`

The following is an example of the information displayed by this command:

Slot	Description	Devices
U7879.001.DQD014E-P1-C3	PCI-X capable, 64 bit, 133MHz slot	0001:40:01.0

Removing a PCI adapter contained in a cassette from the expansion unit

You can remove a PCI adapter cassette from the 58/02 or 58/77 expansion unit.

Removing a PCI adapter contained in a cassette from the expansion unit with the system power off

You can remove a PCI adapter cassette from the 58/02 or 58/77 expansion unit with the system power off.

Before you begin

Before you begin: Prepare to remove a PCI adapter cassette. See “Preparing to install, remove, or replace a PCI adapter cassette” on page 102.

About this task

To remove an adapter, do the following steps:

Procedure

1. Stop the system or logical partition. See Stop the system or logical partition.
2. Disconnect the power source from the system by unplugging the system.
3. Determine the location of PCI adapter in the system.
4. Remove the PCI adapter cassette from the system. Refer to “Removing a PCI adapter cassette from the expansion unit.”
5. Place the cassette with the cover facing up on an approved ESD surface.
6. To remove the adapter from the cassette, refer to “PCI adapter single-width and double-width cassettes” on page 114.

Removing a PCI adapter cassette from the expansion unit

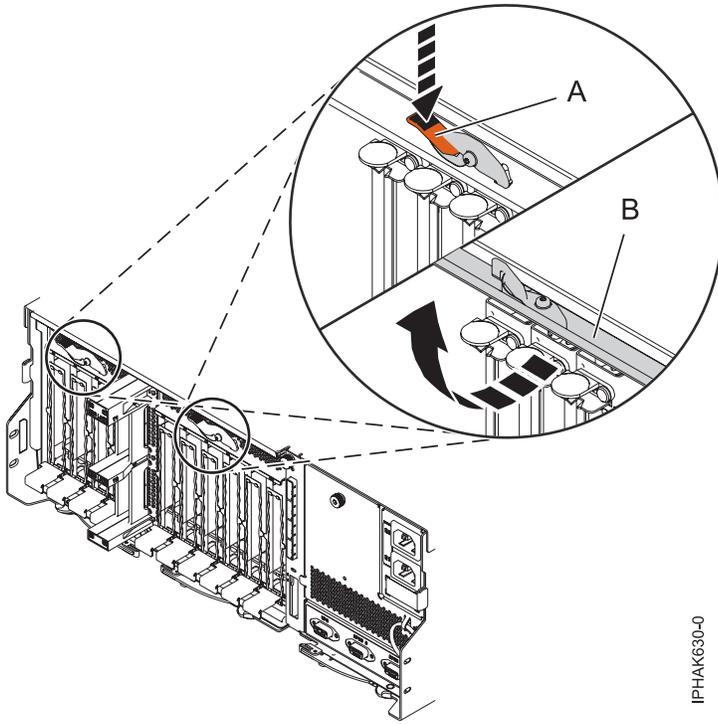
You can remove a PCI adapter cassette from the 58/02 or 58/77 expansion unit.

About this task

To remove a PCI adapter cassette, do the following steps:

Procedure

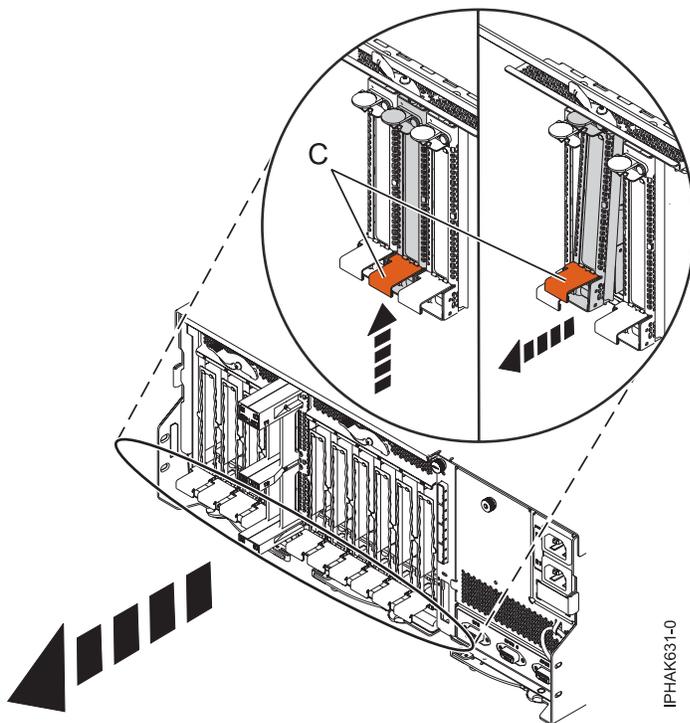
1. Press down on latch **(A)** to release the access door. The access door is spring loaded, which causes it to rotate up into the open position **(B)**.



IPHAK630-0

Figure 86. Opening the access door

2. Lift up the lower cassette handle (C) and pull the cassette out of the unit.



IPHAK631-0

Figure 87. Removing a PCI adapter cassette

Attention: A cassette that contains either a PCI adapter or filler panel must be placed in the PCI adapter slot of the system unit for proper air flow and cooling.

3. Return to the procedure that sent you here.

Removing a PCI adapter contained in a cassette from the expansion unit with the power on in AIX

You can remove or replace a PCI adapter cassette from the 58/02 or 58/77 expansion unit that is running the AIX operating system with the system power on.

Before you begin

Before you begin: Prepare to remove a PCI adapter cassette. See “Preparing to install, remove, or replace a PCI adapter cassette” on page 102.

About this task

Notes:

1. Use this procedure to remove a PCI adapter and leave the slot in the system unit empty.
2. If the adapter that is removed will be placed into a different slot or system, complete this removal procedure, and then install the adapter as described in “Installing a PCI adapter contained in a cassette with the power on in the AIX environment” on page 105.
3. Procedures performed on a PCI adapter with the system power on in AIX, also known as hot-plug procedures, require the system administrator to take the PCI adapter offline prior to performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

To remove an adapter, do the following steps:

Procedure

1. If you are removing a failing PCI adapter, see Identifying a failing part. If you are removing the PCI adapter for other reasons, continue to the next step.
2. Determine the location of PCI adapter in the system.
3. Record the slot number and location of each adapter being removed.

Note: Adapter slots are numbered on the rear of the system unit.

4. Ensure that any processes or applications that might use the adapter are stopped.
5. Enter the system diagnostics by logging in as root user or as the celogin user, and type **diag** at the AIX command line.
6. When the DIAGNOSTIC OPERATING INSTRUCTIONS menu displays, press Enter.
7. At the FUNCTION SELECTION menu, select **Task Selection**, and then press Enter.
8. At the Task Selection list, select **PCI Hot Plug Manager**.
9. Select **Unconfigure a Device**, and then press Enter.
10. Press F4 (or press Esc+4) to display the **Device Names** menu.
11. Select the adapter you are removing in the **Device Names** menu.
12. Use the Tab key to answer N0 to **Keep Definition**. Use the Tab key again to answer YES to **Unconfigure Child Devices**, and then press Enter. The **ARE YOU SURE** screen displays.
13. Press Enter to verify the information. Successful unconfiguration is indicated by the OK message displayed next to the **Command** field at the top of the screen.
14. Press F4 (or press Esc+4) twice to return to the **Hot Plug Manager** menu.
15. Select **Replace/remove PCI Hot Plug adapter**.

16. Select the slot that has the device to be removed from the system.
17. Select **Remove**. A fast-blinking amber LED located at the back of the machine near the adapter indicates that the slot has been identified.
18. Label all cables that are attached to the adapter that you plan to remove.
19. Press Enter. This places the adapter in the action state, meaning it is ready to be removed from the system.
20. Disconnect all cables attached to the adapter that you plan to remove.
21. Remove the PCI adapter cassette from the system. Refer to “Removing a PCI adapter cassette from the expansion unit” on page 107.
22. Place the cassette with the cover facing up on an approved ESD surface.
23. Continue to follow the screen instructions until you receive a message that the adapter removal is successful. Successful removal is indicated by the message OK, which is displayed next to the **Command** field at the top of the screen.
24. If you have other adapters to remove, press the F3 key to return to the PCI Hot-Plug Manager menu, and then return to step 20.
If you do not have other adapters to remove, continue with the next step.
25. Press F10 to exit the Hot-Plug Manager.
26. Run the **diag -a** command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.
27. To remove the adapter from the cassette, see “PCI adapter single-width and double-width cassettes” on page 114.
28. Place an empty cassette into the unused PCI slot for proper air flow.

Removing a PCI adapter contained in a cassette from the expansion unit with the power on in Linux

You can remove a PCI adapter cassette from the 58/02 or 58/77 expansion unit that is running the Linux operating system with the system power on.

Before you begin

Do the following actions before beginning the procedure:

- Follow the steps in “Preparing to install, remove, or replace a PCI adapter cassette” on page 102.
- Ensure that the system meets the “Prerequisites for hot-plugging PCI adapters in Linux” on page 153.
- Verify that the Linux, hot-plug PCI tools are installed. See “Verifying that the hot-plug PCI tools are installed for Linux” on page 153

About this task

To remove an adapter, do the following steps:

Procedure

1. Determine the location of the PCI adapter in the system.
2. Label and then disconnect all cables attached to the adapter you plan to remove.
3. Run the **drmgr** command to enable an adapter to be removed:
For example, to remove the PCI adapter in slot U7879.001.DQD014E-P1-C3 run this command:
`drmgr -c pci -r -s locationcode`
Follow the instructions on the display to complete the task.
4. Remove the PCI adapter cassette from the system. Refer to “Removing a PCI adapter cassette from the expansion unit” on page 107.
5. Place the cassette with the cover facing up on an approved ESD surface.

6. To remove an adapter from the cassette, refer to “PCI adapter single-width and double-width cassettes” on page 114.

Replacing a PCI adapter contained in a cassette from the expansion unit

You can replace a PCI adapter cassette from the 58/02 or 58/77 expansion unit.

Replacing a PCI adapter contained in a cassette from the expansion unit with the power off

You can replace a PCI adapter cassette from the 58/02 or 58/77 expansion unit with the system power off.

Before you begin

You must have already completed the procedure “Removing a PCI adapter contained in a cassette from the expansion unit with the system power off” on page 107 to have the slot powered off.

About this task

To replace an adapter with the system power off, do the following steps:

Procedure

1. If the adapter needs to be placed in a PCI adapter cassette, see “PCI adapter single-width and double-width cassettes” on page 114.
2. At the back of the system, lift the cassette cover flap and identify the cassette slot you want to use.
3. Ensure the lower cassette handle is pressed up toward the retainer clip. This places the adapter in the correct position to be docked in the system.
4. Install the PCI adapter cassette in the system. Refer to “Installing a PCI adapter contained in a cassette” on page 103.
5. Reconnect the system to the power source.
6. Start the system or logical partition. Refer to Start the system or logical partition.
7. Verify that the new resource is functional. See Verify the installed part.

Replacing a PCI adapter contained in a cassette from the expansion unit with the power on in AIX

You can remove or replace a PCI adapter cassette from the 58/02 or 58/77 expansion unit that is running the AIX operating system with the system power on.

Before you begin

Before you begin: Prepare to replace a PCI adapter cassette. See “Preparing to install, remove, or replace a PCI adapter cassette” on page 102.

About this task

Important:

- Use this procedure if you intend to remove a failing PCI adapter and replace it with the same type of adapter. If you plan to remove a failing adapter and leave the slot empty, see “Removing a PCI adapter contained in a cassette from the expansion unit with the power on in AIX” on page 109.
- Do not use this procedure to remove an existing adapter and install a different type of adapter. To install a different adapter, remove the existing adapter as described in “Removing a PCI adapter

contained in a cassette from the expansion unit with the power on in AIX” on page 109, and then install the new adapter as described in “Installing a PCI adapter contained in a cassette with the power on in the AIX environment” on page 105.

- Procedures performed on a PCI adapter with the system power on in AIX, also known as hot-plug procedures, require the system administrator to take the PCI adapter offline prior to performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

To replace an adapter, do the following steps:

Procedure

1. Determine the location of the PCI adapter in the system.
2. Record the slot number and location of each adapter being removed.

Note: Adapter slots are numbered on the rear of the system unit.

3. Ensure that any processes or applications that might use the adapter are stopped.
4. Enter the system diagnostics by logging in as root user or as the celogin user, and type **diag** at the AIX command line.
5. When the DIAGNOSTIC OPERATING INSTRUCTIONS menu displays, press Enter.
6. At the FUNCTION SELECTION menu, select **Task Selection**, and then press Enter.
7. At the Task Selection list, select **PCI Hot Plug Manager**.
8. Select **Unconfigure a Device**, and then press Enter.
9. Press F4 (or Esc+4) to display the **Device Names** menu.
10. Select the adapter that you are removing in the **Device Names** menu.
11. Use the Tab key to answer YES to **Keep Definition**. Use the Tab key again to answer YES to **Unconfigure Child Devices**, and then press Enter. The **ARE YOU SURE** screen displays.
12. Press Enter to verify the information. Successful unconfiguration is indicated by the message OK, which is displayed next to the **Command** field at the top of the screen.
13. Press F3 (or Esc+3) twice to return to the **Hot Plug Manager** menu.
14. Select **Replace/remove PCI Hot Plug adapter**.
15. Select the slot that has the device to be removed from the system.
16. Select **Replace**.

Note: A fast-blinking amber LED located at the back of the machine near the adapter indicates that the slot has been identified.

17. Press Enter. This places the adapter in the action state, meaning it is ready to be removed from the system.
18. Label and then disconnect all cables attached to the adapter that you plan to remove.
19. Remove the PCI adapter cassette from the system. Refer to “Removing a PCI adapter cassette from the expansion unit” on page 107.
20. Place the cassette with the cover facing up on an approved ESD surface.
21. Install the adapter into the PCI adapter cassette. Refer to “PCI adapter single-width and double-width cassettes” on page 114.
22. At the back of the system, lift the cassette cover flap and identify the cassette slot you want to use.
23. Ensure the lower cassette handle is pressed up toward the retainer clip. This places the adapter in the correct position to be docked in the system.
24. Install the PCI adapter cassette in the system. Refer to “Installing a PCI adapter contained in a cassette” on page 103.

25. Press Enter and continue to follow the screen instructions until you receive a message that the replacement is successful. Successful replacement is indicated by the message OK, which is displayed next to the **Command** field at the top of the screen.
26. Press the F3 (or Esc+3) key to return to the **PCI Hot-Plug Manager** menu.
27. Press the F3 (or Esc+3) key to return to the **TASK** selection list.
28. Select **Log Repair Action**.
29. Select the resource just replaced, press Enter, press Commit (F7 or ESC 7), and then press Enter.
30. Press F3 (or Esc+3) to return to **TASK Selection List**.
31. Select **Hot Plug Task**, press Enter.
32. Select **PCI Hot Plug Manager**, and then select **Configure a defined device**, then press Enter.
33. Select the device just replaced from the list, and then press Enter. The device is now configured.
34. Press the F10 key to exit the diagnostic program.
35. Verify the PCI adapter by using the following instructions:
 - a. Did you replace the adapter with the system power on?
 - Yes: Go to the next step.
 - No: Load the diagnostic program by doing the following steps:
 - If AIX is available, boot AIX, log in as root or CELOGIN, and then enter the **diag** command.
 - b. Type the **diag** command if you are not already displaying the diagnostic menus.
 - c. Select **Advance Diagnostic Routines**, and then select **Problem Determination**.
 - d. Select the name of the resource just replaced from the menu. If the resource just replaced is not shown, choose the resource associated with it. Press Enter, and then press **Commit** (F7 or Esc+7).
 - e. Did the Problem Determination identify any problems?
 - No: Continue to the next step.
 - Yes: A problem is identified
 - If you are a customer, record the error information, and then contact your service provider.
 - If you are an authorized service provider, return to map 210-5.
36. Press the F10 key to exit the diagnostic program.

Replacing a PCI adapter contained in a cassette from the expansion unit with the power on in Linux

You can replace a PCI adapter cassette from the 58/02 or 58/77 expansion unit that is running the Linux operating system with the system power on.

Before you begin

You must have already completed the procedure “Removing a PCI adapter contained in a cassette from the expansion unit with the power on in Linux” on page 110 to have the slot powered off.

About this task

Note: Use this procedure only when you are replacing an adapter with an identical adapter. If you are replacing an adapter with an adapter that is not identical to the adapter removed, follow the steps in “Installing a PCI adapter contained in a cassette with the power on in the Linux environment” on page 106.

To replace an adapter with the power on in Linux, do the following steps:

Procedure

1. If the adapter needs to be placed in the PCI adapter cassette, see “PCI adapter single-width and double-width cassettes” on page 114.

2. At the back of the system, lift the cassette cover flap and identify the cassette slot you want to use.
3. Ensure the lower cassette handle is pressed up toward the retainer clip. This places the adapter in the correct position to be docked in the system.

4. Run the **drmgr** command to enable an adapter to be replaced:

For example, to replace the PCI adapter in slot U7879.001.DQD014E-P1-C3 run this command:

```
drmgr -c pci -r -s locationcode
```

5. Follow the instructions on the display to complete the task. When you are instructed to insert the adapter in the adapter slot, see “Installing a PCI adapter cassette” on page 103.

6. Run the **lsslot** command to verify that the slot is occupied.

For example, Enter `lsslot -c pci -s U7879.001.DQD014E-P1-C3`

The following is an example of the information displayed by this command:

Slot	Description	Devices
U7879.001.DQD014E-P1-C3	PCI-X capable, 64 bit, 133MHz slot	0001:40:01.0

PCI adapter single-width and double-width cassettes

You can remove, replace, or install PCI adapters in a cassette.

Removing an adapter from the PCI adapter single-width cassette

You can remove a PCI adapter from a single-width cassette.

About this task

To remove an adapter from the single-width cassette, do the following steps:

Procedure

1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. Remove the cassette from the system.
4. Remove the cassette cover by doing the following steps:
 - a. Slide the cover latch (**A**) to disengage the lug and pivot pin (**C**) as shown in the following figure.
 - b. Lift the cover (**B**) off the pivot pin.
 - c. Slide the cover off the cassette.

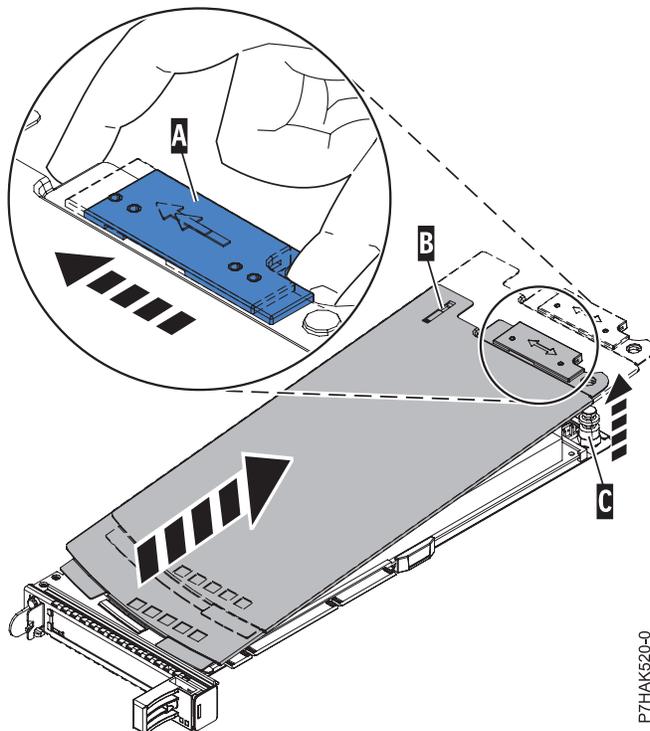


Figure 88. PCI adapter cassette cover removed

5. Remove the adapter from the cassette by doing the following steps:

- a. Unlock the adapter retainers by rotating the retainer clip (A) into the horizontal position. See Figure 89 on page 116.

Notes:

- 1) The edge of the adapter located at the end of the cassette that contains the cassette handles is called the adapter **tailstock**.
 - 2) Two retainers are located at the top of the cassette, along the top edge of the adapter. Two more retainers are located at the edge of the cassette opposite of the adapter tailstock.
 - 3) When the retainer clip is in the horizontal position, the adapter retainers are unlocked and can slide away from the card.
 - 4) If the corner support retainer is used, unlock it, and then slide the corner support retainer away from the card.
- b. Push the adapter retainers (B) away from the adapter.
 - c. Unlock the adapter tailstock clamp (C).
 - d. Rotate the adapter out of the cassette by grasping the edge of the adapter opposite the tailstock, and then firmly rotate the adapter toward the bottom of the cassette.
 - e. Lift the adapter out of the tailstock retaining channel.

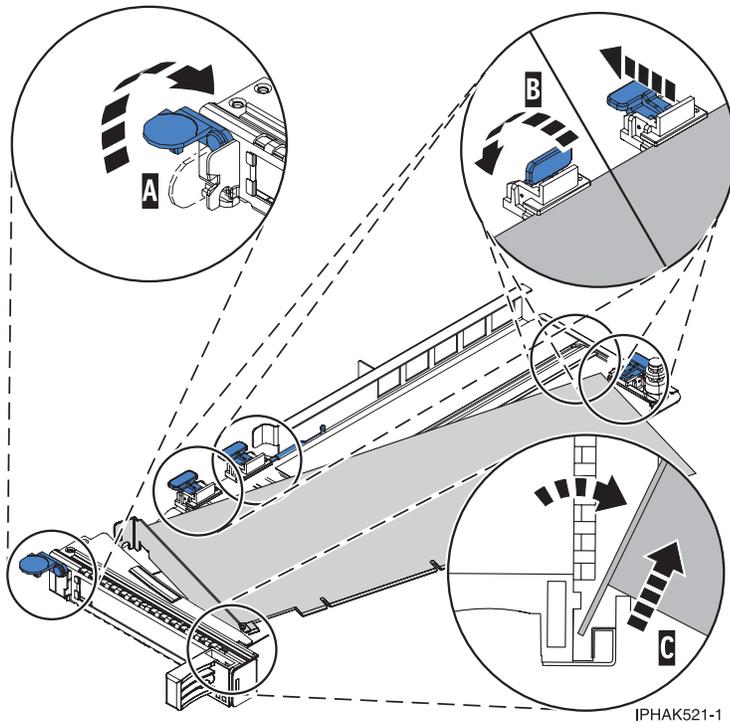


Figure 89. Adapter removed from the PCI adapter cassette

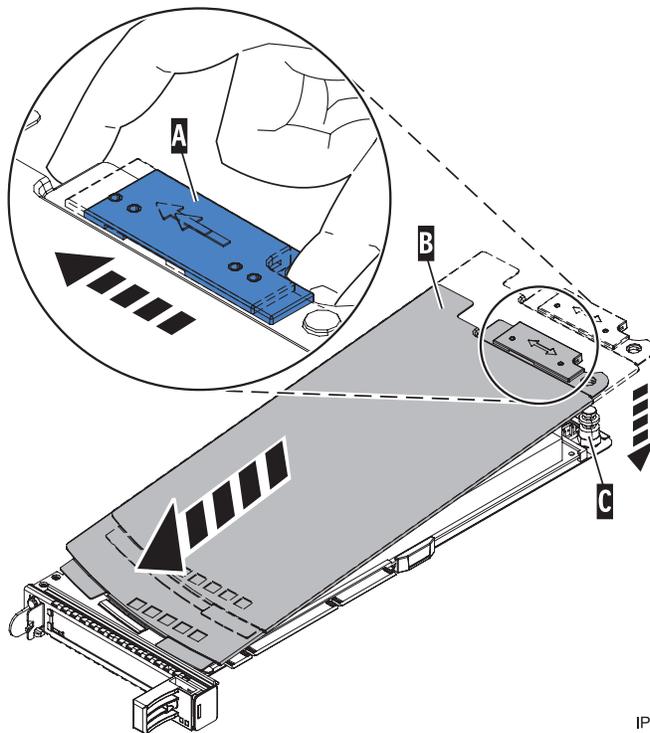
f. Put the adapter in a safe place.

Attention: A cassette containing either a PCI adapter or filler panel must be placed in the PCI adapter slot of the system unit for proper air flow and cooling.

g. Place a PCI adapter or filler panel in the cassette. See “Placing a PCI adapter in a single-width cassette” on page 117.

h. Replace the cassette cover by doing the following steps:

- 1) Slide the cover (B) into position on the cassette.
- 2) While holding the cover latch (A) in the open position, place the cover over the pivot pin (C).
- 3) Release the cover latch to lock the cover into place.



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Figure 90. PCI adapter cassette cover replaced

Placing a PCI adapter in a single-width cassette

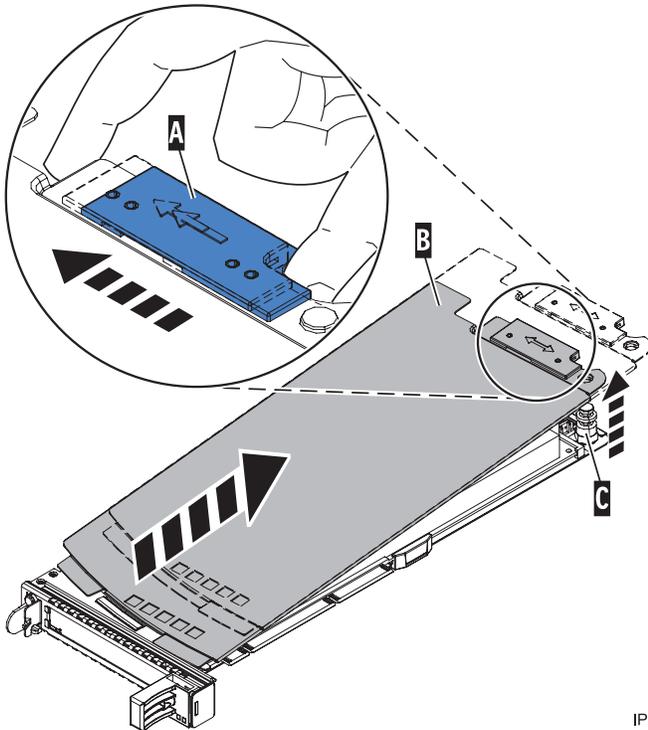
You can place a PCI adapter in a single-width cassette.

About this task

To place a PCI adapter in a cassette, do the following steps:

Procedure

1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Safety notices” on page 140 and “Handling static-sensitive devices” on page 145.
3. Remove any shipping handles or brackets attached to the adapter.
4. Remove the cassette cover by doing the following steps:
 - a. Slide the cover latch (A) to disengage the lug and pivot pin (C) as shown in the following figure.
 - b. Lift the cover (B) off of the pivot pin.
 - c. Slide the cover off of the cassette.



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Figure 91. PCI adapter single-width cassette cover removed

5. Ensure the cassette is prepared to receive an adapter by doing the following steps:
 - a. Ensure the cassette is empty by doing one of the following steps:
 - “Removing an adapter from the PCI adapter single-width cassette” on page 114.
 - Remove the adapter filler panel from the cassette.
 - b. Ensure that all of the adapter retainers (A) have been pushed out to the edges of the cassette to allow the placement of the adapter. See Figure 92 on page 119.

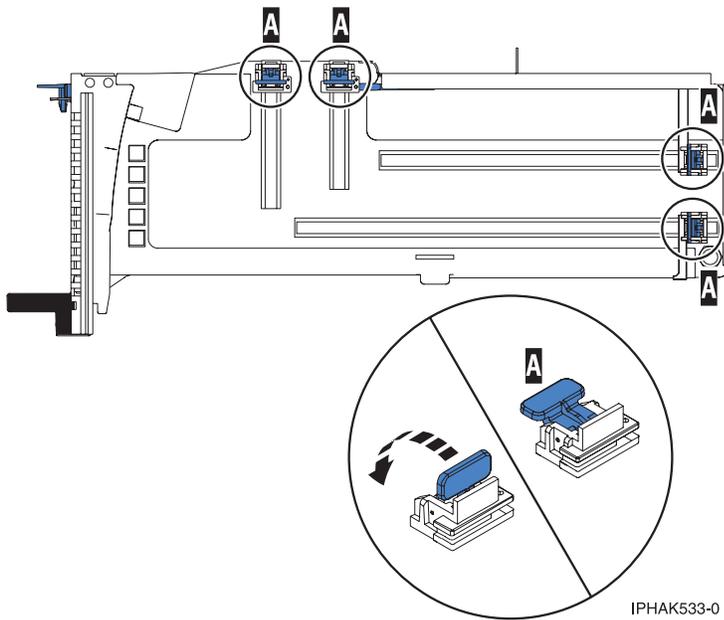


Figure 92. Adapter retainers

- c. Rotate the tailstock clamp into the open position.

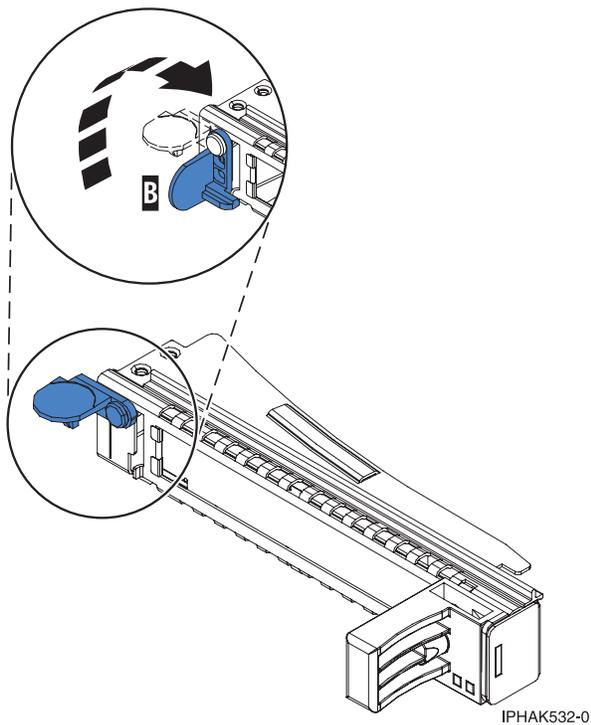
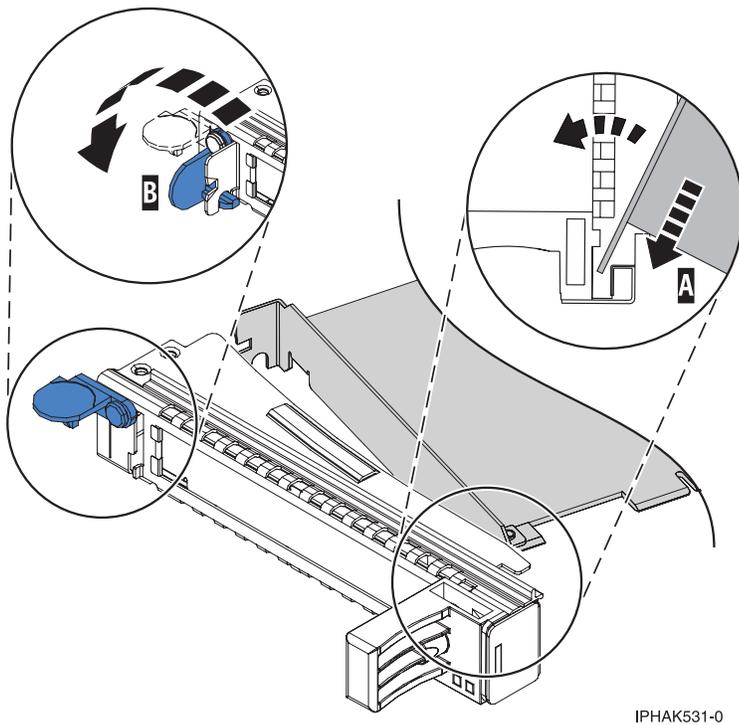


Figure 93. Tailstock clamp in the open position

6. Place the adapter in the cassette by doing the following steps:
 - a. With the tailstock clamp in the open position, insert the adapter firmly into the tailstock retaining channel (A). See Figure 94 on page 120.
 - b. Rotate the adapter toward the top of the cassette and into place.

c. Close the tailstock clamp (B). See Figure 94.



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Figure 94. Adapter removed from the PCI adapter single-width cassette

d. Position the adapter retainers to support the adapter, and then rotate the retainer clip into the closed position.

Notes:

- 1) Two retainers are located at the top of the cassette, along the top edge of the adapter. Two more retainers are located at the edge of the cassette opposite of the adapter tailstock.
- 2) When the adapter retainer clip is in the horizontal position, the adapter retainers are unlocked and can slide toward the adapter.
- 3) Place the retainers on the adapter according to the length of the adapter being used. Select the appropriate instructions:

Adapter-cassette retainer placement for large adapters

- a) Place and lock the retainers (B). See Figure 95 on page 121.

Attention: Use of the lower corner support retainer might interfere with the docking of the PCI card when positioned within the system. Ensure the retainer does not interfere with the adapter connectors on the system backplane.

- b) Ensure the adapter edge is seated in each retainer groove (A). If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.

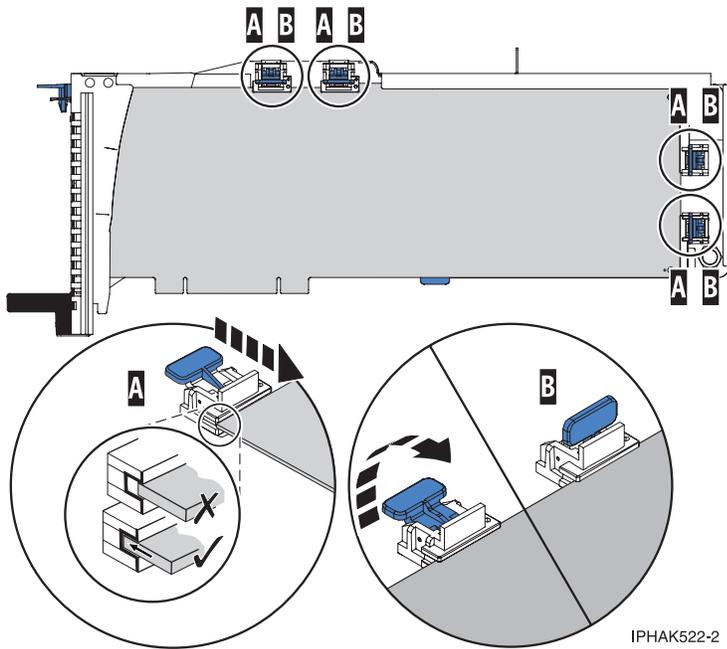
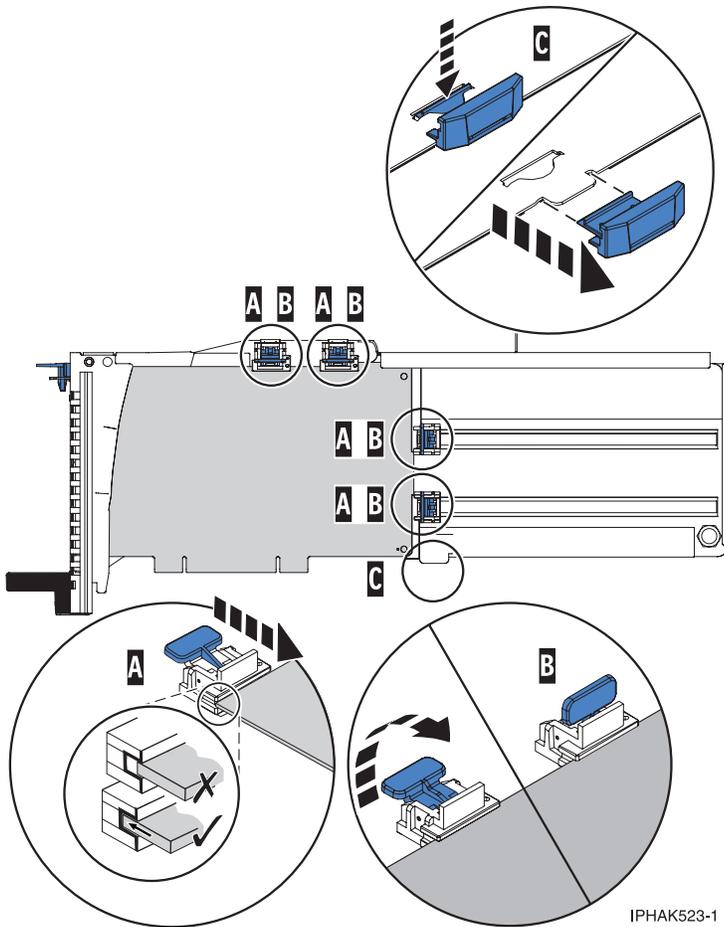


Figure 95. Large adapter in the PCI adapter cassette with the supports and stabilizer in place

Adapter-cassette retainer placement for medium-length adapters

- a) Remove the adapter stabilizer (C). See Figure 96 on page 122.
- b) Place and lock the retainers (B).
- c) Ensure the adapter edge is seated in each retainer groove (A). If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.



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Figure 96. Medium-length adapter in the PCI adapter cassette with the supports in place

Adapter-cassette retainer placement for small adapters

- Remove the adapter stabilizer (C). See Figure 97 on page 123.
- Place the hookarm (D) into the hole in the corner of the adapter. This supports the card when it is undocked from the connector on the system backplane.
- Place and lock the retainers (B).
- Ensure the adapter edge is seated in each retainer groove (A). If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.

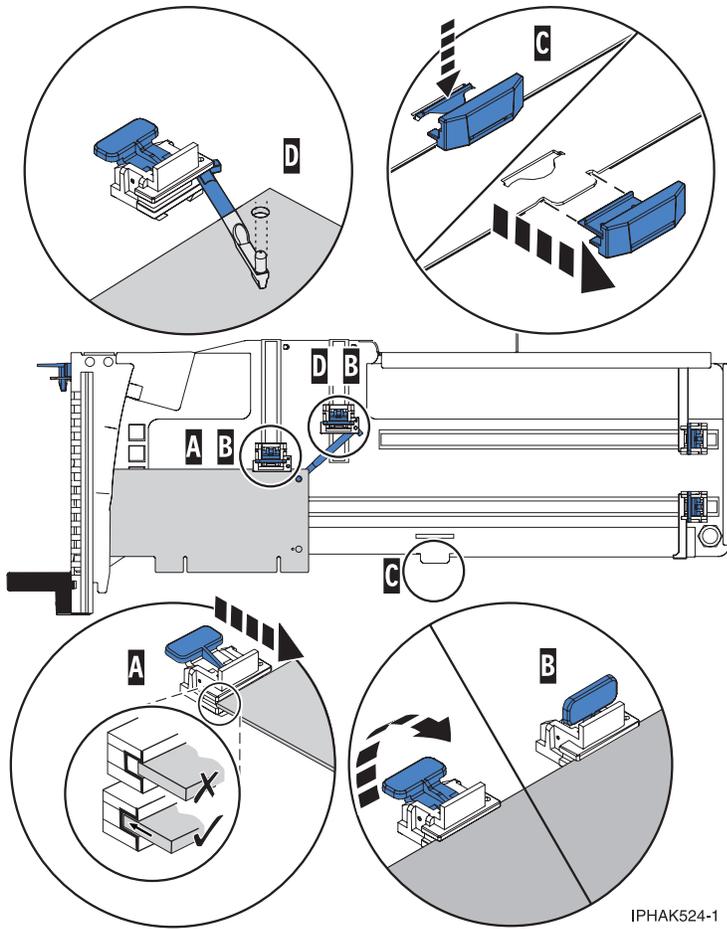
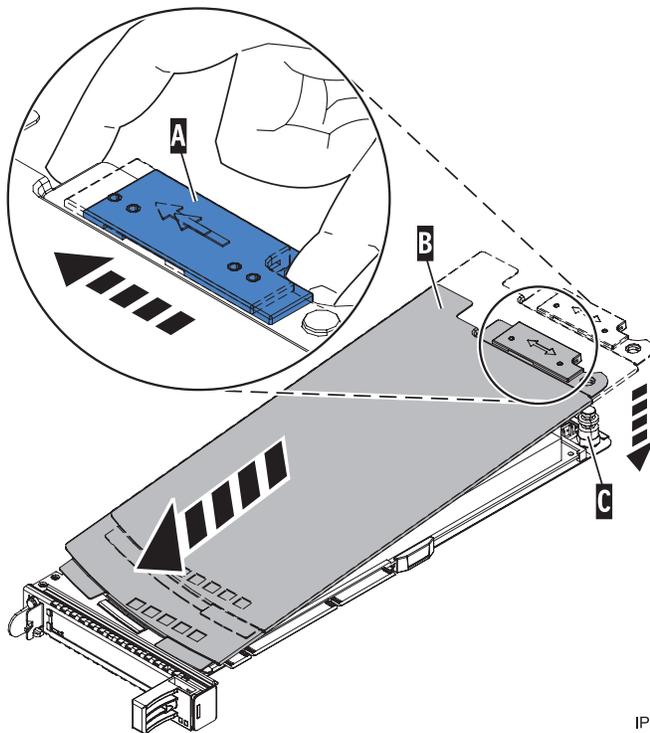


Figure 97. Small adapter in the PCI adapter cassette with the supports and the hookarm in place

7. Replace the cassette cover by doing the following steps:
 - a. Slide the cover (B) into position on the cassette as shown in the following figure.
 - b. While holding the cover latch (A) in the open position, place the cover over the pivot pin (C).
 - c. Release the cover latch to lock the cover into place.



IPHA530-0

Figure 98. PCI adapter cassette cover replaced

Removing an adapter from the PCI adapter double-wide cassette

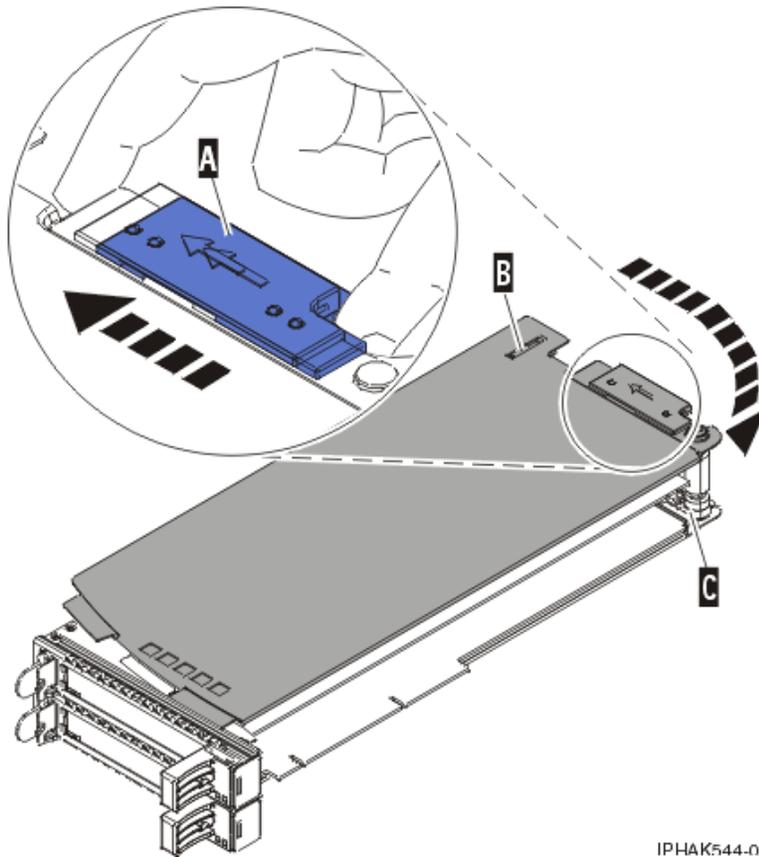
You can remove a PCI adapter from a double-wide cassette.

About this task

To remove an adapter from the cassette, do the following steps:

Procedure

1. Perform the prerequisite tasks described in "Before you begin" on page 132.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Safety notices" on page 140 and "Handling static-sensitive devices" on page 145.
3. Remove the PCI adapter contained in a cassette from the system.
4. Remove any shipping handles or brackets attached to the adapter.
5. Remove the cassette cover by doing the following steps:
 - a. Slide the cover latch (A) to disengage it from the pivot pin (C) as shown in the following figure.
 - b. Lift the cover (B) off of the pivot pin.
 - c. Slide the cover off of the cassette.



IPHAK544-0

Figure 99. PCI adapter cassette cover removed

- d. Unscrew pivot pin (C) and put it in a safe place
6. Remove the adapter from the cassette by doing the following steps:
 - a. Unlock the adapter retainers (B) by rotating the retainer clips (A) into the horizontal position. See Figure 100 on page 126. If you are removing a PCIe RAID and SSD SAS adapter, see Figure 101 on page 126.

Notes:

- 1) The edge of the adapter located at the end of the cassette that contains the cassette handles is called the adapter *tailstock*.
 - 2) Two retainers are located at the top of the cassette, along the top edge of the adapter. Two more retainers are located at the edge of the cassette opposite of the adapter tailstock.
 - 3) When the retainer clip is in the horizontal position, the adapter retainers are unlocked and can slide away from the card.
 - 4) If the corner support retainer is used, unlock it, and then slide the corner support retainer away from the card.
- b. Push the adapter retainers (B) away from the adapter.
 - c. Unlock the adapter tailstock clamp (A).
 - d. Rotate the adapter out of the cassette by grasping the edge of the adapter opposite the tailstock, and then firmly rotate the adapter toward the bottom of the cassette.
 - e. Lift the adapter out of the tailstock retaining channel (C).

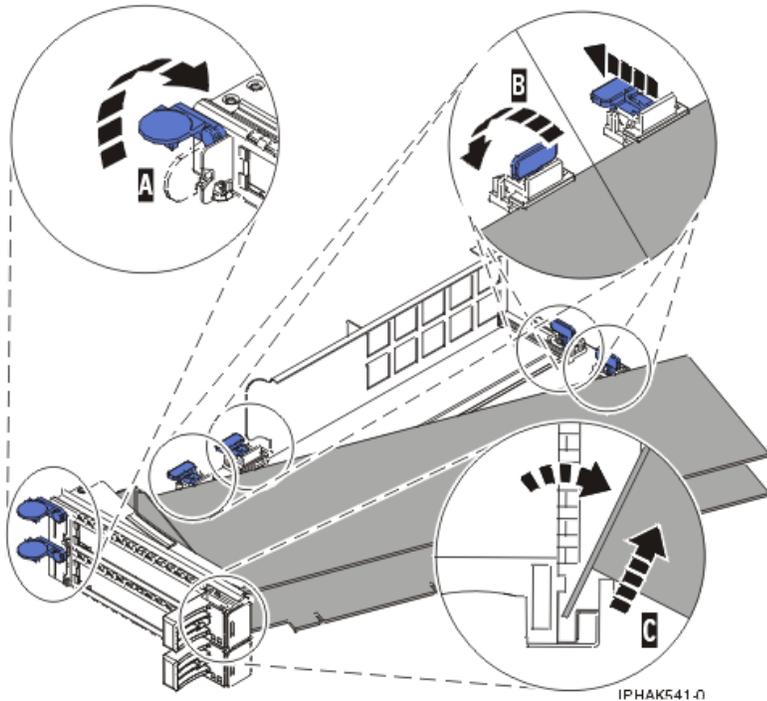


Figure 100. Adapter removed from the PCI adapter cassette

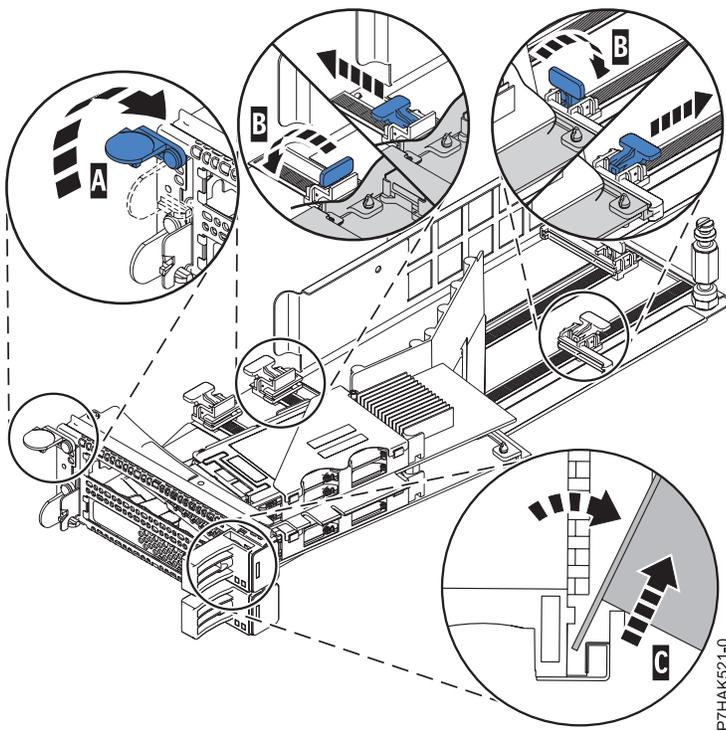


Figure 101. PCIe RAID and SSD SAS adapter removed from the PCI adapter cassette

f. Put the adapter in a safe place.

Attention: A cassette containing either a PCI adapter or filler panel must be placed in the PCI adapter slot of the system unit for proper air flow and cooling.

- g. Place the adapter in the PCI adapter double-wide cassette. For information, see “Placing an adapter in the PCI adapter double-wide cassette.”

Note: If the cassette is not going to contain a PCI adapter, use this same procedure to place an adapter filler panel in the cassette.

- h. Replace the cassette cover by doing the following steps:
 - 1) Screw pivot pin (C) into place.
 - 2) Slide the cover (B) into position on the cassette.
 - 3) While holding the cover latch (A) in the open position, place the cover over the pivot pin (C).
 - 4) Release the cover latch to lock the cover into place.

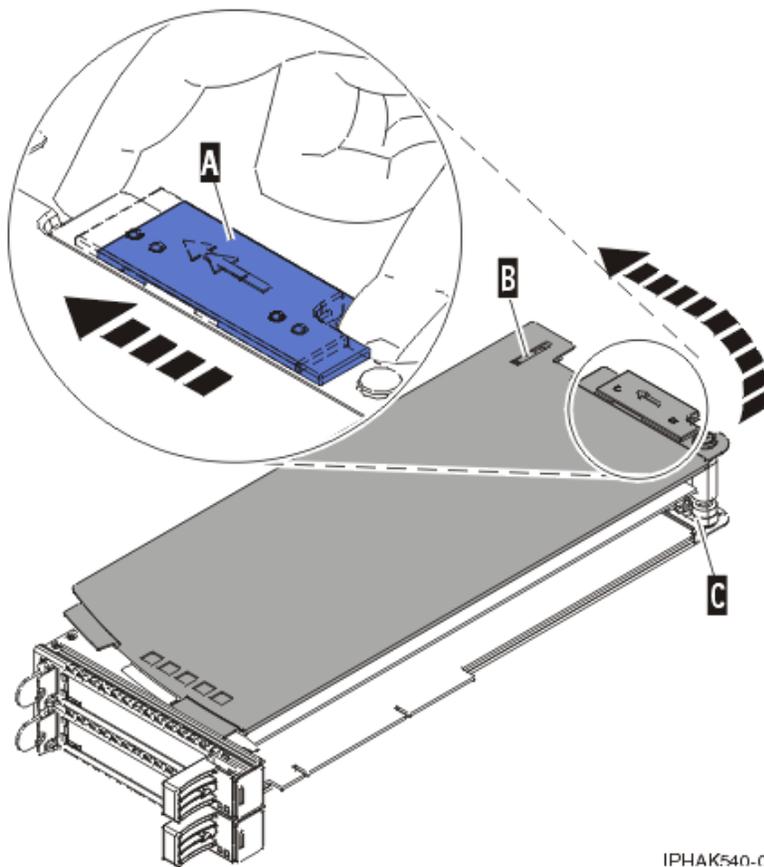


Figure 102. PCI adapter cassette cover replaced

Placing an adapter in the PCI adapter double-wide cassette

You can place a PCI adapter in a double-wide cassette.

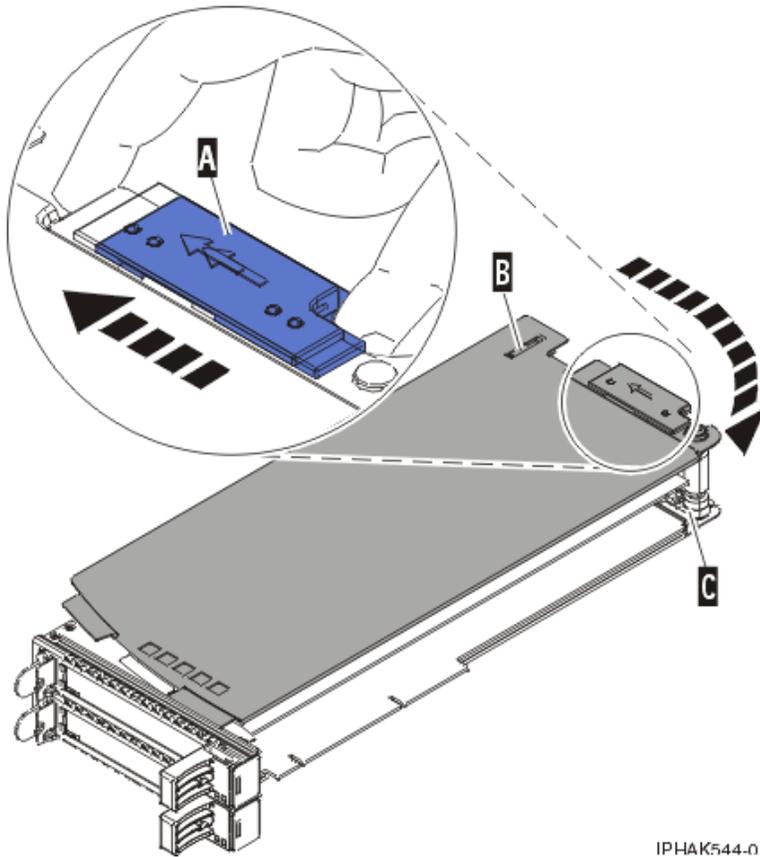
About this task

To place an adapter in a cassette, do the following steps:

Procedure

1. Perform the prerequisite tasks described in “Before you begin” on page 132.
2. Remove the PCI adapter contained in a cassette from the system.
3. Remove the cassette cover by doing the following steps:
 - a. Slide the cover latch (A) to disengage it from the pivot pin (C) as shown in the following figure.

- b. Lift the cover (B) off of the pivot pin.
- c. Slide the cover off of the cassette.



IPHAK544-0

Figure 103. PCI adapter cassette cover removed

- d. Unscrew pivot pin (C) and put it in a safe place.
4. Ensure the cassette is prepared to receive an adapter by doing the following steps:
 - a. Ensure the cassette is empty by doing one of the following steps:
 - Remove the adapter from the PCI adapter double-wide cassette. For information, see “Removing an adapter from the PCI adapter double-wide cassette” on page 124.
 - Remove the adapter filler panel from the cassette.
 - b. Ensure that all of the adapter retainers have been pushed out to the edges of the cassette to allow the placement of the adapter.
 - c. Place the tailstock clamp in the open position by pressing the cassette handle towards the retainer clip.
5. If necessary, remove the new adapter from the antistatic package.

Attention: Avoid touching the components and gold connectors on the adapter.

6. Place the new adapter, component-side up, on a flat, static-protective surface.
7. For PCIe RAID and SSD SAS adapters, install the new air dam onto the new adapter.
 - a. Slide the air dam (A) between the two cards and align the three holes in the air dam with the three holes on the card edges. See the following figure.
 - b. Insert the three plastic rivets (B) into the card and air dam holes.
 - c. Insert the three plastic push pins (C) into the three plastic rivets.

- d. Label the location of each solid state disk (SSD) while you transfer the SSDs from the replaced adapter to the same location on the new adapter you are installing. For information about replacing SSDs, see Replacing an SSD module on the PCIe RAID and SSD SAS adapter. Repeat this step for each SSD.

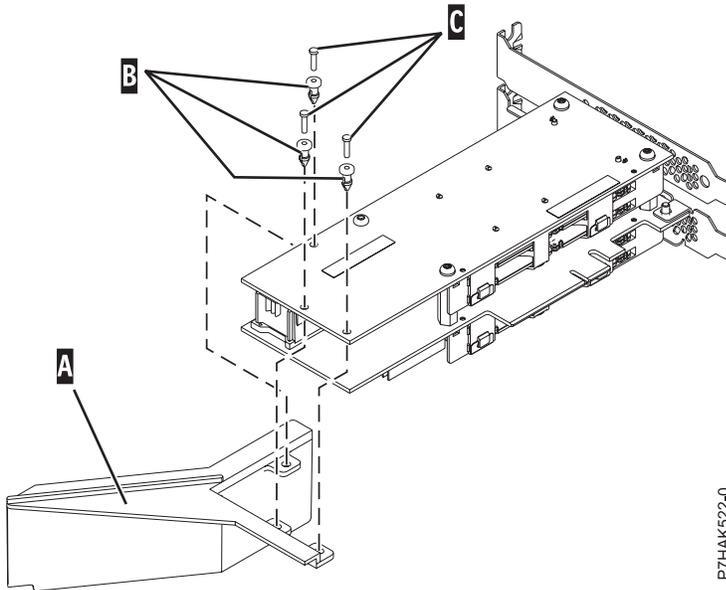


Figure 104. Installing an air dam onto the new PCIe RAID and SSD SAS adapter

8. Place the adapter in the cassette by doing the following steps:
 - a. With the tailstock clamp in the open position, insert the adapter firmly into the tailstock retaining channel (A). For a typical PCI adapter, see Figure 105 on page 130. For a PCIe RAID and SSD SAS adapter, see Figure 106 on page 130.
 - b. Rotate the adapter toward the top of the cassette and into place.
 - c. Close the tailstock clamp (C).

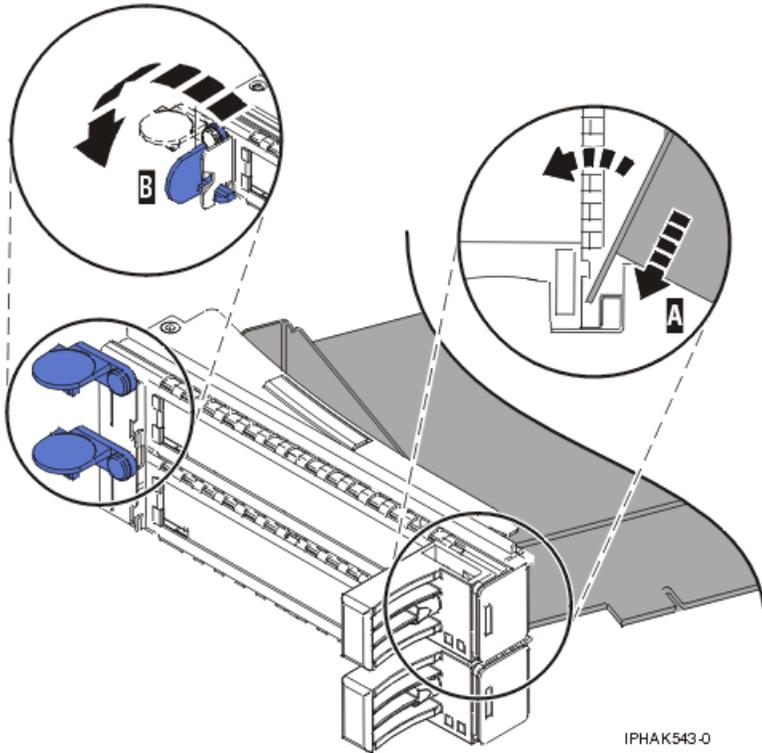


Figure 105. Adapter replaced in the PCI adapter cassette

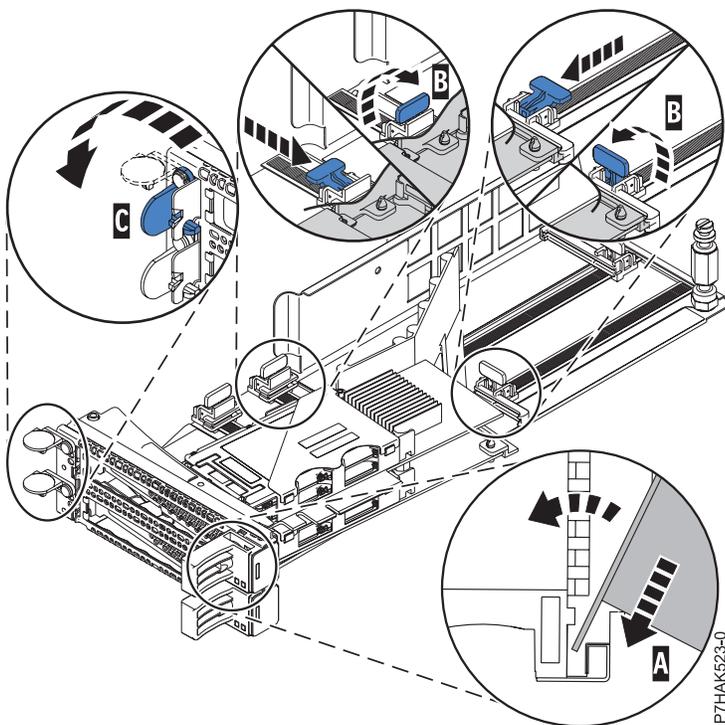


Figure 106. Replacing a PCIe RAID and SSD SAS adapter into the PCI adapter cassette

- d. Position the adapter retainers to support the adapter, and then rotate the retainer clip **(B)** into the closed position.

Notes:

- 1) Two retainers are located at the top of the cassette, along the top edge of the adapter. Two more retainers are located at the edge of the cassette opposite of the adapter tailstock.
- 2) When the adapter retainer clip is in the horizontal position, the adapter retainers are unlocked and can slide toward the adapter.
- 3) Place and lock the retainers (**B**). See Figure 107.

Attention: Use of the lower corner support retainer might interfere with the docking of the PCI card when positioned within the system. Ensure the retainer does not interfere with the adapter connectors on the system backplane.

- 4) Ensure the adapter edge is seated in each retainer groove (**A**). If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.

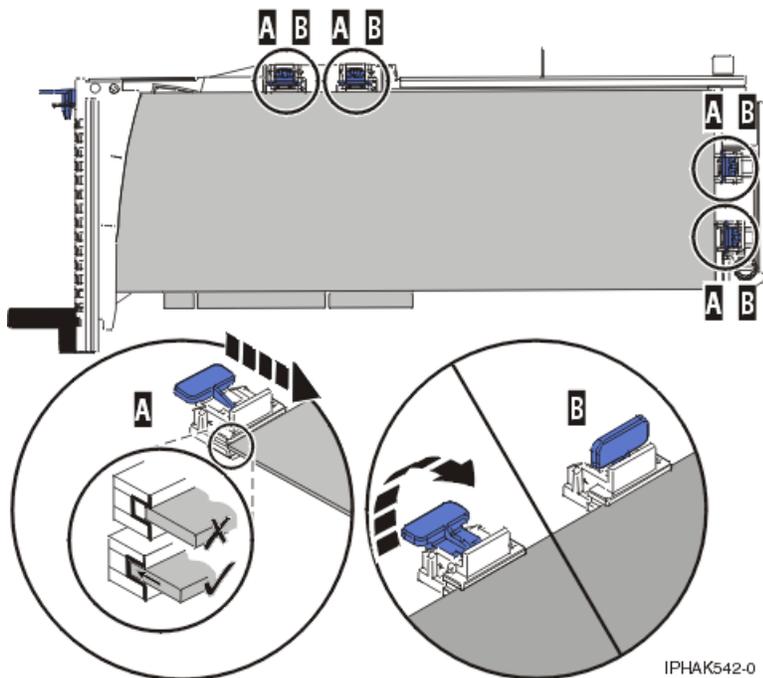


Figure 107. Long adapter in the PCI adapter cassette with the supports and stabilizer in place

9. After the retainers are placed, replace the cassette cover by doing the following steps:
 - a. Screw pivot pin (**C**) into place.
 - b. Slide the cover (**B**) into position on the cassette as shown in the following figure.
 - c. While holding the cover latch (**A**) in the open position, place the cover over the pivot pin (**C**).
 - d. Release the cover latch to lock the cover into place.

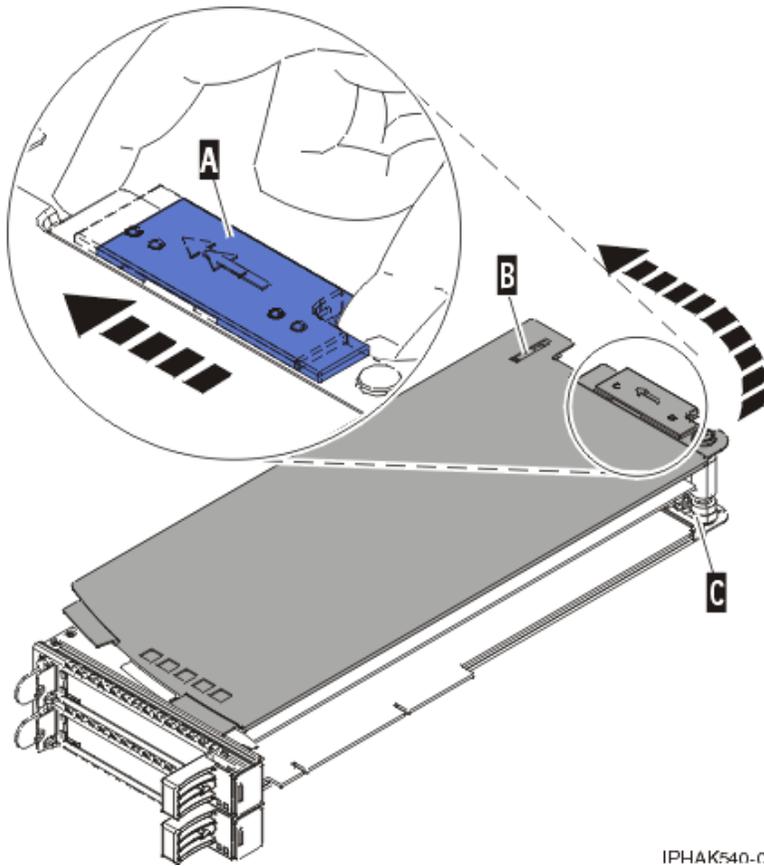


Figure 108. PCI adapter cassette cover replaced

10. Replace the PCI adapter contained in a cassette in the system.

Attention: A cassette containing either a PCI adapter or filler panel must be placed in the PCI adapter slot of the system unit for proper air flow and cooling.

Related procedures for installing and removing PCI adapters

These procedures are related to installing and removing PCI adapters.

Before you begin

Observe these precautions when you are installing, removing, or replacing features and parts.

About this task

These precautions are intended to create a safe environment to service your system and do not provide steps for servicing your system. The installation, removal, and replacement procedures provide the step-by-step processes required to service your system.

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the provided power cord. Do not use the provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. Attach the power cords to the outlets.
5. Turn on the devices.

(D005a)

DANGER

Observe the following precautions when working on or around your IT rack system:

- Heavy equipment—personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.
- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices.



- Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

CAUTION

- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers.)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.
- *(For fixed drawers.)* This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack.

(R001)

Before you begin a replacement or installation procedure, perform these tasks:

Procedure

1. If you are installing a new feature, ensure that you have the software required to support the new feature.
2. If you are performing an installation or replacement procedure that might put your data at risk, ensure, wherever possible, that you have a current backup of your system or logical partition (including operating systems, licensed programs, and data).
3. Review the installation or replacement procedure for the feature or part.
4. Note the significance of color on your system.

Blue or terra-cotta on a part of the hardware indicates a touch point where you can grip the hardware to remove it from or install it in the system, open or close a latch, and so on. Terra-cotta might also indicate that the part can be removed and replaced with the system or logical partition power on.

5. Ensure that you have access to a medium flat-blade screwdriver, a Phillips screwdriver, and a pair of scissors.
6. If parts are incorrect, missing, or visibly damaged, do the following:
 - If you are replacing a part, contact the provider of your parts or next level of support.
 - If you are installing a feature, contact one of the following service organizations:
 - The provider of your parts or next level of support.
7. If you encounter difficulties during the installation, contact your service provider, or your next level of support.
8. If you are installing new hardware in a logical partition, you need to understand and plan for the implications of partitioning your system. For information, see Logical Partitioning.

Identifying a part

Use these instructions to learn how to identify the location of a failed part, the location of a part to be removed, or the location to install a new part on your system or expansion unit using the appropriate method for your system.

About this task

For systems servers that contain the POWER7[®] processor, the light-emitting diodes (LEDs) can be used to identify or verify the location of a part that you are removing, servicing, or installing.

The combination identify and fault LED (amber color) shows the location of a field replaceable unit (FRU). When removing a FRU, first verify whether you are working on the correct FRU by using the identify function in the management console or other user interface. When removing a FRU under the direction of the hardware management console, the identify function is activated and deactivated automatically at the correct times.

The identify function causes the amber LED to blink. When you turn off the identify function, the LED returns to the state it was previously. For parts that have a blue service button, the identify function sets LED information for the service button so that when the button is pressed, the correct LEDs on that part blink.

If you need to use the identify function, use the following procedures.

Control panel LEDs

Use this information as a guide to the control panel LEDs and buttons.

The control panel has LEDs that indicate various system status.

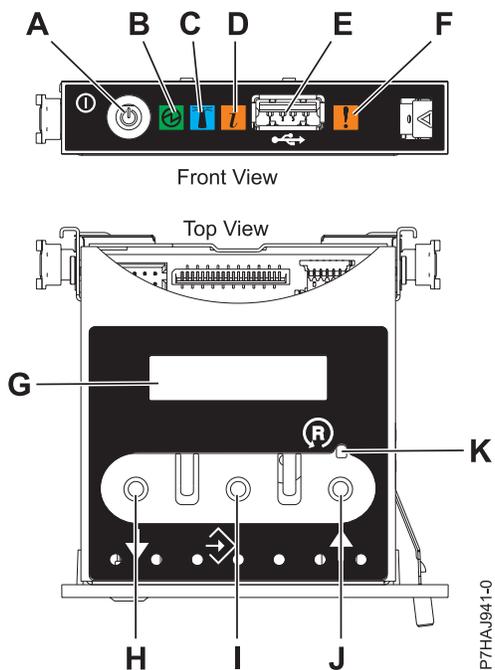


Figure 109. Control panel

- **A:** Power-on button
- **B:** Power LED
 - A constant light indicates full system power to the unit.
 - A blinking light indicates standby power to the unit.
- Note:** There is approximately a 30-second transition period from the time the power-on button is pressed to when the power LED goes from blinking to solid. During the transition period, the LED might blink faster.
- **C:** Enclosure identify light
 - A constant light indicates the identify state, which is used to identify a part.
 - No light indicates that the system is operating normally.
- **D:** System information light
 - No light indicates that the system is operating normally.
 - Light on indicates that the system requires attention.
- **E:** USB port
- **F:** Enclosure fault roll-up light
 - A constant light indicates a fault in the system unit.
 - No light indicates that the system is operating normally.
- **G:** Function/Data display
- **H:** Decrement button
- **I:** Enter button
- **J:** Increment button
- **K:** Pinhole reset button

Related concepts:

Identifying a failing part

Use these instructions to learn how to locate and identify a failing part on your system or expansion unit using the appropriate method for your system.

Identifying a failing part in an AIX system or logical partition

Use these instructions to learn how to locate a failing part, and then activate the indicator light for that part on a system or logical partition running the AIX operating system.

Locating a failing part in an AIX system or logical partition:

You might need to use AIX tools, before activating the indicator light, to locate a part that is failing.

Procedure

1. Log in as root user or `celogin-`.
2. At the command line, type `diag` and press Enter.
3. From the Function Selection menu, select **Task Selection** and press Enter.
4. Select **Display Previous Diagnostic Results** and press Enter.
5. From the Display Previous Diagnostic Results display, select **Display Diagnostic Log Summary**. The Display Diagnostic Log display shows a chronological list of events.
6. Look in the T column for the most recent S entry. Select this row in the table and press Enter.
7. Select **Commit**. The details of this log entry are shown.
8. Record the location information and the SRN value shown near the end of the entry.
9. Exit to the command line.

What to do next

Use the location information for the failing part to activate the indicator light that identifies the failing part. See “Activating the indicator light for the failing part.”

Activating the indicator light for the failing part:

Use these instructions to help physically identify the location of a part you are servicing.

Procedure

1. Log in as root user.
2. At the command line, type `diag` and press Enter.
3. From the Function Selection menu, select **Task Selection** and press Enter.
4. From the Task Selection menu, select **Identify and Attention Indicators** and press Enter.
5. From the list of lights, select the location code for the failing part and press Enter.
6. Select **Commit**. This turns on the system attention and indicator light for the failing part.
7. Exit to the command line.

Deactivating the failing-part indicator light:

Use this procedure to turn off any indicator light that you turned on as a part of a service action.

About this task

To deactivate the indicator light, follow these steps:

Procedure

1. Log in as root user.
2. At the command line, type `diag` and press Enter.
3. From the Function Selection menu, select **Task Selection** and press Enter.
4. From the Task Selection menu, select **Identify and Attention Indicators** and press Enter.
5. From the list of lights, select the location code for the failing part and press Enter. When a light is activated for a failing part, an I character precedes the location code.
6. Select **Commit**. This turns off the system attention and indicator light for the failing part.
7. Exit to the command line.

Identifying a failing part in a Linux system or logical partition

If the service aids have been installed on a system or logical partition, you can activate or deactivate the indicator lights to locate a part or complete a service action.

Locating a failing part in a Linux system or logical partition:

If the service aids have been installed on a system or logical partition, you need to activate the indicator lights to locate a part.

About this task

To activate the indicator light, follow these steps:

Procedure

1. Log in as root user.
2. At the command line, type `/usr/sbin/usysident -s identify -l<location code>` and press Enter.
3. Look for the system attention light to identify the enclosure that contains the failing part.

Finding the location code of a failing part in a Linux system or logical partition:

To retrieve the location code of the failing part, if you do not know the location code, use the procedure in this topic.

About this task

To locate the failing part in a system or logical partition follow these steps:

Procedure

1. Log in as root user.
2. At the command line, type `grep diagela /var/log/platform` and press Enter.
3. Look for the most recent entry that contains a system reference code (SRC).
4. Record the location information.

Activating the indicator light for the failing part:

If you know the location code of the failing part, activate the indicator light to help you locate which part to replace.

About this task

To activate the indicator light, follow these steps:

Procedure

1. Log in as root user.
2. At the command line, type `/usr/sbin/usysident -s identify -l<location code>` and press Enter.
3. Look for the system attention light to identify the enclosure that contains the failing part.

Results

Deactivating the failing-part indicator light:

After you complete a removal and replacement procedure, you must deactivate the failing-part indicator light.

About this task

To deactivate the indicator light, follow these steps:

Procedure

1. Log in as root user.
2. At the command line, type `/usr/sbin/usysident -s normal -l<location code>` and press Enter.

Locating a failing part in a Virtual I/O Server system or logical partition

You can use Virtual I/O Server (VIOS) tools, before activating the indicator light, to locate a part that is failing.

Procedure

1. Log in as root user or `celogin-`.
2. At the command line, type `diagmenu` and press Enter.
3. From the **Function Selection** menu, select **Task Selection** and press Enter.
4. Select **Display Previous Diagnostic Results** and press Enter.
5. From the **Display Previous Diagnostic Results** display, select **Display Diagnostic Log Summary**. A **Display Diagnostic Log** display appears. This display contains a chronological list of events.
6. Look in the **T** column for the most recent **S** entry. Select this row in the table and press Enter.
7. Choose **Commit**. The details of this log entry are shown.
8. Record the location information and the SRN value shown near the end of the entry.
9. Exit to the command line.

Results

Use the location information for the failing part to activate the indicator light that identifies the failing part. For instructions, see “Identifying a part by using the Virtual I/O Server.”

Identifying a part by using the Virtual I/O Server:

Use these instructions to turn on the indicator light to help you physically locate a part by using the Virtual I/O Server (VIOS).

Procedure

1. Log in as root user.
2. At the command line, type `diagmenu` and press Enter.
3. From the Function Selection menu, select **Task Selection**. Press Enter.
4. From the Task Selection menu, select **Identify and Attention Indicators**. Press Enter.

5. From the list of lights, select the location code for the failing part and press Enter.
6. Select **Commit**. This turns on the system attention and indicator light for the failing part.
7. Exit to the command line.

Safety notices

Safety notices may be printed throughout this guide:

- **DANGER** notices call attention to a situation that is potentially lethal or extremely hazardous to people.
- **CAUTION** notices call attention to a situation that is potentially hazardous to people because of some existing condition.
- **Attention** notices call attention to the possibility of damage to a program, device, system, or data.

World Trade safety information

Several countries require the safety information contained in product publications to be presented in their national languages. If this requirement applies to your country, a safety information booklet is included in the publications package shipped with the product. The booklet contains the safety information in your national language with references to the U.S. English source. Before using a U.S. English publication to install, operate, or service this product, you must first become familiar with the related safety information in the booklet. You should also refer to the booklet any time you do not clearly understand any safety information in the U.S. English publications.

German safety information

Das Produkt ist nicht für den Einsatz an Bildschirmarbeitsplätzen im Sinne § 2 der Bildschirmarbeitsverordnung geeignet.

Laser safety information

IBM® servers can use I/O cards or features that are fiber-optic based and that utilize lasers or LEDs.

Laser compliance

IBM servers may be installed inside or outside of an IT equipment rack.

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the provided power cord. Do not use the provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. Attach the power cords to the outlets.
5. Turn on the devices.

(D005a)

DANGER

Observe the following precautions when working on or around your IT rack system:

- Heavy equipment—personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.
- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices.



- Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

CAUTION

- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers.)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.
- *(For fixed drawers.)* This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack.

(R001)

CAUTION:

Removing components from the upper positions in the rack cabinet improves rack stability during relocation. Follow these general guidelines whenever you relocate a populated rack cabinet within a room or building:

- Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must observe the following precautions:
 - Remove all devices in the 32U position and above.
 - Ensure that the heaviest devices are installed in the bottom of the rack cabinet.
 - Ensure that there are no empty U-levels between devices installed in the rack cabinet below the 32U level.
- If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.
- Inspect the route that you plan to take to eliminate potential hazards.
- Verify that the route that you choose can support the weight of the loaded rack cabinet. Refer to the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.
- Verify that all door openings are at least 760 x 230 mm (30 x 80 in.).
- Ensure that all devices, shelves, drawers, doors, and cables are secure.
- Ensure that the four leveling pads are raised to their highest position.
- Ensure that there is no stabilizer bracket installed on the rack cabinet during movement.
- Do not use a ramp inclined at more than 10 degrees.
- When the rack cabinet is in the new location, complete the following steps:
 - Lower the four leveling pads.
 - Install stabilizer brackets on the rack cabinet.
 - If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.
- If a long-distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also lower the leveling pads to raise the casters off of the pallet and bolt the rack cabinet to the pallet.

(R002)

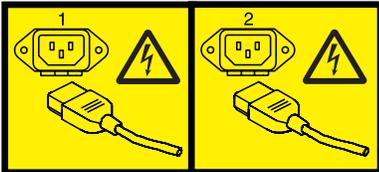
(L001)



(L002)



(L003)



or



All lasers are certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter J for class 1 laser products. Outside the U.S., they are certified to be in compliance with IEC 60825 as a class 1 laser product. Consult the label on each part for laser certification numbers and approval information.

CAUTION:

This product might contain one or more of the following devices: CD-ROM drive, DVD-ROM drive, DVD-RAM drive, or laser module, which are Class 1 laser products. Note the following information:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of the controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

(C026)

CAUTION:

Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. (C027)

CAUTION:

This product contains a Class 1M laser. Do not view directly with optical instruments. (C028)

CAUTION:

Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following information: laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam. (C030)

CAUTION:

The battery contains lithium. To avoid possible explosion, do not burn or charge the battery.

Do Not:

- ___ Throw or immerse into water
- ___ Heat to more than 100°C (212°F)
- ___ Repair or disassemble

Exchange only with the approved part. Recycle or discard the battery as instructed by local regulations. (C003a)

Power and cabling information for NEBS (Network Equipment-Building System) GR-1089-CORE

The following comments apply to the IBM servers that have been designated as conforming to NEBS (Network Equipment-Building System) GR-1089-CORE:

The equipment is suitable for installation in the following:

- Network telecommunications facilities
- Locations where the NEC (National Electrical Code) applies

The intrabuilding ports of this equipment are suitable for connection to intrabuilding or unexposed wiring or cabling only. The intrabuilding ports of this equipment *must not* be metallically connected to the interfaces that connect to the OSP (outside plant) or its wiring. These interfaces are designed for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE) and require isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.

Note: All Ethernet cables must be shielded and grounded at both ends.

The ac-powered system does not require the use of an external surge protection device (SPD).

The dc-powered system employs an isolated DC return (DC-I) design. The DC battery return terminal *shall not* be connected to the chassis or frame ground.

Handling static-sensitive devices

Learn about precautions you should take to prevent damage to electronic components from static electricity discharge.

Electronic boards, adapters, media drives, and disk drives are sensitive to static electricity discharge. These devices are wrapped in antistatic bags to prevent this damage. Take the following precautions to prevent damage to these devices from static electricity discharge.

- Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge from damaging your hardware.
- When using a wrist strap, follow all electrical safety procedures. A wrist strap is for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
- If you do not have a wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.
- Do not remove the device from the antistatic bag until you are ready to install the device in the system.
- With the device still in its antistatic bag, touch it to the metal frame of the system.
- Grasp cards and boards by the edges. Avoid touching the components and gold connectors on the adapter.
- If you need to lay the device down while it is out of the antistatic bag, lay it on the antistatic bag. Before picking it up again, touch the antistatic bag and the metal frame of the system at the same time.
- Handle the devices carefully to prevent permanent damage.

Installing or replacing a PCI adapter with the system power on in Virtual I/O Server

You can install or replace a PCI adapter in the Virtual I/O Server logical partition or in the Integrated Virtualization Manager management partition.

Before you begin

The Virtual I/O Server includes a PCI Hot Plug Manager that is similar to the PCI Hot Plug Manager in the AIX operating system. The PCI Hot Plug Manager allows you to hot plug PCI adapters into the server and then activate them for the logical partition without having to reboot the system. Use the PCI Hot Plug Manager for adding, identifying, or replacing PCI adapters in the system that are currently assigned to the Virtual I/O Server.

Getting started Before you begin

Prerequisites:

- If you are installing a new adapter, an empty system slot must be assigned to the Virtual I/O Server logical partition. This task can be done through dynamic logical partitioning (DLPAR) operations.
 - If you are using a Hardware Management Console (HMC), you must also update the logical partition profile of the Virtual I/O Server so that the new adapter is configured to the Virtual I/O Server after you restart the system.
 - If you are using the Integrated Virtualization Manager, an empty slot is probably already assigned to the Virtual I/O Server logical partition because all slots are assigned to the Virtual I/O Server by default. You only need to assign an empty slot to the Virtual I/O Server logical partition if you previously assigned all empty slots to other logical partitions.
- If you are installing a new adapter, ensure that you have the software required to support the new adapter and determine whether there are any existing PTF prerequisites to install.
- If you need help determining the PCI slot in which to place a PCI adapter, see the PCI adapter placement.

About this task

Follow these steps to access the Virtual I/O Server, PCI Hot Plug Manager:

Procedure

1. If you are using the Integrated Virtualization Manager, connect to the command-line interface.
2. Use the **diagmenu** command to open the Virtual I/O Server diagnostic menu. The menus are similar to the AIX diagnostic menus.
3. Select **Task Selection**, then press Enter.
4. At the Task Selection list, select **PCI Hot Plug Manager**.

Installing a PCI adapter

About this task

To install a PCI adapter with the system power on in Virtual I/O Server, do the following steps:

Procedure

1. From the PCI Hot Plug Manager, select **Add a PCI Hot Plug Adapter**, then press Enter. The Add a Hot-Plug Adapter window is displayed.
2. Select the appropriate empty PCI slot from those listed, and press Enter. A fast-blinking amber LED located at the back of the server near the adapter indicates that the slot has been identified.
3. Follow the instructions on the screen to install the adapter until the LED for the specified PCI slot is set to the Action state.
 - a. Set the adapter LED to the action state so that the indicator light for the adapter slot flashes
 - b. Physically install the adapter
 - c. Finish the adapter installation task in **diagmenu**.
4. Run the **cfgdev** command to configure the device for the Virtual I/O Server.

Results

If you are installing a PCI, Fibre Channel adapter, it is now ready to be attached to a SAN and have LUNs assigned to the Virtual I/O Server for virtualization.

Replacing a PCI adapter

Before you begin

Prerequisite: Before you can remove or replace a storage adapter, you must unconfigure that adapter. See “Unconfiguring storage adapters” on page 148 for instructions.

About this task

To replace a PCI adapter with the system power on in Virtual I/O Server, do the following steps:

Procedure

1. From the PCI Hot Plug Manager, select **Unconfigure a Device**, then press Enter.
2. Press F4 (or Esc +4) to display the **Device Names** menu.
3. Select the adapter you are removing in the **Device Names** menu.
4. In the **Keep Definition** field, use the Tab key to answer Yes. In the **Unconfigure Child Devices** field, use the Tab key again to answer YES, then press Enter.
5. Press Enter to verify the information on the **ARE YOU SURE** screen. Successful unconfiguration is indicated by the OK message displayed next to the Command field at the top of the screen.
6. Press F4 (or Esc +4) twice to return to the Hot Plug Manager.
7. Select **replace/remove PCI Hot Plug adapter**.
8. Select the slot that has the device to be removed from the system.

9. Select **replace**. A fast-blinking amber LED located at the back of the machine near the adapter indicates that the slot has been identified.
10. Press Enter which places the adapter in the action state, meaning it is ready to be removed from the system.

Unconfiguring storage adapters

About this task

Before you can remove or replace a storage adapter, you must unconfigure that adapter. Storage adapters are generally parent devices to media devices, such as disk drives or tape drives. Removing the parent requires that all attached child devices either be removed or placed in the define state.

Unconfiguring a storage adapter involves the following tasks:

- Closing all applications that are using the adapter you are removing, replacing, or moving
- Unmounting file systems
- Ensuring that all devices connected to the adapter are identified and stopped
- Listing all slots that are currently in use or a slot that is occupied by a specific adapter
- Identifying the adapter's slot location
- Making parent and child devices unavailable
- Making the adapter unavailable

If the adapter supports physical volumes that are in use by a client logical partition, then You can perform steps on the client logical partition before unconfiguring the storage adapter. For instructions, see “Preparing the client logical partitions.” For example, the adapter might be in use because the physical volume was used to create a virtual target device, or it might be part of a volume group used to create a virtual target device.

Follow these steps to unconfigure SCSI, SSA, and Fibre Channel storage adapters:

Procedure

1. Connect to the Virtual I/O Server command-line interface.
2. Use the **oem_setup_env** command to close all applications that are using the adapter you are unconfiguring.
3. Type `lsslot-c pci` to list all the hot plug slots in the system unit and display their characteristics.
4. Type `lsdev -C` to list the current state of all the devices in the system unit.
5. Type `umount` to unmount previously mounted file systems, directories, or files using this adapter.
6. Type `rmdev -l adapter -R` to make the adapter unavailable.

Attention: Do not use the `-d` flag with the **rmdev** command for hot plug operations because this action removes your configuration.

Preparing the client logical partitions

About this task

If the virtual target devices of the client logical partitions are not available, the client logical partitions can fail or they might be unable to perform I/O operations for a particular application. If you use the HMC to manage the system, you might have redundant Virtual I/O Server logical partitions, which allow for Virtual I/O Server maintenance and avoid downtime for client logical partitions. If you are replacing an adapter on the Virtual I/O Server and your client logical partition is dependent on one or more of the physical volumes accessed by that adapter, then You can take action on the client before you unconfigure the adapter.

The virtual target devices must be in the define state before the Virtual I/O Server adapter can be replaced. Do not remove the virtual devices permanently.

Procedure

To prepare the client logical partitions so that you can unconfigure an adapter, complete the following steps depending on your situation.

Table 1. Situations and steps for preparing the client logical partitions

Situation	Steps
You have redundant hardware on the Virtual I/O Server for the adapter.	No action is required on the client logical partition.
HMC-managed systems only: You have redundant Virtual I/O Server logical partitions that, in conjunction with virtual client adapters, provide multiple paths to the physical volume on the client logical partition.	No action is required on the client logical partition. However, path errors might be logged on the client logical partition.
HMC-managed systems only: You have redundant Virtual I/O Server logical partitions that, in conjunction with virtual client adapters, provide multiple physical volumes that are used to mirror a volume group.	See the procedures for your client operating system.
You do not have redundant Virtual I/O Server logical partitions.	<p>Shut down the client logical partition.</p> <p>For instructions, see the following topics about shutting down logical partitions:</p> <ul style="list-style-type: none"> • For systems that are managed by the HMC, see “Shutting down AIX logical partitions using the HMC”, and “Shutting down Linux logical partitions using the HMC” in the Logical partitioning.¹ • For systems that are managed by the Integrated Virtualization Manager, see “Shutting down logical partitions.”
¹ The Logical partitioning can be found on the Hardware Information website at add URL here.	

Shutting down logical partitions

You can use the Integrated Virtualization Manager to shut down the logical partitions or to shut down the entire managed system.

Before you begin

Use any role other than View Only to perform this task.

About this task

The Integrated Virtualization Manager provides the following types of shutdown options for logical partitions:

- Operating System (recommended)
- Delayed
- Immediate

The recommended shutdown method is to use the client operating systems shutdown command. Use the immediate shutdown method only as a last resort because using this method causes an abnormal shutdown which might result in data loss.

If you choose the Delayed shutdown method, then be aware of the following considerations:

- Shutting down the logical partitions is equivalent to pressing and holding the white control-panel power button on a server that is not partitioned.
- Use this procedure only if you cannot successfully shut down the logical partitions through operating system commands. When you use this procedure to shut down the selected logical partitions, the logical partitions wait a predetermined amount of time to shut down. This allows the logical partitions time to end jobs and write data to disks. If the logical partition is unable to shut down within the predetermined amount of time, it ends abnormally, and the next restart might take a long time.

If you plan to shut down the entire managed system, shut down each client logical partition, then shut down the Virtual I/O Server management partition.

To shut down a logical partition, complete the following steps in the Integrated Virtualization Manager:

Procedure

1. In the navigation area, select **View/Modify Partitions** under **Partition Management**. The View/Modify Partitions page is displayed.
2. Select the logical partition that you want to shut down.
3. From the Tasks menu, click **Shutdown**. The Shutdown Partitions page is displayed.
4. Select the shutdown type.
5. Optional: Select **Restart after shutdown completes** if you want the logical partition to start immediately after it shuts down.
6. Click **OK** to shut down the partition. The View/Modify Partitions page is displayed, and the logical partition state has a value of shutdown.

PCI hot-plug manager access for AIX

You might need to service PCI adapters with the system power on in AIX. Use the procedures in this section to perform this task.

The instructions for servicing PCI adapters with the system power on in AIX refer you to these procedures when it is appropriate to perform them.

Note: For an adapter to be serviced with the system power on, both the adapter and the system unit must support hot-plug procedures. To identify adapters that are hot-pluggable in the system you are servicing, refer to the following placement information: PCI adapter placement.

Accessing hot-plug management functions

You can use PCI Hot Plug Manager to service PCI adapters with the system power on in AIX. Use the procedures in this section to perform this task.

About this task

Note: Procedures performed on a PCI adapter with the system power on in AIX, also known as hot-plug procedures, require the system administrator to take the PCI adapter offline prior to performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

To access the hot-plug menus, do the following:

1. Log in as root user.
2. At the command line, type `smitty`.
3. Select **Devices**.
4. Select **PCI Hot Plug Manager** and press Enter.

5. The PCI Hot-Plug Manager menu displays. Return to the procedure that directed you here. The following section describes the menu options.

PCI hot-plug manager menu

You can use PCI Hot Plug Manager to service PCI adapters with the system power on in AIX. The following options are available from the PCI Hot Plug Manager menu.

Note: For information about the PCI slot LED states, see “Component LEDs” on page 152.

List PCI hot-plug slots

Provides a descriptive list of all slots that support PCI hot-plug capability. If the listing for a slot indicates it holds an “Unknown” device, select the **Install/configure Devices added after IPL** to configure the adapter in that slot.

Add a PCI hot-plug adapter

Allows the user to add a new PCI hot-plug-capable adapter to the slot with the system turned on. You will be asked to identify the PCI slot that you have selected prior to the actual operation. The selected PCI slot will go into the Action state and finally into the On state.

Note: The system will indicate the slot holds an “Unknown” device until you perform the **Install/configure devices added after IPL** option to configure the adapter.

Replace/remove a PCI hot-plug adapter

Allows the user to remove an existing adapter, or replace an existing adapter with an identical one. For this option to work, the adapter must be in the Defined state (see the “Unconfigure a Device” option).

You will be asked to identify the PCI slot prior to the actual operation. The selected PCI slot will go into the Action state.

Identify a PCI hot-plug slot

Allows the user to identify a PCI slot. The selected PCI slot will go into the Identify state. See “Component LEDs” on page 152.

Unconfigure a device

Allows the user to put an existing PCI adapter into the Defined state if the device is no longer in use.

This step must be completed successfully before starting any removal or replacement operation. If this step fails, the customer must take action to release the device.

Configure a defined device

Allows a new PCI adapter to be configured into the system if software support is already available for the adapter. The selected PCI slot will go into the On state.

Install/configure devices added after IPL

The system attempts to configure any new devices and tries to find and install any required software from a user-selected source.

The add, remove, and replace functions return information to the user indicating whether the operation was successful. If additional instructions are provided on the screen, complete the recommended actions. If the instructions do not resolve the problem, do the following:

- If the adapter is listed as Unknown, perform the **Install/configure devices Added After IPL** option to configure the adapter.
- If you receive a warning indicating that needed device packages are not installed, the system administrator must install the specified packages before you can configure or diagnose the adapter.
- If you receive a failure message indicating a hardware error, the problem might be either the adapter or the PCI slot. Isolate the problem by retrying the operation in a different PCI slot, or trying a different adapter in the slot. If you determine that you have failing hardware, call your service representative.
- *Do not* use **Install/configure devices added after IPL** if your system is set up to run HACMP™ clustering. Consult with your system administrator or software support to determine the correct method to configure the replacement device.

Component LEDs

Individual LEDs are located on or near the failing components. Use the information in this section to interpret the LEDs.

The LEDs are located either on the component itself or on the carrier of the component (for example, memory card, fan, memory module, or processor). LEDs are either green or amber.

Green LEDs indicate either of the following:

- Electrical power is present.
- Activity is occurring on a link. (The system could be sending or receiving information.)

Amber LEDs indicate a fault or identify condition. If your system or one of the components on your system has an amber LED turned on or blinking, identify the problem and take the appropriate action to restore the system to normal.

Resetting the LEDs in AIX:

Individual LEDs are located on or near the failing components. You can use this procedure to reset the LEDs after you have completed a repair action.

About this task

After the repair action is completed, do the following:

Procedure

1. Log in as root user.
2. At the command line, type `diag`.
3. Select **Task Selection**.
4. Select **Log Repair Action**.
5. Select the device that was repaired.
6. Press F10 to exit diagnostics.

Results

If the Attention LED remains on after you have completed the repair action and reset the LEDs, call for service support.

Prerequisites for hot-plugging PCI adapters in Linux

In the course of installing, removing, or replacing a PCI adapter with the system powered on in a Linux operating system, you might need to complete some prerequisite tasks. Use the information in this section to identify those prerequisites.

The Linux system administrator needs to take the PCI adapter offline prior to removing, replacing, or installing a PCI adapter with the system power on (hot-plugging). Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

Before hot-plugging adapters for storage devices, ensure that the file systems on those devices are unmounted. After hot-plugging adapters for storage devices, ensure that the file systems on those devices are remounted.

Before hot-plugging an adapter, ensure that the server or partition is at the correct level of the Linux operating system (Linux 2.6 or later).

Install the POWER® Linux Service Aids. These service aids enable system serviceability, as well to improve system management.

If you are using a Linux on POWER distribution with Linux kernel version 2.6 or later, you can install the Service Aids that gives you access to more capabilities, which can help you diagnose problems on your system.

This software is available at the Service and productivity tools for Linux on POWER Web site.

Verifying that the hot-plug PCI tools are installed for Linux

In the course of installing, removing, or replacing a PCI adapter with the system power on in Linux operating system you might need use the hot-plug PCI tools. Use the procedure in this section to verify that you have the hot-plug PCI tools installed.

Procedure

1. Enter the following command to verify that the hot-plug PCI tools are installed:

```
rpm -aq | grep rpa-pci-hotplug
```

If the command does not list any rpa-pci-hotplug packages, the PCI Hot Plug tools are not installed.

2. Enter the following command to ensure that the rpaphp driver is loaded:

```
ls -l /sys/bus/pci/slots/
```

The directory should contain data. If the directory is empty, the driver is not loaded or the system does not contain hot-plug PCI slots. The following is an example of the information displayed by this command:

```
drwxr-xr-x 15 root root 0 Feb 16 23:31 .
drwxr-xr-x  5 root root 0 Feb 16 23:31 ..
drwxr-xr-x  2 root root 0 Feb 16 23:31 0000:00:02.0
drwxr-xr-x  2 root root 0 Feb 16 23:31 0000:00:02.2
drwxr-xr-x  2 root root 0 Feb 16 23:31 0000:00:02.4
drwxr-xr-x  2 root root 0 Feb 16 23:31 0001:00:02.0
drwxr-xr-x  2 root root 0 Feb 16 23:31 0001:00:02.2
drwxr-xr-x  2 root root 0 Feb 16 23:31 0001:00:02.4
drwxr-xr-x  2 root root 0 Feb 16 23:31 0001:00:02.6
drwxr-xr-x  2 root root 0 Feb 16 23:31 0002:00:02.0
drwxr-xr-x  2 root root 0 Feb 16 23:31 0002:00:02.2
drwxr-xr-x  2 root root 0 Feb 16 23:31 0002:00:02.4
drwxr-xr-x  2 root root 0 Feb 16 23:31 0002:00:02.6
```

If the directory does not exist, run the following command to mount the filesystem:

```
mount -t sysfs sysfs /sys
```

3. Ensure the following tools are available in the /usr/sbin directory.
 - lsslot
 - drmgr -c pci
4. Return to the procedure that sent you here.

Updating the worldwide port name for a new 2766, 2787, 280E, 5735, 576B, or 5774 IOA.

If you have exchanged a 2766, 2787, 280E, 5735, 576B, or 5774 Fibre Channel Input/Output Adapter (IOA), the external storage subsystem must be updated to use the worldwide port name (WWPN) of the new 2766, 2787, 280E, 5735, 576B, or 5774 IOA. Any SAN hardware using WWPN zoning might also need updating.

For instructions on how to update the external storage subsystem or SAN hardware configurations, see the documentation for those systems.

The WWPN for the Fibre Channel IOA can be found using the Hardware Service Manager in system service tools (SST) or dedicated service tools (DST). Display detail on the 2766, 2787, 280E, 5735, 576B, or 5774 IOA Logical Hardware Resource information, and use the port worldwide name field.

The 16-digit WWPN can also be determined by adding the number 1000 to the beginning of the 12-digit IEEE address found on the tailstock label of the Fibre Channel IOA.

Installing a part by using the HMC

You can use the Hardware Management Console (HMC) to perform many service actions, including the installation of a new feature or part.

Before you begin

To use the HMC user interface to install a feature or part into a system or expansion unit that is managed by HMC Version 7, or later, complete the following steps:

Procedure

1. In the navigation area, expand **Systems Management > Servers**.
2. Select the managed system on which you will install the part.
3. In the Tasks area, expand **Serviceability > Hardware > MES Tasks > Open MES**.
4. Click **Add MES Order Number**.
5. Enter the number, and click **OK**.
6. Click the newly created order number, and click **Next**.
7. In the Tasks area, expand **Serviceability > Hardware > MES Tasks**.
8. Select **Add FRU** (field replaceable unit).
9. In the Add/Install/Remove Hardware-Add FRU, Select FRU Type window, select the system or enclosure into which you are installing the feature.
10. From the list, select the type of feature you are installing, and click **Next**.
11. From the list, select the location code where you will install the feature, and click **Add**.
12. After the part is listed in the **Pending Actions** section, click **Launch Procedure** and follow the instructions to install the feature.

Note: The HMC might open external instructions for installing the feature. If so, follow those instructions to install the feature.

Removing a part by using the HMC

You can use the Hardware Management Console (HMC) to perform many service actions, including the removal of a field replaceable unit (FRU) or part.

About this task

To use the HMC user interface to remove a part in a system or expansion unit that is managed by HMC Version 7, or later, follow these steps:

Procedure

1. In the navigation area, expand **Systems Management > Servers**.
2. Select the managed system from which you are removing a part.
3. In the **Tasks** area, expand **Serviceability > Hardware > MES Tasks > Remove FRU**
4. In the Add/Install/Remove Hardware - Remove FRU, Select FRU Type window, select the system or enclosure from which you are removing the part.
5. From the list, select the type of part you are removing, and click **Next**.
6. From the list, select the location of the part you are removing, and click **Add**.
7. After the part is listed in the **Pending Actions** section, click **Launch Procedure** and follow the instructions to remove the part.

Note: The HMC might open the information center instructions for removing the part. If so, follow those instructions to remove the part.

Replacing a part by using the HMC

You can use the Hardware Management Console (HMC) to perform many service actions, including exchanging a field replaceable unit (FRU) or part.

About this task

If you are exchanging a part to repair a serviceable event, follow those instructions. If you are exchanging a part as a part of any other procedure by using HMC Version 7, or later, complete the following steps:

Procedure

1. In the navigation area, expand **Systems Management > Servers**.
2. Select the managed system in which you are exchanging a part.
3. In the **Tasks** area, expand **Serviceability > Hardware > Exchange FRU**.
4. Select the system or enclosure from which you want to exchange the part.
5. In the Replace Hardware - Replace FRU, Select FRU Type window, select the type of part you will exchange from the menu, and click **Next**
6. From the list, select the location code of the part you will exchange, and click **Add**.
7. After the part is listed in the **Pending Actions** section, click **Launch Procedure** and follow the instructions to exchange the part.

Note: The HMC might open external instructions for replacing the part. If so, follow those instructions to replace the part.

Replacing a part by using the Systems Director Management Console

You can use the Systems Director Management Console (SDMC) to perform many service actions, including exchanging a field-replaceable unit (FRU) or part.

About this task

If you are exchanging a part to repair a serviceable event, follow those instructions.

Procedure

1. In the Power Systems Resource area, select the managed system in which you are exchanging a part.
2. Select one of the following options:
 - If you are replacing a part that is not part of a serviceable event from the **Actions** menu, expand **Service and Support > Hardware > Exchange FRU**.
 - If you are exchanging a part to repair a serviceable event, see Starting a repair action.
3. On the **Exchange FRU** page, select the enclosure from which you want to replace the part from the **Installed Enclosure Types** list.
4. From the list, select the type of part you want to exchange, and click **Next**.
5. From the list, select the location code of the part you want to exchange, and click **Add**.
6. After the part is listed in the **Pending Actions** section, click **Launch Procedure** and follow the instructions to exchange the part.

Note: The SDMC might open external instructions for replacing the part. If so, follow those instructions to replace the part.

Removing a part by using the SDMC

You can use the Systems Director Management Console (SDMC) to perform many service actions, including the removal of a field-replaceable unit (FRU) or part.

About this task

To use the SDMC user interface to remove a part in a system or expansion unit that is managed by an SDMC, follow these steps:

Procedure

1. In the Power Systems Resources area, select the managed system from which you are removing a part.
2. From the **Actions** menu, expand **Service and Support > Hardware > MES Tasks > Remove FRU**.
3. On the **Remove FRU** page, select the enclosure from which you want to remove the part from the **Installed Enclosures** list.
4. From the list, select the type of part you are removing, and click **Next**.
5. From the list, select the location of the part you are removing, and click **Add**.
6. After the part is listed in the **Pending Actions** section, click **Launch Procedure** and follow the instructions to remove the part.

Note: The SDMC might open external instructions for removing the part. If so, follow those instructions to remove the part.

Installing a part by using the SDMC

You can use the Systems Director Management Console (SDMC) to perform many service actions, including the installation of a new field-replaceable unit (FRU) or part.

Before you begin

To use the SDMC user interface to install a part into a system or expansion unit that is managed by an SDMC, follow these steps:

Procedure

1. In the Power Systems Resources area, select the system on which you want to install a part.
2. From the **Actions** menu, expand **Service and Support** > **Hardware** > **MES Tasks** > **Add FRU**.
3. On the **Add FRU** page, select the system or enclosure type from the **Enclosure type** list.
4. From the list, select the FRU type you are installing, and click **Next**.
5. From the list, select the location code for the location to install, and then click **Add**.
6. After the part is placed in the **Pending Actions** section, click **Launch Procedure** and follow the instructions to install the part.

Note: The SDMC might open external instructions for installing the feature. If so, follow those instructions to install the part.

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Electronic emission notices

When attaching a monitor to the equipment, you must use the designated monitor cable and any interference suppression devices supplied with the monitor.

Class A Notices

The following Class A statements apply to the servers.

Federal Communications Commission (FCC) statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this

equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Compliance Statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

European Community Compliance Statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

European Community contact:
IBM Deutschland GmbH
Technical Regulations, Department M456
IBM-Allee 1, 71139 Ehningen, Germany
Tele: +49 7032 15-2937
email: tjahn@de.ibm.com

Warning: This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

VCCI Statement - Japan

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI-A

The following is a summary of the VCCI Japanese statement in the box above:

This is a Class A product based on the standard of the VCCI Council. If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.

**Japanese Electronics and Information Technology Industries Association (JEITA)
Confirmed Harmonics Guideline (products less than or equal to 20 A per phase)**

高調波ガイドライン適合品

**Japanese Electronics and Information Technology Industries Association (JEITA)
Confirmed Harmonics Guideline with Modifications (products greater than 20 A per phase)**

高調波ガイドライン準用品

Electromagnetic Interference (EMI) Statement - People's Republic of China

声 明

此为 A 级产品,在生活环境中,
该产品可能会造成无线电干扰。
在这种情况下,可能需要用户对其
干扰采取切实可行的措施。

Declaration: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may need to perform practical action.

Electromagnetic Interference (EMI) Statement - Taiwan

警告使用者：

這是甲類的資訊產品，在
居住的環境中使用時，可
能會造成射頻干擾，在這
種情況下，使用者會被要
求採取某些適當的對策。

The following is a summary of the EMI Taiwan statement above.

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user will be required to take adequate measures.

Electromagnetic Interference (EMI) Statement - Korea

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Germany Compliance Statement

Deutschsprachiger EU Hinweis: Hinweis für Geräte der Klasse A EU-Richtlinie zur Elektromagnetischen Verträglichkeit

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2004/108/EG zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022 Klasse A ein.

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Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)". Dies ist die Umsetzung der EU-Richtlinie 2004/108/EG in der Bundesrepublik Deutschland.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC EG Richtlinie 2004/108/EG) für Geräte der Klasse A

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Verantwortlich für die Einhaltung der EMV Vorschriften ist der Hersteller:

International Business Machines Corp.

New Orchard Road

Armonk, New York 10504

Tel: 914-499-1900

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:

IBM Deutschland GmbH

Technical Regulations, Abteilung M456

IBM-Allee 1, 71139 Ehningen, Germany

Tel: +49 7032 15-2937

email: tjahn@de.ibm.com

Generelle Informationen:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse A.

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В жилых помещениях оно может создавать радиопомехи, для снижения которых необходимы дополнительные меры

Class B Notices

The following Class B statements apply to features designated as electromagnetic compatibility (EMC) Class B in the feature installation information.

Federal Communications Commission (FCC) statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an IBM-authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM-authorized dealers. IBM is not responsible for any radio or television interference caused by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

European Community Compliance Statement

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IBM Deutschland GmbH
Technical Regulations, Department M456
IBM-Allee 1, 71139 Ehningen, Germany
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New Orchard Road
Armonk, New York 10504
Tel: 914-499-1900

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:
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Technical Regulations, Abteilung M456
IBM-Allee 1, 71139 Ehningen, Germany
Tel: +49 7032 15-2937
email: tjahn@de.ibm.com

Generelle Informationen:

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