Power Systems

PCI adapters

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Note

Before using this information and the product it supports, read the information in "Notices," on page 339, "Safety notices" on page vii, the *IBM Systems Safety Notices* manual, G229-9054, and the *IBM Environmental Notices and User Guide*, Z125–5823.

This edition applies to IBM Power Systems that contain the POWER6® processor and to all associated models.

Contents

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

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)

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.

Installing PCI adapters

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

Related reference

Managing PCI adapters
Find specifications, instructions, and part numbers for specific adapters.

PCI adapter placement for machine types 82xx and 91xx
Find PCI adapter placement information for machine types 82xx and 91xx.

PCI adapter placement for machine type 94xx
Find PCI adapter placement information for machine type 94xx.

What's new in PCI adapters

Read about new and significantly changed information in PCI adapters since the previous update of this topic collection.

October 2009

The following updates have been made to the content:

- Added the 8261-E4S server to the section "Model 8203-E4A, 8261-E4S, 9407-M15, and 9408-M25 PCI adapters" on page 2.
- Added minor technical updates to various procedures.

May 2009

The following updates have been made to the content:

- Added the topic "Placing a 4-Port USB PCI Express Adapter in a single-width cassette" on page 163.
- Added the section "PCI adapter double-wide cassette, generation 2.5 cassette" on page 189.
- Added the section "Model 5802 and 5877 expansion units, PCI adapters, and cassettes" on page 208.
- Updated the related information links, which are located at the end of many procedures.

November 2008

The following updates have been made to the content:

- Added the topic "PCI adapter single-width, first and second generation cassettes" on page 169.
- Added the 8234-EMA machine type model (MTM) to "Model 8234-EMA, 9117-MMA, 9119-FHA, 9125-F2A, 9406-MMA and attached expansion units, PCI adapters, and cassettes" on page 69.

April 2008

The following updates have been made to the content:

- Added procedures for the IBM i operating system to "Model 8203-E4A, 8261-E4S, 9407-M15, and 9408-M25 PCI adapters" on page 2 and "Model 8204-E8A and 9409-M50 PCI adapters" on page 35.
- Added the 9407-M15 and 9408-M25 MTMs to "Model 8203-E4A, 8261-E4S, 9407-M15, and 9408-M25 PCI adapters" on page 2.
- Added the 9119-FHA and 9125-F2A MTMs to "Model 8234-EMA, 9117-MMA, 9119-FHA, 9125-F2A, 9406-MMA and attached expansion units, PCI adapters, and cassettes" on page 69.

Model 8203-E4A, 8261-E4S, 9407-M15, and 9408-M25 PCI adapters

You can remove, replace, or install PCI adapters in the 8203-E4A, 8261-E4S, 9407-M15, or 9408-M25.

If you are installing a new adapter, refer to the following topics for placement information: the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.

If you need to remove, replace, or install PCI adapters in an expansion unit attached to the system unit, refer to one the following procedures:

- I/O expansion units that do not use cassettes:
  - "Installing a PCI adapter in an expansion unit that does not use cassettes" on page 238
  - "Removing a PCI adapter in an expansion unit that does not use cassettes" on page 257
  - "Replacing a PCI adapter in an expansion unit that does not use cassettes" on page 272
- I/O expansion units that use cassettes:
  - "Installing a PCI adapter contained in a cassette" on page 69
  - "Removing a PCI adapter contained in a cassette from the system" on page 106
  - "Replacing a PCI adapter contained in a cassette in the system" on page 128

Important: If you are installing a new feature, ensure that you have the software required to support the new feature and determine whether there are any existing PTF prerequisites to install. To do this, use the IBM Prerequisite Web site at http://www-912.ibm.com/e_dir/eServerPrereq.nsf .

Important:

- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.
- If you are replacing a 2748, 2757, 2763, 2767, 2778, 2780, 2782, 5702, 5703, 5709, or 570B storage IOA, take note of the following: Depending on the configuration of the system, the storage IOA might have been altered or 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 in the 8203-E4A, 9407-M15, or 9408-M25 server

You can install a PCI adapter.

Installing a PCI adapter in the 8203-E4A, 9407-M15, or 9408-M25 server, with the power off

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

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 you do not have an HMC, complete this procedure to install a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to install a PCI adapter in the server. For information about using the SDMC to install a PCI adapter, see Installing a feature by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to install a PCI adapter.

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. See Figure 223 on page 303.

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

1. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
2. Determine in which slot to place the PCI adapter.

   If you are installing a new adapter, refer to the following topics for placement information: the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.
3. Perform the prerequisite tasks described in "Before you begin" on page 288.
4. Stop the system or logical partition. See Stop the system or logical partition.
5. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system, follow these steps to remove the service access cover. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
   c. Remove or open the service access cover as follows: "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317.
6. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the unit's cover: "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 318.
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. Install the adapter in the system unit using the following illustration and steps as a guide:

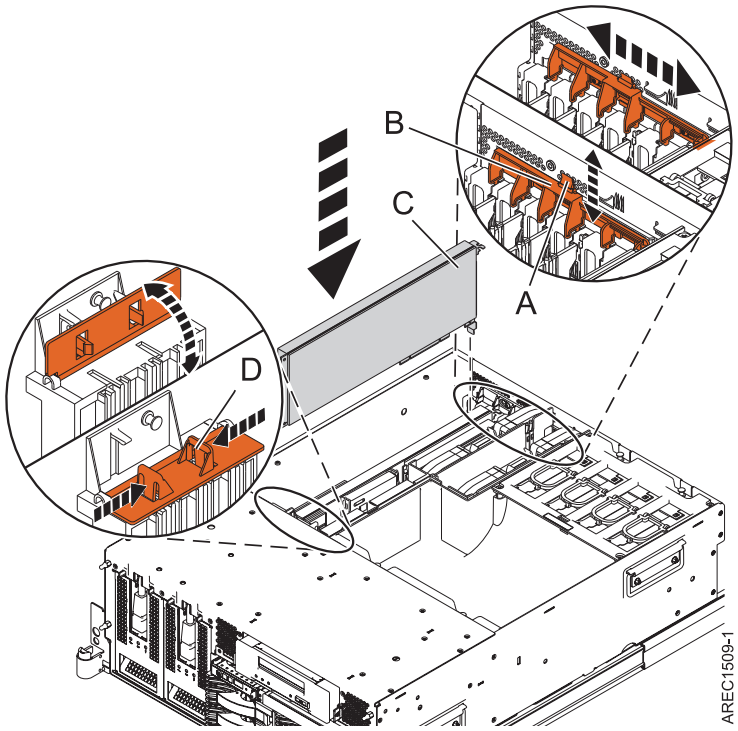


Figure 1. PCI adapter installation

a. Press down on **(A)** to release the adapter latch assembly and then lift **(B)** up and slide the whole assembly towards the center of the system unit.

b. If applicable, open the long-adapter, front retention bracket. Press in on **(D)** and rotate up. This step only applies to long, PCI-X adapters or filler plates.

c. If you are installing a double-wide adapter, remove the PCI adapter divider if one is present. See "Removing a PCI adapter divider from a model 8203-E4A, 9407-M15, or 9408-M25 server" on page 33.

d. Carefully grasp the adapter **(C)** by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.

e. Firmly press the adapter connector into the slot.

f. If applicable, close the long-adapter, front retention bracket **(D)**. This step only applies to long, PCI-X adapters.

g. Slide the adapter latch assembly into the closed position. Press down on the assembly until latch **(A)** engages.

11. Connect any adapter cables.
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. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
14. Reconnect the power source to the system.
15. Start the system or logical partition. Refer to Start the system or logical partition.

16. Verify that the new resource is functional. Refer to Verify the installed part.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Installing a PCI adapter in the 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in AIX

You can install a PCI adapter with the system power on in the AIX® operating system.

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 you do not have an HMC, complete this procedure to install a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to install a PCI adapter in the server. For information about using the SDMC to install a PCI adapter, see Installing a feature by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to install a PCI adapter.

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. See Figure 223 on page 303.

To install a PCI adapter with the system power on in AIX, do the following steps:

1. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
2. Determine in which slot to place the PCI adapter.

   If you are installing a new adapter, refer to the following topics for placement information: the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.
3. Perform the prerequisite tasks described in "Before you begin" on page 288.
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. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
   c. Remove or open the service access cover as follows: "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317.
5. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the unit's cover: "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 318.
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. Refer to "PCI hot-plug manager access for AIX" on page 295, and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.

10. From the PCI Hot-Plug Manager menu, select **Add a PCI Hot-Plug Adapter** and press Enter. The Add a Hot-Plug Adapter window is shown.
11. Select the appropriate empty PCI slot from the ones listed on the screen, and press Enter.
12. Remove the adapter filler plate if one is present.
13. 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 297.
14. When you are instructed to install the adapter in the adapter slot, use the following illustration and steps as a guide:
    a. Press down on **(A)** to release the adapter latch assembly and then lift **(B)** up and slide the whole assembly towards the center of the system unit.
    b. If applicable, open the long-adapter, front retention bracket. Press in on **(D)** and rotate up. This step only applies to long, PCI-X adapters or filler plates.
    c. If you are installing a double-wide adapter, remove the PCI adapter divider if one is present. See "Removing a PCI adapter divider from a model 8203-E4A, 9407-M15, or 9408-M25 server" on page 33.
    d. Carefully grasp the adapter **(C)** by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
    e. Firmly press the adapter connector into the slot.
    f. If applicable, close the long-adapter, front retention bracket **(D)**. This step only applies to long, PCI-X adapters.
    g. Slide the adapter latch assembly into the closed position. Press down on the assembly until latch **(A)** engages.

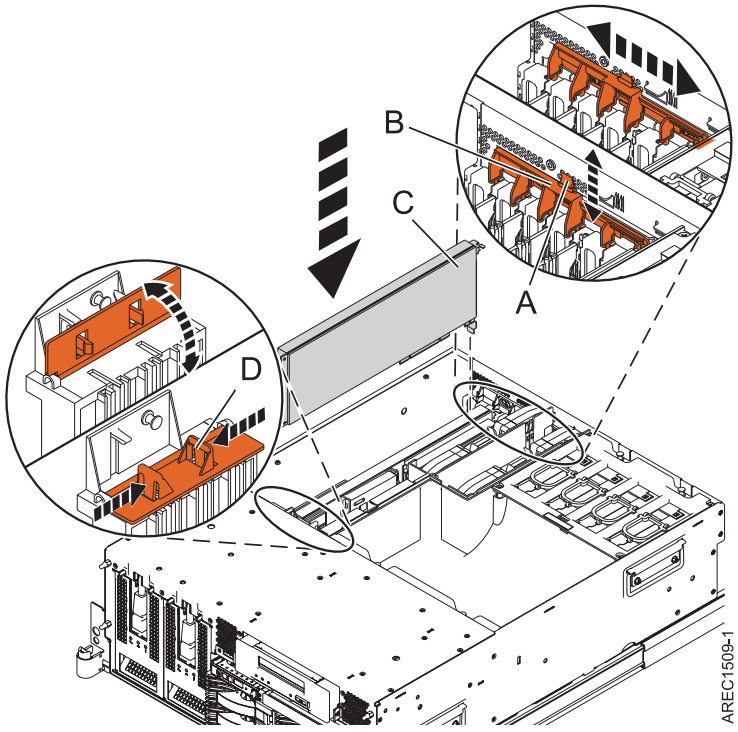


Figure 2. PCI adapter installation

15. Connect any adapter cables.
16. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:

- "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
- "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
- "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319

17. Run the cfgmgr command to configure the adapter.
18. Verify that the new resource is functional. See Verify the installed part.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Installing a PCI adapter in the 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in IBM i

You can install a PCI adapter with the system power on in the IBM i operating system.

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 you do not have an HMC, complete this procedure to install a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to install a PCI adapter in the server. For information about using the SDMC to install a PCI adapter, see Installing a feature by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to install a PCI adapter.

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. See Figure 223 on page 303.

Important:

- If you are removing, installing or replacing a PCI-X double-wide, quad-channel Ultra320 SCSI RAID controller, review the Concurrent maintenance procedure in the PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller (FC 5739, 5778, 5781, 5782; CCIN 571F, 575B) topic, before proceeding with the instructions provided here.
- If you are removing, installing or replacing a PCI-X DDR 1.5 GB cache SAS RAID Adapter, review the Concurrent maintenance procedure in the PCI-X DDR 1.5 GB cache SAS RAID Adapter topic, before proceeding with the instructions provided here.
- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.
- 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.

To install a PCI adapter with the system power on in i, do the following steps:

1. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
2. Determine in which slot to place the PCI adapter. If you are installing a new adapter, refer to the PCI adapter placement for machine types 82xx and 91xx or PCI adapter placement for machine type 94xx.
3. Perform the prerequisite tasks described in “Before you begin” on page 288.
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. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See “Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position” on page 331.
   c. Remove or open the service access cover as follows: “Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50” on page 317.
5. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the unit's cover: “Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50” on page 318.
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 adapter cards 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. Type **strsst** on the command line of the Main Menu and then press Enter.
10. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display. Press Enter.
11. Select **Start a service tool** from the System Service Tools (SST) display and press Enter.
12. Select **Hardware service manager** from the Start a Service Tool display and press Enter.
13. Select **Packaging hardware resources (system, frames, cards)** from the Hardware Service Manager display. Press Enter.
14. Type **9** (Hardware contained within package) in the **System Unit** or **Expansion Unit** field of the unit where you are replacing the card. Press Enter.
15. Select the option to **Include empty positions**.
16. Select **Concurrent Maintenance** on the card position where you want to replace the card and then press Enter.
17. Select the option **Toggle LED blink off/on**. A light-emitting diode (LED) blinks, identifying the position you chose. Physically verify that this is the slot where you want to install the adapter.
18. Select the option **Toggle LED blink off/on** to stop the blinking LED.
19. Install the adapter in the adapter slot. Use the following illustration and steps as a guide:

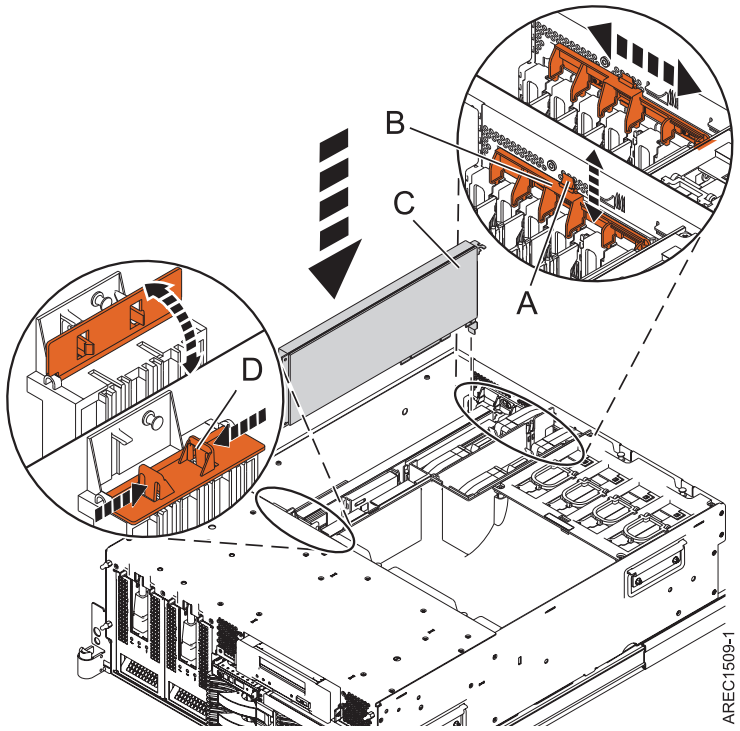


Figure 3. PCI adapter installation

a. Press down on **(A)** to release the adapter latch assembly and then lift **(B)** up and slide the whole assembly towards the center of the system unit.
b. If applicable, open the long-adapter, front retention bracket. Press in on **(D)** and rotate up. This step only applies to long, PCI-X adapters or filler plates.
c. If you are installing a double-wide adapter, remove the PCI adapter divider if one is present. See "Removing a PCI adapter divider from a model 8203-E4A, 9407-M15, or 9408-M25 server" on page 33.
d. Carefully grasp the adapter **(C)** by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
e. Firmly press the adapter connector into the slot.
f. If applicable, close the long-adapter, front retention bracket **(D)**. This step only applies to long, PCI-X adapters.
g. Slide the adapter latch assembly into the closed position. Press down on the assembly until latch **(A)** engages.

20. Connect any adapter cables.
21. Select **Power on domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
22. Select **Assign to** on the resource that has an asterisk (*) on the Work with Controlling Resource display. Press Enter.
23. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:
    ```
    Power on complete
    ```
24. Replace or close the covers.
25. If you are servicing a rack-mounted system, refer to "Placing the rack-mounted system or expansion unit in the operating position" on page 330.
26. On a rack-mounted system, close the rear rack door.
27. Verify that the new resource is functional. See Verify the installed part.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Installing a PCI adapter in the 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in Linux

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

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 you do not have an HMC, complete this procedure to install a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to install a PCI adapter in the server. For information about using the SDMC to install a PCI adapter, see Installing a feature by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to install a PCI adapter.

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. See Figure 223 on page 303.

To install a PCI adapter with the system power on in Linux, do the following steps:

1. Ensure that the system meets the "Prerequisites for hot-plugging PCI adapters in Linux" on page 298.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. "Verify that the Linux, hot-plug PCI tools are installed" on page 298.
4. Determine in which slot to place the PCI adapter.

   If you are installing a new adapter, refer to the following topics for placement information: the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.
5. Perform the prerequisite tasks described in "Before you begin" on page 288.
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. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
   c. Remove or open the service access cover as follows: "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317.
7. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the unit's cover: "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 318.
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. Log in to the system console as the root user.
11. 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.

12. Ensure the slot is empty. Remove the adapter filler plate if one is present.
13. Run the drslot_chrp_pci 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:

    ```
    drslot_chrp_pci -a -s U7879.001.DQD014E-P1-C3
    ```

    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.
    ```

14. Press Enter.

    The following text is displayed:

    ```
    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.
    ```

15. When you are instructed to install the adapter in the adapter slot, use the following illustration and steps as a guide:
    a. Press down on **(A)** to release the adapter latch assembly and then lift **(B)** up and slide the whole assembly towards the center of the system unit.
    b. If applicable, open the long-adapter, front retention bracket. Press in on **(D)** and rotate up. This step only applies to long, PCI-X adapters or filler plates.
    c. If you are installing a double-wide adapter, remove the PCI adapter divider if one is present. See “Removing a PCI adapter divider from a model 8203-E4A, 9407-M15, or 9408-M25 server” on page 33.
    d. Carefully grasp the adapter **(C)** by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
    e. Firmly press the adapter connector into the slot.
    f. If applicable, close the long-adapter, front retention bracket **(D)**. This step only applies to long, PCI-X adapters.
    g. Slide the adapter latch assembly into the closed position. Press down on the assembly until latch **(A)** engages.

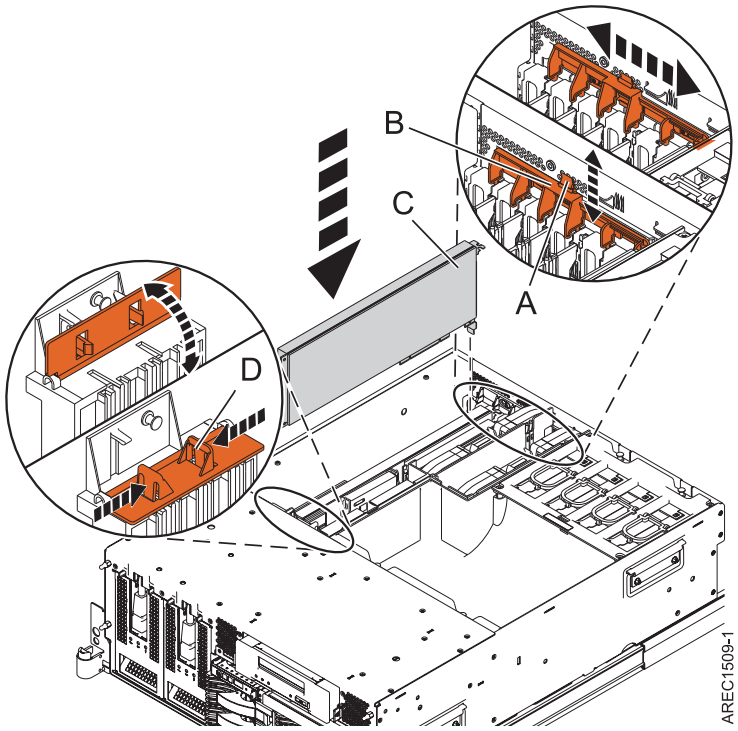


Figure 4. PCI adapter installation

16. Connect any adapter cables.
17. 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
    ```
18. If you are servicing a rack-mounted system, route the cables through the cable-management arm.
19. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing a PCI adapter from a model 8203-E4A, 9407-M15, or 9408-M25 server

You can remove a PCI adapter.

Important:

- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.
- If you are replacing a 2748, 2757, 2763, 2767, 2778, 2780, 2782, 5702, 5703, 5709, or 570B storage IOA, take note of the following: Depending on the configuration of the system, the storage IOA might have been altered or 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.

Removing a PCI adapter from the 8203-E4A, 9407-M15, or 9408-M25 server, with the power off

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

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 using the Hardware Management Console. If you do not have an HMC, complete this procedure to remove a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For information about using the SDMC to remove a PCI adapter, see Removing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to remove a PCI adapter.

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

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. If you are removing a failing PCI adapter, see Indentifying a failing part. If you are removing the PCI adapter for other reasons, continue to the next step.
4. Stop the system or logical partition. See Stop the system or logical partition.
5. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system, follow these steps to remove the service access cover. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
   c. Remove or open the service access cover as follows: "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317.
6. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the unit's cover: "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 318.
7. Label and disconnect all cables attached to the adapter you are going to remove.
8. Record the slot number and location of each adapter being removed.

   Note: Adapter slots are numbered on the rear of the system.
9. Remove the adapter from the system unit as shown in the following figure and steps:

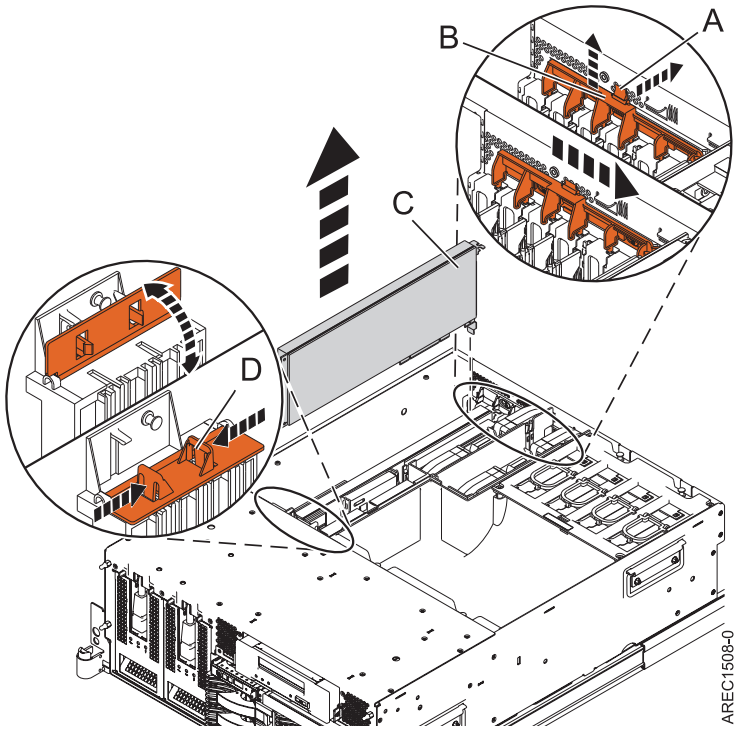


Figure 5. PCI adapter removal

a. Press down on **(A)** to release the adapter latch assembly and then lift **(B)** up. Then slide the whole assembly towards the center of the system unit.

b. If applicable, open the long-adapter, front retention bracket. Press in on **(D)** to release the bracket and then rotate it up. This step only applies to long, PCI-X adapters or filler plates.

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

10. If you are removing a PCI adapter as part of another procedure, return to that procedure. If not, continue to the next step.
11. If you plan to install another adapter into the vacated slot, go to "Replacing a PCI adapter in the 8203-E4A, 9407-M15, or 9408-M25 server, with the power off" on page 22; otherwise, close the adapter latch and front retention bracket and continue with the next step.
12. Seal the expansion slot using an expansion-slot cover.
13. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
14. Reconnect the power source to the system.
15. Start the system or logical partition. Refer to Start the system or logical partition.
16. To replace the PCI adapter, see "Replacing a PCI adapter in the 8203-E4A, 9407-M15, or 9408-M25 server" on page 22.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing a PCI adapter from the 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in AIX

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

To remove a failing adapter and replace it with the same adapter, see "Removing and replacing a PCI adapter in the 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in AIX" on page 24. 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 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in AIX" on page 5.

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 using the Hardware Management Console. If you do not have an HMC, complete this procedure to remove a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For information about using the SDMC to remove a PCI adapter, see Removing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to remove a PCI adapter.

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 remove a PCI adapter with the system power on in AIX, do the following steps:

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. If you are removing a failing PCI adapter, see Indentifying 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. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
   c. Remove or open the service access cover as follows: "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317.
5. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the unit's cover: "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 318.
6. Label and disconnect all cables attached to the adapter you are planning to remove.
7. Record the slot number and location of each adapter being removed. Adapter slots are numbered on the rear of the system unit.
8. Ensure that any processes or applications that might use the adapter are stopped.
9. 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.

10. Label, and then disconnect all cables attached to the adapter you plan to remove.
11. Remove the adapter from the system unit as shown in the following figure and steps:

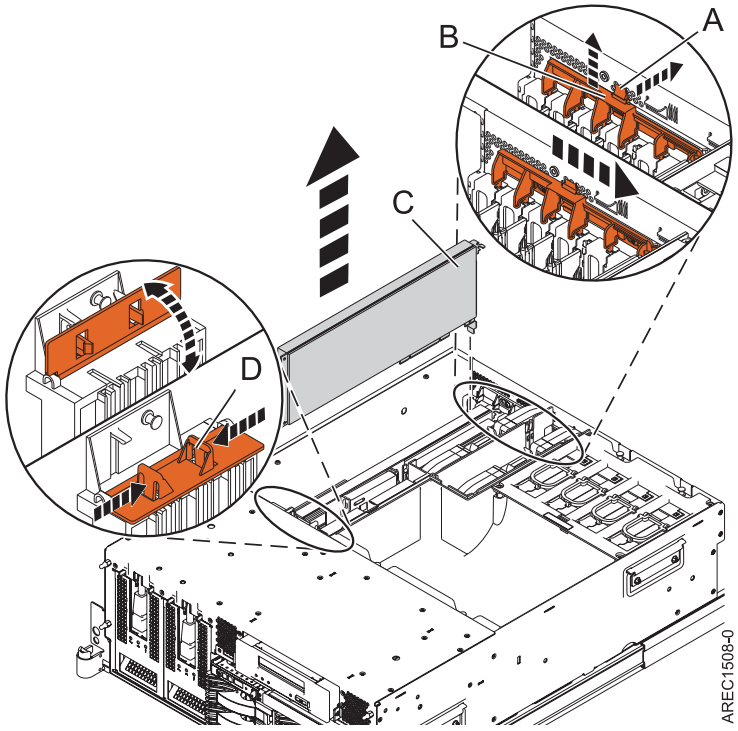


Figure 6. PCI adapter removal

a. Press down on **(A)** to release the adapter latch assembly and then lift **(B)** up. Then slide the whole assembly towards the center of the system unit.
b. If applicable, open the long-adapter, front retention bracket. Press in on **(D)** to release the bracket and then rotate it up. This step only applies to long, PCI-X adapters or filler plates.
c. Carefully grasp the adapter **(C)** 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 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in AIX" on page 5; otherwise, continue with the next step.
13. Seal the expansion slot using an expansion-slot cover.
14. 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.
15. If you have other adapters to remove, press F3 (Exit) to return to the PCI Hot-Plug Manager menu, and then return to step 10 on page 16.

    If you do not have other adapters to remove, continue with the next step.
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. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
19. To replace the PCI adapter, see "Replacing a PCI adapter in the 8203-E4A, 9407-M15, or 9408-M25 server" on page 22.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing a PCI adapter from the 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in IBM i

You can remove a PCI adapter with the system power on in the i operating system.

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 using the Hardware Management Console. If you do not have an HMC, complete this procedure to remove a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For information about using the SDMC to remove a PCI adapter, see Removing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to remove a PCI adapter.

Important:

- If you are removing, installing or replacing a PCI-X double-wide, quad-channel Ultra320 SCSI RAID controller, review the Concurrent maintenance procedure in the PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller (FC 5739, 5778, 5781, 5782; CCIN 571F, 575B) topic, before proceeding with the instructions provided here.

- If you are removing, installing or replacing a PCI-X DDR 1.5 GB cache SAS RAID Adapter, review the Concurrent maintenance procedure in the PCI-X DDR 1.5 GB cache SAS RAID Adapter topic, before proceeding with the instructions provided here.
- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.
- 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.

To remove a PCI adapter with the system power on in the i operating system, do the following steps:

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. If you are removing a failing PCI adapter, see Indentifying 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. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
   c. Remove or open the service access cover as follows: "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317.
5. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the unit's cover: "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 318.
6. Type **strsst** on the command line of the Main Menu and press Enter.
7. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display. Press Enter.
8. Select **Start a service tool** from the System Service Tools (SST) display. Press Enter.
9. Select **Hardware service manager** from the Start a Service Tool display and press Enter.
10. Select **Packaging hardware resources (system, frames, cards)** from the Hardware Service Manager display. Press Enter.
11. Type **9** (Hardware contained within package) in the **System Unit** or **Expansion Unit** field of the unit where you are removing the card, and then press Enter.
12. Select the option to **Include empty positions**.
13. Select **Concurrent Maintenance** on the card position where you want to remove the card and then press Enter.
14. Select the option to **Toggle LED blink off/on**. A light-emitting diode (LED) blinks identifying the position you chose. Physically verify that this is the slot where you want to remove the adapter.
15. Select the option to **Toggle LED blink off/on** to stop the blinking LED.

16. Select the option to **Power off domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
17. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:
    `Power off complete`
18. Label and then disconnect all cables attached to the adapter you plan to remove.
19. Record the slot number and location of each adapter being removed.

    Note: Adapter slots are numbered on the rear of the system.
20. Remove the adapter from the system unit as shown in the following figure and steps:

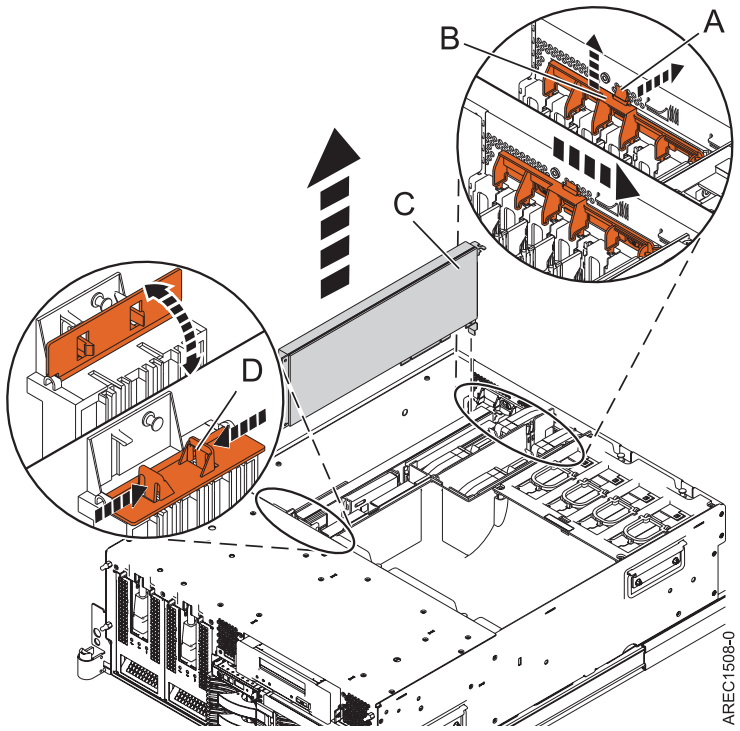


Figure 7. PCI adapter removal

    a. Press down on **(A)** to release the adapter latch assembly and then lift **(B)** up. Then slide the whole assembly towards the center of the system unit.
    b. If applicable, open the long-adapter, front retention bracket. Press in on **(D)** to release the bracket and then rotate it up. This step only applies to long, PCI-X adapters or filler plates.
    c. Carefully grasp the adapter **(C)** by its top edge or upper corners, and remove it from the system. Store the adapter in a safe place.
21. If you are removing a PCI adapter as part of another procedure, return to that procedure. If not, continue to the next step.
22. Seal the expansion slot using an expansion-slot cover.
23. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing a PCI adapter from the 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in Linux

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

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 using the Hardware Management Console. If you do not have an HMC, complete this procedure to remove a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For information about using the SDMC to remove a PCI adapter, see Removing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to remove a PCI adapter.

To remove a PCI adapter with the system power on in Linux, do the following steps:

1. Ensure that the system meets the "Prerequisites for hot-plugging PCI adapters in Linux" on page 298.
2. "Verify that the Linux, hot-plug PCI tools are installed" on page 298.
3. Perform the prerequisite tasks described in "Before you begin" on page 288.
4. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
5. If you are removing a failing PCI adapter, see Indentifying 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. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
   c. Remove or open the service access cover as follows: "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317.
7. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the unit's cover: "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 318.
8. Label and disconnect all cables attached to the adapter you are going to remove.
9. Record the slot number and location of each adapter being removed.

   Note: Adapter slots are numbered on the rear of the system.
10. 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.
11. Run the drslot_chrp_pci 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:

    ```
    drslot_chrp_pci -r -s U7879.001.DQD014E-P1-C3
    ```

    Follow the instructions on the display to complete the task.

12. Remove the adapter from the system unit as shown in the following figure and steps:

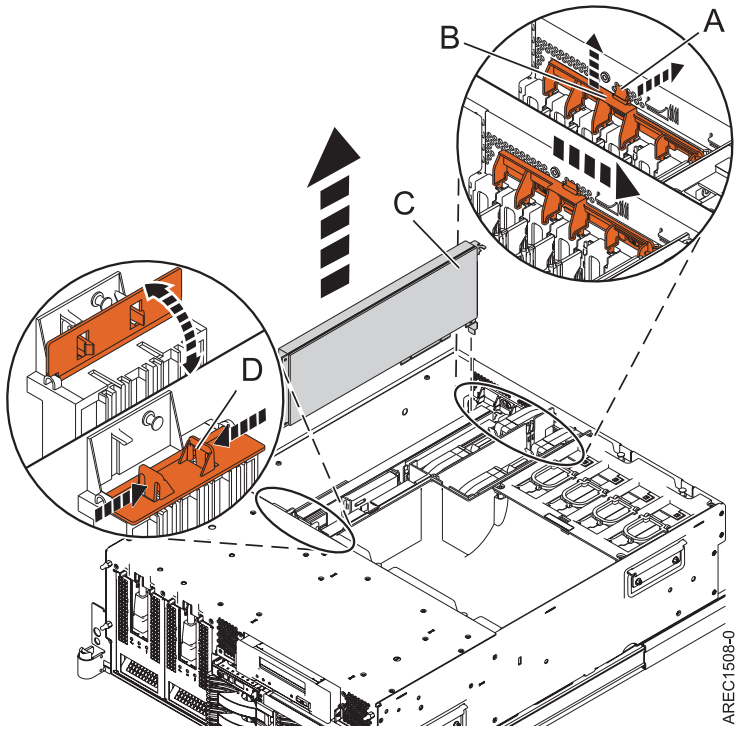


Figure 8. PCI adapter removal

   a. Press down on **(A)** to release the adapter latch assembly and then lift **(B)** up. Then slide the whole assembly towards the center of the system unit.
   b. If applicable, open the long-adapter, front retention bracket. Press in on **(D)** to release the bracket and then rotate it up. This step only applies to long, PCI-X adapters or filler plates.
   c. Carefully grasp the adapter **(C)** 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 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in Linux" on page 30; 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. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
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 8203-E4A, 9407-M15, or 9408-M25 server" on page 22.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Replacing a PCI adapter in the 8203-E4A, 9407-M15, or 9408-M25 server

You can replace a PCI adapter.

Replacing a PCI adapter in the 8203-E4A, 9407-M15, or 9408-M25 server, with the power off

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

You must have already completed the procedure “Removing a PCI adapter from the 8203-E4A, 9407-M15, or 9408-M25 server, with the power off” on page 13 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 Replacing a part by using the Hardware Management Console. If you do not have an HMC, complete this procedure to replace a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For information about using the SDMC to replace a PCI adapter, see Replacing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to replace a PCI adapter.

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

1. Perform the prerequisite tasks described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
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. Install the adapter in the system unit as shown in the following figure and steps:

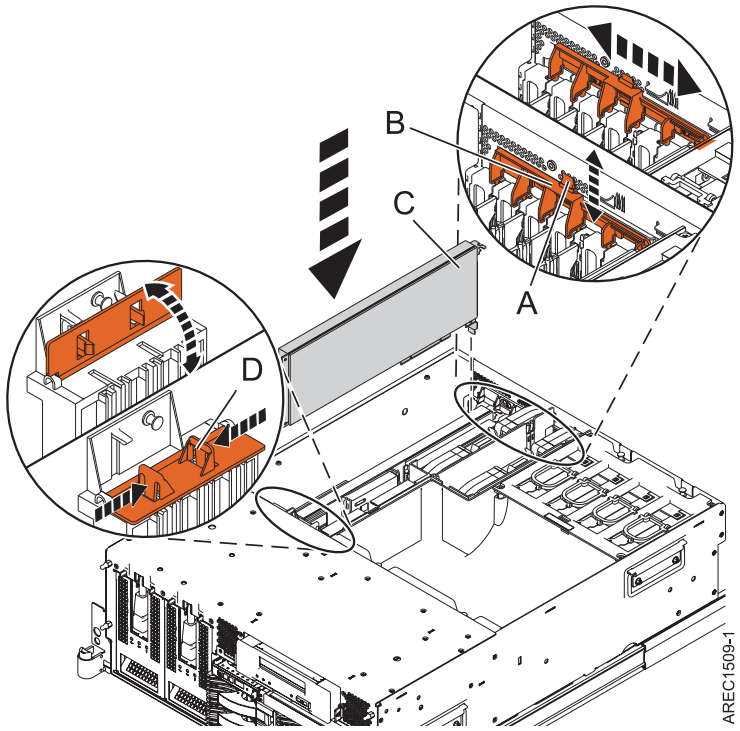


Figure 9. PCI adapter installation

a. Carefully grasp the adapter **(C)** by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
b. Firmly press the adapter connector into the slot.
c. If applicable, close the long-adapter, front retention bracket **(D)**. This step only applies to long, PCI-X adapters.
d. Slide the adapter latch assembly **(B)** into the closed position. Press down on the assembly until latch **(A)** engages.

6. Connect the adapter cables.
7. If you are servicing a rack-mounted system, route the cables through the cable-management arm.
8. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
   - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
   - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
   - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
9. Reconnect the power source to the system.
10. Start the system or logical partition. Refer to Start the system or logical partition.
11. Verify that the new resource is functional. See Verify the installed part.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing and replacing a PCI adapter in the 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in AIX

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

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

Notes:

- 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 Replacing a part by using the Hardware Management Console. If you do not have an HMC, complete this procedure to replace a PCI adapter.
- If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For information about using the SDMC to replace a PCI adapter, see Replacing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to replace a PCI adapter.
- 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 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in AIX” on page 15.
- 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 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in AIX” on page 15, then install the new adapter as described in “Installing a PCI adapter in the 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in AIX” on page 5.
- 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 a PCI adapter with the system power on in AIX, do the following steps:

1. Perform the prerequisite tasks described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
3. If you are removing a failing PCI adapter, see Indentifying 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. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See “Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position” on page 331.
   c. Remove or open the service access cover as follows: “Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50” on page 317.
5. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the unit's cover: “Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50” on page 318.

6. Determine which adapters you plan to remove.
7. Record the slot number and location of each adapter being removed.

   Note: Adapter slots are numbered on the rear of the system unit.
8. Ensure that any processes or applications that might use the adapter are stopped.
9. Enter the system diagnostics by logging in as root user or as the celogin user, type **diag** at AIX command line.
10. When the DIAGNOSTIC OPERATING INSTRUCTIONS menu displays, press Enter.
11. At the FUNCTION SELECTION menu, select **Task Selection**, and then press enter.
12. At the Task Selection list, select **PCI Hot Plug Manager**.
13. Select **Unconfigure a Device**, and then press Enter.
14. Press F4 (or Esc +4) to display the **Device Names** menu.
15. Select the adapter you are removing in the **Device Names** menu.
16. 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.
17. The **ARE YOU SURE** screen is shown. 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.
18. Press F3 (or Esc +3) twice to return to the **Hot Plug Manager** menu.
19. Select **Replace/remove PCI Hot Plug adapter**.
20. Select the slot that has the device to be removed from the system.
21. 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.
22. Press Enter. This places the adapter in the action state, meaning it is ready to be removed from the system.
23. Label, and then disconnect all cables attached to the adapter you plan to remove.
24. Remove the adapter from the system unit as shown in the following figure and steps:

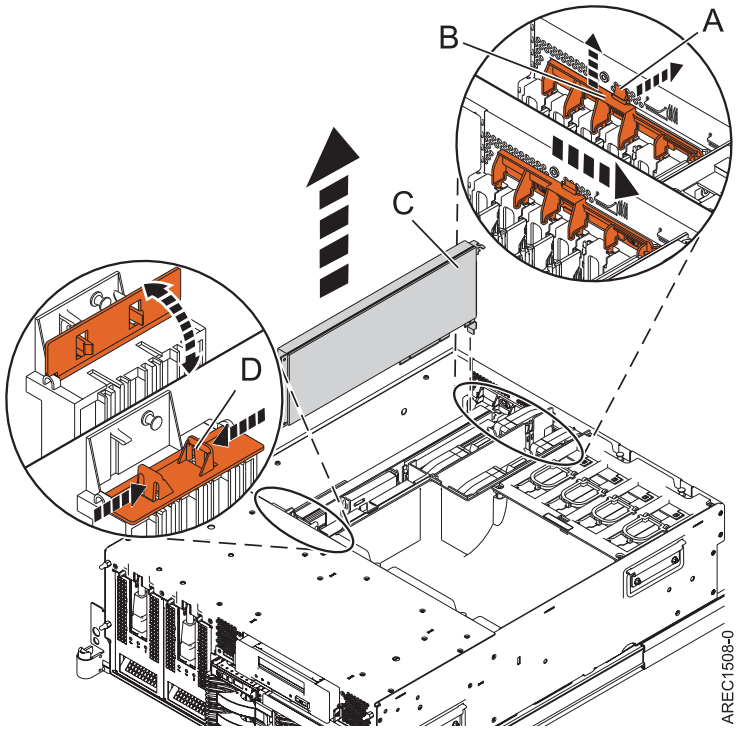


Figure 10. PCI adapter removal

a. Press down on **(A)** to release the adapter latch assembly and then lift **(B)** up. Then slide the whole assembly towards the center of the system unit.
b. If applicable, open the long-adapter, front retention bracket. Press in on **(D)** to release the bracket and then rotate it up. This step only applies to long, PCI-X adapters or filler plates.
c. Carefully grasp the adapter **(C)** 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. Install the adapter in the system unit as shown in the following figure and steps:

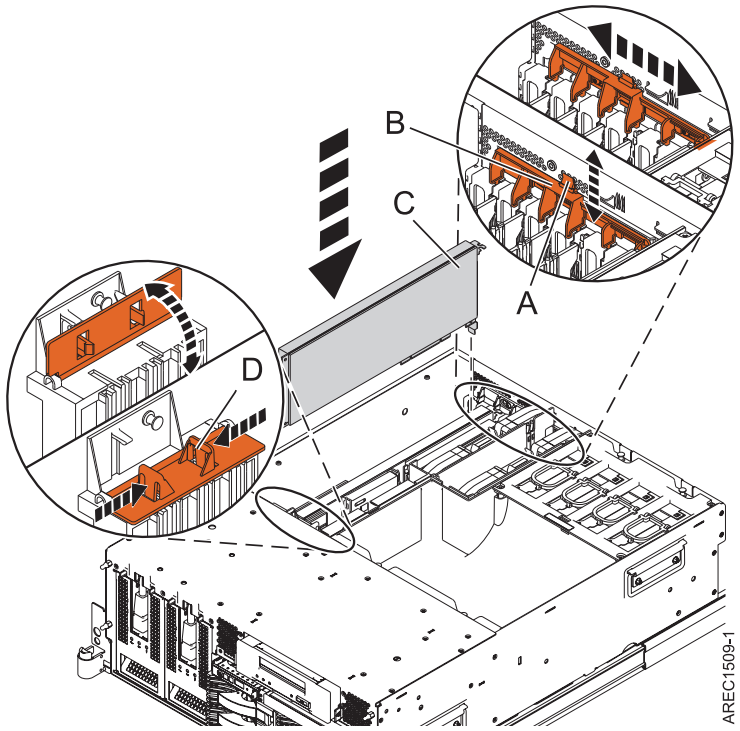


Figure 11. PCI adapter installation

a. Carefully grasp the adapter **(C)** by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
b. Firmly press the adapter connector into the slot.
c. If applicable, close the long-adapter, front retention bracket **(D)**. This step only applies to long, PCI-X adapters.
d. Slide the adapter latch assembly **(B)** into the closed position. Press down on the assembly until latch **(A)** engages.

27. Connect the adapter cables.
28. 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.
29. Press the F3 (or Esc+3) key to return to the **PCI Hot-Plug Manager** menu.
30. Press the F3 (or Esc+3) key to return to the **TASK** selection list.
31. Select **Log Repair Action**.
32. Select the resource just replaced, press Enter, press Commit (F7 or ESC 7), then press Enter.
33. Press F3 (or Esc+3) to return to **TASK Selection List**.
34. Select **Hot Plug Task**, and press Enter.
35. Select **PCI Hot Plug Manager**, select **Configure a defined device**, and then press Enter.
36. Select the device just replaced from the list, and then press Enter. The device is now configured.
37. Press the F10 key to exit the diagnostic program.

    Note: If you are running the stand-alone diagnostics, do not exit the program completely.
38. 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, and 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**, 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, then press **Commit** (F7 or Esc+7).

e. Did 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.

39. Press the F10 key to exit the diagnostic program.
40. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
41. Verify that the new resource is functional. See Verify the installed part.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Replacing a PCI adapter in the 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in IBM i

You can replace a PCI adapter with the system power on in the i operating system.

Attention: You must have already completed the procedure "Removing a PCI adapter from the 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in IBM i" on page 17 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 Replacing a part by using the Hardware Management Console. If you do not have an HMC, complete this procedure to replace a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For information about using the SDMC to replace a PCI adapter, see Replacing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to replace a PCI adapter.

Important:

- If you are removing, installing or replacing a PCI-X double-wide, quad-channel Ultra320 SCSI RAID controller, review the Concurrent maintenance procedure in the PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller (FC 5739, 5778, 5781, 5782; CCIN 571F, 575B) topic, before proceeding with the instructions provided here.

- If you are removing, installing or replacing a PCI-X DDR 1.5 GB cache SAS RAID Adapter, review the Concurrent maintenance procedure in the PCI-X DDR 1.5 GB cache SAS RAID Adapter topic, before proceeding with the instructions provided here.
- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.
- 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.

To replace a PCI adapter with the system power on in IBM i, do the following steps:

1. Perform the prerequisite tasks described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
3. If necessary, remove the adapter from the antistatic package.

   Attention: Avoid touching the components and gold connectors on the adapter.
4. Install the adapter in the system unit as shown in the following figure and steps:

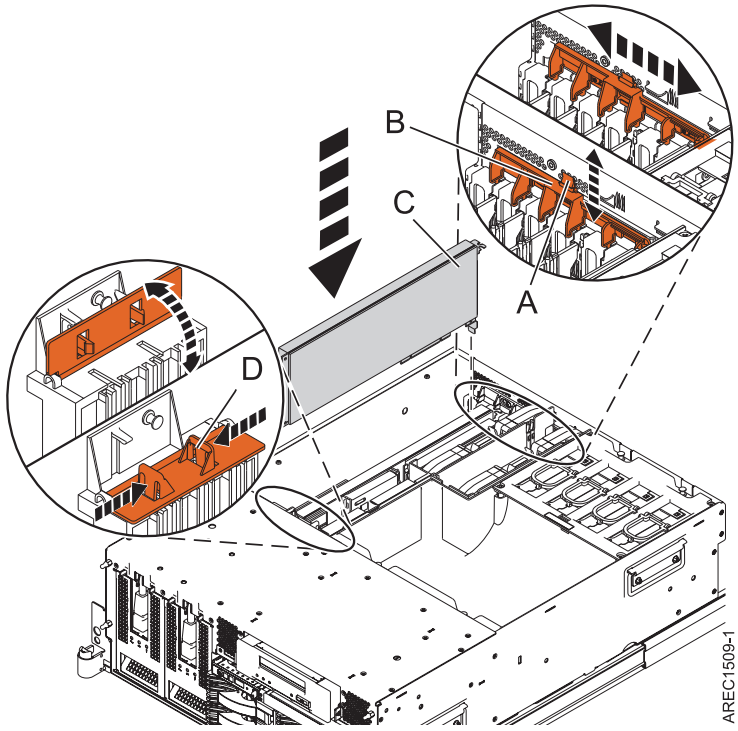


Figure 12. PCI adapter installation

a. Carefully grasp the adapter **(C)** by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
b. Firmly press the adapter connector into the slot.
c. If applicable, close the long-adapter, front retention bracket **(D)**. This step only applies to long, PCI-X adapters.
d. Slide the adapter latch assembly **(B)** into the closed position. Press down on the assembly until latch **(A)** engages.

5. Connect the adapter cables.
6. Select **Power on domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
7. Select **Assign to** on the resource that has an asterisk (*) on the Work with Controlling Resource display. Press Enter.
8. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:
   `Power on complete`
9. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
   - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
   - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
   - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
10. Verify that the new resource is functional. See Verify the installed part.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Replacing a PCI adapter in the 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in Linux

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

You must have already completed the procedure "Removing a PCI adapter from the 8203-E4A, 9407-M15, or 9408-M25 server, with the power on in Linux" on page 20.

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 Replacing a part by using the Hardware Management Console. If you do not have an HMC, complete this procedure to replace a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For information about using the SDMC to replace a PCI adapter, see Replacing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to replace a PCI adapter.

To replace a PCI adapter with the system power on in Linux, do the following steps:

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
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 **drslot_chrp_pci** 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:

   ```
   drslot_chrp_pci -R -s U7879.001.DQD014E-P1-C3
   ```

   Follow the instructions on the display to complete the task.
6. Install the adapter in the system unit as shown in the following figure and steps:

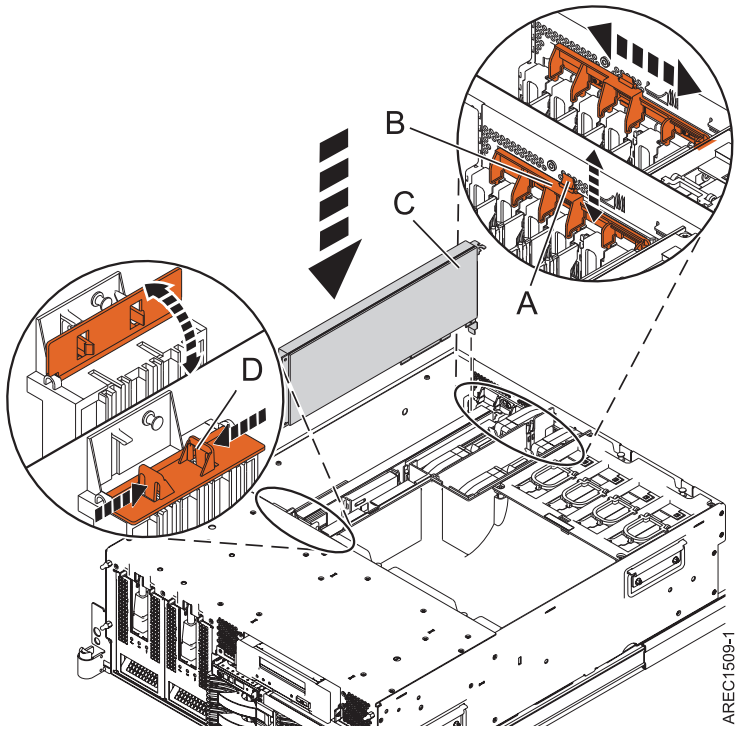


Figure 13. PCI adapter installation

   a. Carefully grasp the adapter **(C)** by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
   b. Firmly press the adapter connector into the slot.
   c. If applicable, close the long-adapter, front retention bracket **(D)**. This step only applies to long, PCI-X adapters.
   d. Slide the adapter latch assembly **(B)** into the closed position. Press down on the assembly until latch **(A)** engages.
7. Connect the adapter cables.
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
   ```
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. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317

- "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
- "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319

11. Verify that the new resource is functional. See Verify the installed part.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Model 8203-E4A, 8261-E4S, 9407-M15, and 9408-M25 PCI adapter dividers

You can install or replace PCI adapter dividers in the 8203-E4A, 8261-E4S, 9407-M15, or 9408-M25.

Installing a PCI adapter divider in the 8203-E4A, 9407-M15, or 9408-M25 server

You can install a PCI adapter divider.

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 disconnecting the power source from the system and reconnecting the power source to the system.

To install a divider, do the following steps:

1. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
2. Stop the system or logical partition. See Stop the system or logical partition.
3. Disconnect the power source from the system by unplugging the system.

   Note: This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
4. If you are installing the divider in a rack-mounted system, follow these steps to remove the service access cover. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
   c. Remove or open the service access cover as follows: "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
5. If you are installing the divider in a stand-alone system unit, follow these steps to remove the units cover: "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 318.
6. Install the divider in the system unit using the following illustration and steps as a guide:

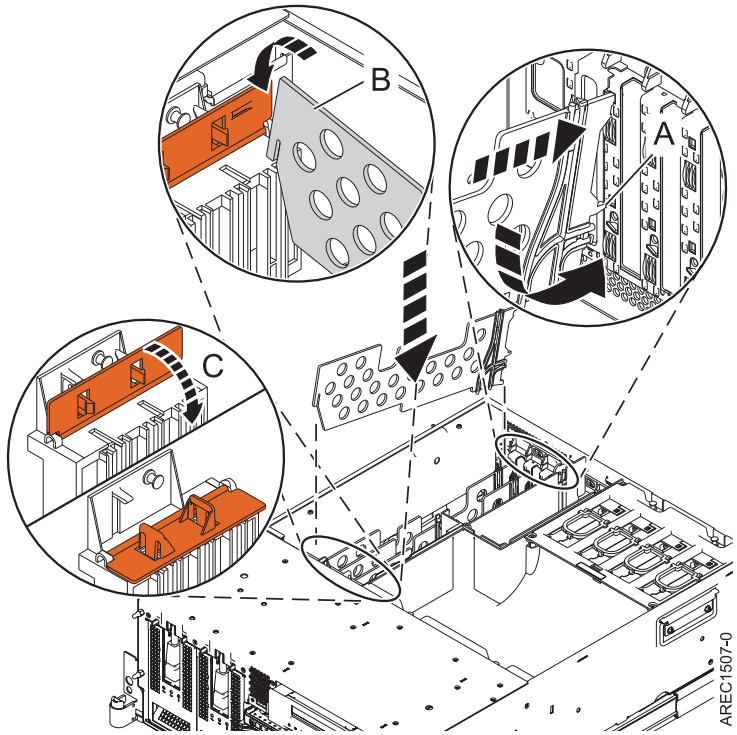


Figure 14. PCI-adapter divider installed in the system unit

a. Locate the divider slot that you want to use.
b. Carefully grasp the divider by its top edge and align the back edge of the divider with the retention notches **(A)**.
c. Insert the front edge of the divider **(B)** into the divider slot and then press the divider into place. If this is a divider for a PCI-X slot, the long-adapter retention bracket **(C)** should be in the open position.
d. If this is a divider for a PCI-X slot, close the long-adapter retention bracket **(C)**.

7. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
   - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
   - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
   - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
8. Reconnect the power source to the system.
9. Start the system or logical partition. Refer to Start the system or logical partition.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing a PCI adapter divider from a model 8203-E4A, 9407-M15, or 9408-M25 server

You can remove a PCI adapter divider.

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:

1. Perform prerequisite tasks as described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
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.

   Note: This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
5. If you are removing a PCI adapter divider in a rack-mounted system, follow these steps to remove the service access cover. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See “Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position” on page 331.
   c. Remove or open the service access cover as follows: “Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50” on page 317
6. If you are removing a PCI adapter divider in a stand-alone system unit, follow these steps to remove the units scover: “Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50” on page 318.
7. Remove the adapter divider from the system unit using the following illustration and steps as a guide:

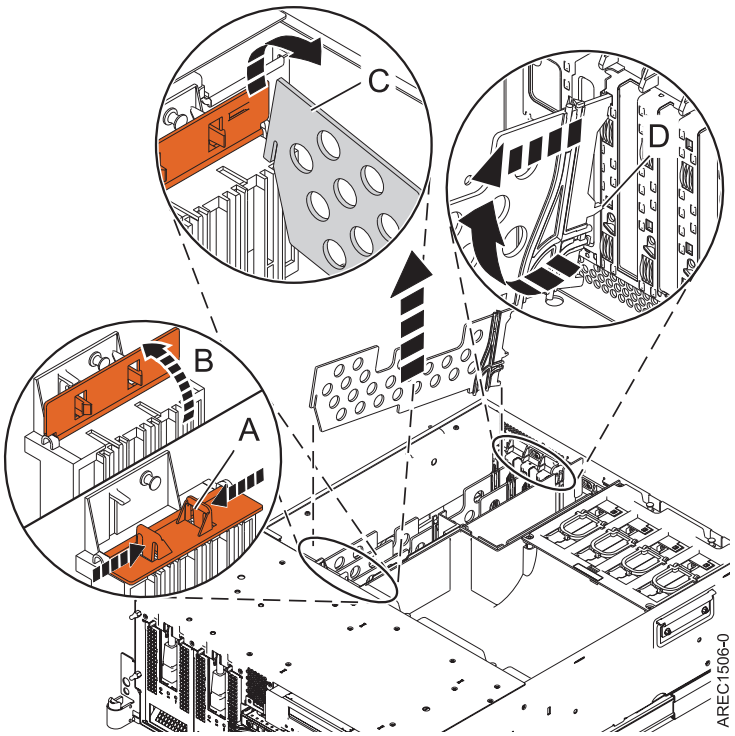


Figure 15. PCI adapter divider removed from the system unit

a. If this is a divider for a PCI-X slot, open the long-adapter retention bracket **(A)**, by squeezing the tabs and rotating it up, as shown by **(B)**.
b. Pull the front edge of the divider **(C)** away from the divider slot.
c. Flex the back edge **(D)** of the divider out of the bracket.
d. Pull the divider out of the system.

8. If you are removing the divider as part of another procedure, return to that procedure now. To replace the divider, see "Installing a PCI adapter divider in the 8203-E4A, 9407-M15, or 9408-M25 server" on page 32. To close up the system, continue to the next step.
9. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
   - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
   - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
   - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
10. Reconnect the power source to the system.
11. Start the system or logical partition. Refer to Start the system or logical partition.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Model 8204-E8A and 9409-M50 PCI adapters

You can remove, replace, or install PCI adapters in the 8204-E8A (IBM System p® 550) or 9409-M50 (IBM System i® 550).

If you are installing a new adapter, you will also need to refer to the PCI placement topic for slot placement information. See the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.

If you need to remove, replace, or install PCI adapters in an expansion unit attached to the system unit, refer to one the following procedures:

- 7311-D20 I/O expansion unit
  - "Installing a PCI adapter in an expansion unit that does not use cassettes" on page 238
  - "Removing a PCI adapter in an expansion unit that does not use cassettes" on page 257
  - "Replacing a PCI adapter in an expansion unit that does not use cassettes" on page 272
- 7314-G30 I/O expansion unit
  - "Installing a PCI adapter contained in a cassette" on page 69
  - "Removing a PCI adapter contained in a cassette from the system" on page 106
  - "Replacing a PCI adapter contained in a cassette in the system" on page 128

Important: If you are installing a new feature, ensure that you have the software required to support the new feature and determine whether there are any existing PTF prerequisites to install. To do this, use the IBM Prerequisite Web site at http://www-912.ibm.com/e_dir/eServerPrereq.nsf .

Important:

- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.

- If you are replacing a 2748, 2757, 2763, 2767, 2778, 2780, 2782, 5702, 5703, 5709, or 570B storage IOA, take note of the following: Depending on the configuration of the system, the storage IOA might have been altered or 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 in the 8204-E8A or 9409-M50 server

You can install a PCI adapter.

Installing a PCI adapter in the 8204-E8A or 9409-M50 server, with the power off

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

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 you do not have an HMC, complete this procedure to install a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to install a PCI adapter in the server. For information about using the SDMC to install a PCI adapter, see Installing a feature by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to install a PCI adapter.

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. See Figure 223 on page 303.

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

1. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
2. Determine in which slot to place the PCI adapter. For system-specific adapter placement information, see the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.
3. Perform the prerequisite tasks described in "Before you begin" on page 288.
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.

   Note: This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
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. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
   c. Remove or open the service access cover as follows: "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317

7. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the units cover: “Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50” on page 318.
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. 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.
11. Slide the adapter latch **(A)** into the open position, as shown in the following figure.

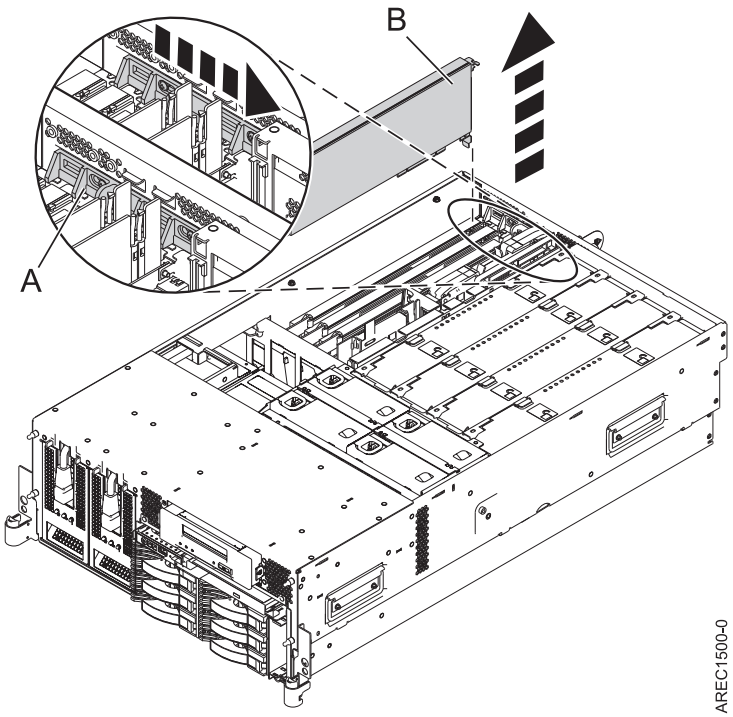


Figure 16. PCI adapter or filler plate removed from the rack-mounted system unit

12. If necessary, remove the adapter expansion slot filler.
13. Ensure 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 a model 8204-E8A or 9409-M50 server” on page 66.
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.

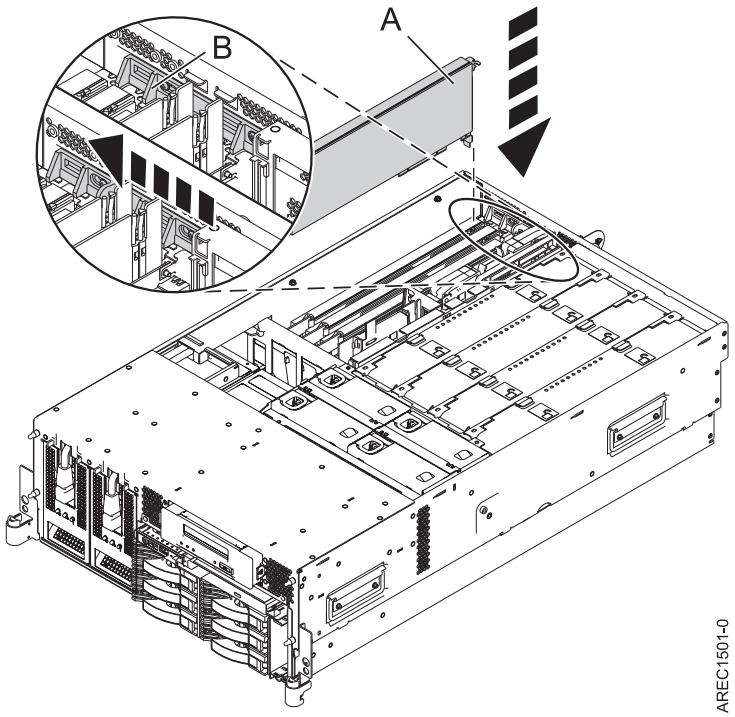


Figure 17. PCI adapter replaced in the rack-mounted system unit

17. Connect any adapter cables.
18. If you are servicing a rack-mounted system, route the cables through the cable-management arm.
19. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
20. Reconnect the power source to the system.
21. Start the system or logical partition. Refer to Start the system or logical partition.
22. Verify that the new resource is functional.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Installing a PCI adapter in the 8204-E8A or 9409-M50 server, with the power on in AIX

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

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 you do not have an HMC, complete this procedure to install a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to install a PCI adapter in the server. For information about using the SDMC to install a PCI adapter, see Installing a feature by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to install a PCI adapter.

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. See Figure 223 on page 303.

To install a PCI adapter with the system power on in AIX, do the following steps:

1. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
2. Determine in which slot to place the PCI adapter. For system-specific adapter placement information, see the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.
3. Perform the prerequisite tasks described in "Before you begin" on page 288.
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. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
   c. Remove or open the service access cover as follows: "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
5. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the units cover: "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 318.
6. If necessary, remove the adapter expansion slot shield.
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. If you are installing a double-wide adapter, remove the PCI adapter divider if one is present. See "Removing a PCI adapter divider from a model 8204-E8A or 9409-M50 server" on page 66.
11. Refer to "PCI hot-plug manager access for AIX" on page 295, and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.
12. 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.
13. Select the appropriate empty PCI slot from the ones listed on the screen, and press Enter.
14. Slide the adapter latch **(A)** into the open position, as shown in the following figure.

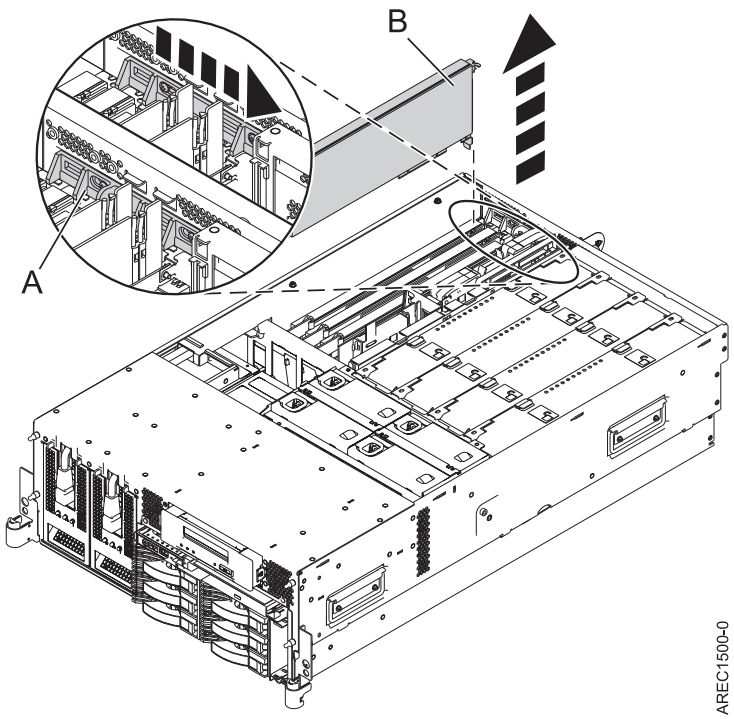


Figure 18. PCI adapter or filler plate removed from the rack-mounted system unit

15. Remove the adapter filler plate if one is present.
16. 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 297.
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.

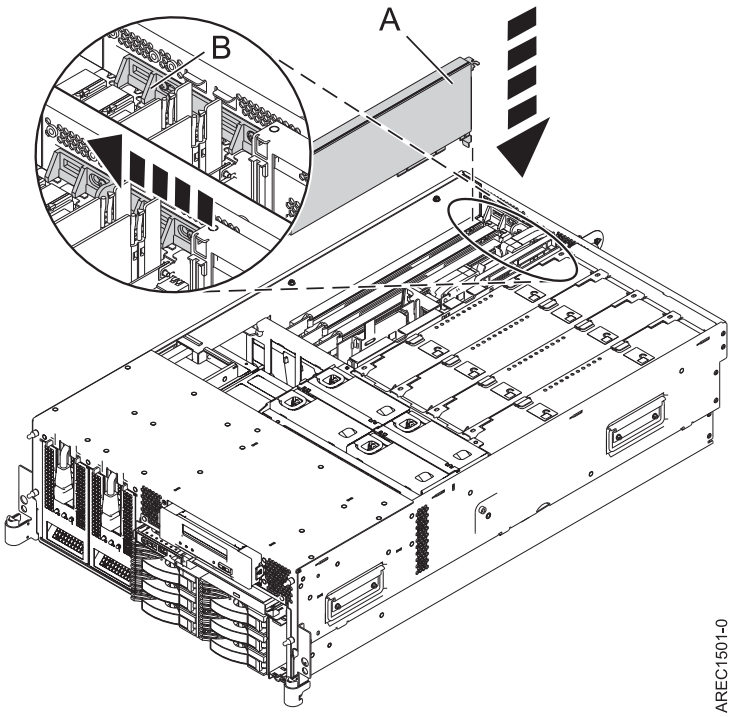


Figure 19. PCI adapter replaced in the rack-mounted system unit

20. Connect any adapter cables.
21. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
22. Run the cfgmgr command to configure the adapter.
23. Verify that the new resource is functional. See Verify the installed part.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Installing a PCI adapter in the 8204-E8A or 9409-M50 server, with the power on in IBM i

You can install a PCI adapter in the i operating system.

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 you do not have an HMC, complete this procedure to install a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to install a PCI adapter in the server. For information about using the SDMC to install a PCI adapter, see Installing a feature by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to install a PCI adapter.

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. See Figure 223 on page 303.

Important:

- If you are removing, installing or replacing a PCI-X double-wide, quad-channel Ultra320 SCSI RAID controller, review the Concurrent maintenance procedure in the PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller (FC 5739, 5778, 5781, 5782; CCIN 571F, 575B) topic, before proceeding with the instructions provided here.
- If you are removing, installing or replacing a PCI-X DDR 1.5 GB cache SAS RAID Adapter, review the Concurrent maintenance procedure in the PCI-X DDR 1.5 GB cache SAS RAID Adapter topic, before proceeding with the instructions provided here.
- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.
- 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.

To install a PCI adapter with the system power on in the i operating system, do the following steps:

1. Perform the prerequisite tasks described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
3. Determine in which slot to place the PCI adapter. For system-specific adapter placement information, see the PCI adapter placement for machine types 82xx and 91xx or PCI adapter placement for machine type 94xx.
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. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See “Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position” on page 331.
   c. Remove or open the service access cover as follows: “Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50” on page 317
5. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the units cover: “Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50” on page 318.
6. If necessary, remove the adapter expansion slot shield.
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 adapter cards 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. If you are installing a double-wide adapter, remove the PCI adapter divider if one is present. See "Removing a PCI adapter divider from a model 8204-E8A or 9409-M50 server" on page 66.
11. Type **strsst** on the command line of the Main Menu and then press Enter.
12. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display. Press Enter.
13. Select **Start a service tool** from the System Service Tools (SST) display and press Enter.
14. Select **Hardware service manager** from the Start a Service Tool display and press Enter.
15. Select **Packaging hardware resources (system, frames, cards)** from the Hardware Service Manager display. Press Enter.
16. Type **9** (Hardware contained within package) in the **System Unit** or **Expansion Unit** field of the unit where you are replacing the card. Press Enter.
17. Select the option to **Include empty positions**.
18. Select **Concurrent Maintenance** on the card position where you want to replace the card and then press Enter.
19. Select the option to **Toggle LED blink off/on**. A light-emitting diode (LED) blinks identifying the position you chose. Physically verify that this is the slot where you want to install the adapter.
20. Select the option to **Toggle LED blink off/on** to stop the blinking LED.
21. Slide the adapter latch **(A)** into the open position, as shown in the following figure.

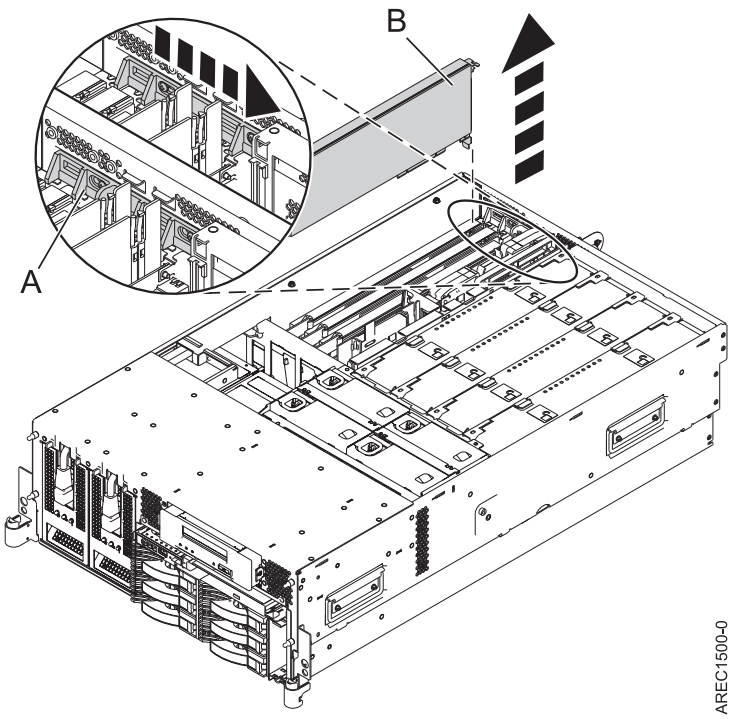


Figure 20. PCI adapter or filler plate removed from the rack-mounted system unit

22. Ensure that the slot is empty. Remove the adapter filler plate if one is present.
23. Carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
24. Press the adapter firmly into its connector.

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

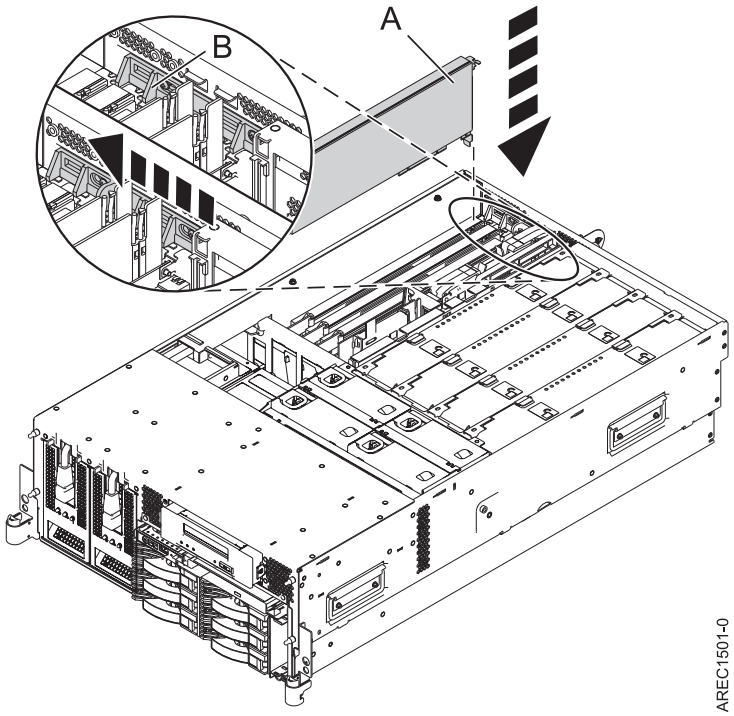


Figure 21. PCI adapter replaced in the rack-mounted system unit

26. Connect any adapter cables.
27. Select **Power on domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
28. Select **Assign to** on the resource that has an asterisk (*) on the Work with Controlling Resource display. Press Enter.
29. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:
    `Power on complete`
30. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
31. Verify that the new resource is functional. See Verify the installed part.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Installing a PCI adapter in the 8204-E8A or 9409-M50 server, with the power on in Linux

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

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 you do not have an HMC, complete this procedure to install a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to install a PCI adapter in the server. For information about using the SDMC to install a PCI adapter, see Installing a feature by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to install a PCI adapter.

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. See Figure 223 on page 303.

To install a PCI adapter with the system power on in Linux, do the following steps:

1. Ensure that the system meets the "Prerequisites for hot-plugging PCI adapters in Linux" on page 298.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. "Verify that the Linux, hot-plug PCI tools are installed" on page 298.
4. Determine in which slot to place the PCI adapter. For system-specific adapter placement information, see the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.
5. Perform the prerequisite tasks described in "Before you begin" on page 288.
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. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
   c. Remove or open the service access cover as follows: "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
7. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the units cover: "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 318.
8. If necessary, remove the adapter expansion slot shield.
9. If necessary, remove the adapter from the antistatic package.

   Attention: Avoid touching the components and gold connectors on the adapter.
10. Place the adapter, component-side up, on a flat, antistatic surface.
11. If you are installing a double-wide adapter, remove the PCI adapter divider if one is present. See "Removing a PCI adapter divider from a model 8204-E8A or 9409-M50 server" on page 66.
12. Log in to the system console as the root user.
13. 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.

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

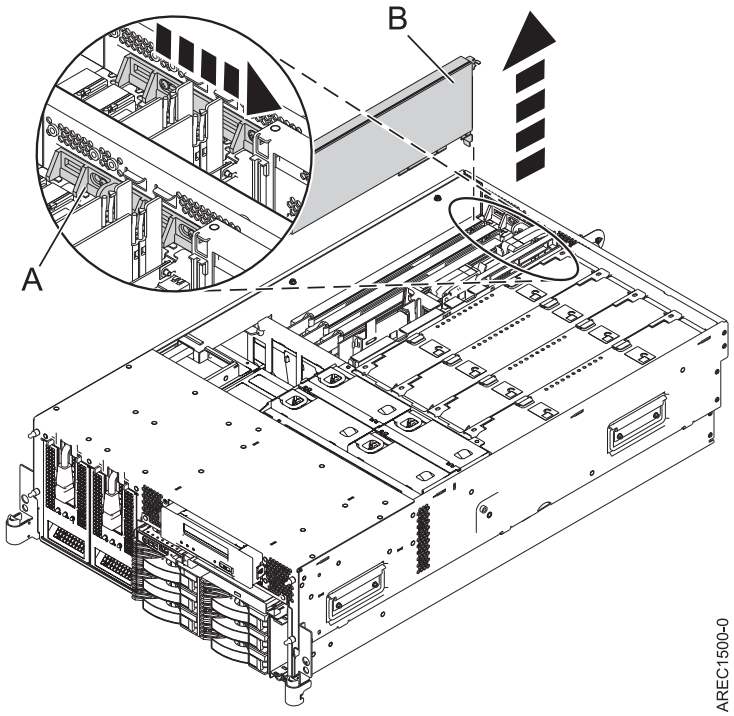


Figure 22. PCI adapter or filler plate removed from the rack-mounted system unit

15. Ensure the slot is empty. Remove the adapter filler plate if one is present.
16. Run the drslot_chrp_pci 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:

    ```
    drslot_chrp_pci -a -s U7879.001.DQD014E-P1-C3
    ```

    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.
    ```

17. 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.
    ```

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.

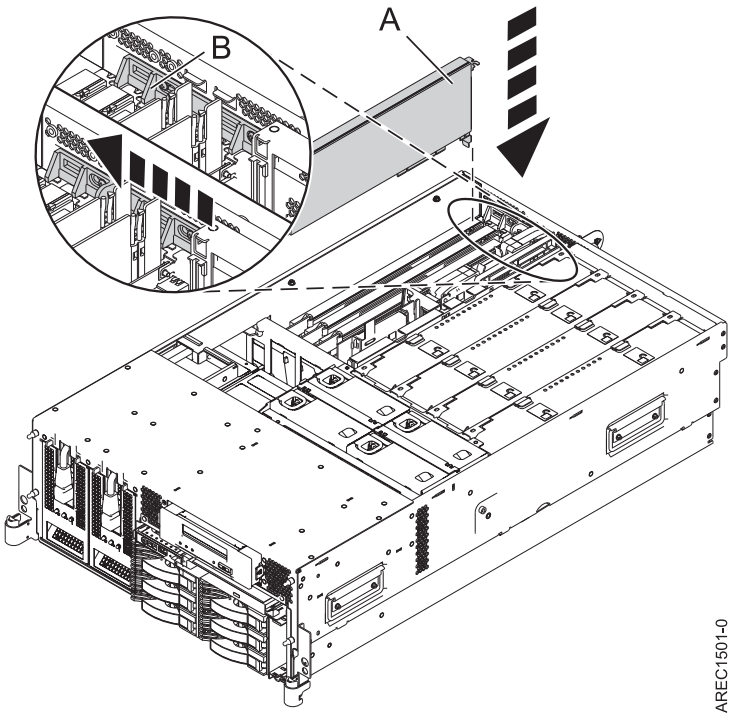


Figure 23. PCI adapter replaced in the rack-mounted system unit

21. Connect any adapter cables.
22. 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
    ```
23. If you are servicing a rack-mounted system, route the cables through the cable-management arm.
24. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing a PCI adapter from a model 8204-E8A or 9409-M50 server

You can remove a PCI adapter.

Important:

- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.

- If you are replacing a 2748, 2757, 2763, 2767, 2778, 2780, 2782, 5702, 5703, 5709, or 570B storage IOA, take note of the following: Depending on the configuration of the system, the storage IOA might have been altered or 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.

Removing a PCI adapter from the 8204-E8A or 9409-M50 server, with the power off

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

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 using the Hardware Management Console. If you do not have an HMC, complete this procedure to remove a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For information about using the SDMC to remove a PCI adapter, see Removing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to remove a PCI adapter.

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

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
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. Stop the system or logical partition.
5. Disconnect the power source from the system by unplugging the system.

   Note: This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
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. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
   c. Remove or open the service access cover as follows: "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
7. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the units cover: "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 318.
8. Determine which adapter you plan to remove, then label and disconnect all cables attached to that adapter.
9. Record the slot number and location of each adapter being removed.

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

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

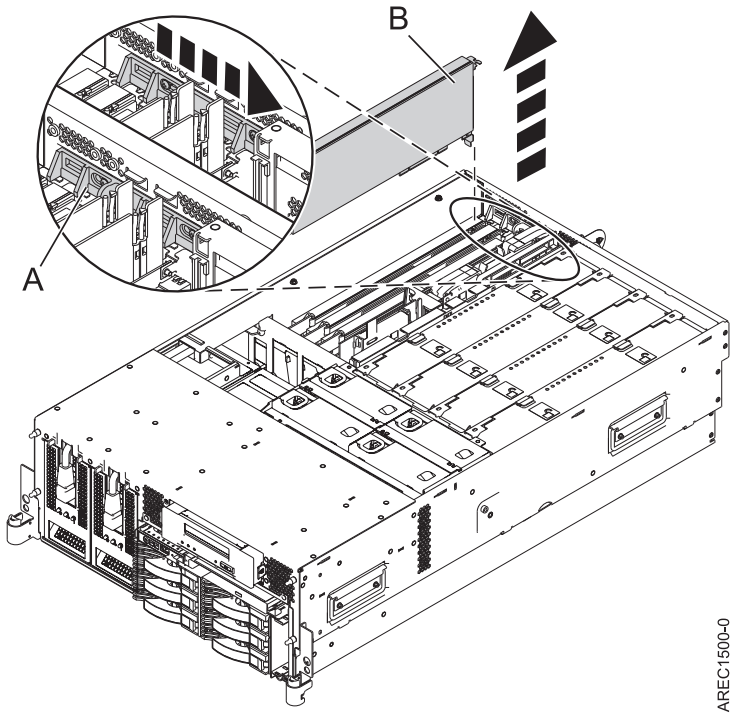


Figure 24. PCI adapter or filler plate removed from the rack-mounted system unit

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 are removing a PCI 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 "Replacing a PCI adapter in the 8204-E8A or 9409-M50 server, with the power off" on page 57; 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. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
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 PCI adapter, see "Replacing a PCI adapter in the 8204-E8A or 9409-M50 server" on page 57.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing a PCI adapter from the 8204-E8A or 9409-M50 server, with the power on in AIX

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

To remove a failing adapter and replace it with the same adapter, see "Removing and replacing a PCI adapter in the 8204-E8A or 9409-M50 server, with the power on in AIX" on page 58. 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 in the 8204-E8A or 9409-M50 server, with the power on in AIX" on page 38.

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 using the Hardware Management Console. If you do not have an HMC, complete this procedure to remove a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For information about using the SDMC to remove a PCI adapter, see Removing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to remove a PCI adapter.

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 remove a PCI adapter with the system power on in AIX, do the following steps:

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. If you are removing a failing PCI adapter, see Indentifying 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. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
   c. Remove or open the service access cover as follows: "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
5. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the units cover: "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 318.
6. Determine which adapters you plan to remove.
7. Record the slot number and location of each adapter being removed. Adapter slots are numbered on the rear of the system unit.
8. Ensure that any processes or applications that might use the adapter are stopped.
9. 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.

10. Label, and then disconnect all cables attached to the adapter you plan to remove.
11. Slide the adapter latch **(A)** into the open position, as shown in the following figure.

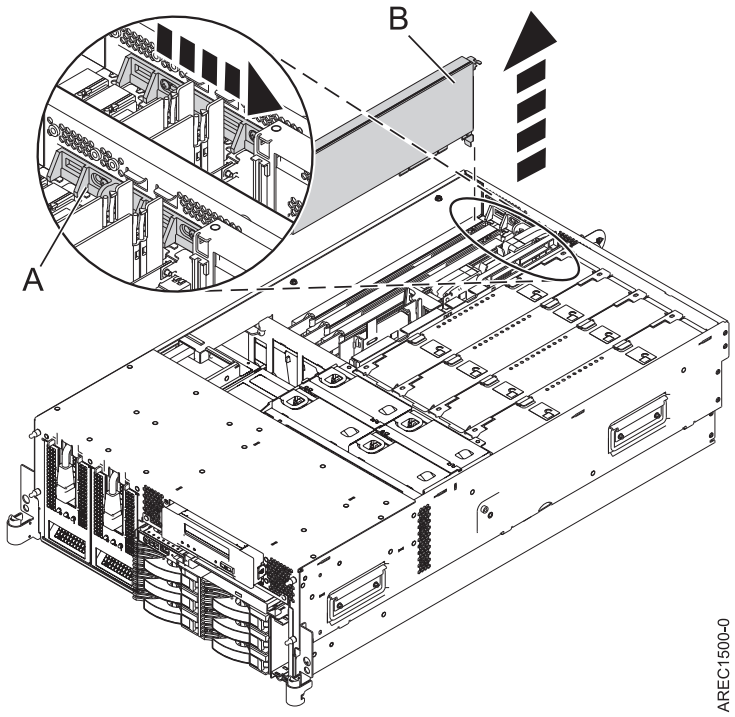


Figure 25. PCI adapter or filler plate removed from the rack-mounted system unit

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 plan to install another adapter into the vacated slot, go to "Installing a PCI adapter in the 8204-E8A or 9409-M50 server, with the power on in AIX" on page 38; otherwise, continue with the next step.
14. Seal the expansion slot using an expansion-slot cover.
15. Lower the plastic retainer seat over the PCI adapter faceplate.
16. Rotate the locking latch clockwise until it clicks into the locked position.
17. 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.
18. 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 10 on page 51.

    OR

    If you do not have other adapters to remove, continue with the next step.
19. Press F10 to exit the Hot-Plug Manager.
20. Run the `diag -a` command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.
21. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
22. To replace the PCI adapter, see "Replacing a PCI adapter in the 8204-E8A or 9409-M50 server" on page 57.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing a PCI adapter in the 8204-E8A or 9409-M50 server, with the power on in IBM i

You can remove a PCI adapter with the system power on in the i operating system.

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 using the Hardware Management Console. If you do not have an HMC, complete this procedure to remove a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For information about using the SDMC to remove a PCI adapter, see Removing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to remove a PCI adapter.

Important:

- If the adapter is the load source I/O adapter (IOA) or the load source I/O processor (IOP), or any other storage IOA or IOP with critical disk storage attached for the system or partition, follow the on-screen instructions when you use HSM to power down the IOP or IOA. Instructions to use functions 68 and 69 on the control panel will be included.

- If the adapter is the console IOA or the console IOP for the system or partition, you must perform the maintenance from an IBM i operating system session connected through a different IOA or IOP, or you must power down the partition to perform maintenance.
- If you are removing, installing or replacing a PCI-X double-wide, quad-channel Ultra320 SCSI RAID controller, review the Concurrent maintenance procedure in the PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller (FC 5739, 5778, 5781, 5782; CCIN 571F, 575B) topic, before proceeding with the instructions provided here.
- If you are removing, installing or replacing a PCI-X DDR 1.5 GB cache SAS RAID Adapter, review the Concurrent maintenance procedure in the PCI-X DDR 1.5 GB cache SAS RAID Adapter topic, before proceeding with the instructions provided here.
- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.
- 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.

To remove a PCI adapter with the system power on in i, do the following steps:

1. Perform the prerequisite tasks described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
3. If you are removing a failing PCI adapter, see Indentifying 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. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See “Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position” on page 331.
   c. Remove or open the service access cover as follows: “Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50” on page 317
5. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the units cover: “Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50” on page 318.
6. Type **strsst** on the command line of the Main Menu and press Enter.
7. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display. Press Enter.
8. Select **Start a service tool** from the System Service Tools (SST) display. Press Enter.
9. Select **Hardware service manager** from the Start a Service Tool display and press Enter.
10. Select **Packaging hardware resources (system, frames, cards)** from the Hardware Service Manager display. Press Enter.

11. Type **9** (Hardware contained within package) in the **System Unit** or **Expansion Unit** field of the unit where you are removing the card, and then press Enter.
12. Select the option to **Include empty positions**.
13. Select **Concurrent Maintenance** on the card position where you want to remove the card and then press Enter.
14. Select the option to **Toggle LED blink off/on**. A light-emitting diode (LED) blinks identifying the position you chose. Physically verify that this is the slot where you want to remove the adapter.
15. Select the option to **Toggle LED blink off/on** to stop the blinking LED.
16. Select the option to **Power off domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
17. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:
    `Power off complete`
18. Label and then disconnect all cables attached to the adapter you plan to remove.
19. Record the slot number and location of each adapter being removed.

    Note: Adapter slots are numbered on the rear of the system.
20. Slide the adapter latch **(A)** into the open position, as shown in the following figure.

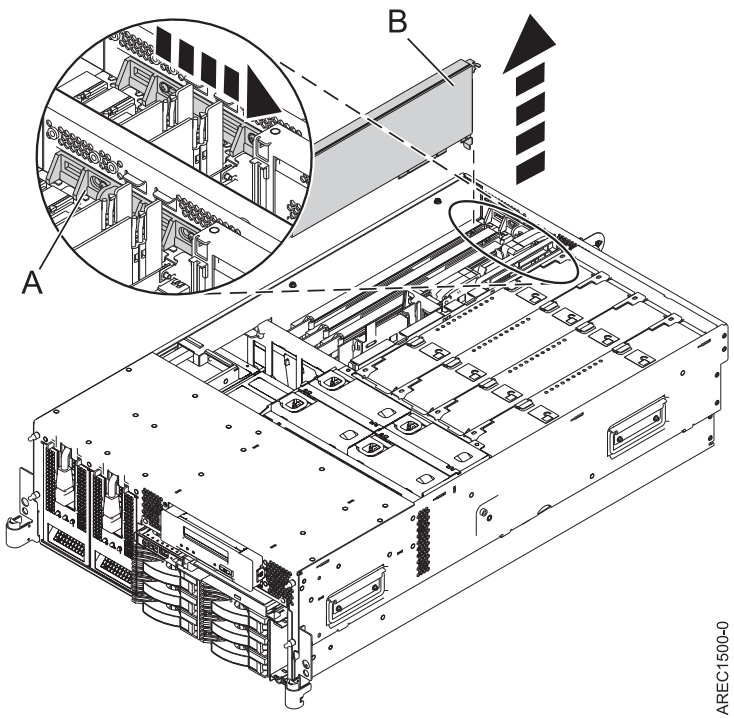


Figure 26. PCI adapter or filler plate removed from the rack-mounted system unit

21. 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.
22. If you are removing a PCI adapter as part of another procedure, return to that procedure. If not, continue to the next step.
23. If you plan to install another adapter into the vacated slot, go to "Installing a PCI adapter in the 8204-E8A or 9409-M50 server, with the power on in IBM i" on page 41; otherwise, continue with the next step.
24. Seal the expansion slot using an expansion-slot cover.

25. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
26. To replace the PCI adapter, see "Replacing a PCI adapter in the 8204-E8A or 9409-M50 server" on page 57.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing a PCI adapter from the 8204-E8A or 9409-M50 server, with the power on in Linux

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

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 using the Hardware Management Console. If you do not have an HMC, complete this procedure to remove a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For information about using the SDMC to remove a PCI adapter, see Removing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to remove a PCI adapter.

To remove a PCI adapter with the system power on in Linux, do the following steps:

1. Ensure that the system meets the "Prerequisites for hot-plugging PCI adapters in Linux" on page 298.
2. "Verify that the Linux, hot-plug PCI tools are installed" on page 298.
3. Perform the prerequisite tasks described in "Before you begin" on page 288.
4. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
5. If you are removing a failing PCI adapter, see Indentifying 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. If you are servicing a stand-alone system, go to the next numbered step.
    a. Open the front rack door.
    b. Place the system unit in the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
    c. Remove or open the service access cover as follows: "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
7. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the units cover: "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 318.
8. Determine which adapter you plan to remove, then label and disconnect all cables attached to that adapter.
9. Record the slot number and location of each adapter being removed.

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

10. 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 file systems on those devices are unmounted.

11. Run the drslot_chrp_pci 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:

    ```
    drslot_chrp_pci -r -s U7879.001.DQD014E-P1-C3
    ```

    Follow the instructions on the display to complete the task.

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

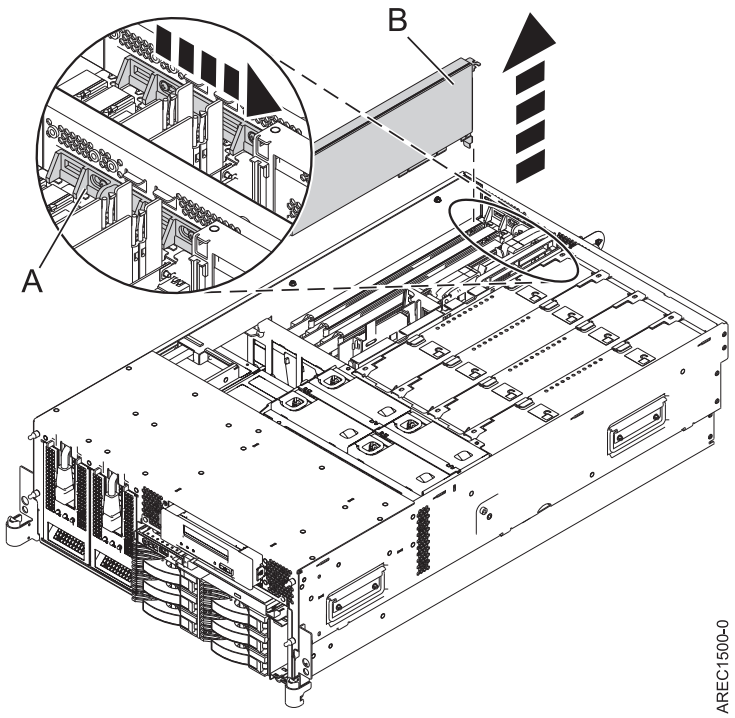


Figure 27. PCI adapter or filler plate removed from the rack-mounted system unit

13. 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.
14. If you are removing a PCI adapter as part of another procedure, return to that procedure. If not, continue to the next step.
15. If you plan to install another adapter into the vacated slot, go to "Replacing a PCI adapter in the 8204-E8A or 9409-M50 server, with the power on in Linux" on page 64; otherwise, continue with the next step.
16. Seal the expansion slot using an expansion-slot cover.
17. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319

18. Reconnect the power source to the system.
19. Start the system or logical partition. Refer to Start the system or logical partition.
20. To replace the PCI adapter, see “Replacing a PCI adapter in the 8204-E8A or 9409-M50 server.”

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Replacing a PCI adapter in the 8204-E8A or 9409-M50 server

You can replace a PCI adapter.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Replacing a PCI adapter in the 8204-E8A or 9409-M50 server, with the power off

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

You must have already completed the procedure “Removing a PCI adapter from the 8204-E8A or 9409-M50 server, with the power off” on page 48 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 Replacing a part by using the Hardware Management Console. If you do not have an HMC, complete this procedure to replace a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For information about using the SDMC to replace a PCI adapter, see Replacing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to replace a PCI adapter.

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

1. Perform the prerequisite tasks described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
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.

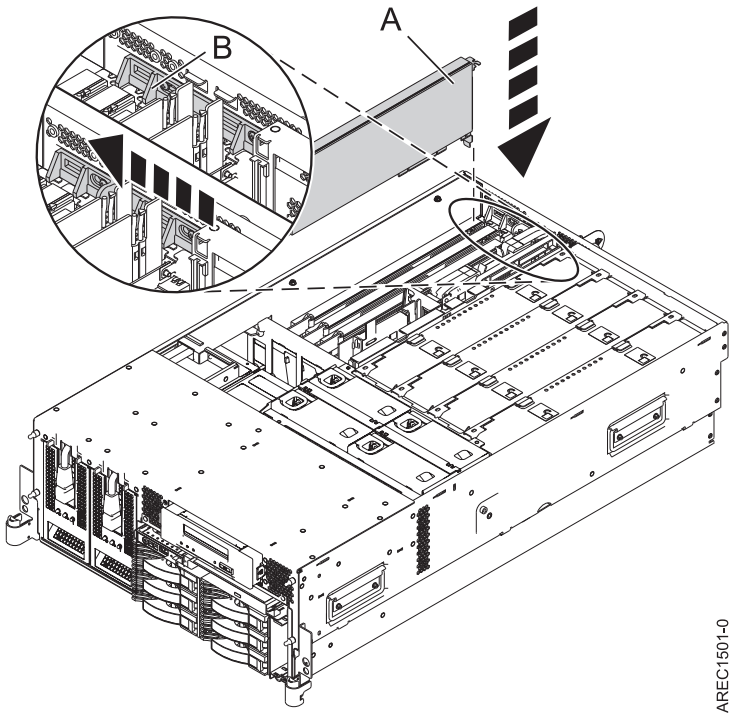


Figure 28. PCI adapter replaced in the rack-mounted system unit

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. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
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 8204-E8A or 9409-M50 server, with the power on in AIX

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

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

Notes:

- 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 Replacing a part by using the Hardware Management Console. If you do not have an HMC, complete this procedure to replace a PCI adapter.
- If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For information about using the SDMC to replace a PCI

adapter, see Replacing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to replace a PCI adapter.

- 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 8204-E8A or 9409-M50 server, with the power on in AIX" on page 50.
- 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 8204-E8A or 9409-M50 server, with the power on in AIX" on page 50, then install the new adapter as described in "Installing a PCI adapter in the 8204-E8A or 9409-M50 server, with the power on in AIX" on page 38.
- 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 a PCI adapter with the system power on in AIX, do the following steps:

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. If you are removing a failing PCI adapter, see Indentifying 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. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
   c. Remove or open the service access cover as follows: "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
5. If you are installing, removing, or replacing a PCI adapter in a stand-alone system unit, follow these steps to remove the units cover: "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 318.
6. Determine which adapters you plan to remove.
7. Record the slot number and location of each adapter being removed.

   Note: Adapter slots are numbered on the rear of the system unit.
8. Ensure that any processes or applications that might use the adapter are stopped.
9. Enter the system diagnostics by logging in as root user or as the celogin user, type **diag** at AIX command line.
10. When the DIAGNOSTIC OPERATING INSTRUCTIONS menu displays, press Enter.
11. At the FUNCTION SELECTION menu, select **Task Selection**, then press enter.
12. At the Task Selection list, select **PCI Hot Plug Manager**.
13. Select **Unconfigure a Device**, then press Enter.
14. Press F4 (or Esc +4) to display the **Device Names** menu.
15. Select the adapter you are removing in the **Device Names** menu.
16. 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.

17. 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.
18. Press F3 (or Esc +3) twice to return to the **Hot Plug Manager** menu.
19. Select **Replace/remove PCI Hot Plug adapter**.
20. Select the slot that has the device to be removed from the system.
21. 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.
22. Press Enter. This places the adapter in the action state, meaning it is ready to be removed from the system.
23. Label, and then disconnect all cables attached to the adapter you plan to remove.
24. Slide the adapter latch **(A)** into the open position, as shown in the following figure.

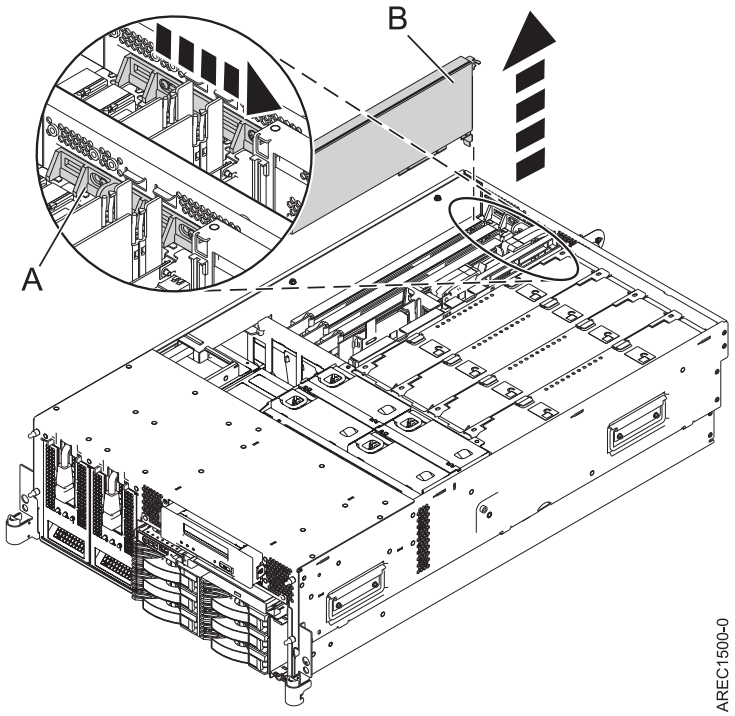


Figure 29. PCI adapter or filler plate removed from the rack-mounted system unit

25. 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.
26. If necessary, remove the replacement adapter from the antistatic package.

    Attention: Avoid touching the components and gold connectors on the adapter.
27. Carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
28. 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.

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

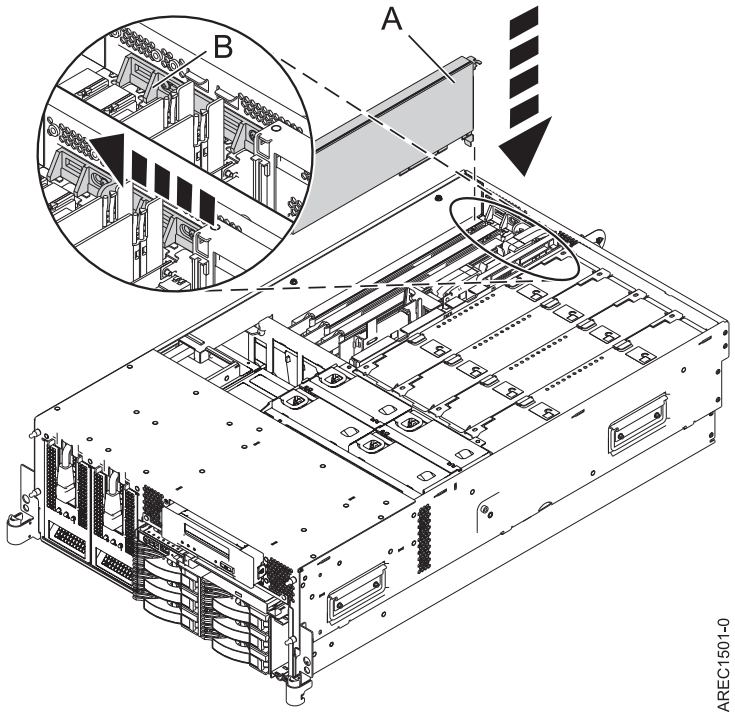


Figure 30. PCI adapter replaced in the rack-mounted system unit

30. Connect the adapter cables.
31. 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.
32. Press the F3 (or Esc+3) key to return to the **PCI Hot-Plug Manager** menu.
33. Press the F3 (or Esc+3) key to return to the **TASK** selection list.
34. Select **Log Repair Action**.
35. Select the resource just replaced, press Enter, press Commit (F7 or ESC 7), then press Enter.
36. Press F3 (or Esc+3) to return to **TASK Selection List**.
37. Select **Hot Plug Task**, press enter.
38. Select **PCI Hot Plug Manager**, then select **Configure a defined device**, then press Enter.
39. Select the device just replaced from the list, then press Enter. The device is now configured.
40. Press the F10 key to exit the diagnostic program.

    Note: If you are running the stand-alone diagnostics, do not exit the program completely.
41. 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.

42. Press the F10 key to exit the diagnostic program.
43. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
44. Verify that the new resource is functional. See Verify the installed part.

Replacing a PCI adapter in the 8204-E8A or 9409-M50 server, with the power on in IBM i

You can replace a PCI adapter with the system power on in the i operating system.

Attention: You must have already completed the procedure "Removing a PCI adapter in the 8204-E8A or 9409-M50 server, with the power on in IBM i" on page 52 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 Replacing a part by using the Hardware Management Console. If you do not have an HMC, complete this procedure to replace a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For information about using the SDMC to replace a PCI adapter, see Replacing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to replace a PCI adapter.

Important:

- If the adapter is the load source I/O adapter (IOA) or the load source I/O processor (IOP), or any other storage IOA or IOP with critical disk storage attached for the system or partition, follow the on-screen instructions when you use HSM to power down the IOP or IOA. Instructions to use functions 68 and 69 on the control panel will be included.
- If the adapter is the console IOA or the console IOP for the system or partition, you must perform the maintenance from an IBM i operating system session connected through a different IOA or IOP, or you must power down the partition to perform maintenance.
- If you are removing, installing or replacing a PCI-X double-wide, quad-channel Ultra320 SCSI RAID controller, review the Concurrent maintenance procedure in the PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller (FC 5739, 5778, 5781, 5782; CCIN 571F, 575B) topic, before proceeding with the instructions provided here.
- If you are removing, installing or replacing a PCI-X DDR 1.5 GB cache SAS RAID Adapter, review the Concurrent maintenance procedure in the PCI-X DDR 1.5 GB cache SAS RAID Adapter topic, before proceeding with the instructions provided here.
- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.

- 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.

To replace a PCI adapter with the system power on in the i operating system, do the following steps:

1. Perform the prerequisite tasks described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
3. If necessary, remove the adapter from the antistatic package.

   Attention: Avoid touching the components and gold connectors on the adapter.
4. Carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
5. 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.
6. Slide the adapter latch **(B)** back into place as shown in the following figure.

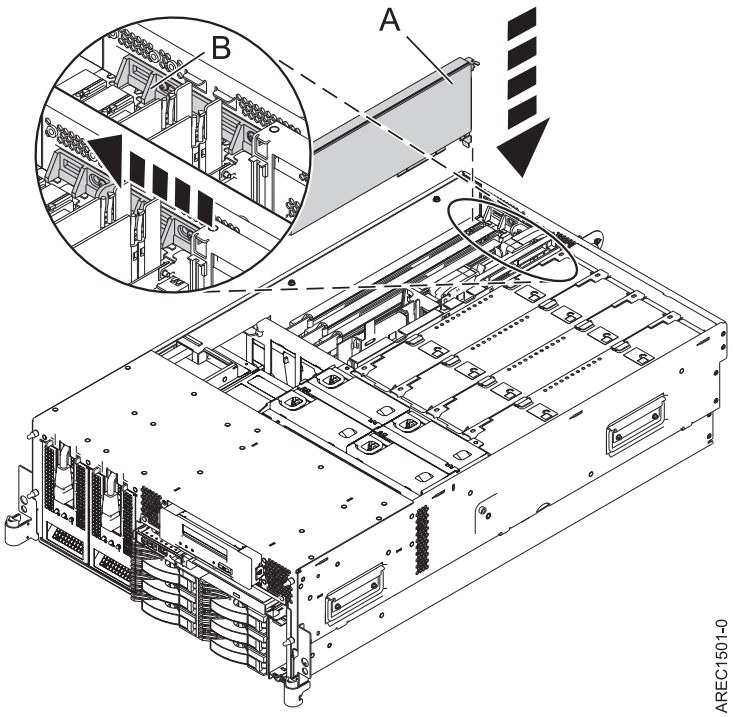


Figure 31. PCI adapter replaced in the rack-mounted system unit

7. Connect the adapter cables.
8. Select **Power on domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
9. Select **Assign to** on the resource that has an asterisk (*) on the Work with Controlling Resource display. Press Enter.
10. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:

    ```
    Power on complete
    ```
11. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
12. Verify that the new resource is functional. See Verify the installed part.

Replacing a PCI adapter in the 8204-E8A or 9409-M50 server, with the power on in Linux

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

You must have already completed the procedure "Removing a PCI adapter from the 8204-E8A or 9409-M50 server, with the power on in Linux" on page 55.

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 Replacing a part by using the Hardware Management Console. If you do not have an HMC, complete this procedure to replace a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For information about using the SDMC to replace a PCI adapter, see Replacing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to replace a PCI adapter.

To replace a PCI adapter with the system power on in Linux, do the following steps:

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
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 drslot_chrp_pci 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:

   ```
   drslot_chrp_pci -R -s U7879.001.DQD014E-P1-C3
   ```

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

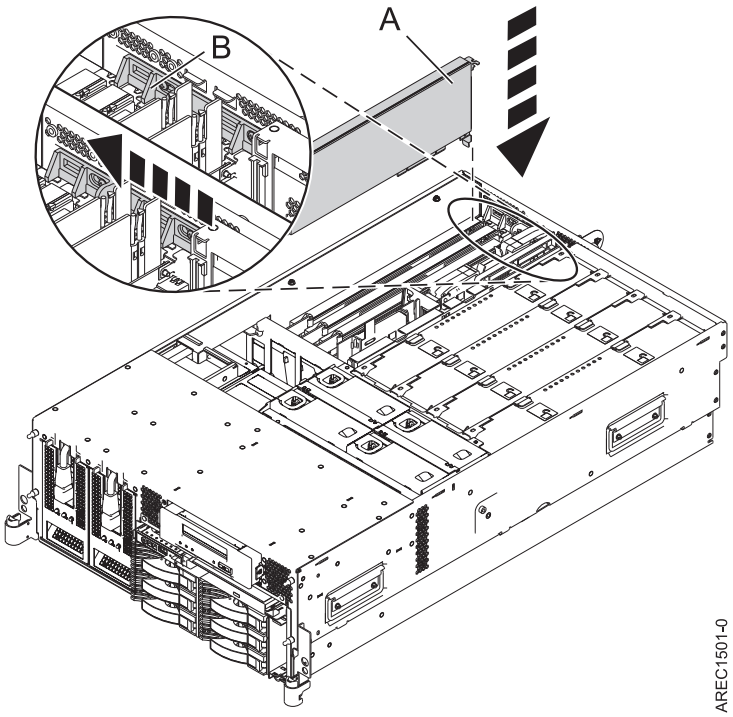


Figure 32. PCI adapter replaced in the rack-mounted system unit

10. Connect the adapter cables.
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. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
14. Verify that the new resource is functional. See Verify the installed part.

Model 8204-E8A and 9409-M50 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 a model 8204-E8A or 9409-M50 server

You can remove a PCI adapter divider.

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:

1. Perform prerequisite tasks as described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
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.

   Note: This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
5. If you are installing or removing a PCI adapter divider in a rack-mounted system, follow these steps to remove the service access cover. If you are servicing a stand-alone system, go to the next numbered step.
   a. Open the front rack door.
   b. Place the system unit in the service position. See “Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position” on page 331.
   c. Remove or open the service access cover as follows: “Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50” on page 317
6. If you are installing or removing a PCI adapter divider in a stand-alone system unit, follow these steps to remove the unit's cover: “Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50” on page 318.
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)**.

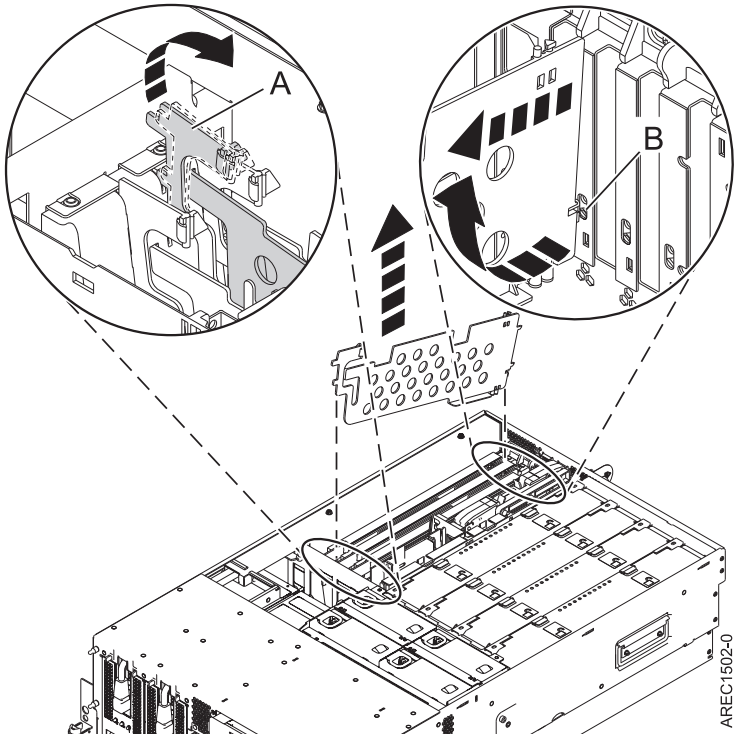


Figure 33. PCI-adapter divider removed from the system unit

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 8204-E8A or 9409-M50 server." To close up the system, continue to the next step.
10. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
    - "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 317
    - "Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position" on page 334
    - "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 319
11. Reconnect the power source to the system.
12. Start the system or logical partition. Refer to Start the system or logical partition.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Installing a PCI adapter divider in the 8204-E8A or 9409-M50 server

You can install a PCI adapter divider.

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:

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 a model 8204-E8A or 9409-M50 server” on page 66.
2. Carefully grasp the PCI adapter divider by its top edge and align the back edge of the divider with the retention notches **(A)**.
3. Insert the front edge of the divider **(B)** into the slots and then press the divider into place.

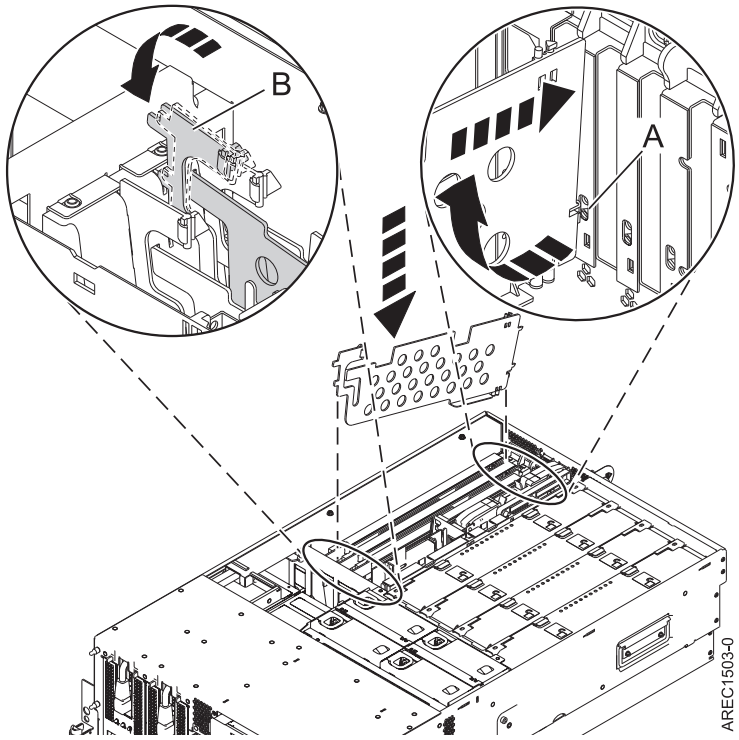


Figure 34. PCI-adapter divider replaced in the system unit

4. Replace or close the service access cover and, if applicable, return the system to the operating position. Refer to the following procedures as needed:
   - “Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50” on page 317
   - “Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position” on page 334
   - “Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50” on page 319
5. Reconnect the power source to the system.
6. Start the system or logical partition. Refer to Start the system or logical partition.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Model 8234-EMA, 9117-MMA, 9119-FHA, 9125-F2A, 9406-MMA and attached expansion units, PCI adapters, and cassettes

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

Notes:

- Models 9119-FHA and 9125-F2A should only be serviced by authorized service providers.
- If you are installing a PCI adapter in an expansion unit that does not use cassettes, see the expansion-unit procedures in Expansion units that do not use cassettes. “Expansion units that do not use cassettes” on page 237
- If you are installing feature code 3650 or 3651, you might find it difficult to insert and plug in the card assembly. If you encounter this problem see the topic Installing feature code 3650 or 3651 in the 9406-MMA.

Related concepts

“Expansion units that do not use cassettes” on page 237
You might need remove, replace, or install PCI adapters in expansion units that do not use cassettes.

“Installing feature code 3650 or 3651 in the 9406-MMA” on page 299
When you install feature code 3650 or 3651, you might find it difficult to insert and plug in the card assembly. This situation is caused by the interference of a bracket that is installed within the enclosure.

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.

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 you do not have an HMC, complete this procedure to install a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to install a PCI adapter in the server. For information about using the SDMC to install a PCI adapter, see Installing a feature by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to install a PCI adapter.

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

1. Perform prerequisite tasks as described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
3. To determine in which slot to place the PCI adapter, refer to the placement information regarding slot restrictions for the adapters that can be used in this system. See the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.
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.

Note: This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.

6. If you are installing a PCI adapter in a rack-mounted system or expansion unit, follow these steps:
   a. Open the rear rack door.
   b. Remove the units cover or covers if applicable.
7. If you are installing a PCI adapter in a stand-alone expansion unit, remove the unit's back cover, if applicable.
8. Determine the location of PCI adapter in the system.
9. If you are installing a PCI adapter in an 5790 or 5796 expansion unit, skip to step 12 on page 72.
10. Lift up the PCI adapter EMC shield **(A)** as shown in Figure 35 and then rotate it up and away from the cassette as shown in Figure 36 on page 71.

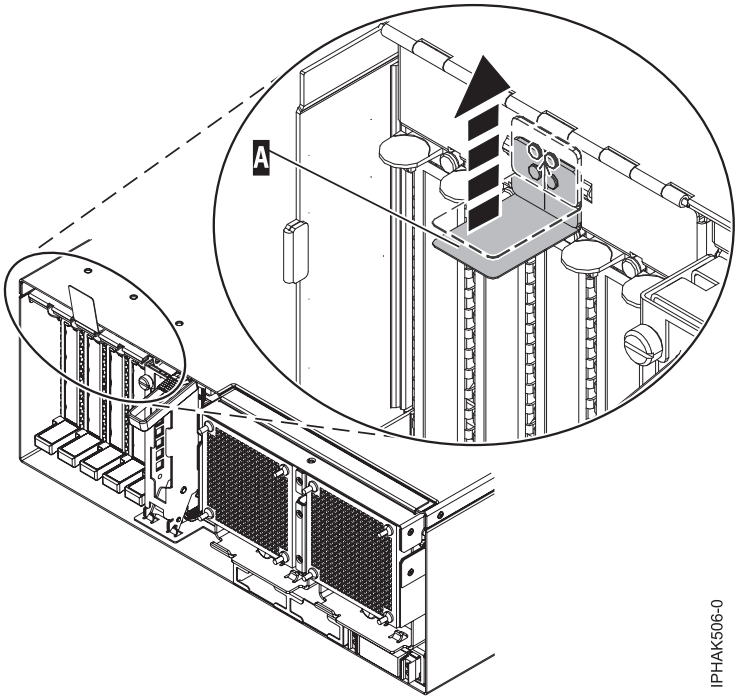


Figure 35. Lift up the EMC shield

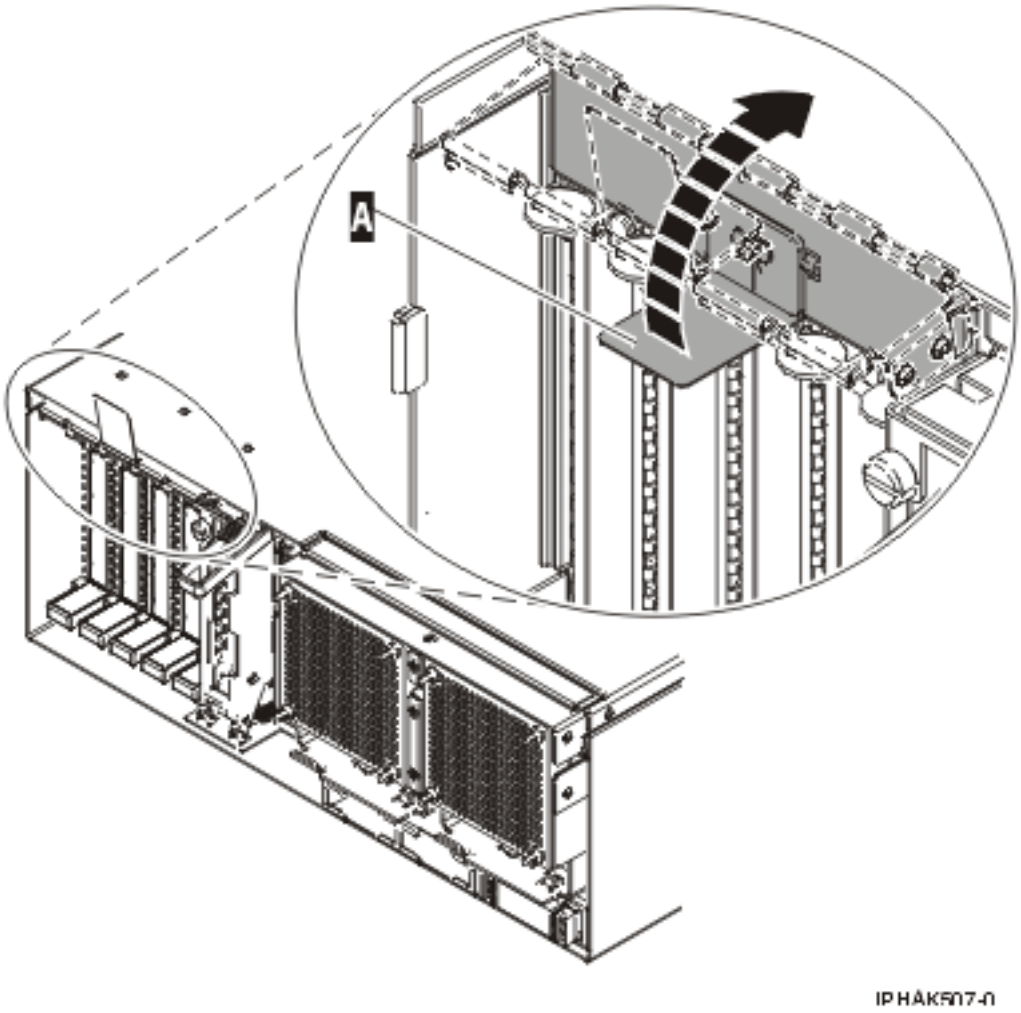


Figure 36. Rotate the EMC shield into the open position

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

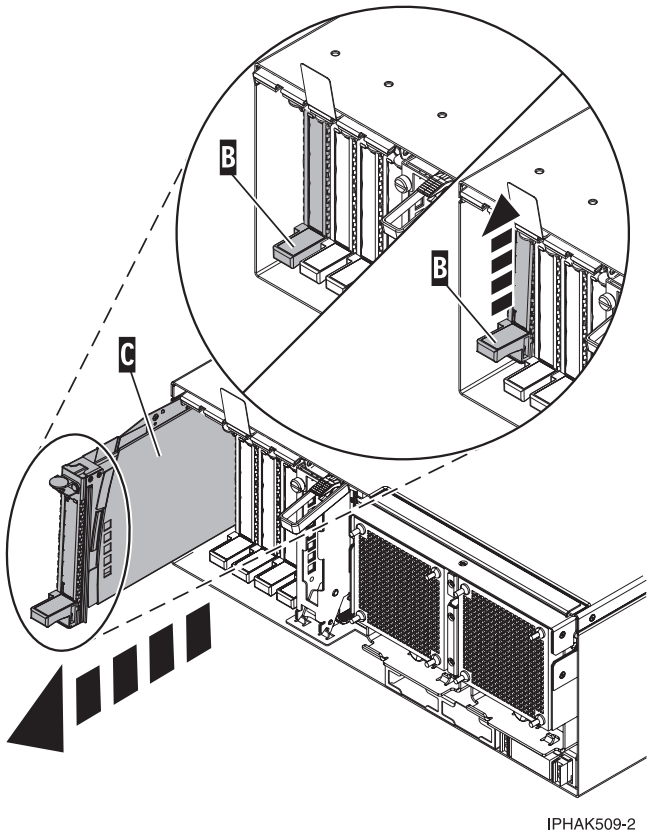


Figure 37. PCI adapter cassette removed from the system unit

12. If you are installing a PCI adapter in a 5790 or 5796 expansion unit, follow these substeps. If not, go to step 13 on page 74.
    a. Remove the PCI adapter EMC shield **(A)** as shown in the following figure.

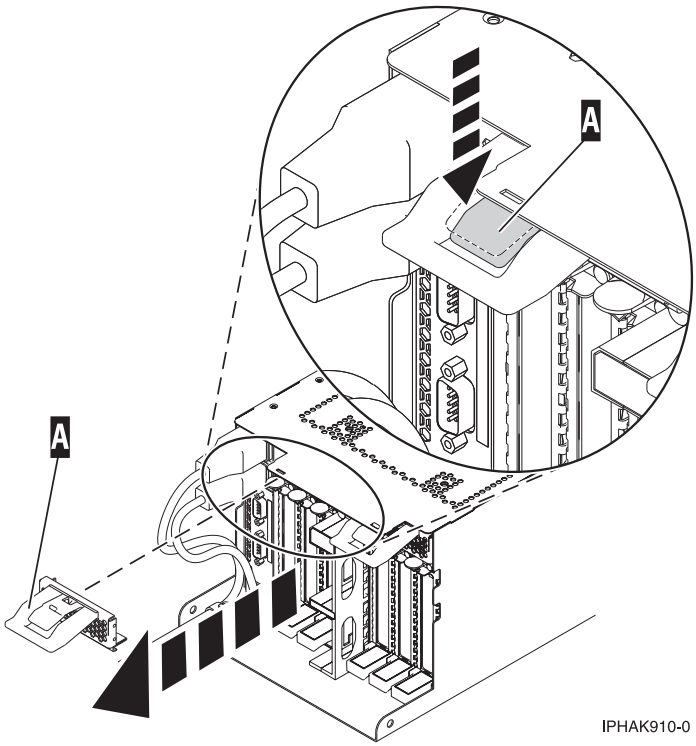


Figure 38. Remove the EMC shield

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

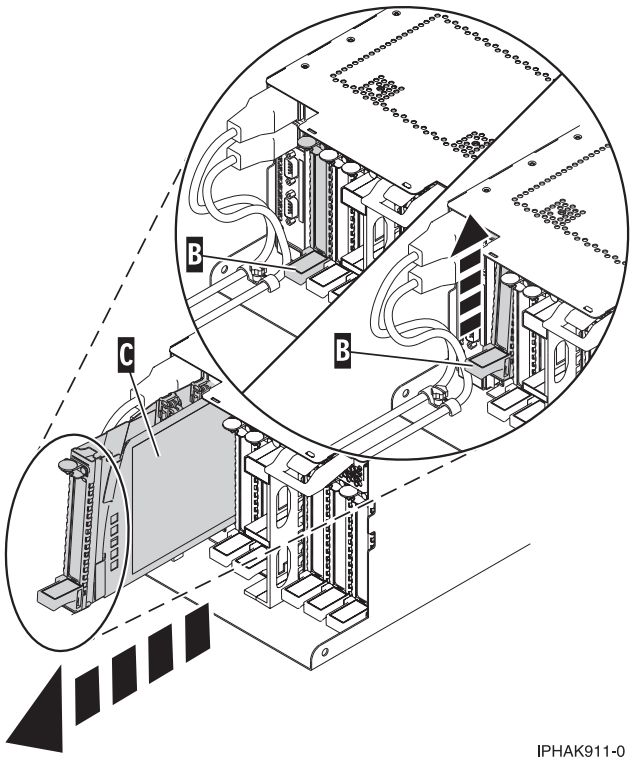


Figure 39. PCI adapter cassette removed from the system unit

13. Install the adapter into the PCI adapter cassette. See the following topics:
    - "PCI adapter single-width cassette" on page 156
    - "PCI adapter double-wide cassette" on page 182
14. 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.
15. If you are installing a PCI adapter in a 5790 or 5796 expansion unit, skip to step 20 on page 76.
16. Lift and hold the PCI adapter EMC shield in the open position. See Figure 35 on page 70 and Figure 36 on page 71.
17. Slide the cassette **(C)** into the cassette slot as shown in the following figure.

    Attention: Ensure proper alignment when you insert a PCI adapter cassette into the system. When you work with PCI slot C6, take extra care to ensure that the vertical alignment of the cassette is correct to prevent the tab located on the front of the cassette from contacting with the I/O backplane assembly.
18. 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.

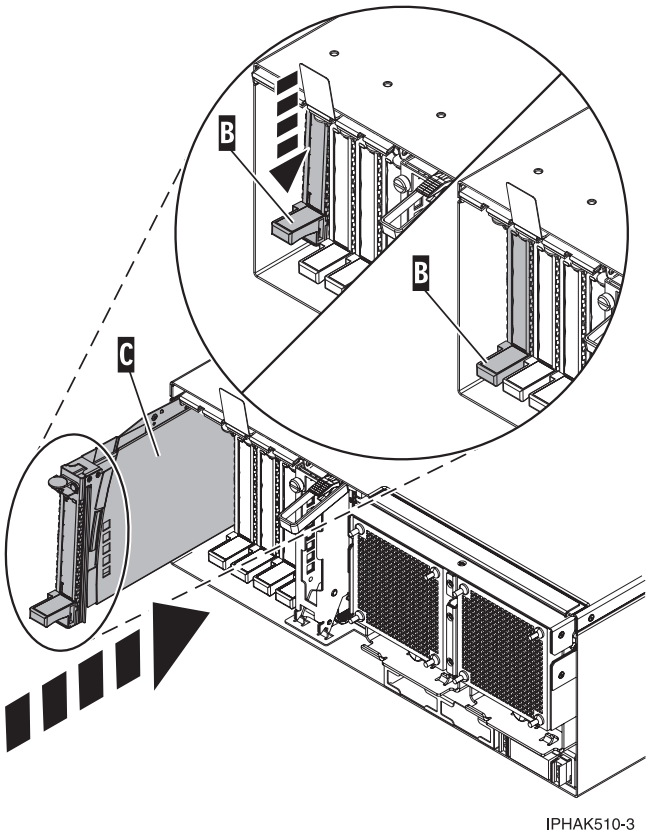


Figure 40. PCI adapter cassette installed in the system unit

19. Lower the PCI adapter EMC shield **(A)** into the closed position, close the shield latch, then close the rear rack door.

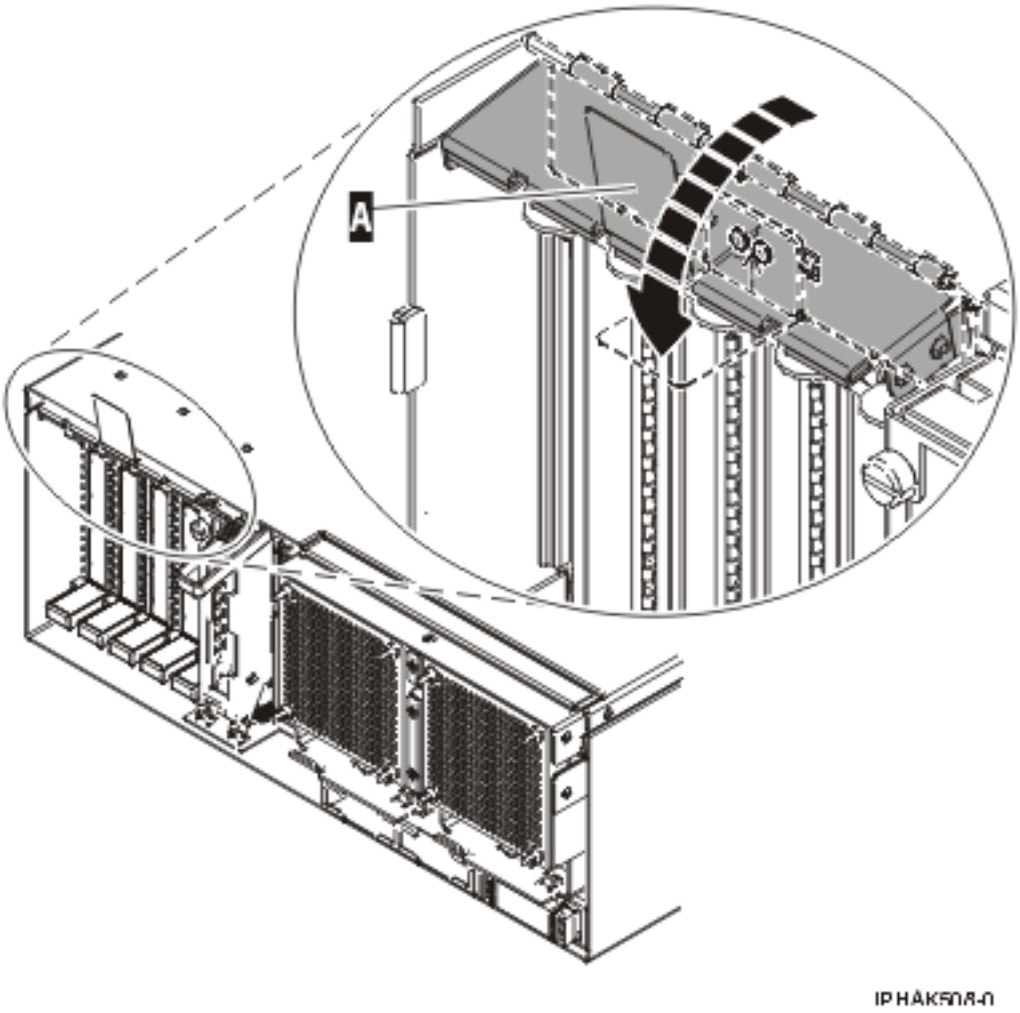


Figure 41. PCI adapter EMC shield in the closed position

20. If you are installing a PCI adapter in a 5790 or 5796 expansion unit, follow these substeps. If not, go to step 21 on page 78.
    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.

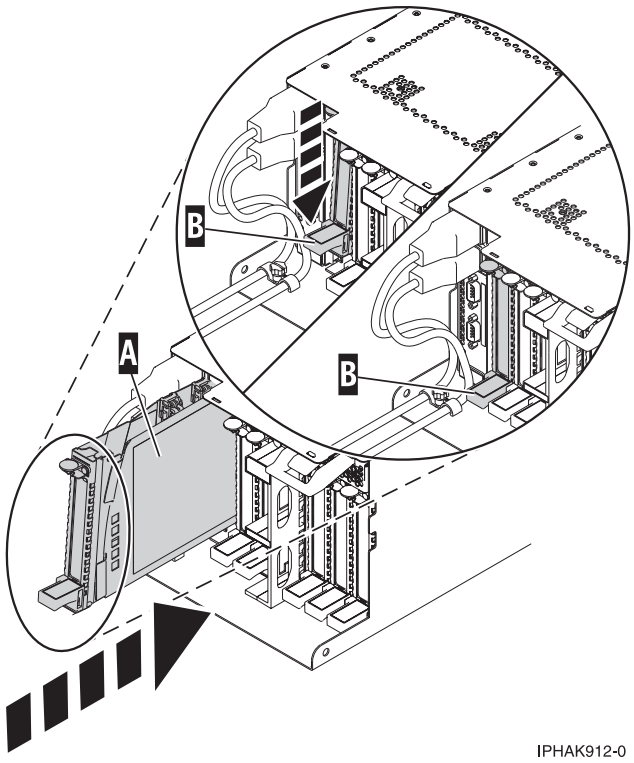


Figure 42. PCI adapter cassette installed in the system unit

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

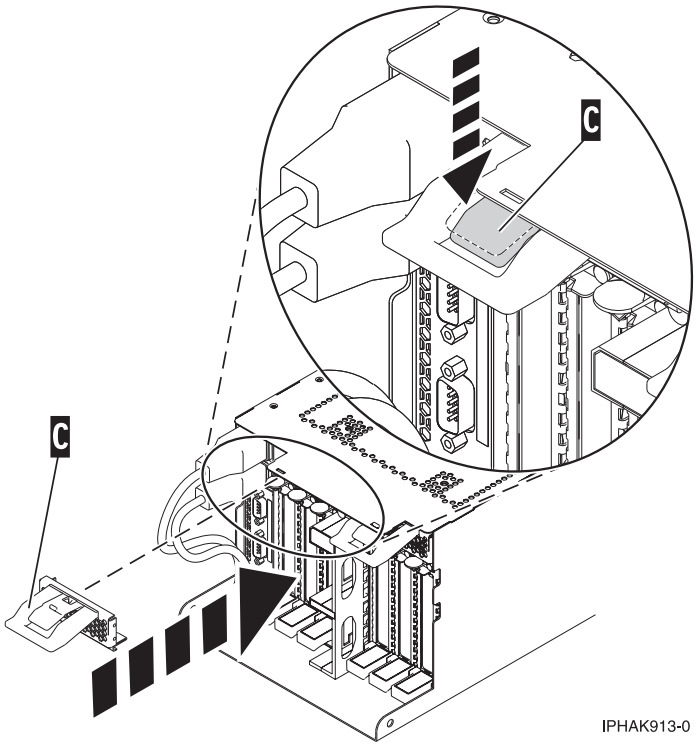


Figure 43. PCI adapter EMC shield in the closed position

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

Related tasks

"Placing a PCI adapter in a single-width cassette" on page 156
You can place a PCI adapter in a single-width cassette.

"Removing an adapter from the PCI adapter single-width cassette" on page 166
You can remove a PCI adapter from a single-width cassette.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

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

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

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 you do not have an HMC, complete this procedure to install a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to install a PCI adapter in the server. For information about using the SDMC to install a PCI adapter, see Installing a feature by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to install a PCI adapter.

Note:

- 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.

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

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. To determine in which slot to place the PCI adapter, refer to the placement information regarding slot restrictions for the adapters that can be used in this system. See the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.
4. If you are installing a PCI adapter in a rack-mounted system or expansion unit, follow these steps:
   a. Open the rear rack door.
   b. Remove the units cover or covers if applicable.
5. If you are installing a PCI adapter in a stand-alone expansion unit, remove the units back cover, if applicable.
6. Refer to "PCI hot-plug manager access for AIX" on page 295, and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.
7. 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.
8. Select the appropriate PCI slot from the ones listed on the screen, and press Enter.

9. Locate the PCI adapter slot and cassette you want to use.
10. 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 AIX" on page 110.
11. If you are installing a PCI adapter in a 5790 or 5796 expansion unit, skip to step 14 on page 81.
12. Lift up the PCI adapter EMC shield **(A)** as shown in Figure 44 and then rotate it up and away from the cassette as shown in Figure 45 on page 80.

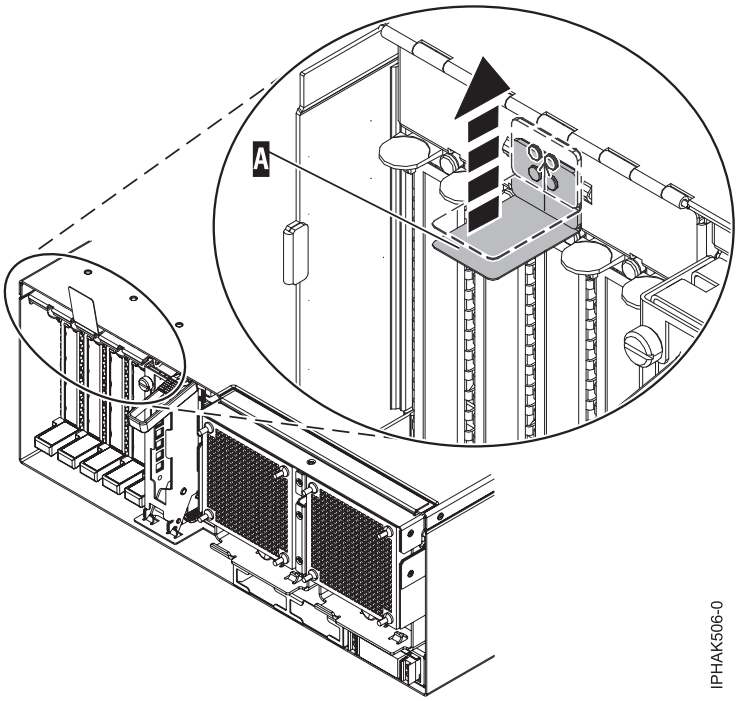


Figure 44. Lift up the EMC shield

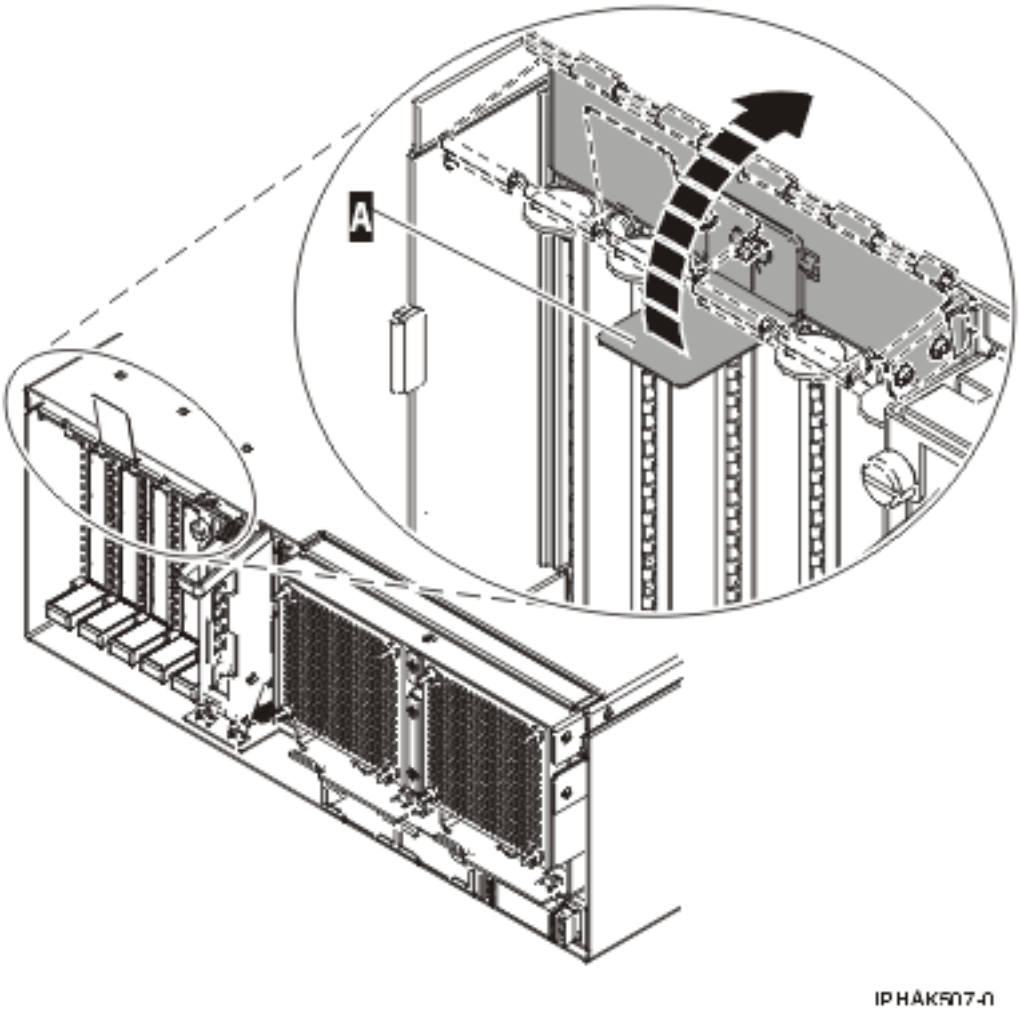


Figure 45. Rotate the EMC shield into the open position

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

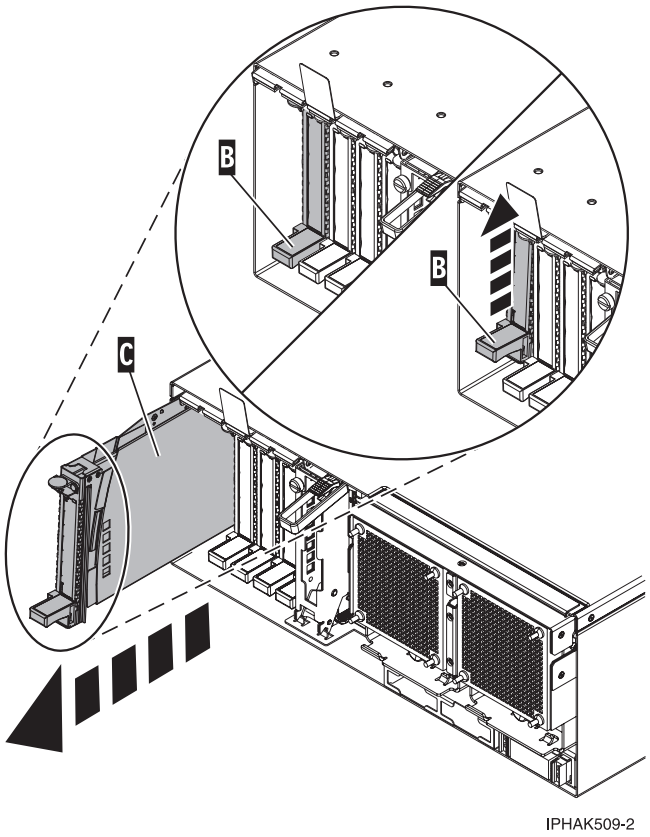


Figure 46. PCI adapter cassette removed from the system unit.

14. If you are installing a PCI adapter in a 5790 or 5796 expansion unit, follow these substeps. If not, go to step 15 on page 83.
    a. Remove the PCI adapter EMC shield **(A)** as shown in the following figure.

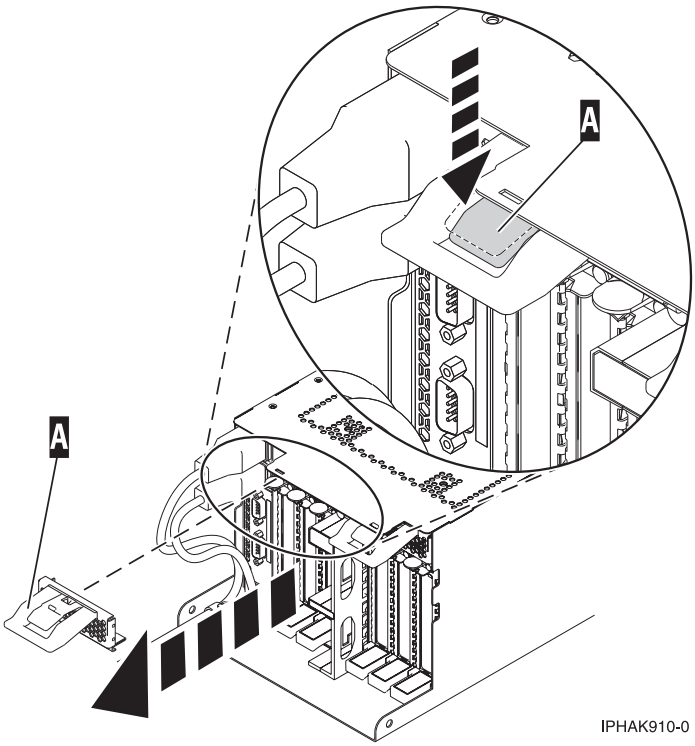


Figure 47. Remove the EMC shield

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

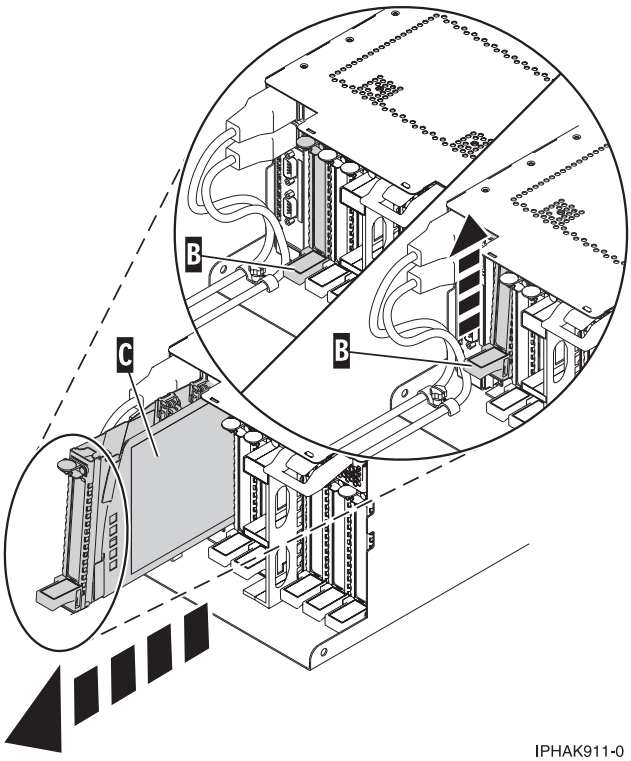


Figure 48. PCI adapter cassette removed from the system unit

15. Install the adapter into the PCI adapter cassette. See the following topics:
    - "PCI adapter single-width cassette" on page 156
    - "PCI adapter double-wide cassette" on page 182
16. 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.
17. If you are installing a PCI adapter in a 5790 or 5796 expansion unit, skip to step 23 on page 85.
18. Lift and hold the PCI adapter EMC shield in the open position. See Figure 44 on page 79 and Figure 45 on page 80.
19. 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 297.
20. Slide the cassette **(C)** into the cassette slot as shown in the following figure.

    Attention: Ensure proper alignment when you insert a PCI adapter cassette into the system. When you work with PCI slot C6, take extra care to ensure that the vertical alignment of the cassette is correct to prevent the tab located on the front of the cassette from contacting with the I/O backplane assembly.
21. 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.

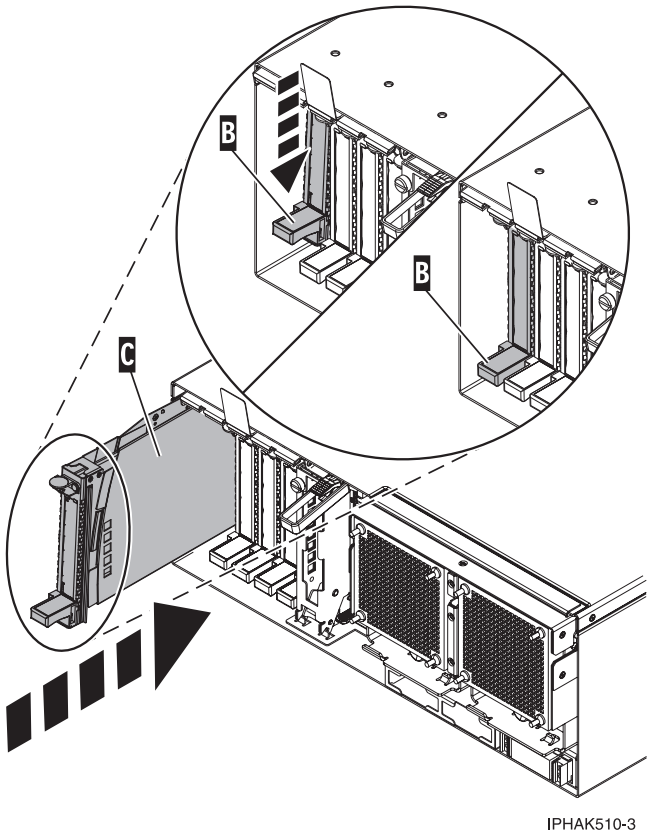


Figure 49. PCI adapter cassette removed from the system unit

22. Lower the PCI adapter EMC shield **(A)** into the closed position, close the shield latch, then close the rear rack door.

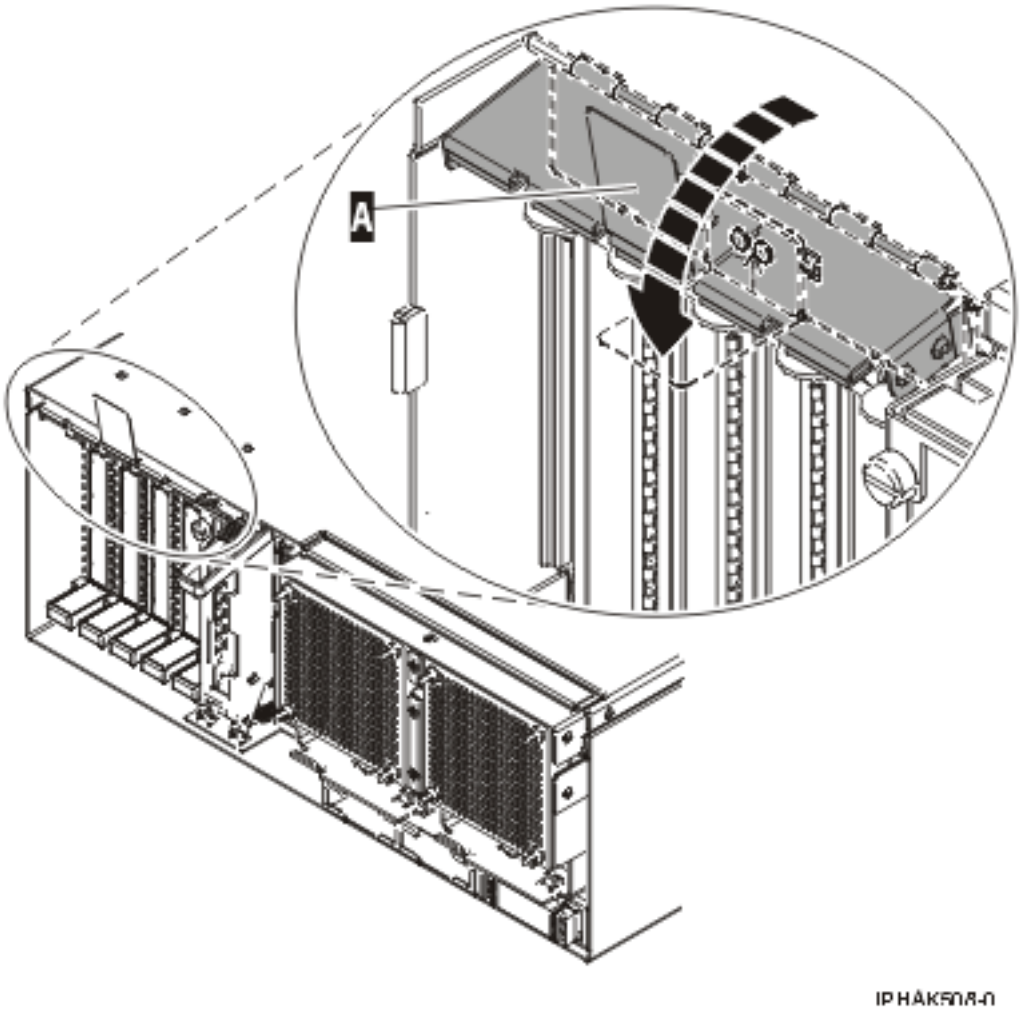


Figure 50. PCI adapter EMC shield in the closed position

23. If you are installing a PCI adapter in a 5790 or 5796 expansion unit, follow these substeps. If not, skip to step 24 on page 87
    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.

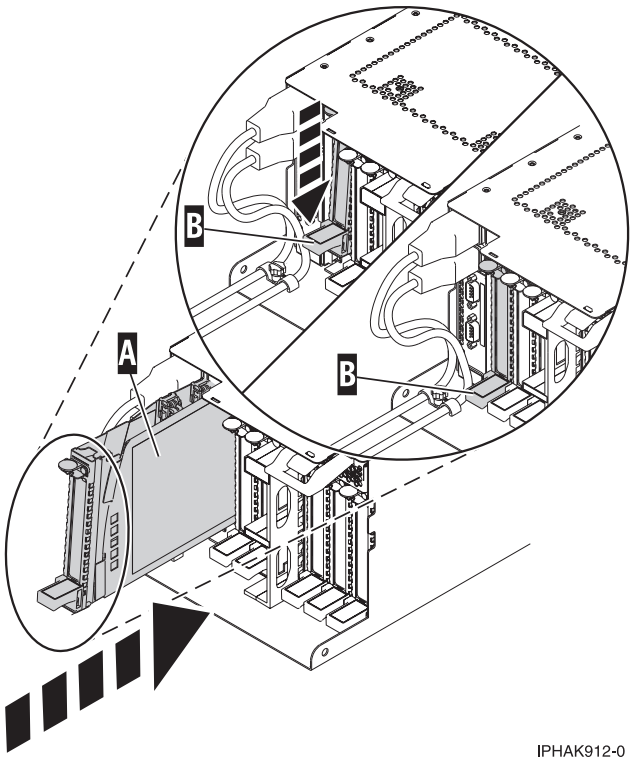


Figure 51. PCI adapter cassette installed in the system unit

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

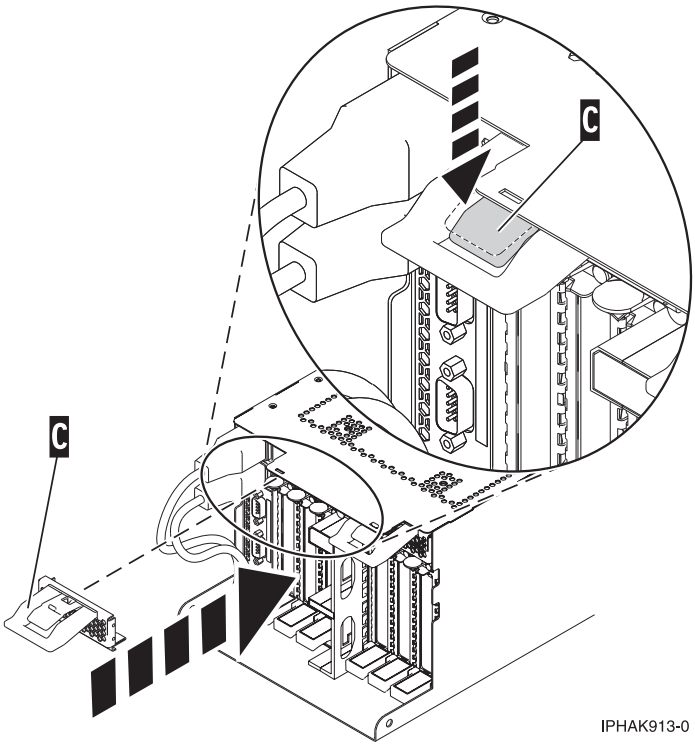


Figure 52. PCI adapter EMC shield in the closed position

24. Run the cfgmgr command to configure the adapter.
25. Verify that the new resource is functional. See Verify the installed part.

Related tasks

"Placing a PCI adapter in a single-width cassette" on page 156
You can place a PCI adapter in a single-width cassette.

"Removing an adapter from the PCI adapter single-width cassette" on page 166
You can remove a PCI adapter from a single-width cassette.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Installing a PCI adapter contained in a cassette with the power on in IBM i

You can install a PCI adapter with the power on in the i operating system.

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 you do not have an HMC, complete this procedure to install a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to install a PCI adapter in the server. For information about using the SDMC to install a PCI adapter, see Installing a feature by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to install a PCI adapter.

Important:

- If you are removing, installing or replacing a PCI-X double-wide, quad-channel Ultra320 SCSI RAID controller, review the Concurrent maintenance procedure in the PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller (FC 5739, 5778, 5781, 5782; CCIN 571F, 575B) topic, before proceeding with the instructions provided here.
- If you are removing, installing or replacing a PCI-X DDR 1.5 GB cache SAS RAID Adapter, review the Concurrent maintenance procedure in the PCI-X DDR 1.5 GB cache SAS RAID Adapter topic, before proceeding with the instructions provided here.
- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.
- 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.

To install an adapter with the system power on in the i operating system, do the following steps:

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.

3. To determine in which slot to place the PCI adapter, refer to the PCI adapter placement for machine type 94xx or PCI adapter placement for machine types 82xx and 91xx for information regarding slot restrictions for the adapters that can be used in this system.
4. If you are installing a PCI adapter in a rack-mounted system or expansion unit, follow these steps:
   a. Open the rear rack door.
   b. Remove the units cover or covers if applicable.
5. If you are installing a PCI adapter in a stand-alone expansion unit, remove the units back cover, if applicable.
6. Type **strsst** on the command line of the Main Menu and then press Enter.
7. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display. Press Enter.
8. Select **Start a service tool** from the System Service Tools (SST) display and press Enter.
9. Select **Hardware service manager** from the Start a Service Tool display and press Enter.
10. Select **Packaging hardware resources (system, frames, cards)** from the Hardware Service Manager display. Press Enter.
11. Type **9** (Hardware contained within package) in the *System Unit* or *Expansion Unit* field of the unit where you are replacing the card. Press Enter.
12. Select the option to **Include empty positions**.
13. Select **Concurrent Maintenance** on the card position where you want to replace the card and then press Enter.
14. Select the option to **Toggle LED blink off/on**. A light-emitting diode (LED) blinks identifying the position you chose. Physically verify that this is the slot where you want to install the adapter.
15. Select the option to **Toggle LED blink off/on** to stop the blinking LED.
16. Locate the PCI adapter slot and cassette you want to use.
17. 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 IBM i” on page 117.
18. If you are installing a PCI adapter in an 5790 or 5796 expansion unit, skip to step 21 on page 91.
19. Lift up the PCI adapter EMC shield **(A)** as shown in Figure 53 on page 89 and then rotate it up and away from the cassette as shown in Figure 54 on page 90.

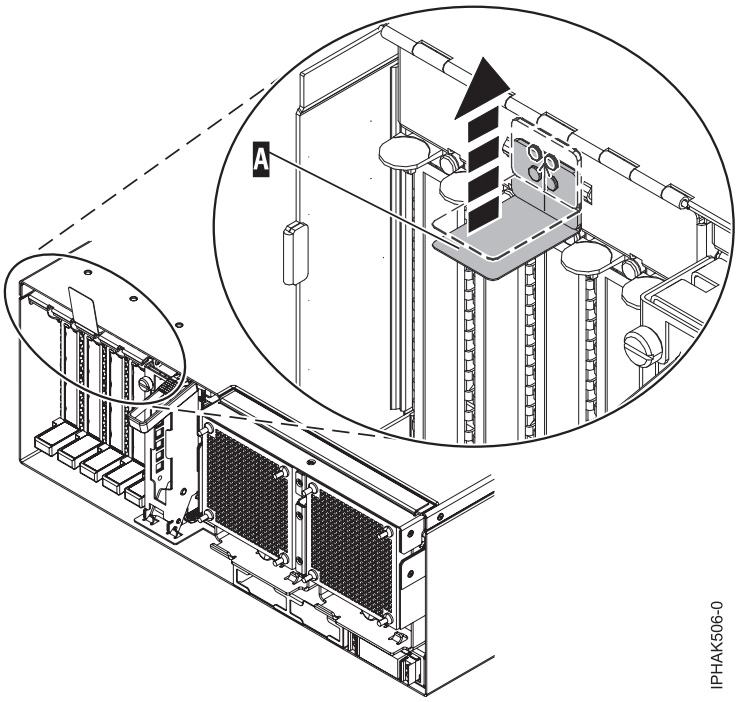


Figure 53. Lift up the EMC shield

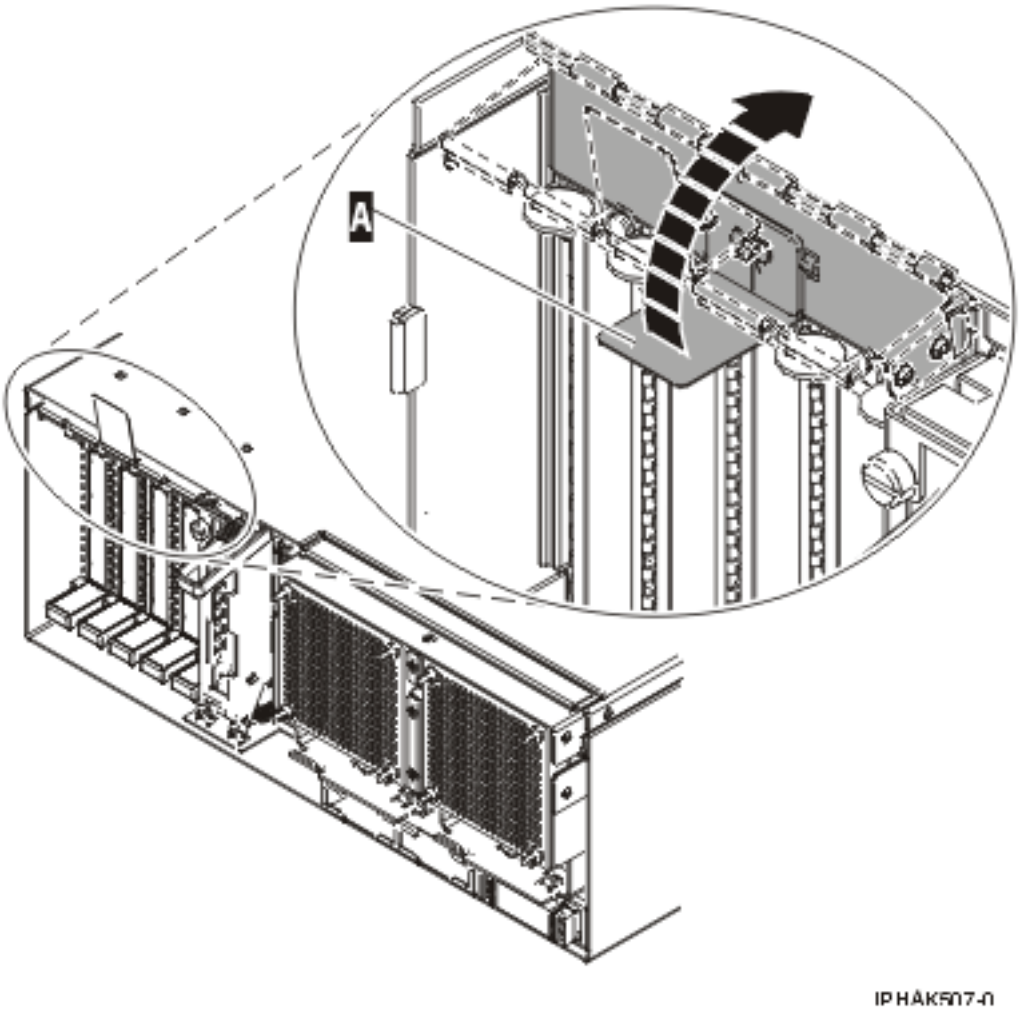


Figure 54. Rotate the EMC shield into the open position

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

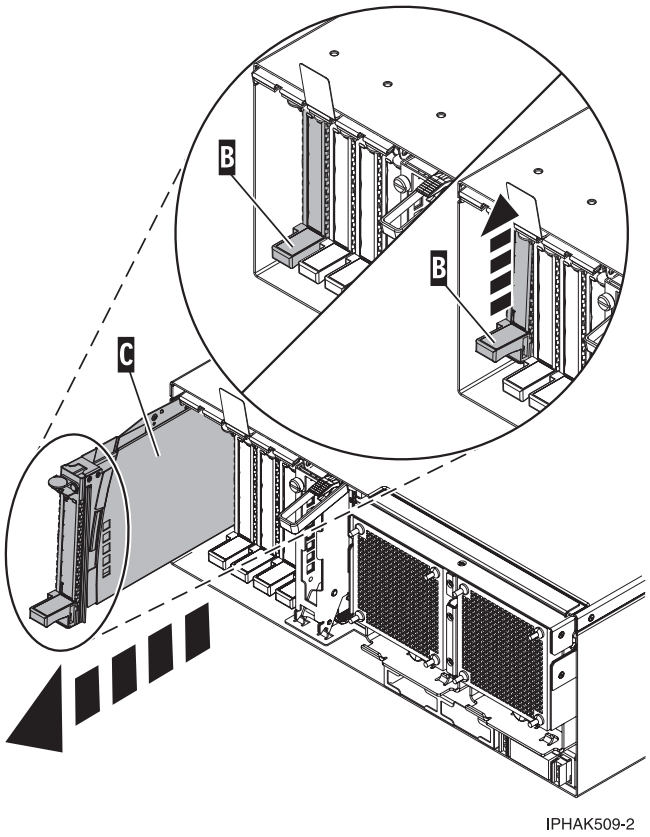


Figure 55. PCI adapter cassette removed from the system unit.

21. If you are installing a PCI adapter in a 5790 or 5796 expansion unit, follow these substeps. If not, go to step 22 on page 93.
    a. Remove the PCI adapter EMC shield **(A)** as shown in the following figure.

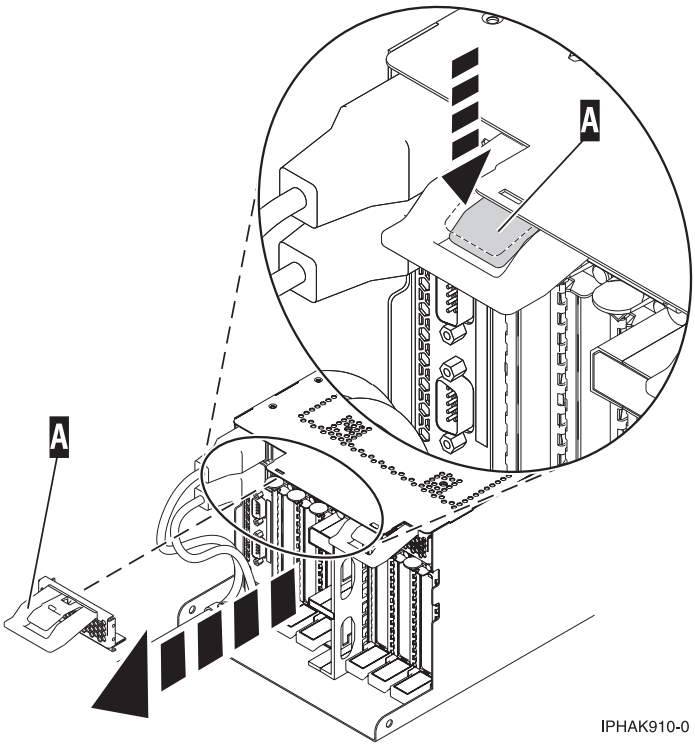


Figure 56. Remove the EMC shield

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

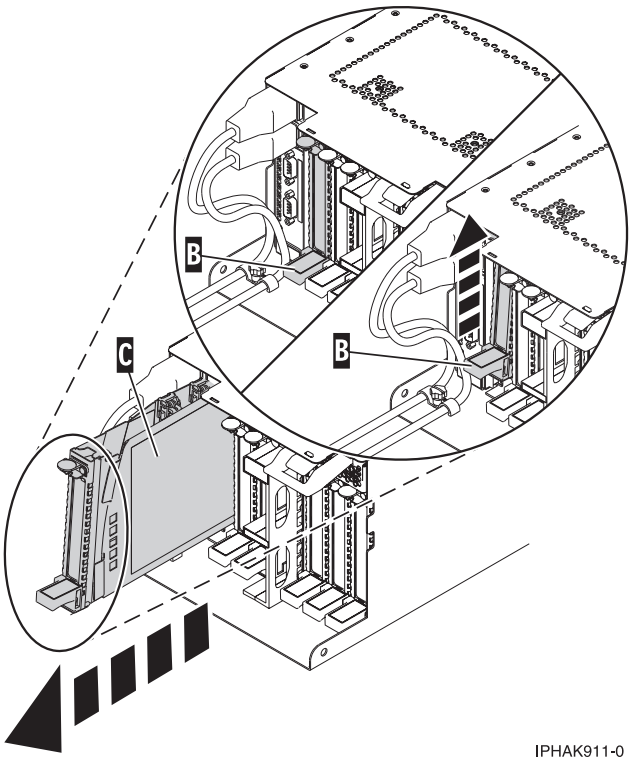


Figure 57. PCI adapter cassette removed from the system unit

22. Install the adapter into the PCI adapter cassette. See the following topics:
    - "PCI adapter single-width cassette" on page 156
    - "PCI adapter double-wide cassette" on page 182
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. If you are installing a PCI adapter in an 5790 or 5796 expansion unit, skip to step 29 on page 95.
25. Lift and hold the PCI adapter EMC shield in the open position. See Figure 53 on page 89 and Figure 54 on page 90.
26. Slide the cassette **(C)** into the cassette slot as shown in the following figure.

    Attention: Ensure proper alignment when you insert a PCI adapter cassette into the system. When you work with PCI slot C6, take extra care to ensure that the vertical alignment of the cassette is correct to prevent the tab located on the front of the cassette from contacting with the I/O backplane assembly.
27. 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.

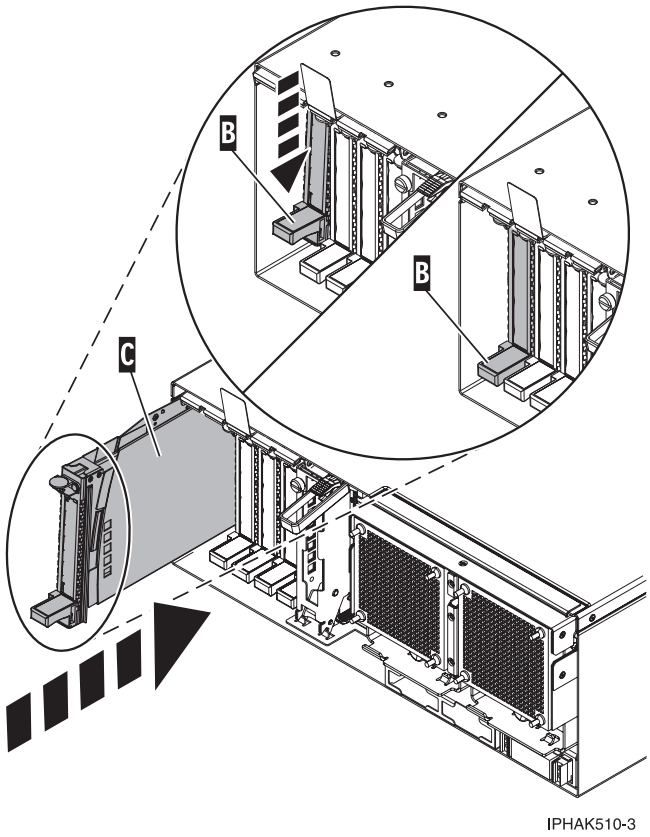


Figure 58. PCI adapter cassette removed from the system unit

28. Lower the PCI adapter EMC shield **(A)** into the closed position, close the shield latch, then close the rear rack door.

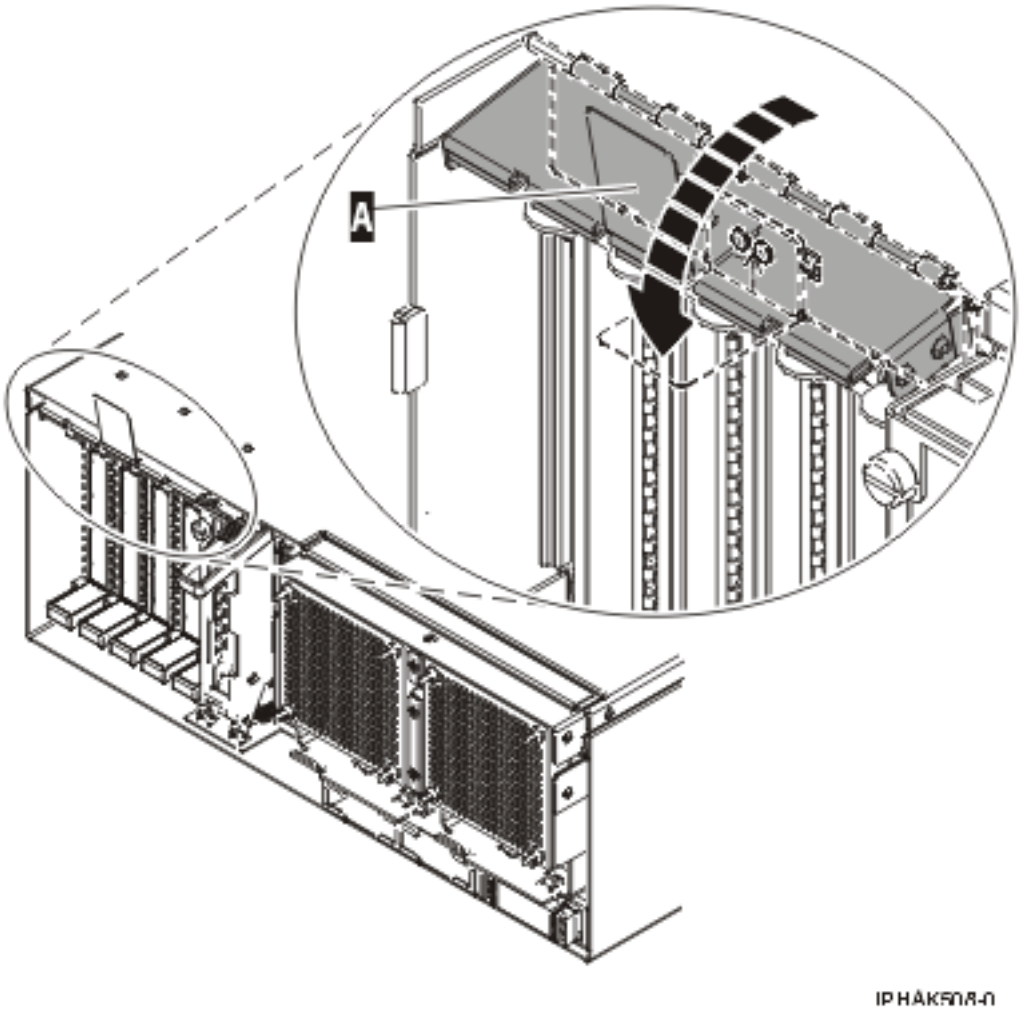


Figure 59. PCI adapter EMC shield in the closed position

29. If you are installing a PCI adapter in a 5790 or 5796 expansion unit, follow these substeps. If not, skip to step 30 on page 97
    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.

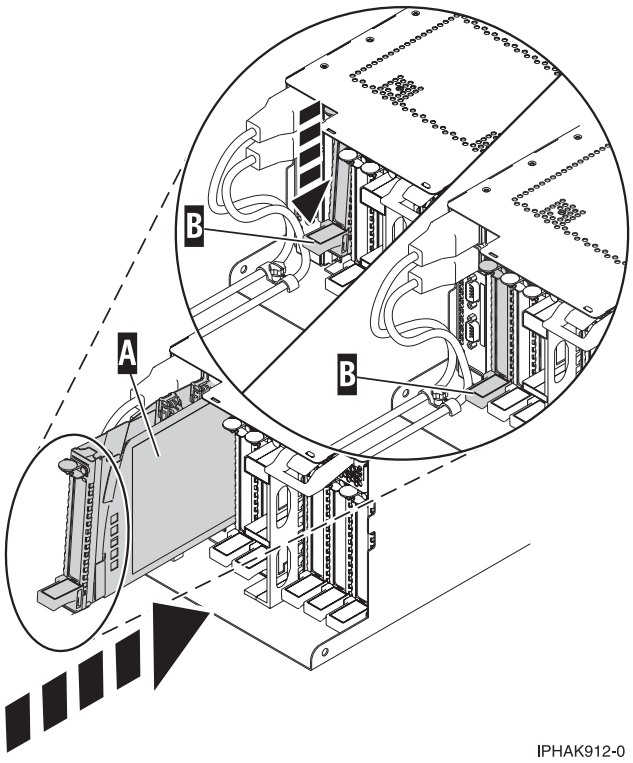


Figure 60. PCI adapter cassette installed in the system unit

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

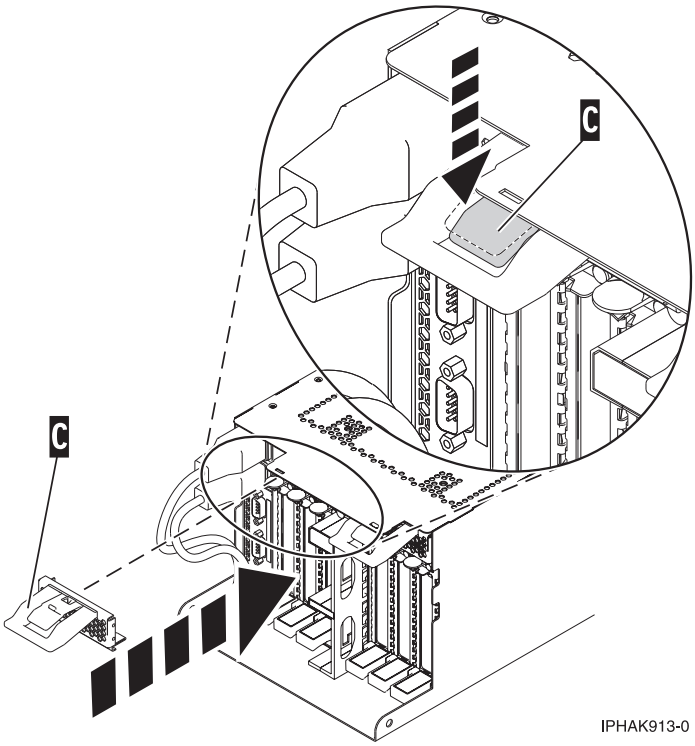


Figure 61. PCI adapter EMC shield in the closed position

30. Attach any cables that should be attached the adapter.
31. Select **Power on domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
32. Select **Assign to** on the resource that has an asterisk (*) on the Work with Controlling Resource display. Press Enter.
33. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:
    ```
    Power on complete
    ```
34. Verify that the new resource is functional. See Verify the installed part.

Related tasks

"Placing a PCI adapter in a single-width cassette" on page 156
You can place a PCI adapter in a single-width cassette.

"Removing an adapter from the PCI adapter single-width cassette" on page 166
You can remove a PCI adapter from a single-width cassette.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

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

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

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 you do not have an HMC, complete this procedure to install a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to install a PCI adapter in the server. For information about using the SDMC to install a PCI adapter, see Installing a feature by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to install a PCI adapter.

Note:

- 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.

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

1. Perform prerequisite tasks as described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. To determine in which slot to place the PCI adapter, refer to the placement information regarding slot restrictions for the adapters that can be used in this system. See the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.
4. If you are installing a PCI adapter in a rack-mounted system or expansion unit, follow these steps:
   a. Open the rear rack door.
   b. Remove the units cover or covers if applicable.
5. Log in to the system console as the root user.

6. 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.
7. If you are installing a PCI adapter in an 5790 or 5796 expansion unit, skip to step 10 on page 100.
8. Lift up the PCI adapter EMC shield **(A)** as shown in Figure 62 and then rotate it up and away from the cassette as shown in Figure 63 on page 99.

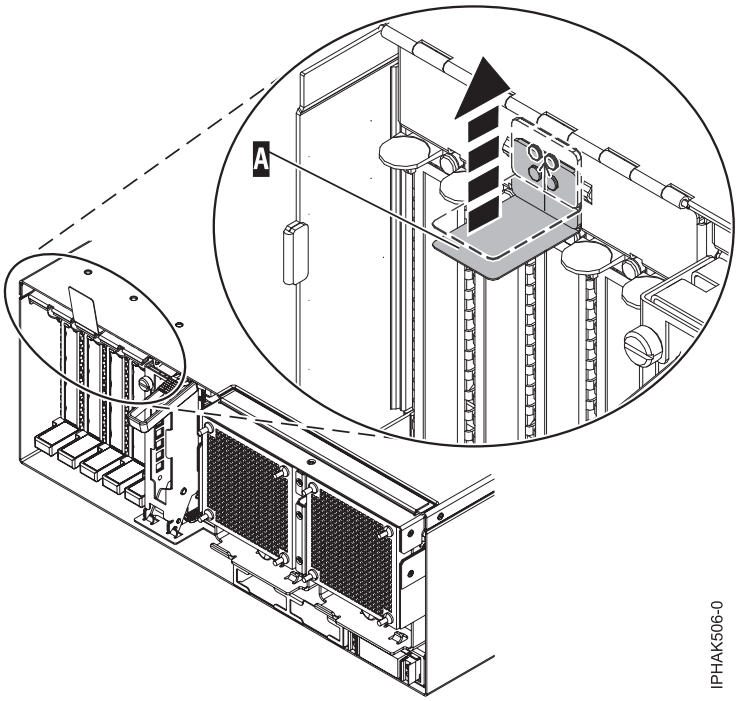


Figure 62. Lift up the EMC shield

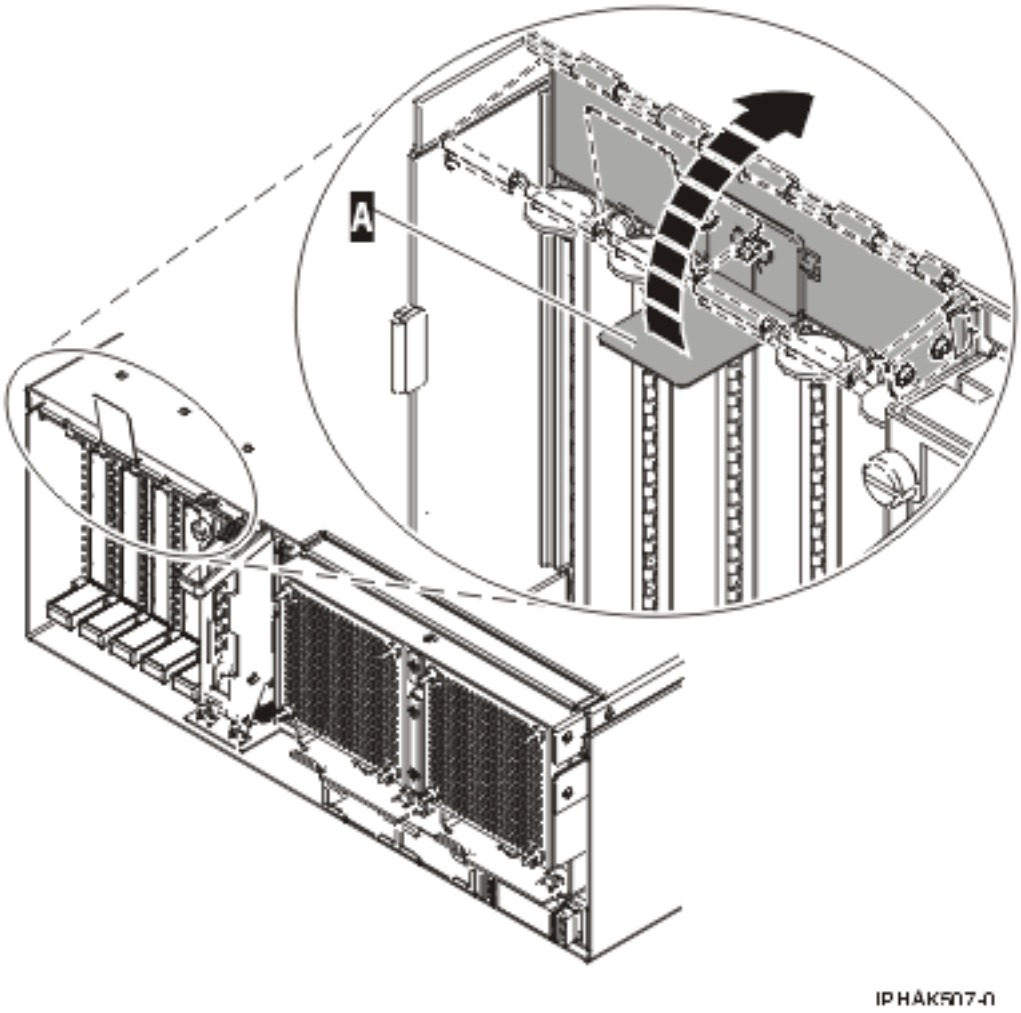


Figure 63. Rotate the EMC shield into the open position

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

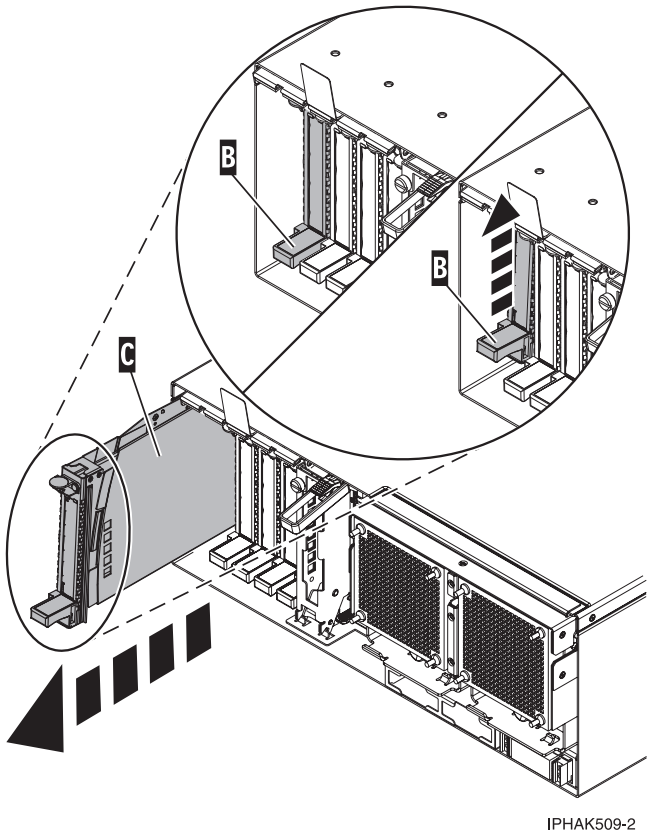


Figure 64. PCI adapter cassette removed from the system unit

10. If you are installing a PCI adapter in a 5790 or 5796 expansion unit, follow these substeps. If not, go to step 11 on page 102.
    a. Remove the PCI adapter EMC shield **(A)** as shown in the following figure.

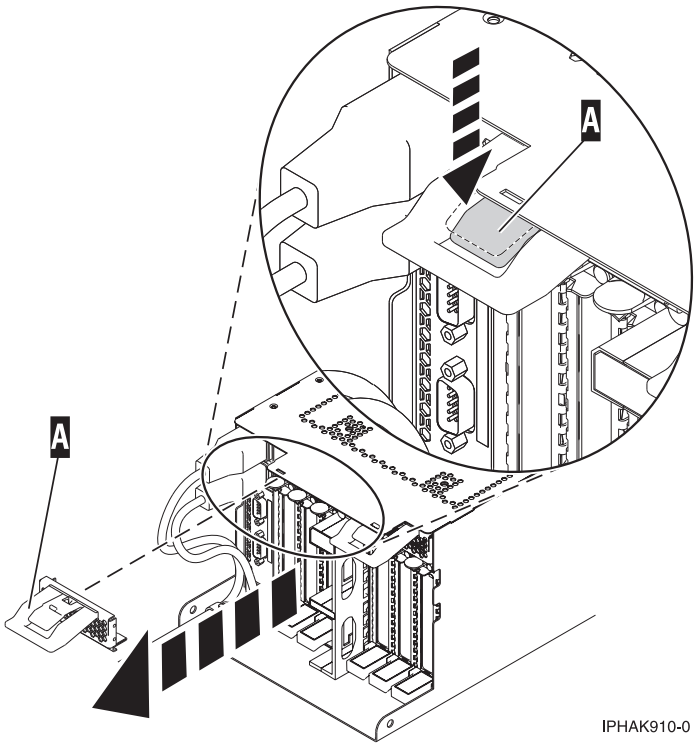


Figure 65. Remove the EMC shield

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

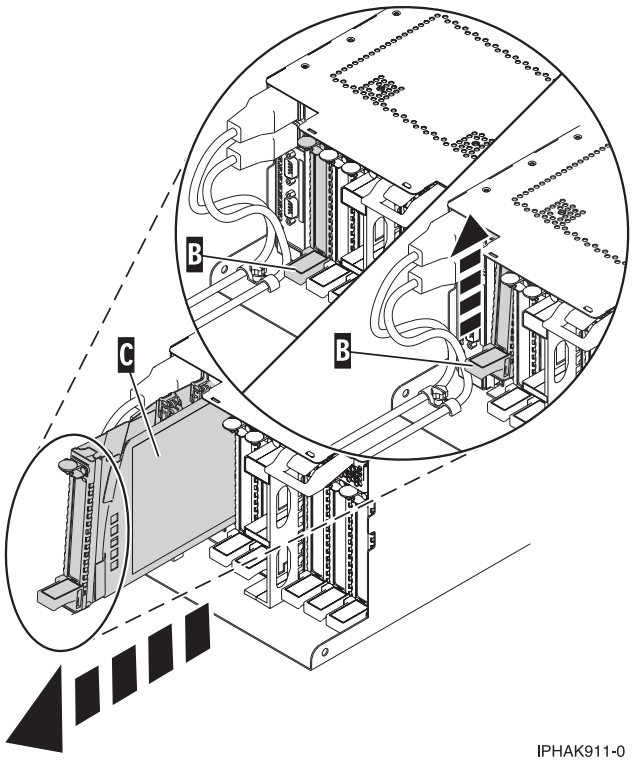


Figure 66. PCI adapter cassette removed from the system unit

11. Install the adapter into the PCI adapter cassette. See the following topics:
    - "PCI adapter single-width cassette" on page 156
    - "PCI adapter double-wide cassette" on page 182
12. 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.
13. Run the drslot_chrp_pci command to enable an adapter to be installed.

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

    ```
    drslot_chrp_pci -a -s U7879.001.DQD014E-P1-C3
    ```

    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.
    ```
14. 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.
    ```
15. If you are installing a PCI adapter in an 5790 or 5796 expansion unit, skip to step 20 on page 104.
16. Lift and hold the PCI adapter EMC shield in the open position. See Figure 62 on page 98 and Figure 63 on page 99.
17. Slide the cassette **(C)** into the cassette slot as shown in the following figure.

    Attention: Ensure proper alignment when you insert a PCI adapter cassette into the system. When you work with PCI slot C6, take extra care to ensure that the vertical alignment of the cassette is correct to prevent the tab located on the front of the cassette from contacting with the I/O backplane assembly.

18. 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.

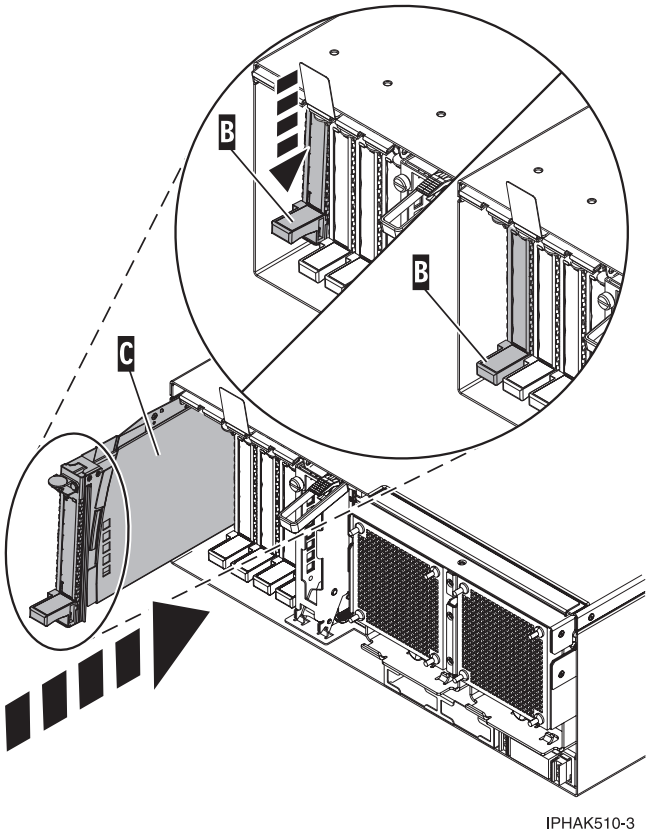


Figure 67. PCI adapter cassette removed from the system unit

19. Lower the PCI adapter EMC shield **(A)** into the closed position, close the shield latch, then close the rear rack door.

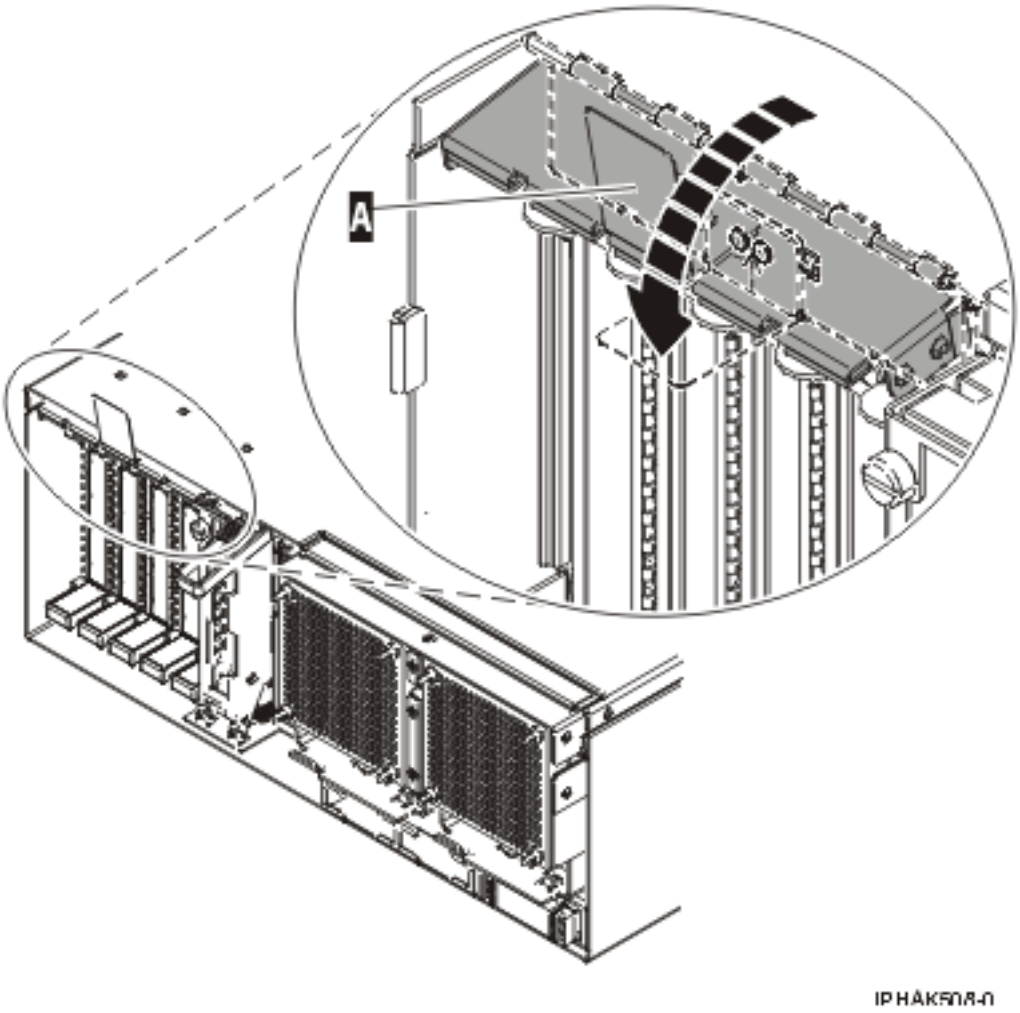


Figure 68. PCI adapter EMC shield in the closed position

20. If you are installing a PCI adapter in a 5790 or 5796 expansion unit, follow these substeps. If not, skip to step 21 on page 106.
    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.

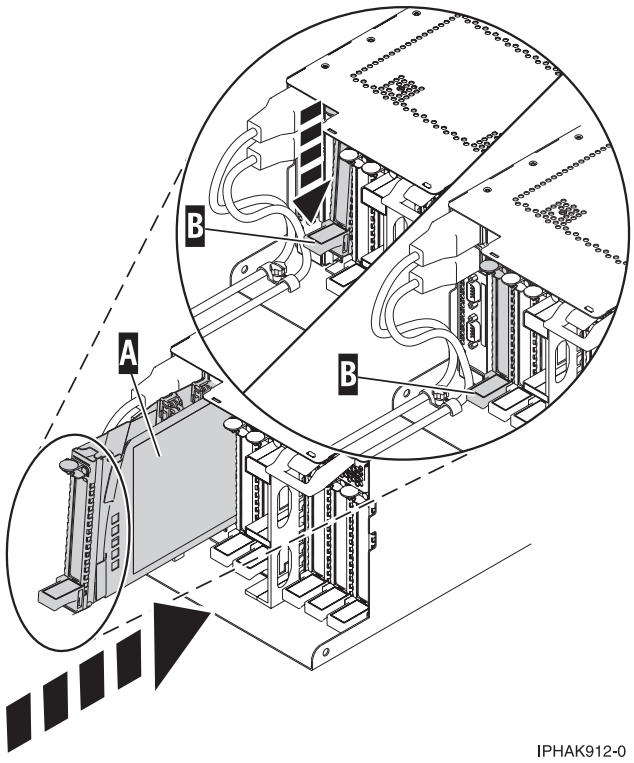


Figure 69. PCI adapter cassette installed in the system unit

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

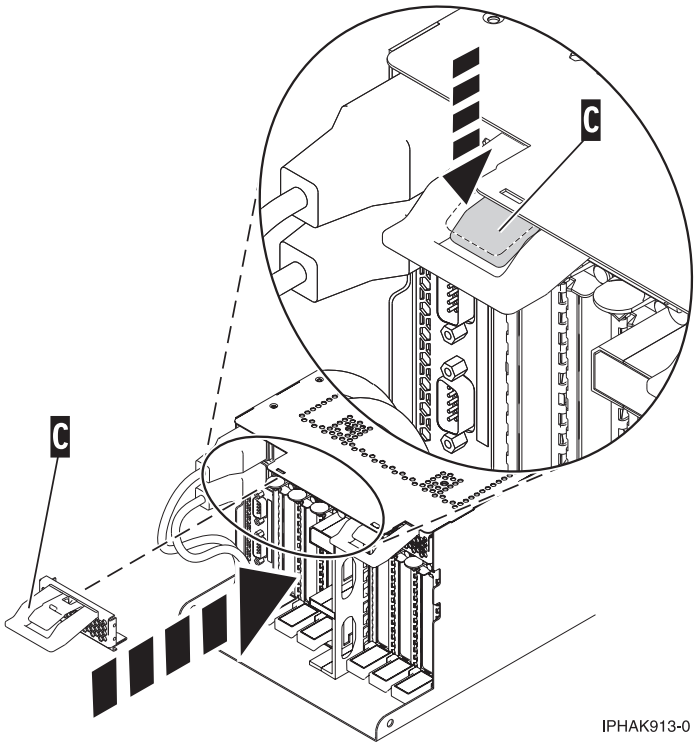


Figure 70. PCI adapter EMC shield in the closed position

21. 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
```

Related tasks

"Placing a PCI adapter in a single-width cassette" on page 156
You can place a PCI adapter in a single-width cassette.

"Removing an adapter from the PCI adapter single-width cassette" on page 166
You can remove a PCI adapter from a single-width cassette.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

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.

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 using the Hardware Management Console. If you do not have an HMC, complete this procedure to remove a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For information about using the SDMC to remove a PCI adapter, see Removing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to remove a PCI adapter.

To remove an adapter, do the following steps:

1. Perform the prerequisite tasks as described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
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.

   Note: This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
5. If you are removing a PCI adapter in a rack-mounted system or expansion unit, follow these steps:
   a. Open the rear rack door.
   b. Remove the units cover or covers if applicable.
6. If you are removing a PCI adapter in a stand-alone expansion unit, remove the units back cover, if applicable.
7. Determine the location of PCI adapter in the system.
8. If you are removing a PCI adapter from a 5790 or 5796 expansion unit, skip to step 11 on page 108.
9. Lift and hold the PCI adapter EMC shield **(A)** in the open position.

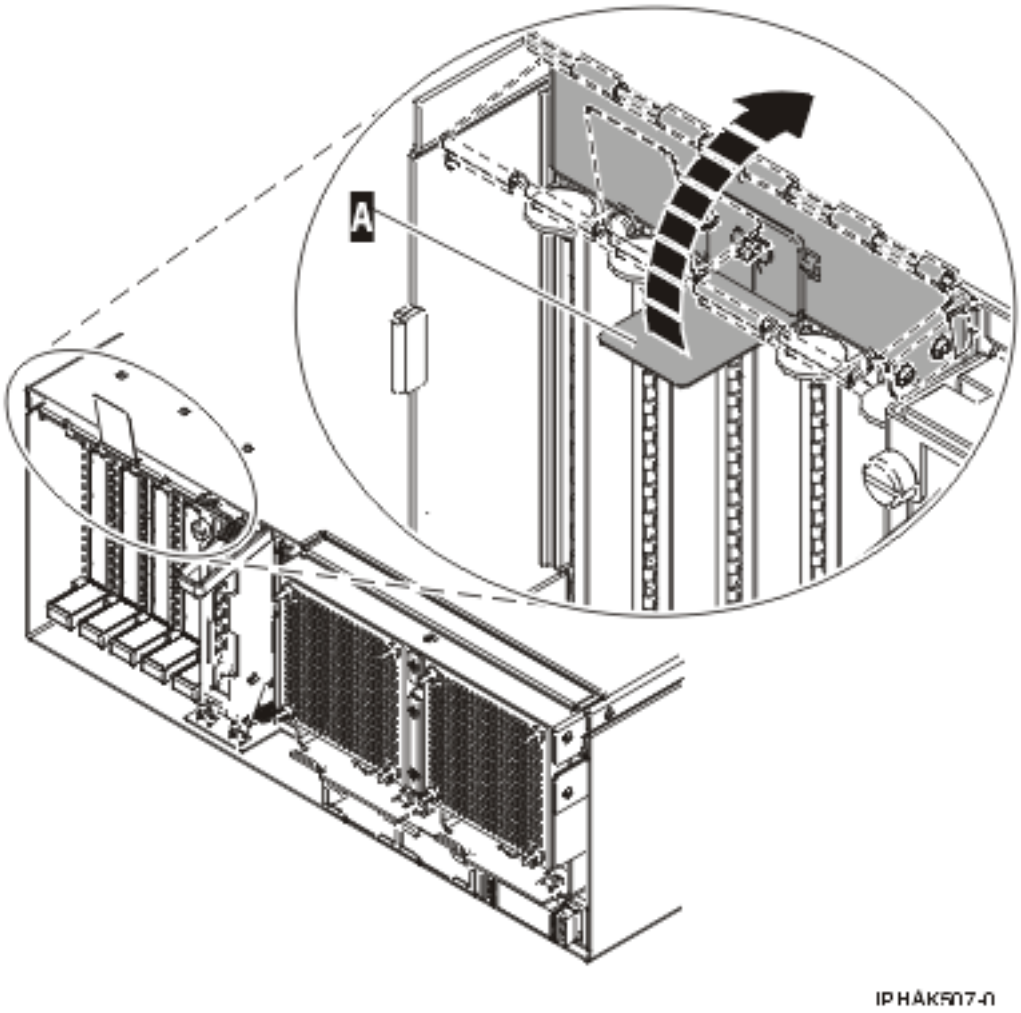


Figure 71. PCI adapter EMC shield in the open position

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

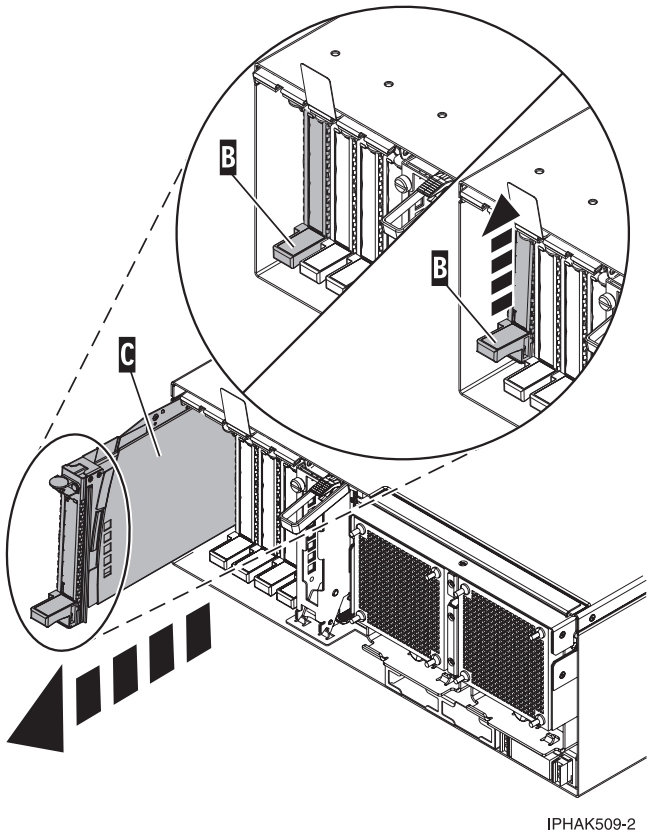


Figure 72. PCI adapter cassette removed from the system unit

11. If you are removing a PCI adapter from a 5790 or 5796 expansion unit, follow these substeps. If not, go to step 12 on page 110.
    a. Remove the PCI adapter EMC shield **(A)** as shown in the following figure.

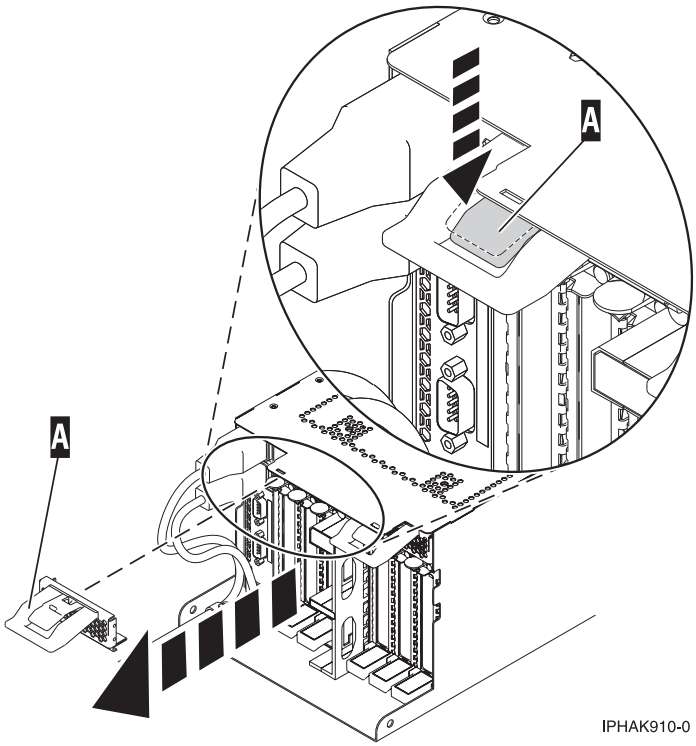


Figure 73. Remove the EMC shield

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

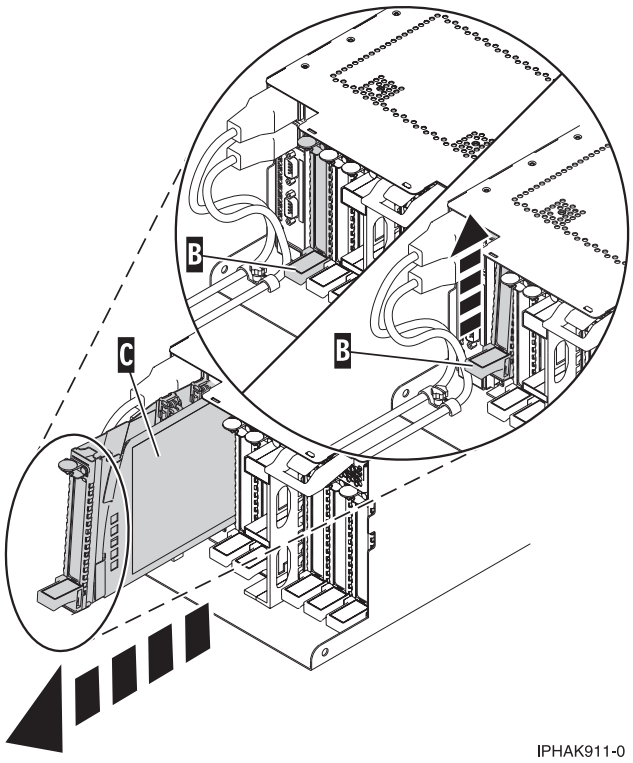


Figure 74. PCI adapter cassette removed from the system unit

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

    Note: The cover will have a label on it.

13. To remove the adapter from the cassette, refer to "Removing an adapter from the PCI adapter single-width cassette" on page 166.

Related tasks

"Placing a PCI adapter in a single-width cassette" on page 156
You can place a PCI adapter in a single-width cassette.

"Removing an adapter from the PCI adapter single-width cassette" on page 166
You can remove a PCI adapter from a single-width cassette.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

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

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

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 using the Hardware Management Console. If you do not have an HMC, complete this procedure to remove a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For information about using the SDMC to remove a PCI adapter, see Removing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to remove a PCI adapter.

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

Note:

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 AIX" on page 78.
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:

1. Perform the prerequisite tasks as described in "Before you begin" on page 288.
2. If you are removing a PCI adapter in a rack-mounted system or expansion unit, follow these steps:
   a. Open the rear rack door.
   b. Remove the units cover or covers if applicable.
3. If you are removing a PCI adapter in a stand-alone expansion unit, remove the unit's back cover, if applicable.
4. Determine the location of PCI adapter in the system.
5. Record the slot number and location of each adapter being removed.

   Note: Adapter slots are numbered on the rear of the system unit.
6. Ensure that any processes or applications that might use the adapter are stopped.
7. Enter the system diagnostics by logging in as root user or as the celogin user, type **diag** at AIX command line.
8. When the DIAGNOSTIC OPERATING INSTRUCTIONS menu displays, press Enter.
9. At the FUNCTION SELECTION menu, select **Task Selection**, then press enter.
10. At the Task Selection list, select **PCI Hot Plug Manager**.
11. Select **Unconfigure a Device**, then press Enter.
12. Press F4 (or Esc +4) to display the **Device Names** menu.
13. Select the adapter you are removing in the **Device Names** menu.
14. Use the Tab key to answer `NO` to **Keep Definition**. Use the Tab key again to answer `YES` to **Unconfigure Child Devices**, then press Enter. The **ARE YOU SURE** screen displays.
15. 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.
16. Press F4 (or Esc +4) twice to return to the **Hot Plug Manager** menu.
17. Select **replace/remove PCI Hot Plug adapter**.
18. Select the slot that has the device to be removed from the system.
19. Select **remove**. A fast-blinking amber LED located at the back of the machine near the adapter indicates that the slot has been identified.
20. Label all cables attached to the adapter you plan to remove.
21. Press Enter. This places the adapter in the action state, meaning it is ready to be removed from the system.
22. Disconnect all cables attached to the adapter you plan to remove.
23. Before handling any PCI adapter, see "Handling static-sensitive devices" on page 291.
24. If you are removing a PCI adapter from a 5790 or 5796 expansion unit, skip to step 27 on page 114.

25. Lift up the PCI adapter EMC shield **(A)** as shown in Figure 75 and then rotate it up and away from the cassette as shown in Figure 76 on page 113.

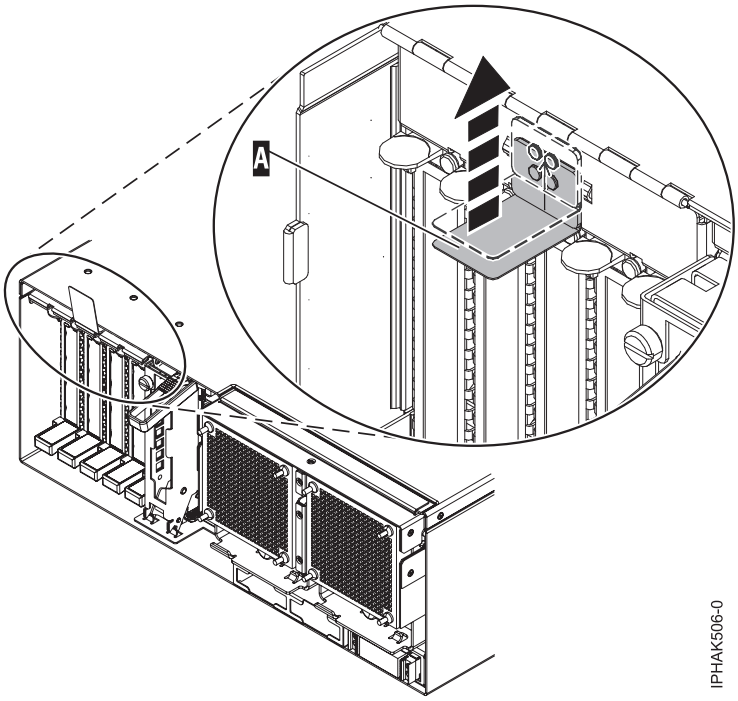


Figure 75. Lift up the EMC shield

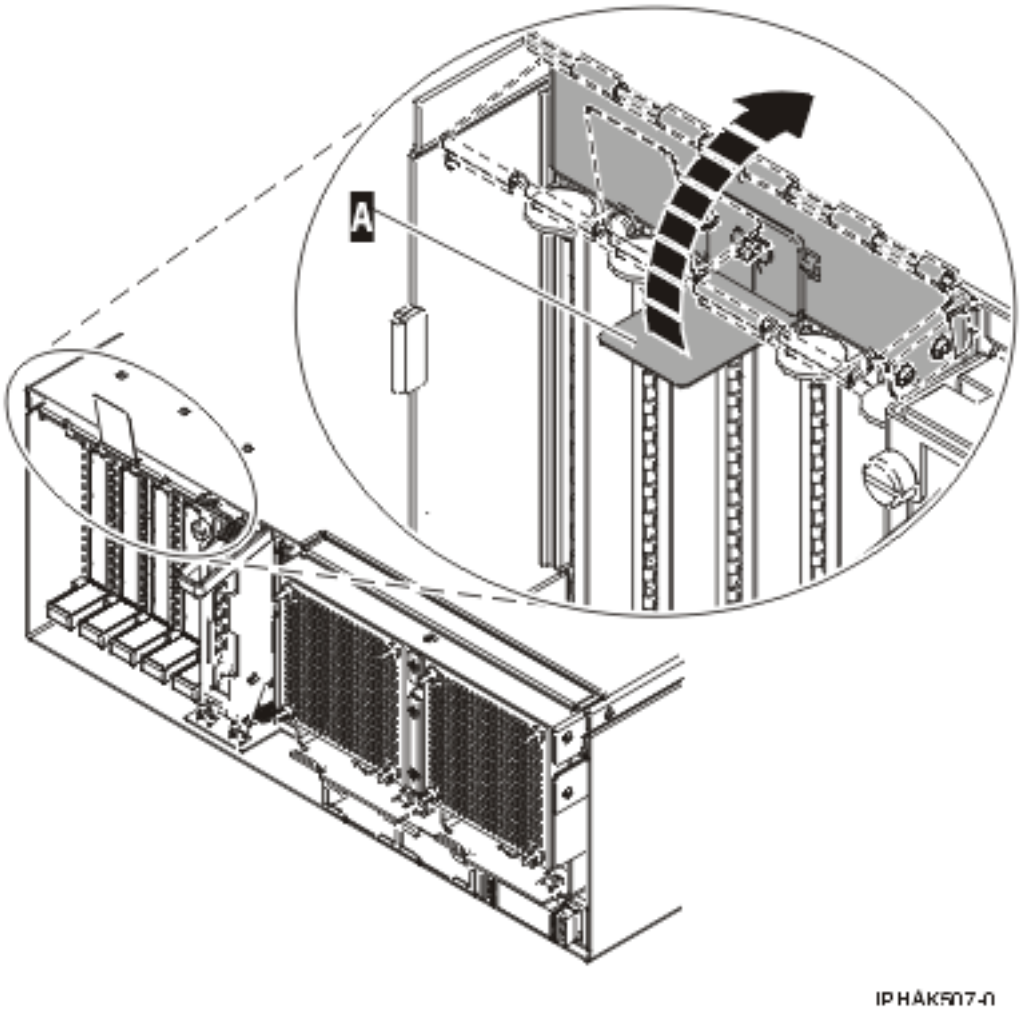


Figure 76. Rotate the EMC shield into the open position

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

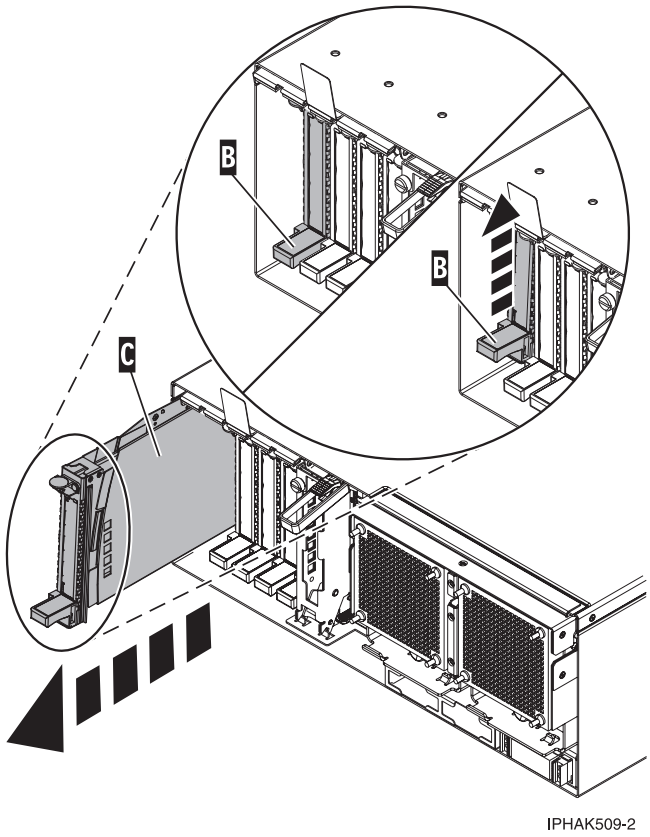


Figure 77. PCI adapter cassette removed from the system unit

27. If you are removing a PCI adapter from a 5790 or 5796 expansion unit, follow these substeps. If not, go to step 28 on page 116.
    a. Remove the PCI adapter EMC shield **(A)** as shown in the following figure.

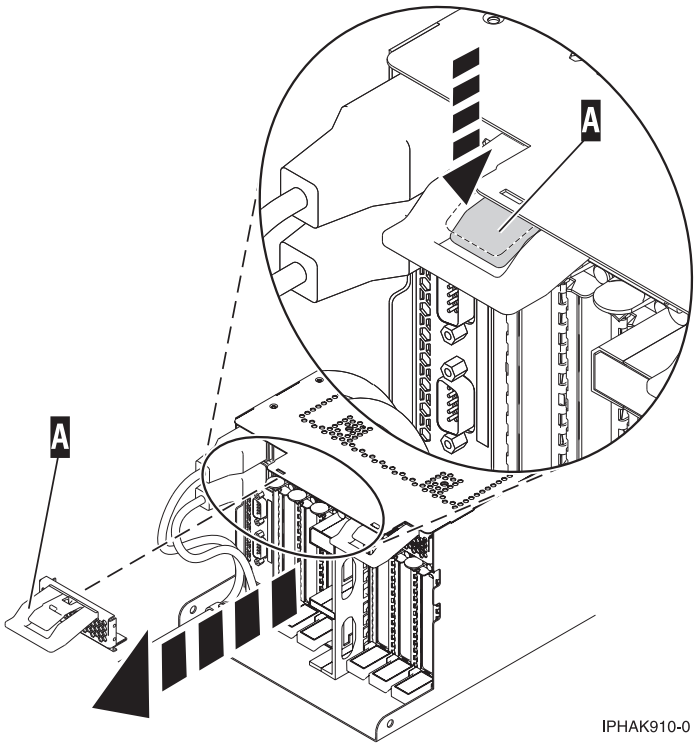


Figure 78. Remove the EMC shield

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

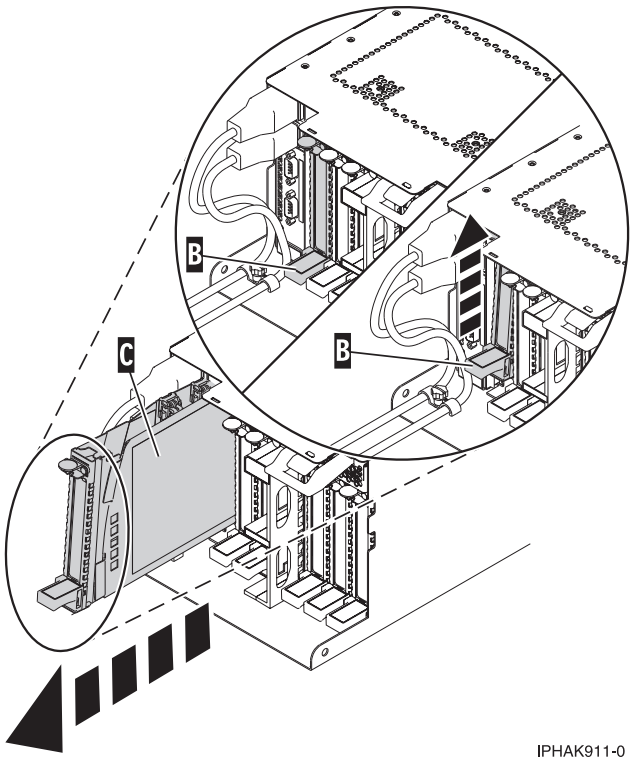


Figure 79. PCI adapter cassette removed from the system unit

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

    Note: The cover will have a label on it.
29. 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.
30. 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 22 on page 111.

    OR

    If you do not have other adapters to remove, continue with the next step.
31. Press F10 to exit the Hot-Plug Manager.
32. Run the **diag -a** command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.
33. Place an empty cassette into the unused PCI slot for proper air flow. The procedure is complete.
    - To remove the adapter from the PCI adapter cassette, see "Removing an adapter from the PCI adapter single-width cassette" on page 166.
    - To install an adapter in the system, see "Installing a PCI adapter contained in a cassette with the power on in AIX" on page 78.

Related tasks

"Placing a PCI adapter in a single-width cassette" on page 156
You can place a PCI adapter in a single-width cassette.

"Removing an adapter from the PCI adapter single-width cassette" on page 166
You can remove a PCI adapter from a single-width cassette.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing a PCI adapter contained in a cassette from the system with the power on in IBM i

You can remove a PCI adapter with the system power on in the i operating system.

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 using the Hardware Management Console. If you do not have an HMC, complete this procedure to remove a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For information about using the SDMC to remove a PCI adapter, see Removing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to remove a PCI adapter.

To remove an adapter, do the following steps:

1. Perform the prerequisite tasks as described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. If you are removing a PCI adapter in a rack-mounted system or expansion unit, follow these steps:
   a. Open the rear rack door.
   b. Remove the units cover or covers if applicable.
4. If you are removing a failing PCI adapter, see Indentifying a failing part. If you are removing the PCI adapter for other reasons, continue to the next step.
5. Determine the location of PCI adapter in the system.
6. Type **strsst** on the command line of the Main Menu and then press Enter.
7. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display and press Enter.
8. Select **Hardware service manager** from the Start a Service Tool display and press Enter.
9. Select **Packaging hardware resources (system, frames, cards)** from the Hardware Service Manager display. Press Enter.
10. Type **9** (Hardware contained within package) in the *System Unit* or *Expansion Unit* field of the unit where you are removing the card. Press Enter.
11. Select the option to **Include empty positions**.
12. Select **Concurrent Maintenance** on the card position where you want to remove the card and then press Enter.
13. Select the option to **Toggle LED blink off/on**. A light-emitting diode (LED) blinks identifying the position you chose. Physically verify that this is the slot where you want to install the adapter.
14. Select the option to **Toggle LED blink off/on** to stop the blinking LED.
15. Select the option to **Power off domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
16. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:

```
Power off complete
```

17. If you are removing a PCI adapter from a 5790 or 5796 expansion unit, skip to step 20 on page 120.
18. Lift up the PCI adapter EMC shield **(A)** as shown in Figure 80 and then rotate it up and away from the cassette as shown in Figure 81 on page 119.

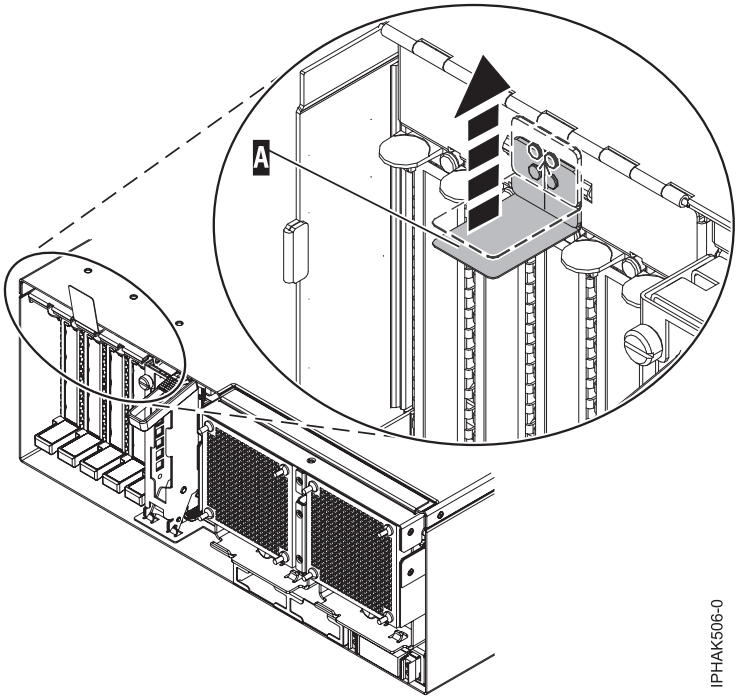


Figure 80. Lift up the EMC shield

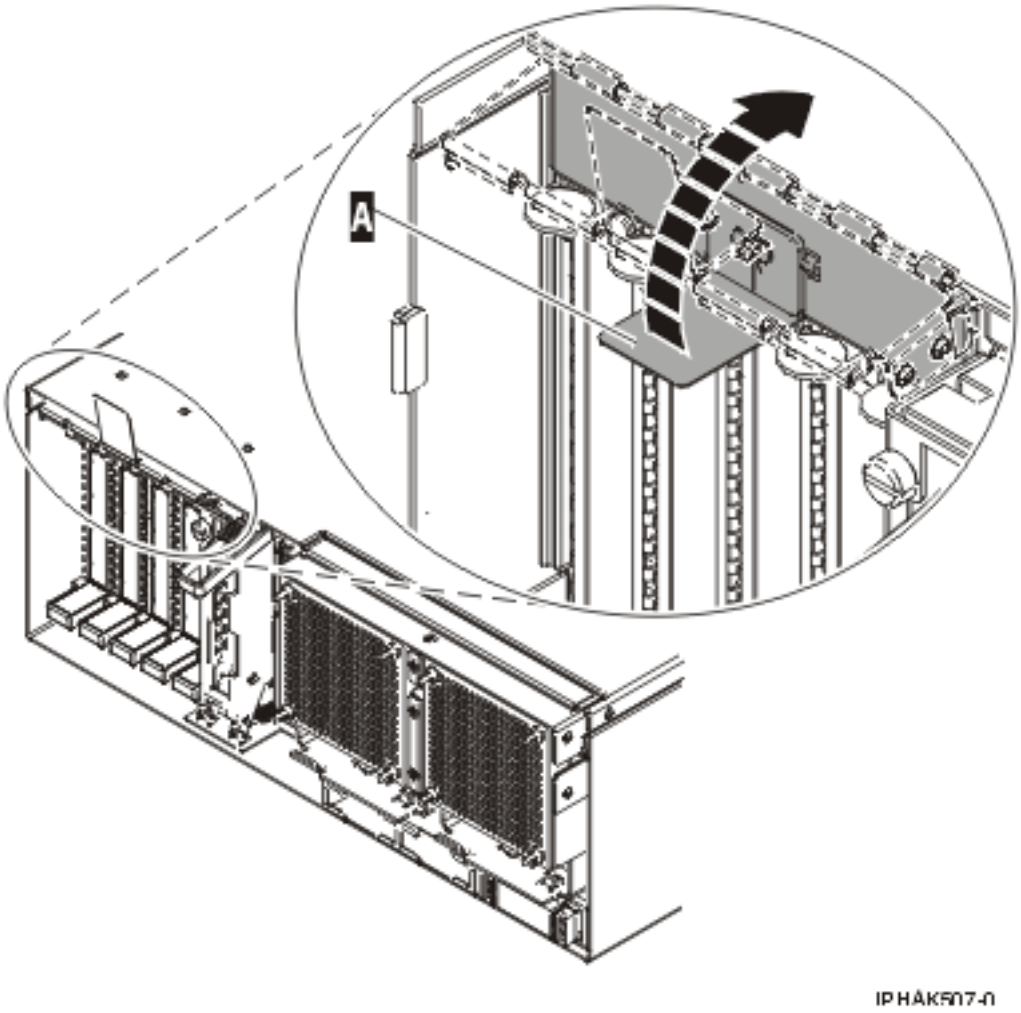


Figure 81. Rotate the EMC shield into the open position

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

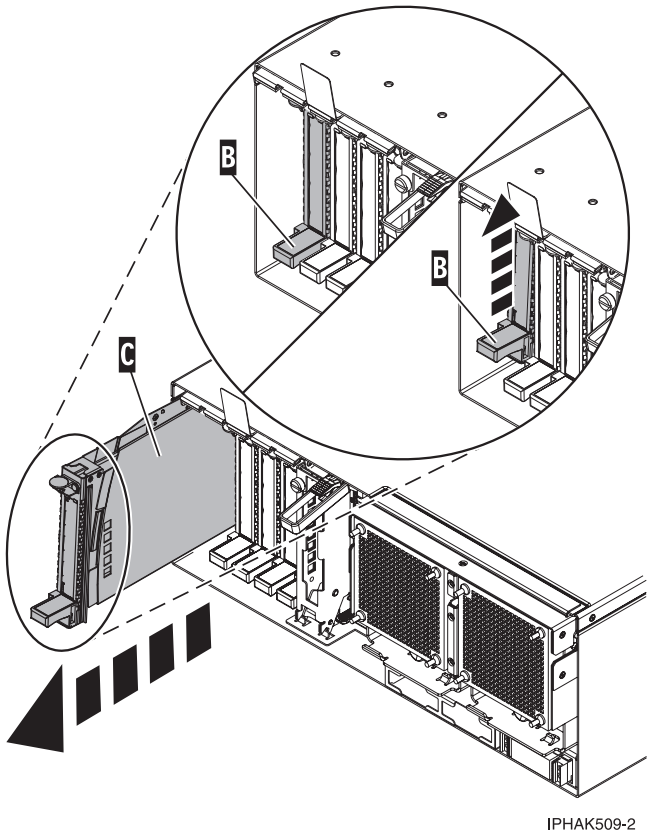


Figure 82. PCI adapter cassette removed from the system unit

20. If you are removing a PCI adapter from a 5790 or 5796 expansion unit, follow these substeps. If not, go to step 21 on page 122.
    a. Remove the PCI adapter EMC shield **(A)** as shown in the following figure.

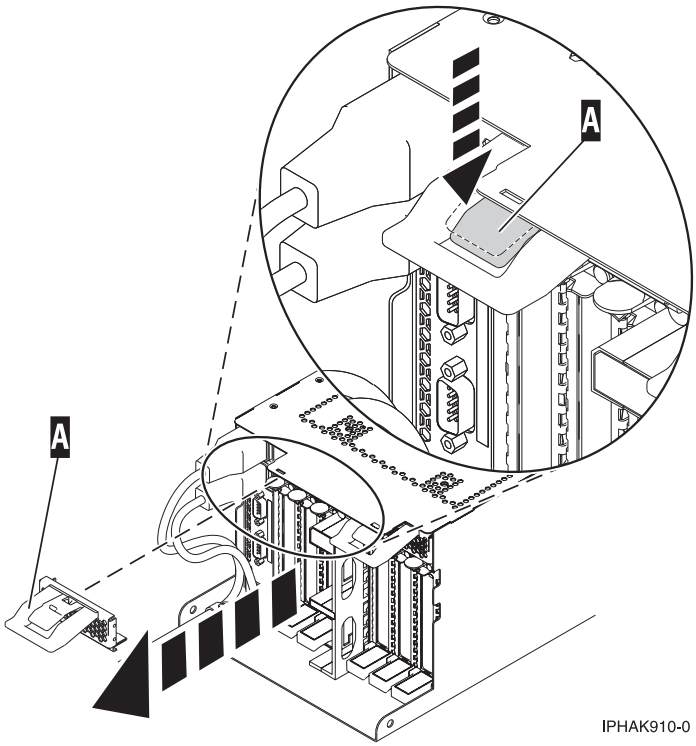


Figure 83. Remove the EMC shield

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

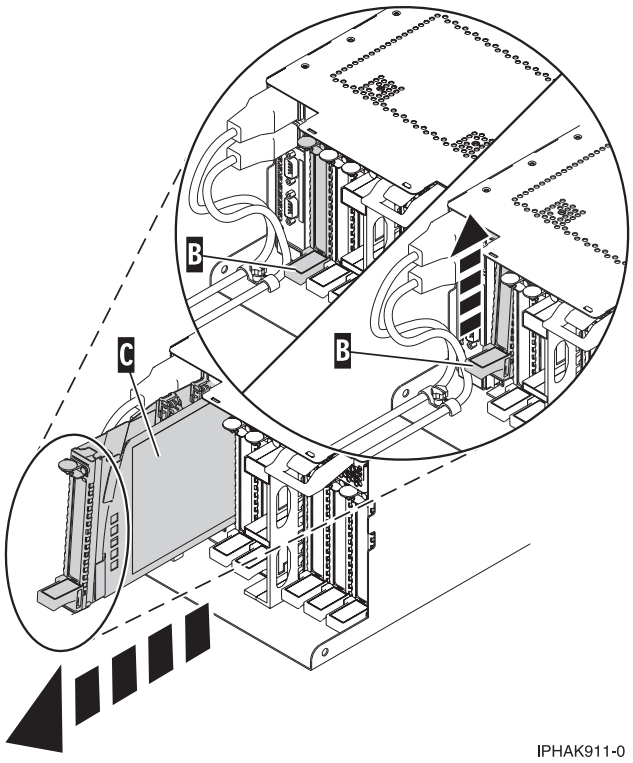


Figure 84. PCI adapter cassette removed from the system unit

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

    Note: The cover will have a label on it.
22. To remove the adapter from the PCI adapter cassette, see "Removing an adapter from the PCI adapter single-width cassette" on page 166.

To replace the adapter in the system, see "Replacing a PCI adapter contained in a cassette in the system" on page 128.

Related tasks

"Placing a PCI adapter in a single-width cassette" on page 156
You can place a PCI adapter in a single-width cassette.

"Removing an adapter from the PCI adapter single-width cassette" on page 166
You can remove a PCI adapter from a single-width cassette.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

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

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

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 using the Hardware Management Console. If you do not have an HMC, complete this procedure to remove a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to remove the PCI adapter from the server. For information about using the SDMC to remove a PCI adapter, see Removing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to remove a PCI adapter.

To remove an adapter, do the following steps:

1. Ensure that the system meets the "Prerequisites for hot-plugging PCI adapters in Linux" on page 298.
2. Verify that the Linux, hot-plug PCI tools are installed. See "Verify that the Linux, hot-plug PCI tools are installed" on page 298.
3. Perform the prerequisite tasks as described in "Before you begin" on page 288.
4. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
5. If you are removing a PCI adapter in a rack-mounted system or expansion unit, follow these steps:
   a. Open the rear rack door.
   b. Remove the units cover or covers if applicable.
6. If you are removing a PCI adapter in a stand-alone expansion unit, remove the unit's back cover, if applicable.
7. Determine the location of PCI adapter in the system.
8. Label, and then disconnect all cables attached to the adapter you plan to remove.
9. Run the drslot_chrp_pci 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:

   ```
   drslot_chrp_pci -r -s U7879.001.DQD014E-P1-C3
   ```

   Follow the instructions on the display to complete the task.
10. If you are removing a PCI adapter from a 5790 or 5796 expansion unit, skip to step 13 on page 126.
11. Lift up the PCI adapter EMC shield **(A)** as shown in Figure 85 on page 124 and then rotate it up and away from the cassette as shown in Figure 86 on page 125.

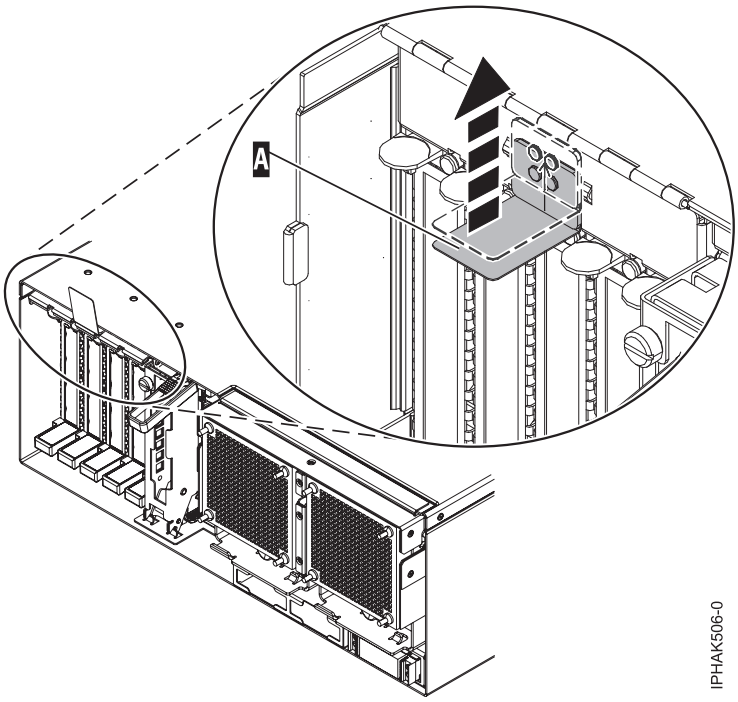


Figure 85. Lift up the EMC shield

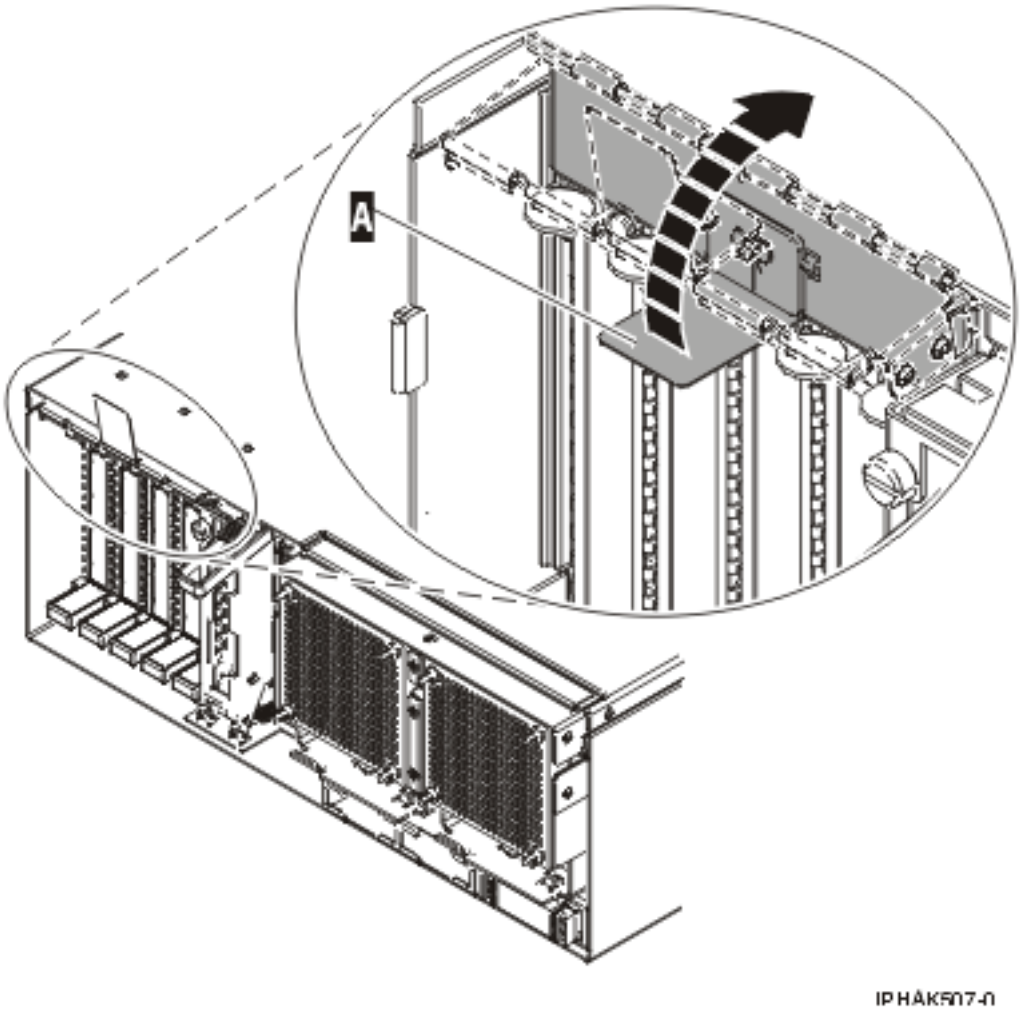


Figure 86. Rotate the EMC shield into the open position

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

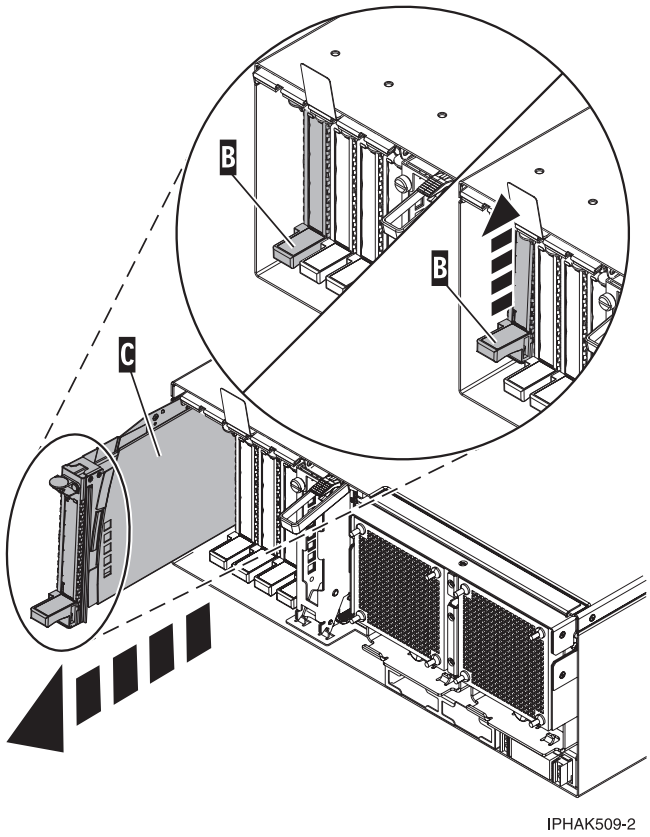


Figure 87. PCI adapter cassette removed from the system unit

13. If you are removing a PCI adapter from a 5790 or 5796 expansion unit, follow these substeps. If not, go to step 14 on page 128.
    a. Remove the PCI adapter EMC shield **(A)** as shown in the following figure.

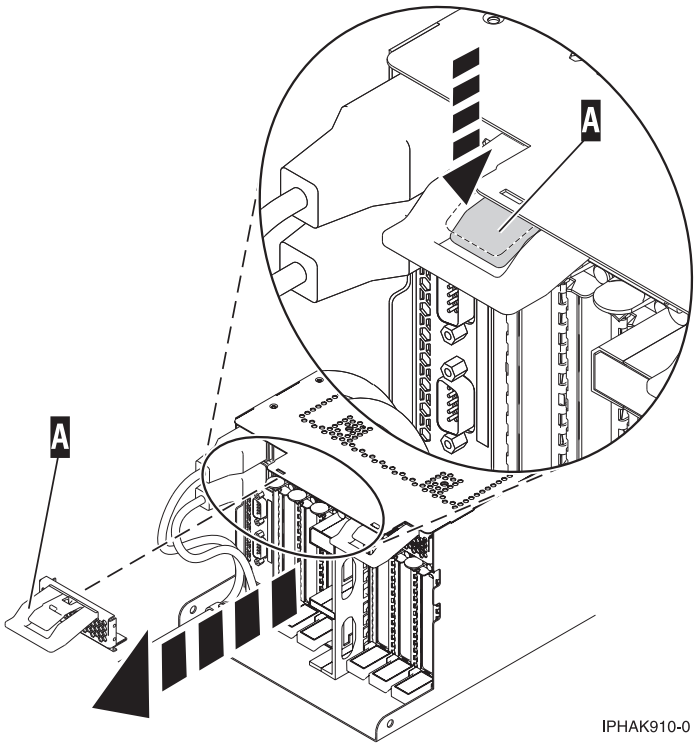


Figure 88. Remove the EMC shield

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

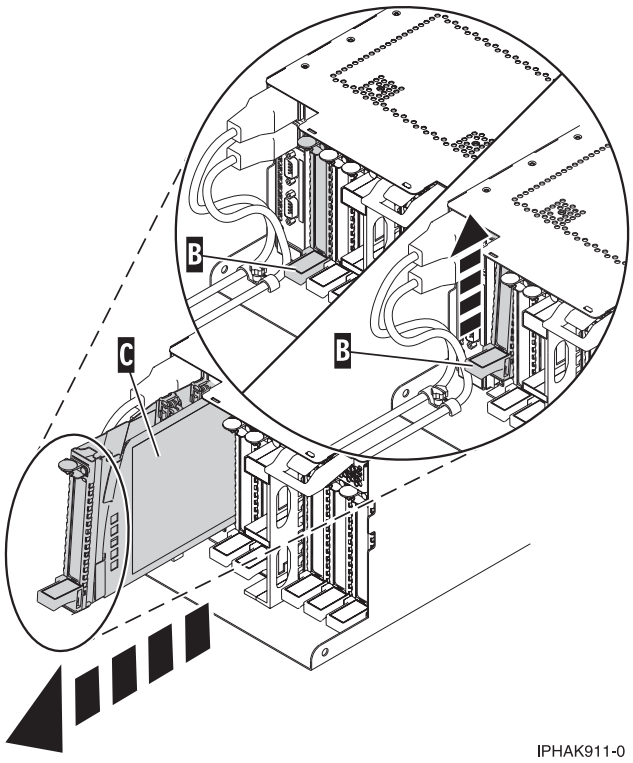


Figure 89. PCI adapter cassette removed from the system unit

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

    Note: The cover will have a label on it.
15. To remove an adapter from the PCI adapter cassette, refer to "Removing an adapter from the PCI adapter single-width cassette" on page 166.

To replace the adapter in the system, see "Replacing a PCI adapter contained in a cassette in the system with the power on in Linux" on page 151.

Related tasks

"Placing a PCI adapter in a single-width cassette" on page 156
You can place a PCI adapter in a single-width cassette.

"Removing an adapter from the PCI adapter single-width cassette" on page 166
You can remove a PCI adapter from a single-width cassette.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Replacing a PCI adapter contained in a cassette in the system

You can replace a PCI adapter.

Important:

- If you are removing, installing or replacing a PCI-X double-wide, quad-channel Ultra320 SCSI RAID controller, review the Concurrent maintenance procedure in the PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller (FC 5739, 5778, 5781, 5782; CCIN 571F, 575B) topic, before proceeding with the instructions provided here.

- If you are removing, installing or replacing a PCI-X DDR 1.5 GB cache SAS RAID Adapter, review the Concurrent maintenance procedure in the PCI-X DDR 1.5 GB cache SAS RAID Adapter topic, before proceeding with the instructions provided here.
- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.
- 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.

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 106 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 Replacing a part by using the Hardware Management Console. If you do not have an HMC, complete this procedure to replace a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For information about using the SDMC to replace a PCI adapter, see Replacing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to replace a PCI adapter.

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

1. Perform prerequisite tasks as described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. If the adapter needs to be placed in a PCI adapter cassette, see one of the following topics:
   - "PCI adapter single-width cassette" on page 156
   - "PCI adapter double-wide cassette" on page 182
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. If you are replacing a PCI adapter in a 5790 or 5796 expansion unit, skip to step 11 on page 131.
7. Lift and hold the PCI adapter EMC shield **(A)** in the open position. See Figure 71 on page 107.
8. Slide the cassette **(C)** into the cassette slot as shown in the following figure.

   Attention: Ensure proper alignment when you insert a PCI adapter cassette into the system. When you work with PCI slot C6, take extra care to ensure that the vertical alignment of the cassette is correct to prevent the tab located on the front of the cassette from contacting with the I/O backplane assembly.

9. 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.

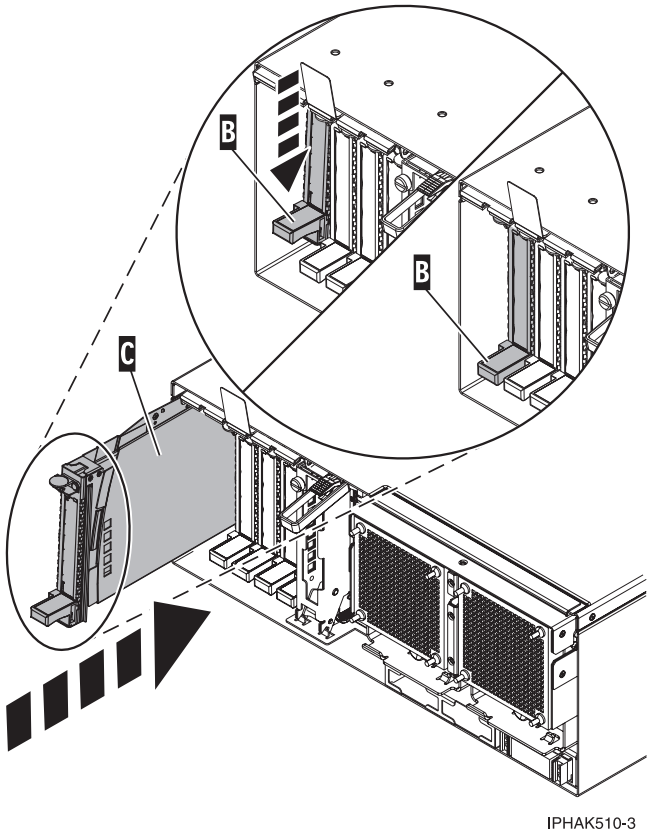


Figure 90. PCI adapter cassette removed from the system unit

10. Lower the PCI adapter EMC shield **(A)** into the closed position, close the shield latch, then close the rear rack door.

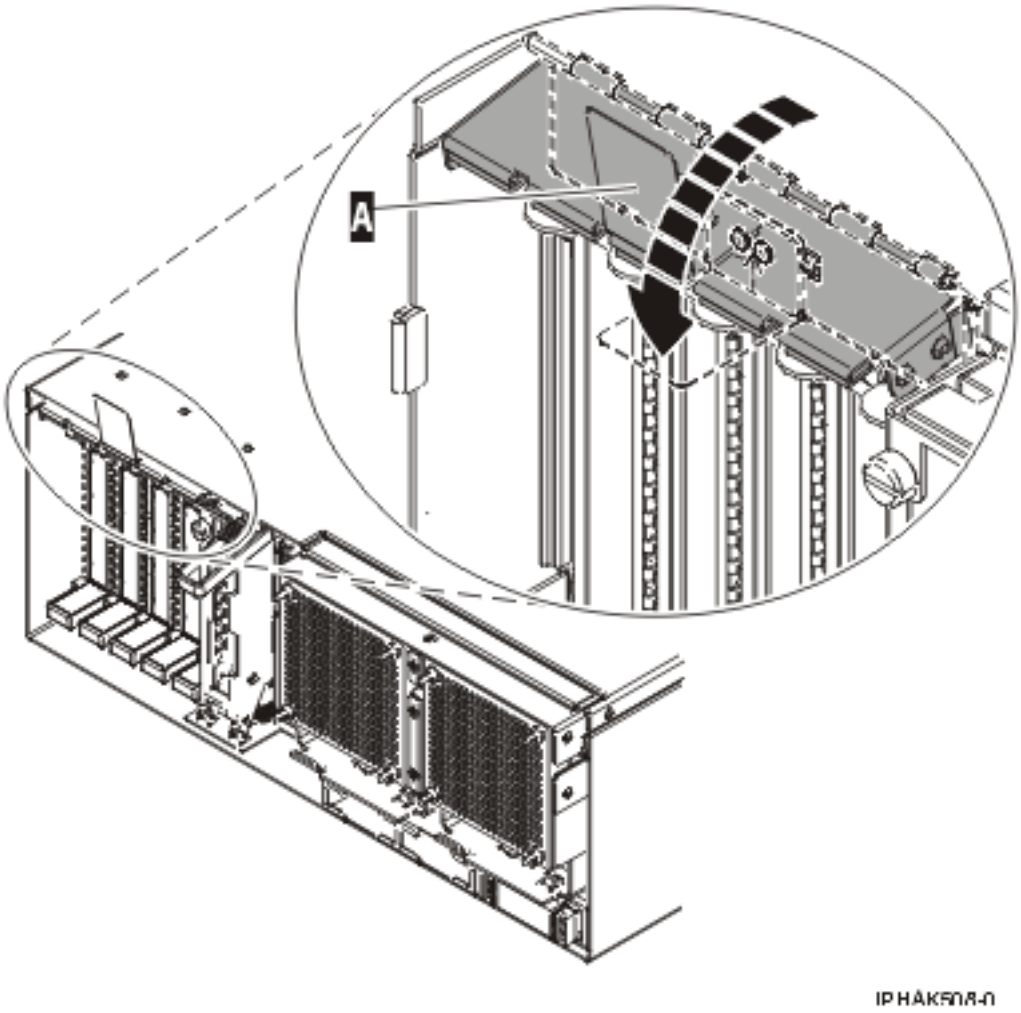


Figure 91. PCI adapter EMC shield in the closed position

11. If you are replacing a PCI adapter in a 5790 or 5796 expansion unit, follow these substeps. If not, go to step 12 on page 134.
    a. Remove the PCI adapter EMC shield **(A)** as shown in the following figure.

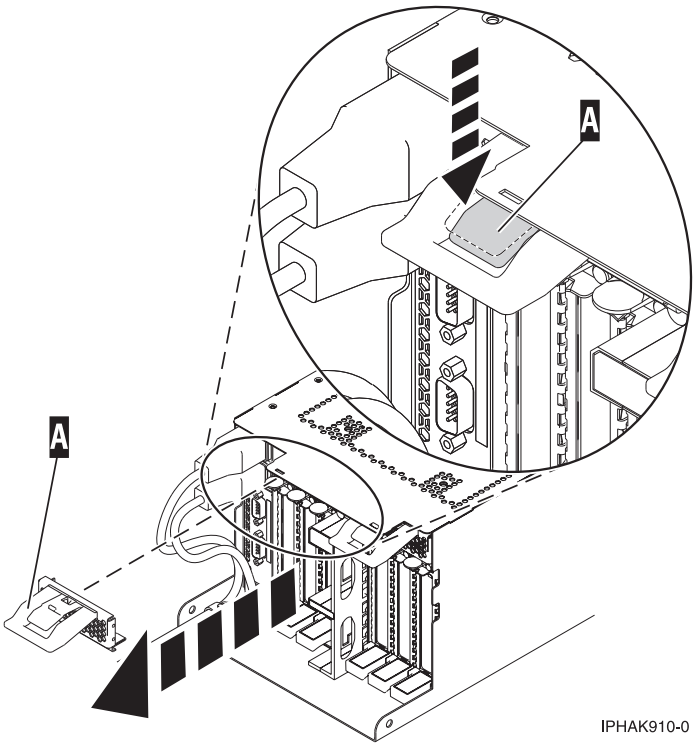


Figure 92. Remove the EMC shield

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.

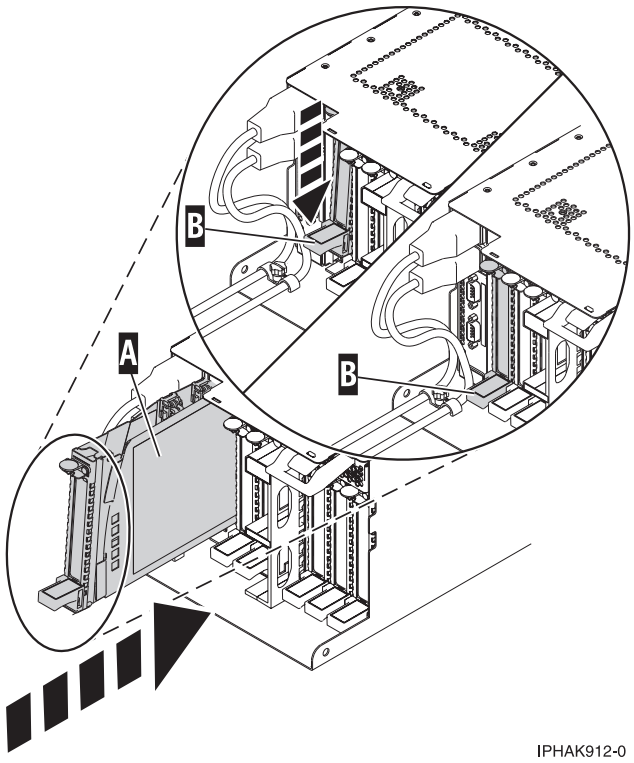


Figure 93. PCI adapter cassette installed in the system unit

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

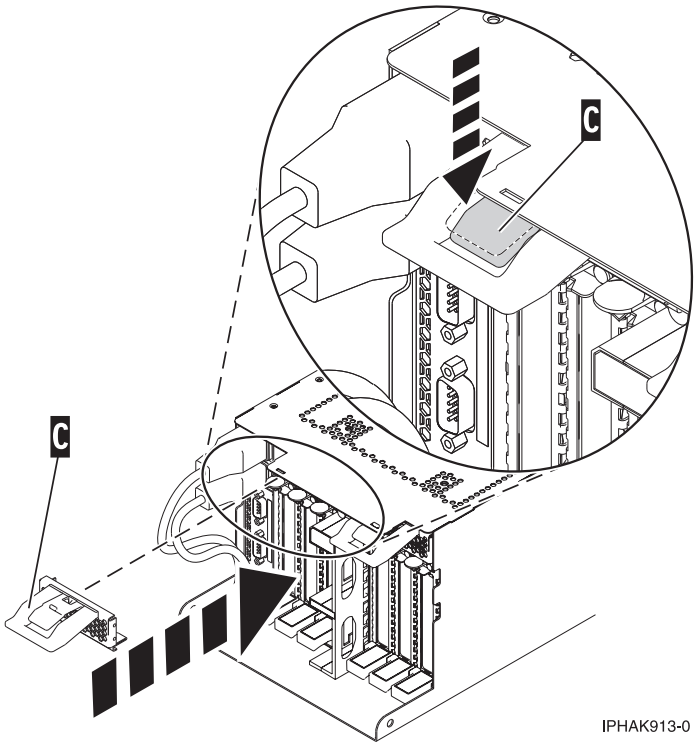


Figure 94. PCI adapter EMC shield in the closed position

12. Reconnect the system to the power source.
13. Start the system or logical partition. Refer to Start the system or logical partition.
14. Verify that the new resource is functional. See Verify the installed part.

Related tasks

"Placing a PCI adapter in a single-width cassette" on page 156
You can place a PCI adapter in a single-width cassette.

"Removing an adapter from the PCI adapter single-width cassette" on page 166
You can remove a PCI adapter from a single-width cassette.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

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

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

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 Replacing a part by using the Hardware Management Console. If you do not have an HMC, complete this procedure to replace a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For information about using the SDMC to replace a PCI adapter, see Replacing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to replace a PCI adapter.

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 AIX" on page 110.
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 AIX" on page 110, then install the new adapter as described in "Installing a PCI adapter contained in a cassette with the power on in AIX" on page 78.
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.

To replace an adapter, do the following steps:

1. Perform the prerequisite tasks as described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. If you are removing and replacing a PCI adapter in a rack-mounted system or expansion unit, follow these steps:
   a. Open the rear rack door.
   b. Remove the units cover or covers if applicable. For instructions see the *Related information* links at the end of the page.

4. If you are removing and replacing a PCI adapter in a stand-alone expansion unit, remove the units back cover, if applicable. For instructions see the *Related information* links at the end of the page.
5. Determine the location of the PCI adapter in the system.
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. The **ARE YOU SURE** screen displays.
16. 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 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. If you are removing and replacing a PCI adapter in a 5790 or 5796 expansion unit, skip to step 26 on page 138.
24. Lift up the PCI adapter EMC shield **(A)** as shown in Figure 95 on page 136 and then rotate it up and away from the cassette as shown in Figure 96 on page 137.

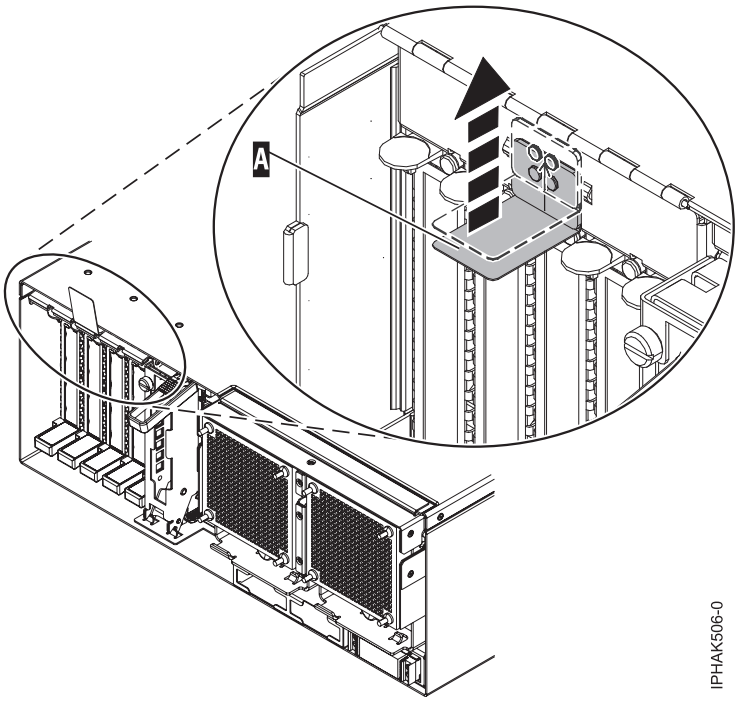


Figure 95. Lift up the EMC shield

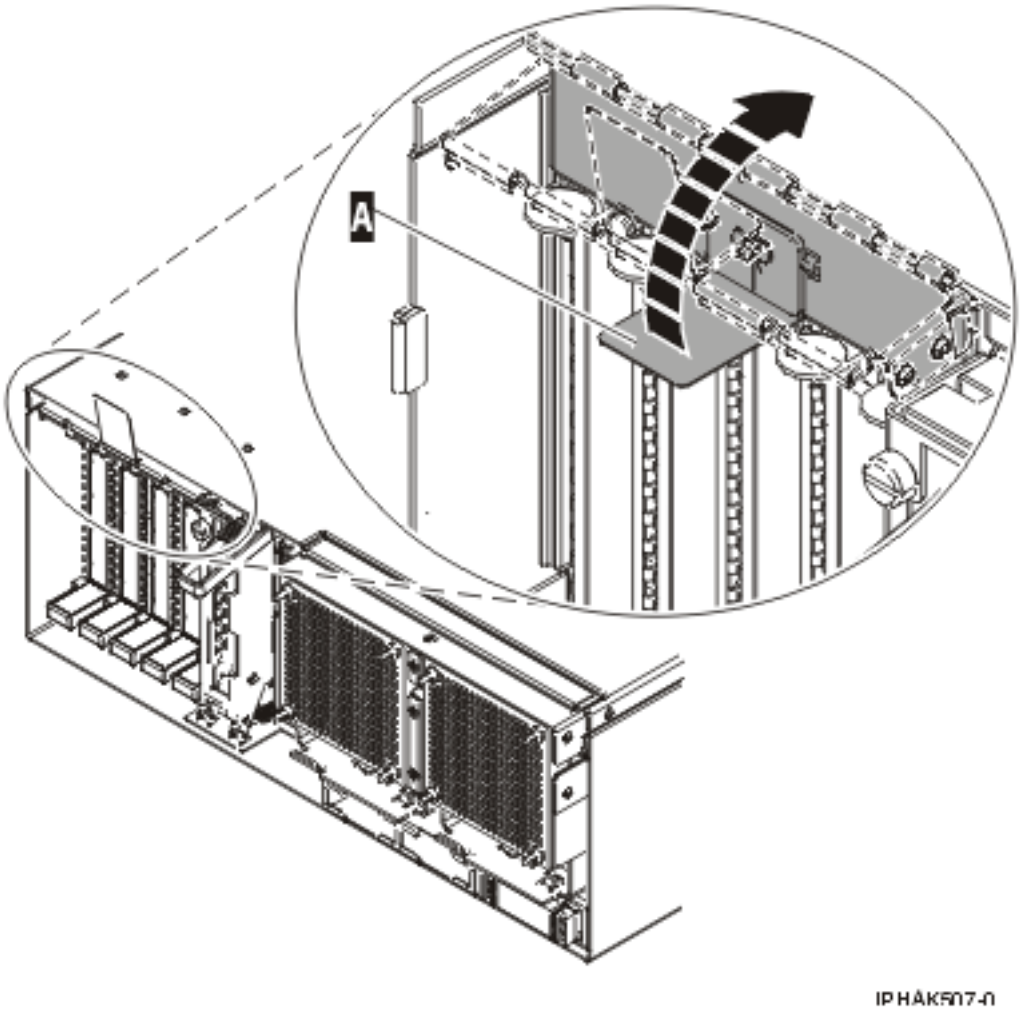


Figure 96. Rotate the EMC shield into the open position

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

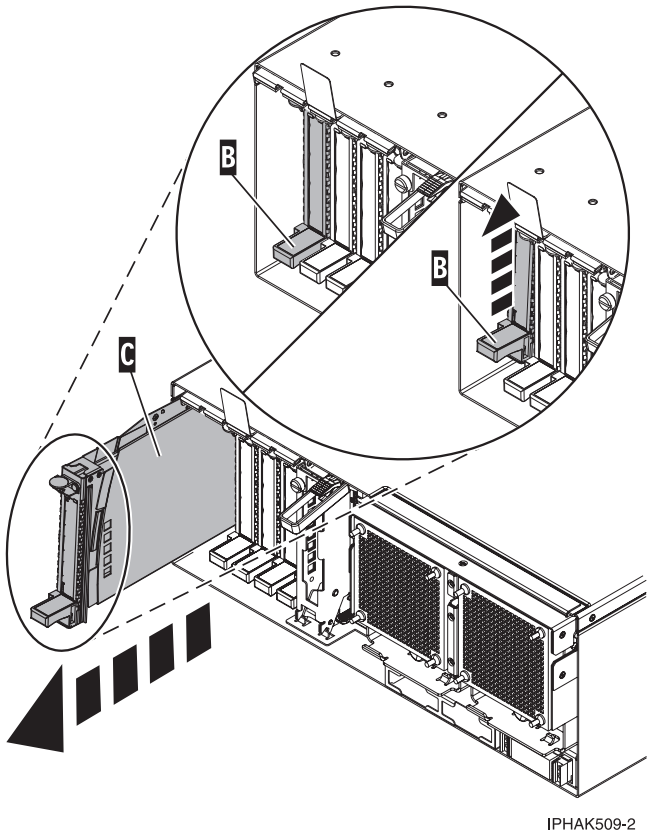


Figure 97. PCI adapter cassette removed from the system unit

26. If you are removing and replacing a PCI adapter in a 5790 or 5796 expansion unit, follow these substeps. If not, skip to step 27 on page 140.
    a. Remove the PCI adapter EMC shield **(A)** as shown in the following figure.

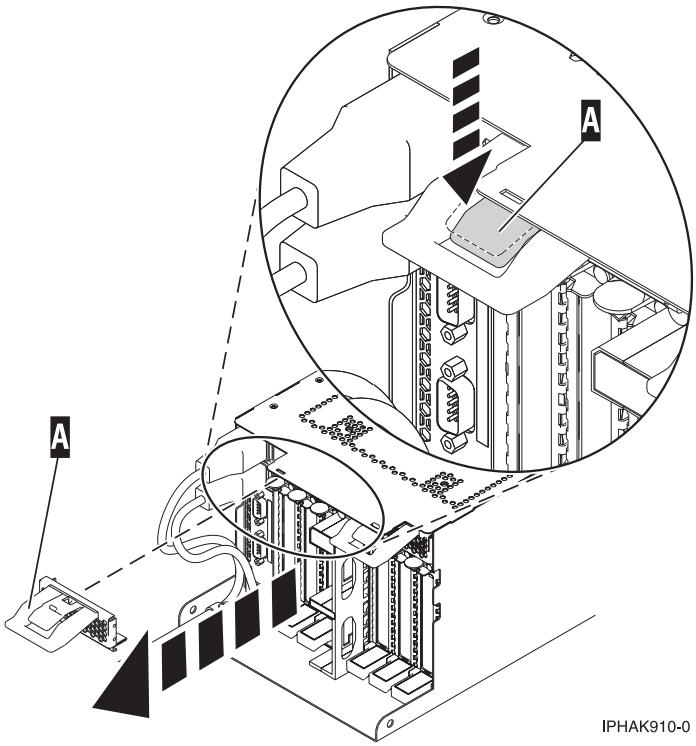


Figure 98. Remove the EMC shield

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

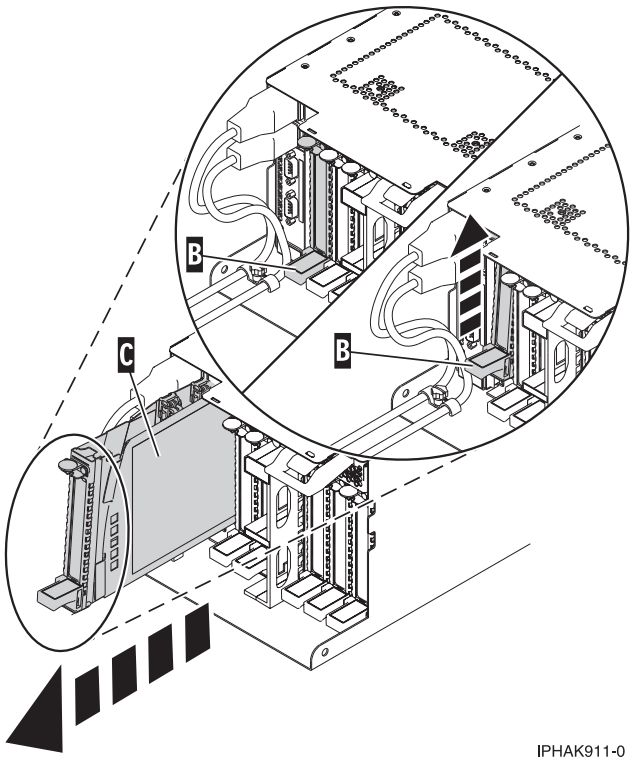


Figure 99. PCI adapter cassette removed from the system unit

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

    Note: The cover will have a label on it.
28. Install the adapter into the PCI adapter cassette. See the following topics:
    - "PCI adapter single-width cassette" on page 156
    - "PCI adapter double-wide cassette" on page 182
29. At the back of the system, lift the cassette cover flap and identify the cassette slot you want to use.
30. 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.
31. If you are installing a PCI adapter in a 5790 or 5796 expansion unit, skip to step 37 on page 142.
32. Lift and hold the PCI adapter EMC shield in the open position. See Figure 95 on page 136 and Figure 96 on page 137.
33. Slide the cassette **(C)** into the cassette slot as shown in the following figure.

    Attention: Ensure proper alignment when you insert a PCI adapter cassette into the system. When you work with PCI slot C6, take extra care to ensure that the vertical alignment of the cassette is correct to prevent the tab located on the front of the cassette from contacting with the I/O backplane assembly.
34. 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.

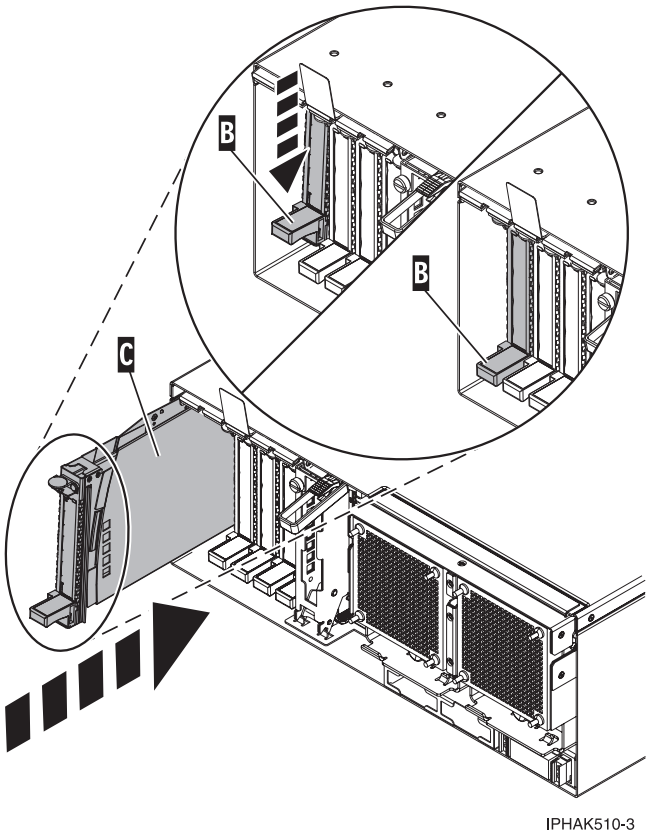


Figure 100. PCI adapter cassette removed from the system unit

35. Connect the adapter cables.
36. Lower the PCI adapter EMC shield **(A)** into the closed position, close the shield latch, then close the rear rack door.

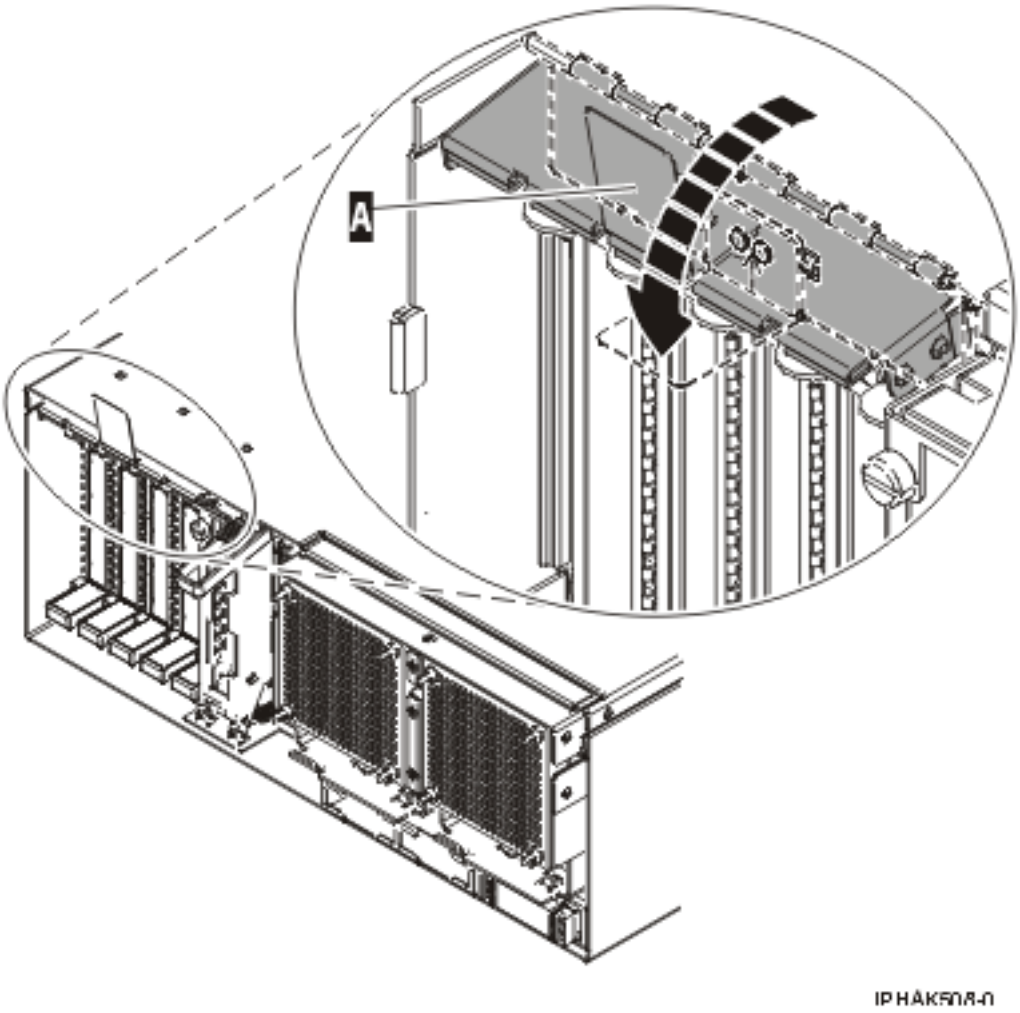


Figure 101. PCI adapter EMC shield in the closed position

37. If you are installing a PCI adapter in a 5790 or 5796 expansion unit, follow these substeps. If not, skip to step 38 on page 144.
    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.

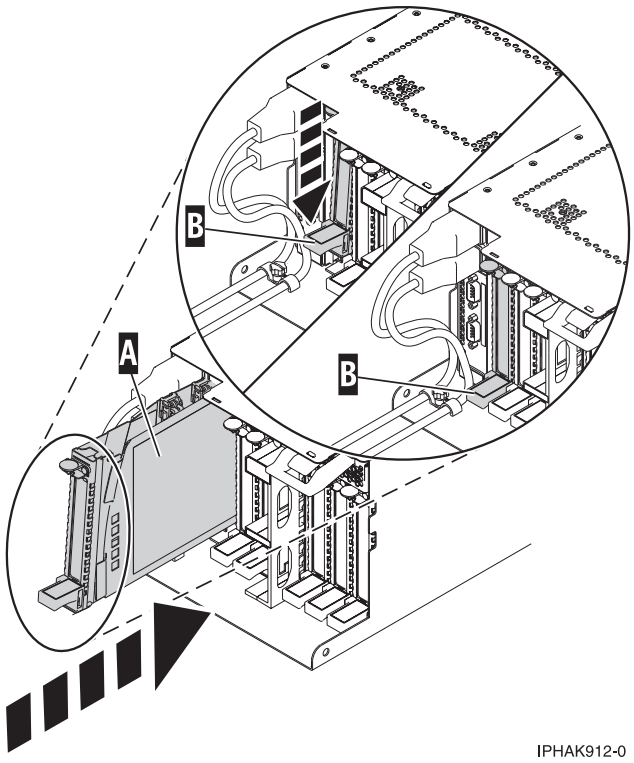


Figure 102. PCI adapter cassette installed in the system unit

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

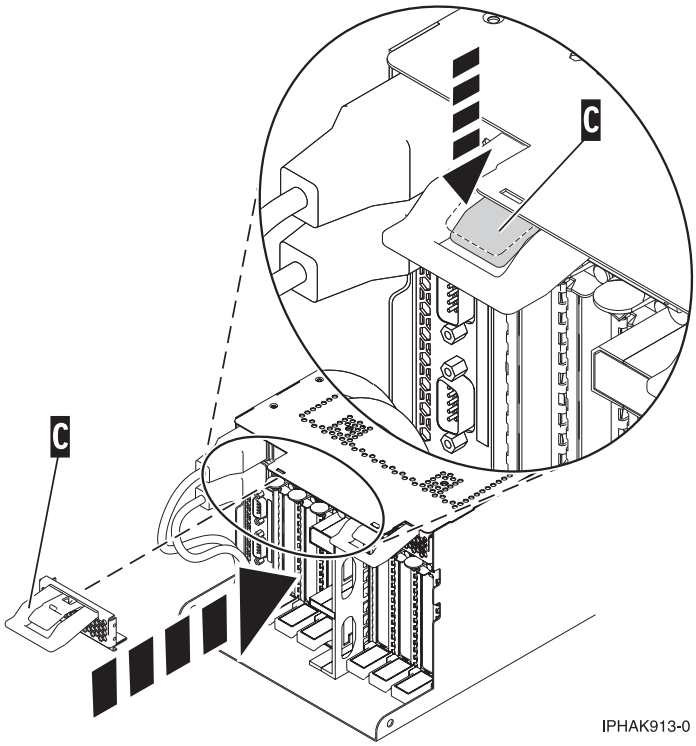


Figure 103. PCI adapter EMC shield in the closed position

38. 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.
39. Press the F3 (or Esc+3) key to return to the **PCI Hot-Plug Manager** menu.
40. Press the F3 (or Esc+3) key to return to the **TASK** selection list.
41. Select **Log Repair Action**.
42. Select the resource just replaced, press Enter, press Commit (F7 or ESC 7), then press Enter.
43. Press F3 (or Esc+3) to return to **TASK Selection List**.
44. Select **Hot Plug Task**, press enter.
45. Select **PCI Hot Plug Manager**, then select **Configure a defined device**, then press Enter.
46. Select the device just replaced from the list, then press Enter. The device is now configured.
47. Press the F10 key to exit the diagnostic program.

    Note: If you are running the stand-alone diagnostics, do not exit the program completely.
48. 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.
49. Press the F10 key to exit the diagnostic program.

Related tasks

"Placing a PCI adapter in a single-width cassette" on page 156
You can place a PCI adapter in a single-width cassette.

"Removing an adapter from the PCI adapter single-width cassette" on page 166
You can remove a PCI adapter from a single-width cassette.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Replacing a PCI adapter contained in a cassette in the system with the power on in IBM i

You can replace a PCI adapter with the system power on in the i operating system.

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 Replacing a part by using the Hardware Management Console. If you do not have an HMC, complete this procedure to replace a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For information about using the SDMC to replace a PCI adapter, see Replacing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to replace a PCI adapter.

Attention: You must have already completed the procedure "Removing a PCI adapter contained in a cassette from the system with the power on in IBM i" on page 117 in order to have the slot powered off.

To replace an adapter, do the following steps:

1. Perform prerequisite tasks as described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. If the adapter needs to be placed in the PCI adapter cassette, see "Placing a PCI adapter in a single-width cassette" on page 156.
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. If you are replacing a PCI adapter in a 5790 or 5796 expansion unit, skip to step 11 on page 148.
7. Lift up the PCI adapter EMC shield **(A)** as shown in Figure 104 and then rotate it up and away from the cassette as shown in Figure 105 on page 146.

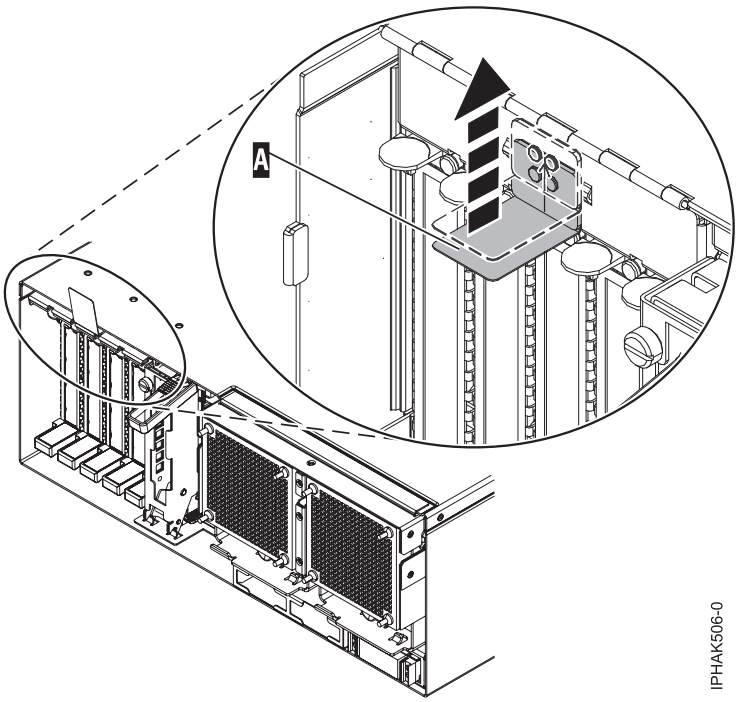


Figure 104. Lift up the EMC shield

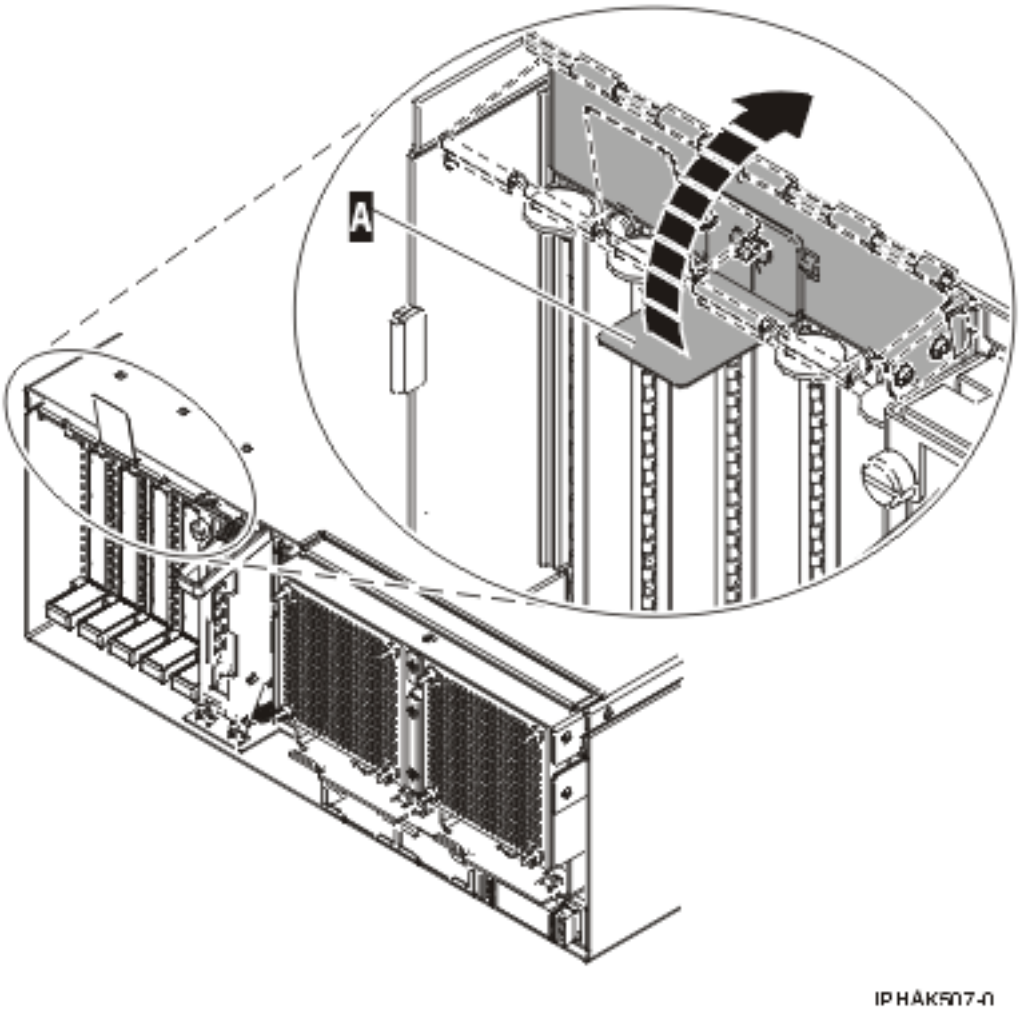


Figure 105. Rotate the EMC shield into the open position

8. Slide the cassette **(C)** into the cassette slot as shown in the following figure.

   Attention: Ensure proper alignment when you insert a PCI adapter cassette into the system. When you work with PCI slot C6, take extra care to ensure that the vertical alignment of the cassette is correct to prevent the tab located on the front of the cassette from contacting with the I/O backplane assembly.
9. 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.

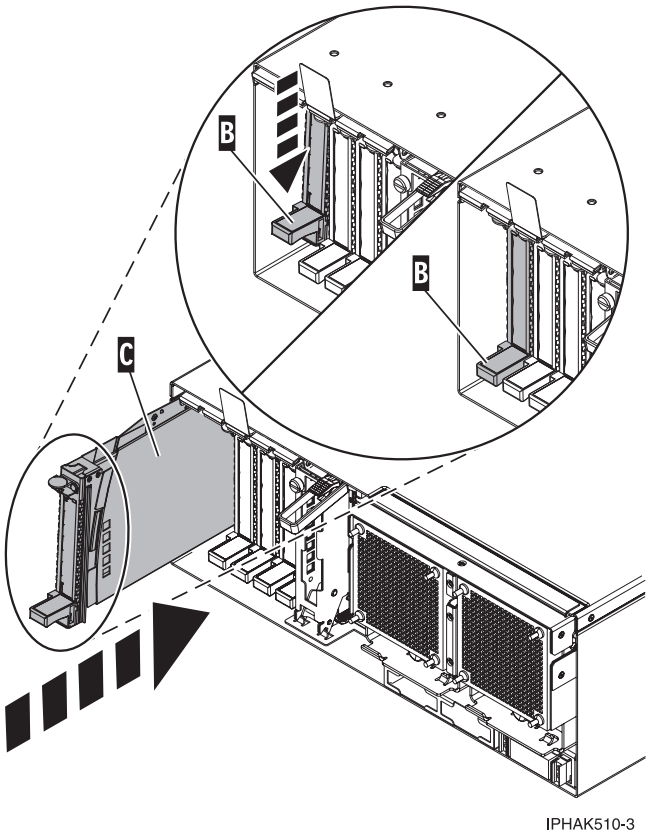


Figure 106. PCI adapter cassette removed from the system unit

10. Lower the PCI adapter EMC shield **(A)** into the closed position, close the shield latch, then close the rear rack door.

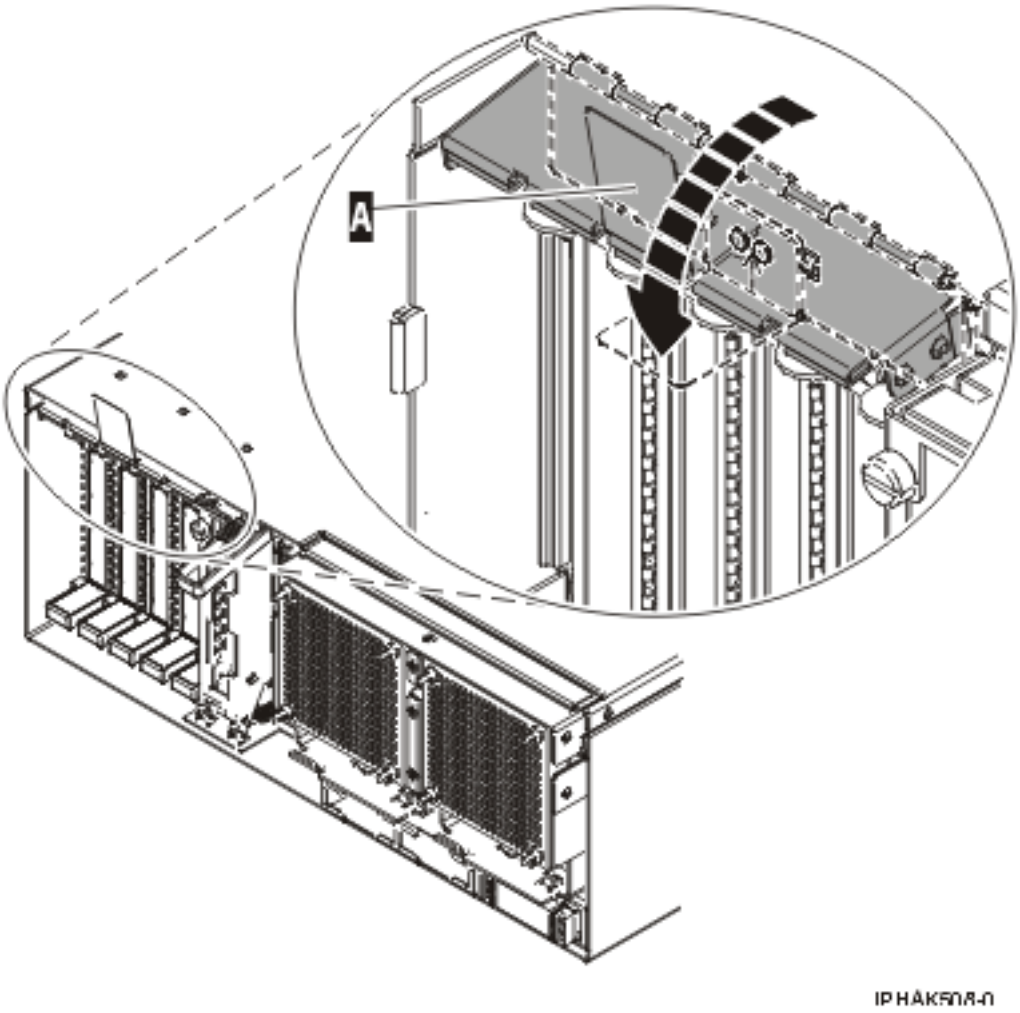


Figure 107. PCI adapter EMC shield in the closed position

11. If you are replacing a PCI adapter in a 5790 or 5796 expansion unit, follow these substeps. If not, go to step 12 on page 151.
    a. Remove the PCI adapter EMC shield **(A)** as shown in the following figure.

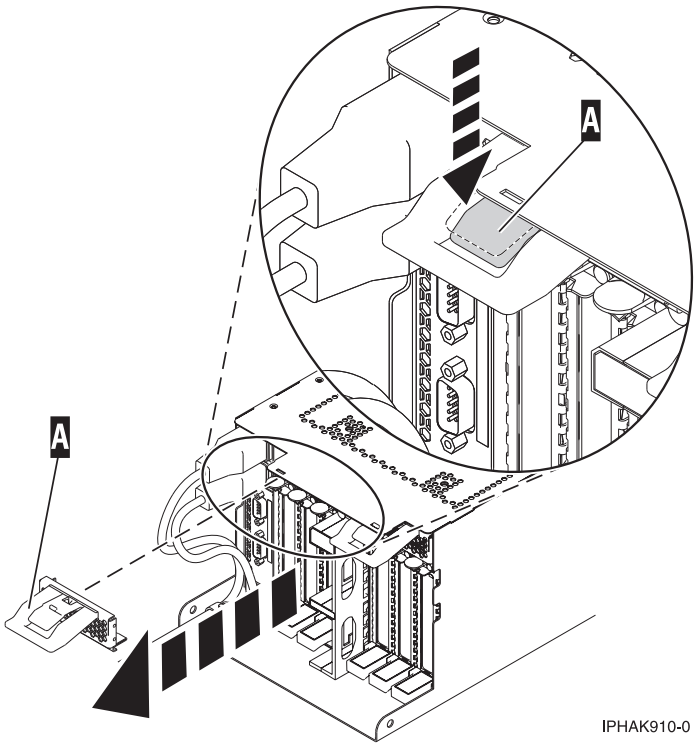


Figure 108. Remove the EMC shield

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.

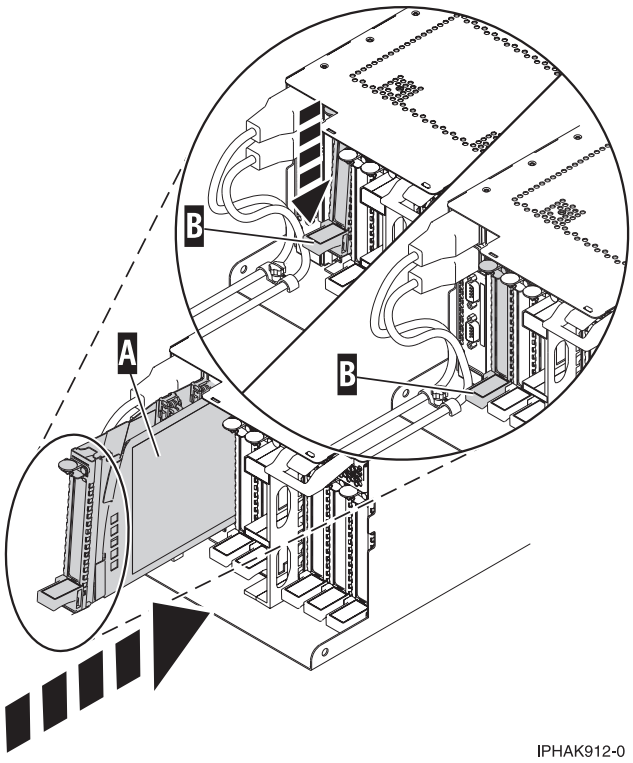


Figure 109. PCI adapter cassette installed in the system unit

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

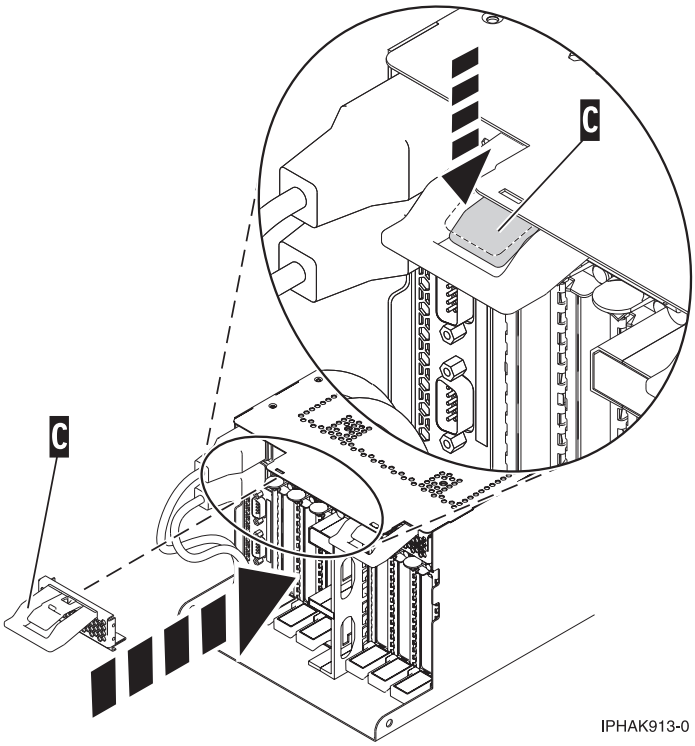


Figure 110. PCI adapter EMC shield in the closed position

12. Select **Power on domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
13. Select **Assign to** on the resource that has an asterisk (*) on the Work with Controlling Resource display. Press Enter.
14. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:
    ```
    Power on complete
    ```
15. Verify that the new resource is functional. See Verify the installed part.

Related tasks

"Placing a PCI adapter in a single-width cassette" on page 156
You can place a PCI adapter in a single-width cassette.

"Removing an adapter from the PCI adapter single-width cassette" on page 166
You can remove a PCI adapter from a single-width cassette.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

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

You can replace a PCI adapter.

You must have already completed the procedure "Removing a PCI adapter contained in a cassette from the system with the power on in Linux" on page 122 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 Linux" on page 122 and "Installing a PCI adapter contained in a cassette with the power on in Linux" on page 97.

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 Replacing a part by using the Hardware Management Console. If you do not have an HMC, complete this procedure to replace a PCI adapter.

If your system is managed by the IBM Systems Director Management Console (SDMC), use the SDMC to replace the PCI adapter in the server. For information about using the SDMC to replace a PCI adapter, see Replacing a part by using the Systems Director Management Console. If you do not have an SDMC, complete this procedure to replace a PCI adapter.

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

1. Perform prerequisite tasks as described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. If the adapter needs to be placed in the PCI adapter cassette, see "Placing a PCI adapter in a single-width cassette" on page 156.
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 drslot_chrp_pci 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:
   ```
   drslot_chrp_pci -R -s U7879.001.DQD014E-P1-C3
   ```
   Follow the instructions on the display to complete the task.

7. If you are replacing a PCI adapter in a 5790 or 5796 expansion unit, skip to step 12 on page 153.
8. When you are instructed to insert the adapter in the adapter slot, lift and hold the PCI adapter EMC shield **(A)** in the open position. See Figure 71 on page 107.
9. Slide the cassette **(C)** into the cassette slot as shown in the following figure.

   Attention: Ensure proper alignment when you insert a PCI adapter cassette into the system. When you work with PCI slot C6, take extra care to ensure that the vertical alignment of the cassette is correct to prevent the tab located on the front of the cassette from contacting with the I/O backplane assembly.
10. 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.

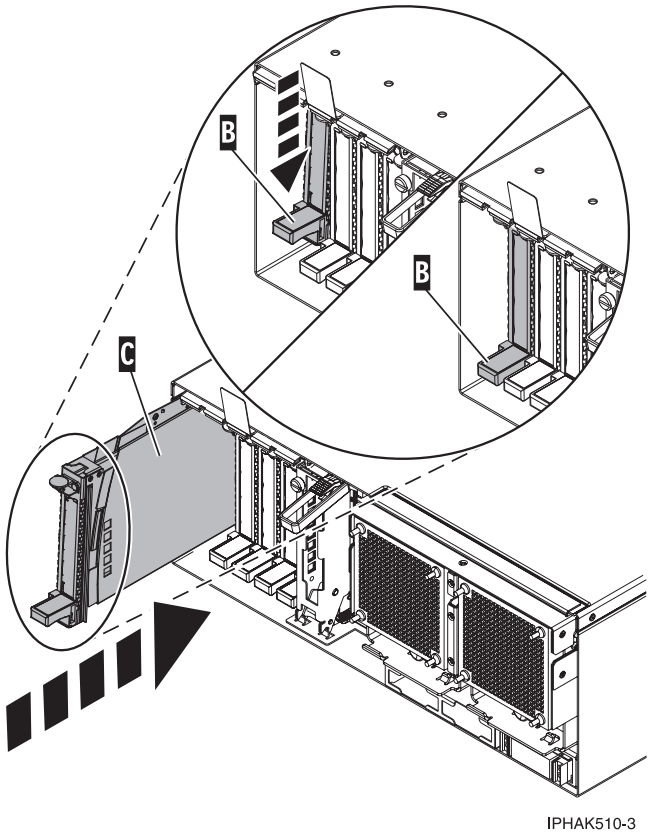


Figure 111. PCI adapter cassette removed from the system unit

11. Lower the PCI adapter EMC shield **(A)** into the closed position, close the shield latch, then close the rear rack door.

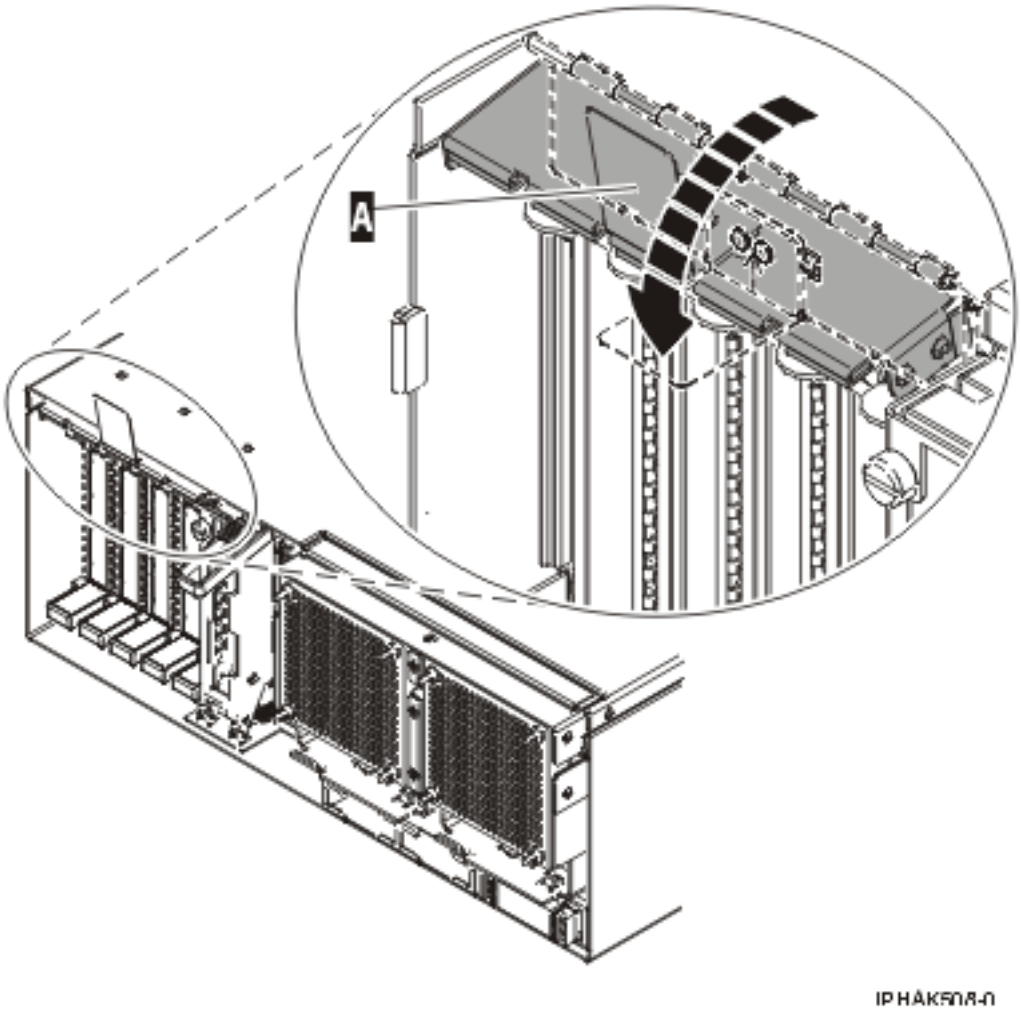


Figure 112. PCI adapter EMC shield in the closed position

12. If you are replacing a PCI adapter in a 5790 or 5796 expansion unit, follow these substeps. If not, go to step 13 on page 156.
    a. Remove the PCI adapter EMC shield **(A)** as shown in the following figure.

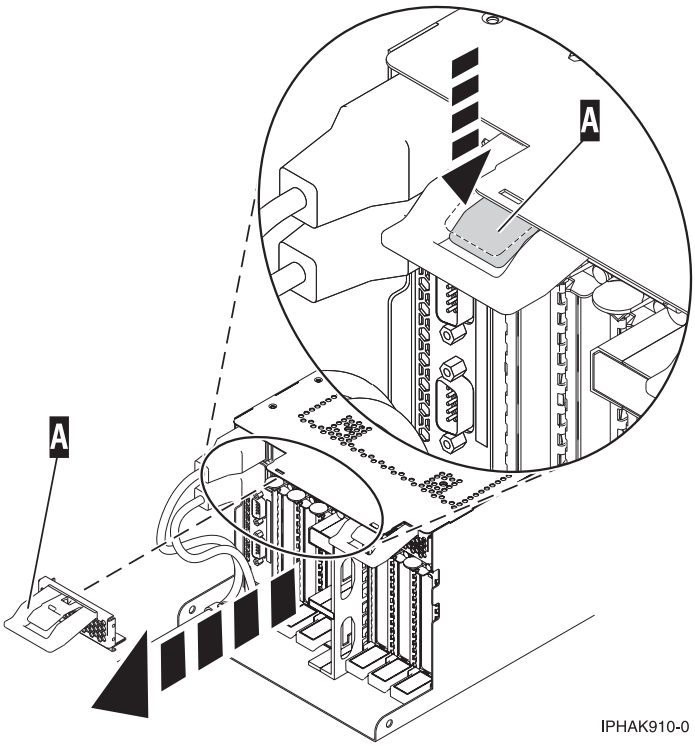


Figure 113. Remove the EMC shield

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.

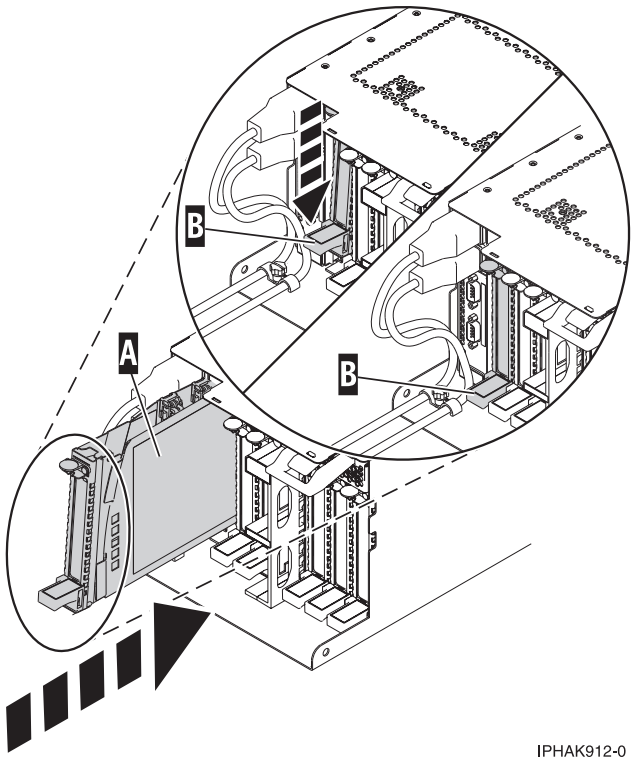


Figure 114. PCI adapter cassette installed in the system unit

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

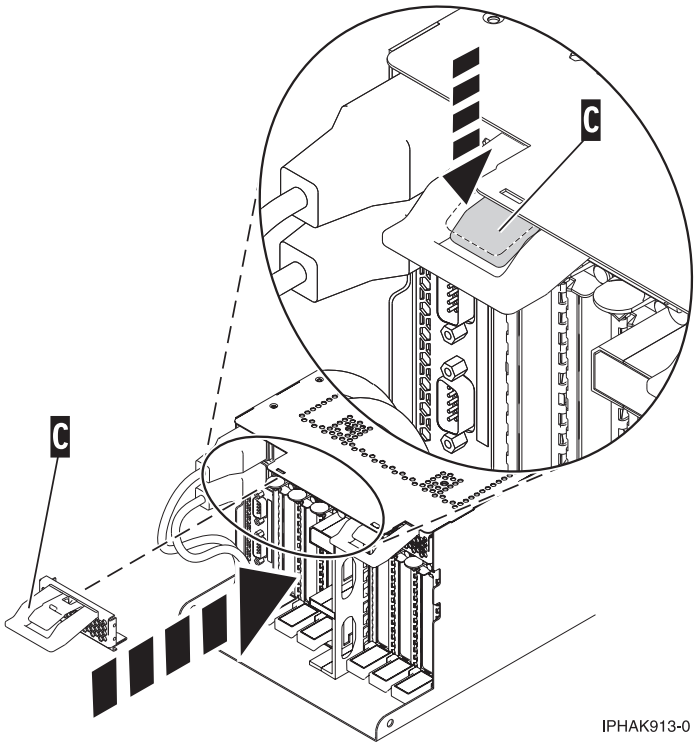


Figure 115. PCI adapter EMC shield in the closed position

13. 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
```

Related tasks

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

“Removing an adapter from the PCI adapter single-width cassette” on page 166
You can remove a PCI adapter from a single-width cassette.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

PCI adapter single-width 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.

Related tasks

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

“Removing an adapter from the PCI adapter single-width cassette” on page 166
You can remove a PCI adapter from a single-width cassette.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Placing a PCI adapter in a single-width cassette

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

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

1. Perform the prerequisite tasks described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
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.

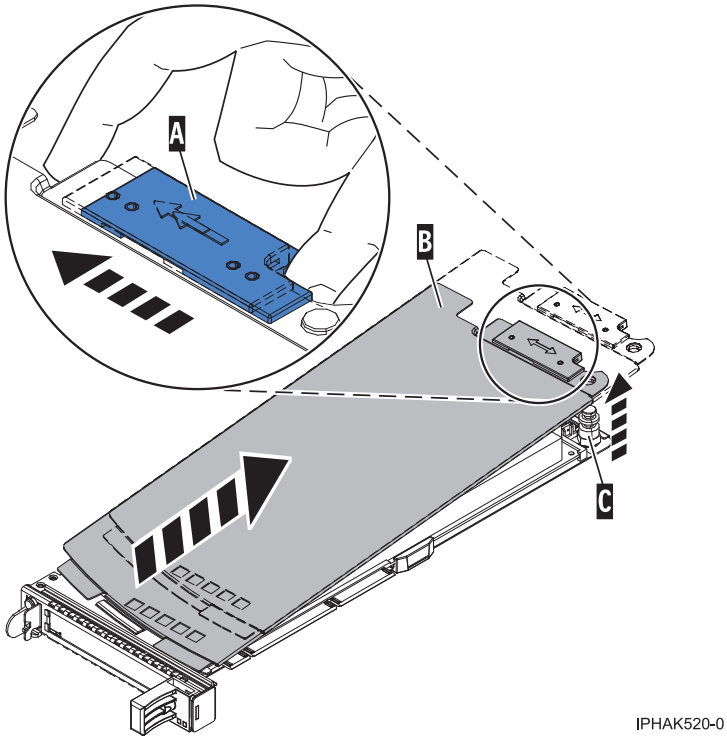


Figure 116. PCI adapter single-width cassette cover removed

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 cassette" on page 166.
      - 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 117 on page 158.

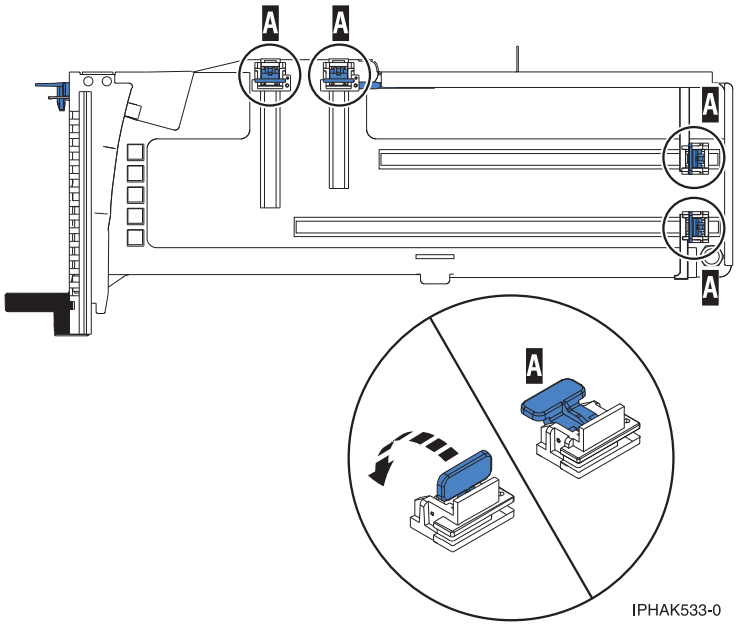


Figure 117. Adapter retainers

c. Rotate the tailstock clamp into the open position.

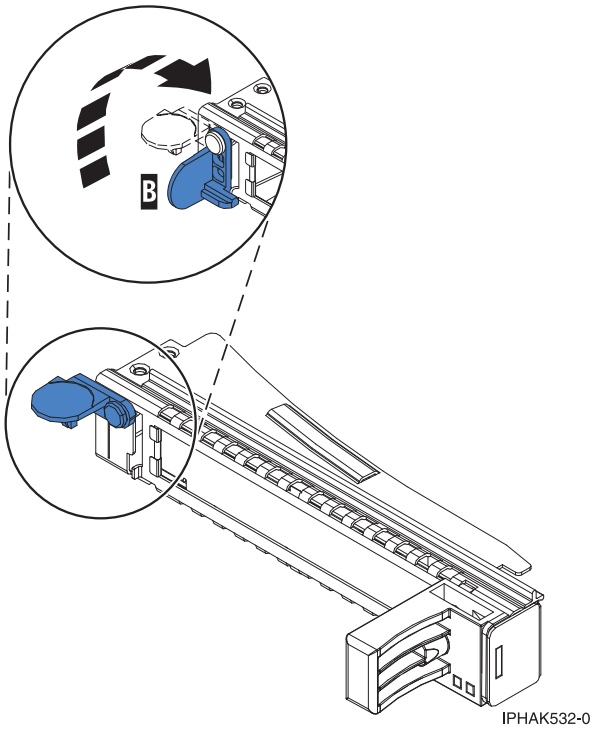


Figure 118. Tailstock clamp in the open position

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 119 on page 159.
   b. Rotate the adapter toward the top of the cassette and into place.

c. Close the tailstock clamp **(B)**. See Figure 119.

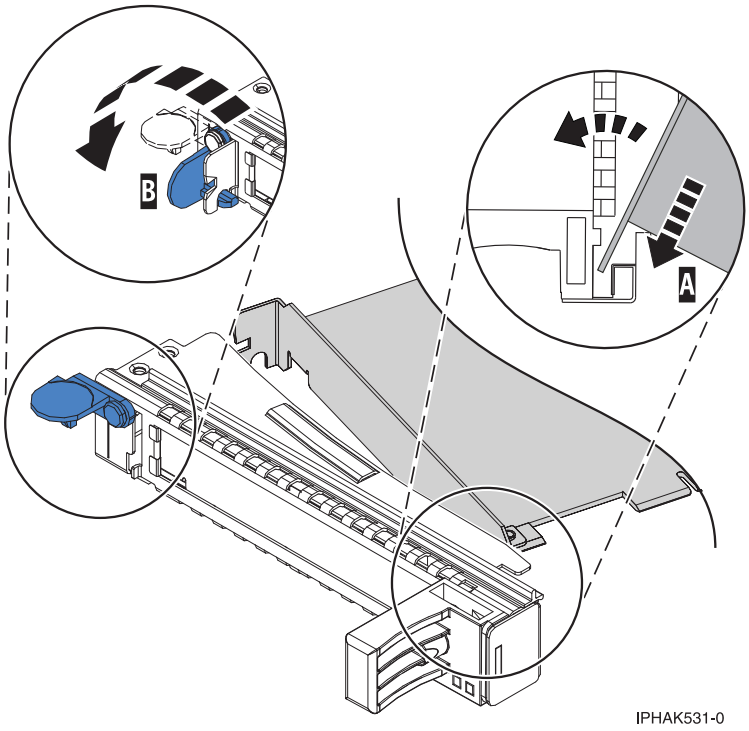


Figure 119. Adapter removed from the PCI adapter single-width cassette

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

Note:

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 120 on page 160.

      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.

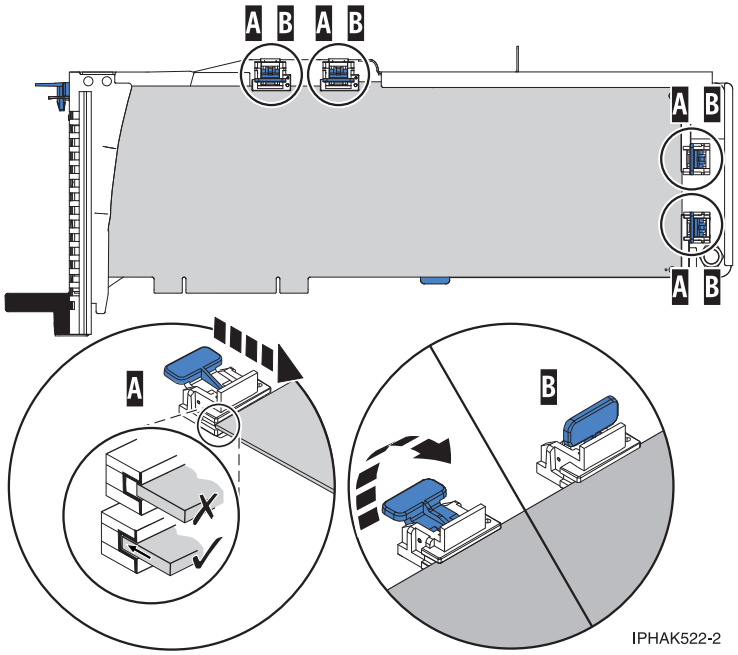


Figure 120. Large adapter in the PCI adapter cassette with the supports and stabilizer in place

Adapter-cassette retainer placement for medium-length adapters

a) Remove the adapter stabilizer **(C)**. See Figure 121 on page 161.

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.

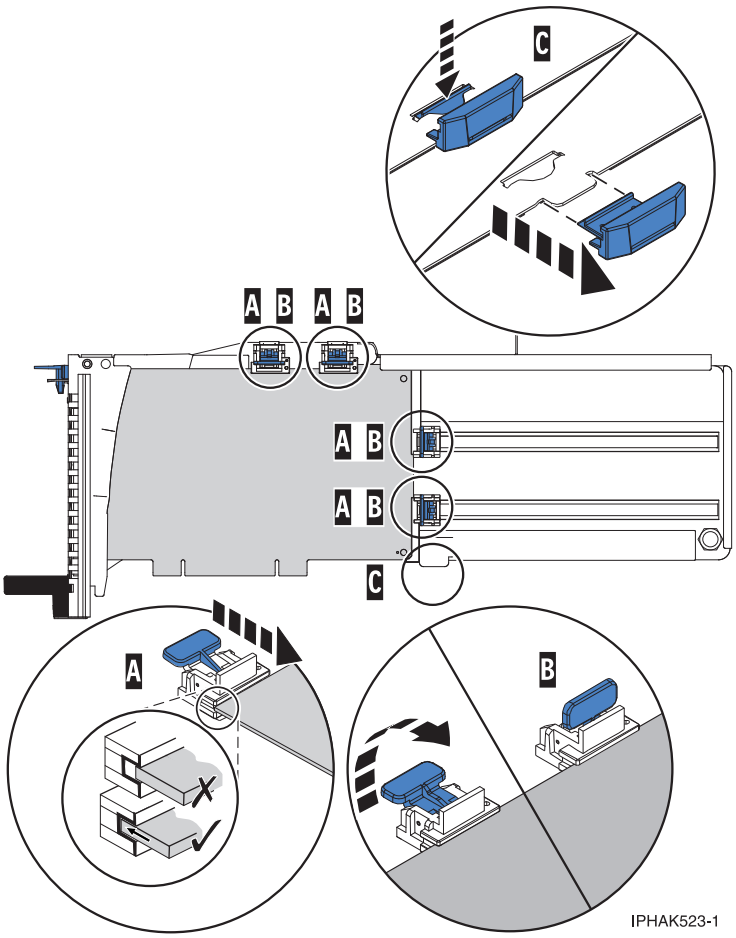


Figure 121. Medium-length adapter in the PCI adapter cassette with the supports in place

Adapter-cassette retainer placement for small adapters

a) Remove the adapter stabilizer **(C)**. See Figure 122 on page 162.

b) 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.

c) Place and lock the retainers **(B)**.

d) 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.

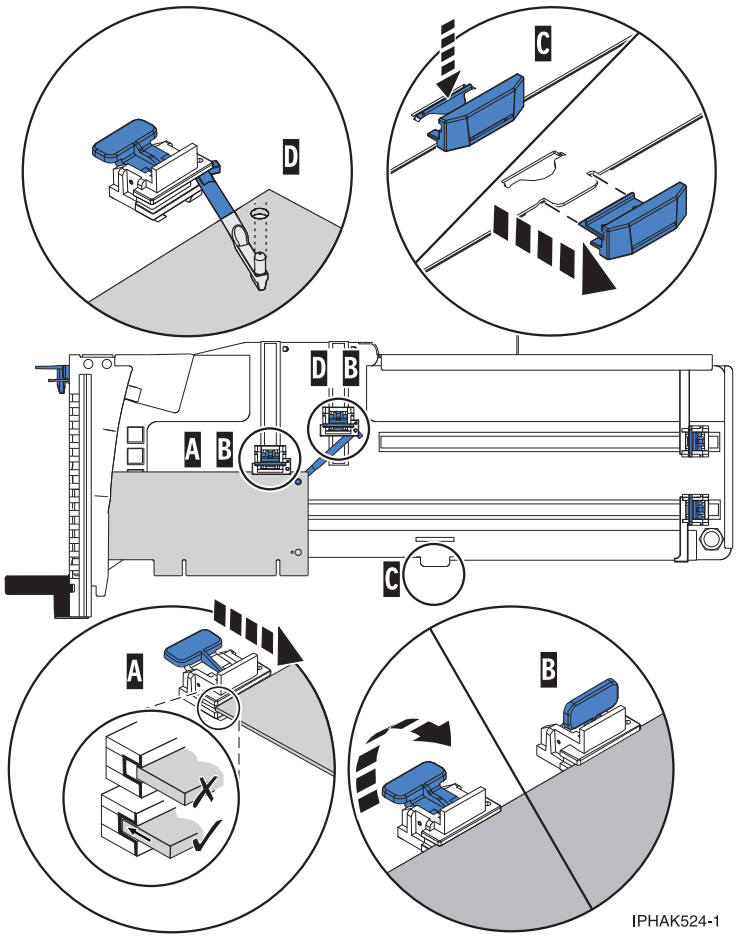


Figure 122. Small adapter in the PCI adapter cassette with the supports and the hookarm in place

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.

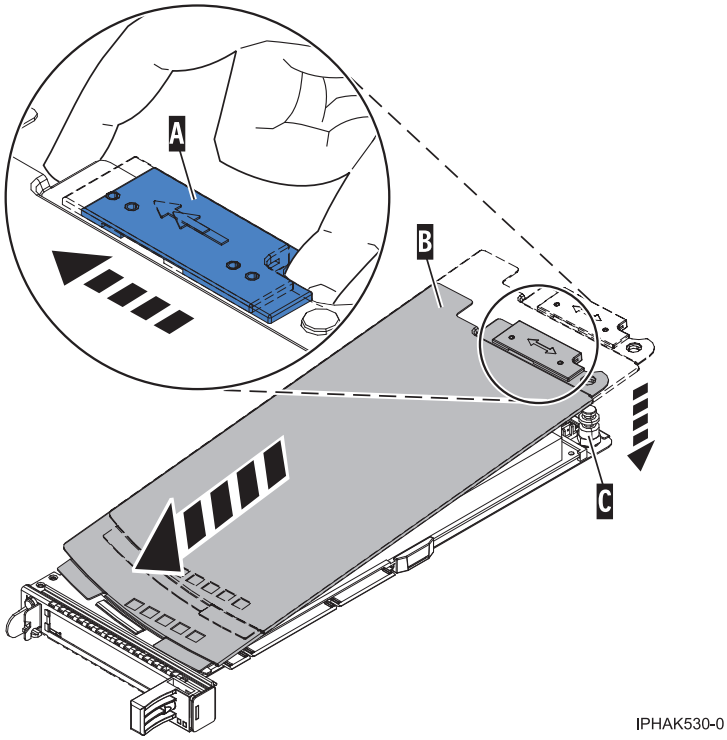


Figure 123. PCI adapter cassette cover replaced

Related tasks

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

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

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

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

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. Remove the cassette from the system. See "Removing a PCI adapter contained in a cassette from the system" on page 106.
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.

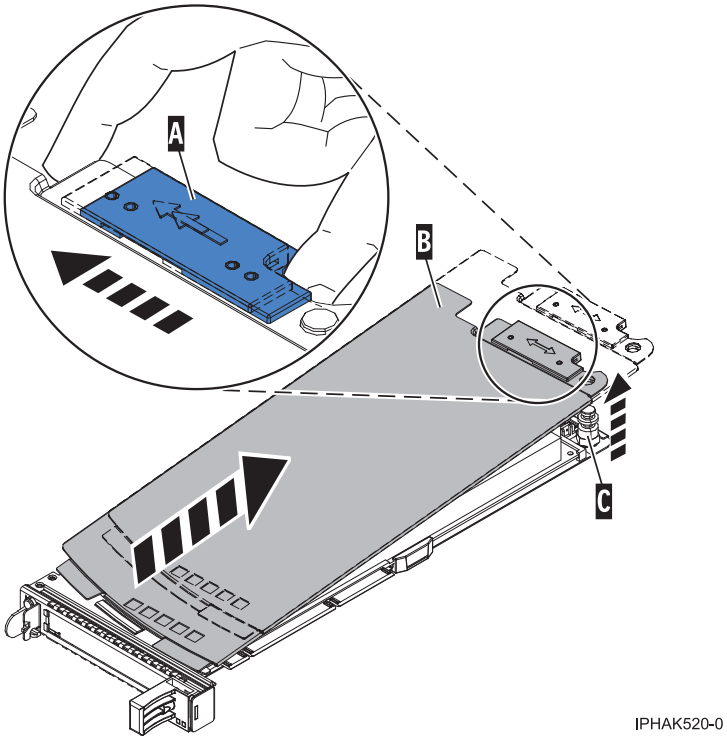


Figure 124. PCI adapter single-width cassette cover removed

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 125 on page 165.
   b. Rotate the adapter toward the top of the cassette and into place.
   c. Close the tailstock clamp **(B)**. See Figure 125 on page 165.

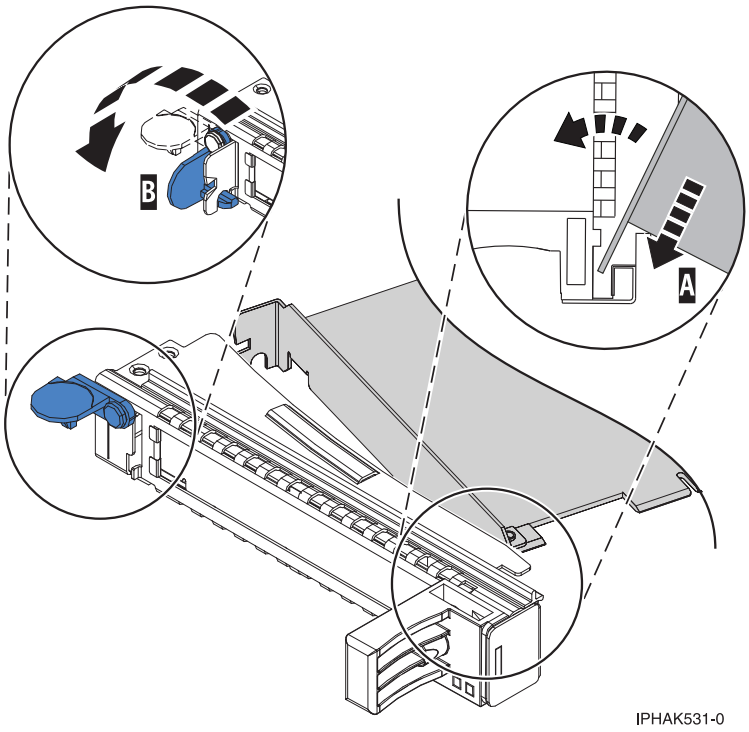


Figure 125. Placing the PCI adapter single-width cassette

d. Position the adapter retainer to support the adapter.

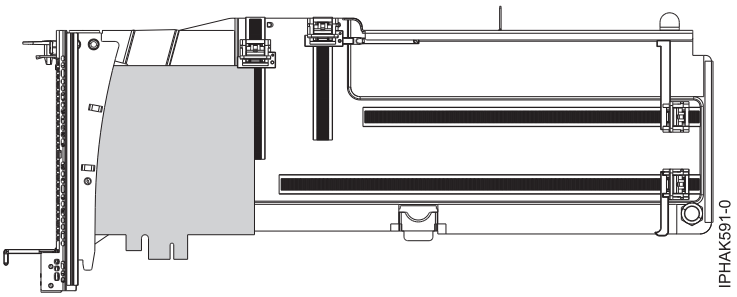


Figure 126. Side view of adapter in cassette

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.

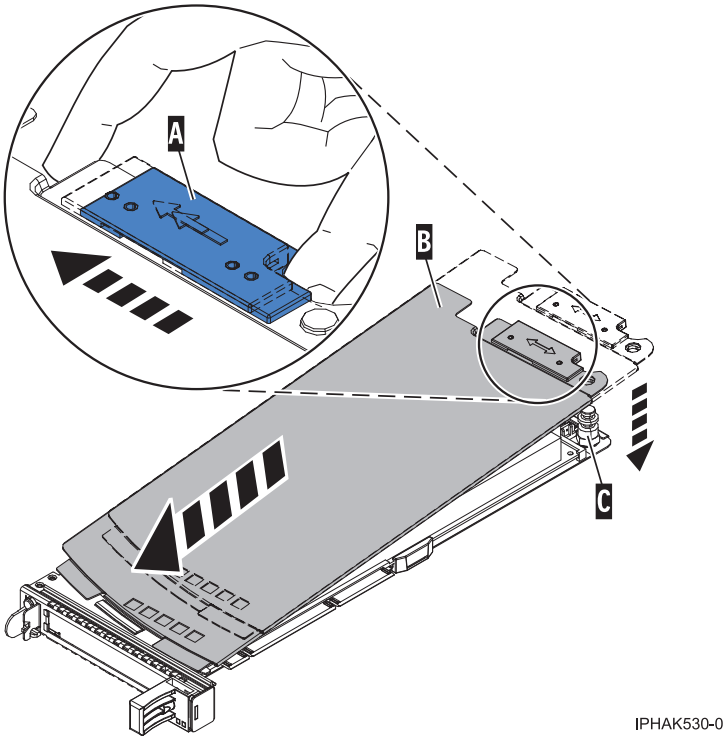


Figure 127. PCI adapter cassette cover replaced

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

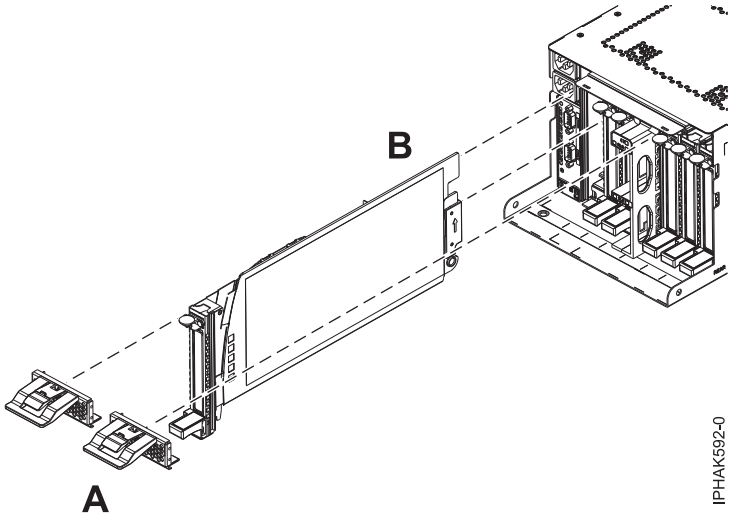


Figure 128. Replace the cassette and install the EMC grill

Related information

4-Port USB PCI Express Adapter (FC 2728; CCIN 57D1)

Removing an adapter from the PCI adapter single-width cassette

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

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

1. Perform the prerequisite tasks described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
3. Remove the cassette from the system. See “Removing a PCI adapter contained in a cassette from the system” on page 106.
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.

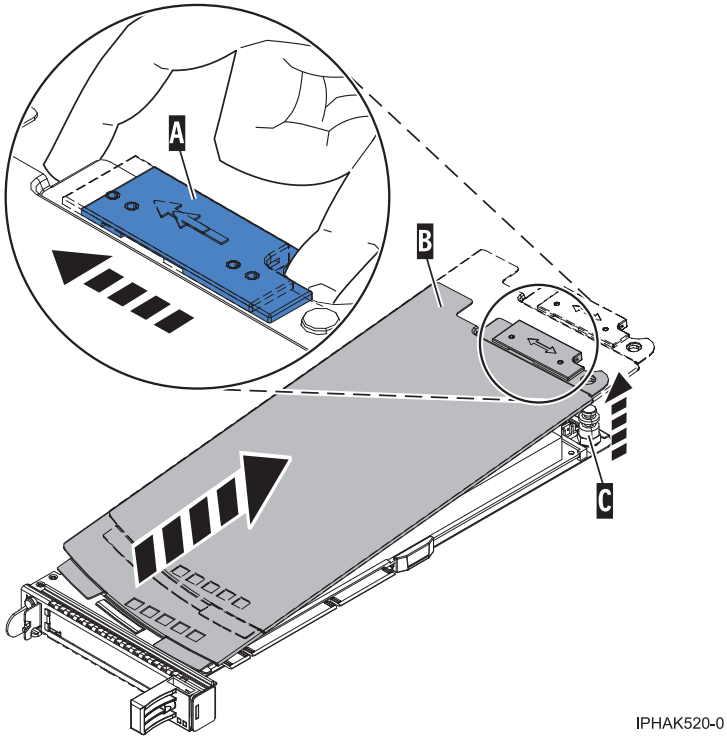


Figure 129. PCI adapter cassette cover removed

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 130 on page 168.

      Note:

      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.

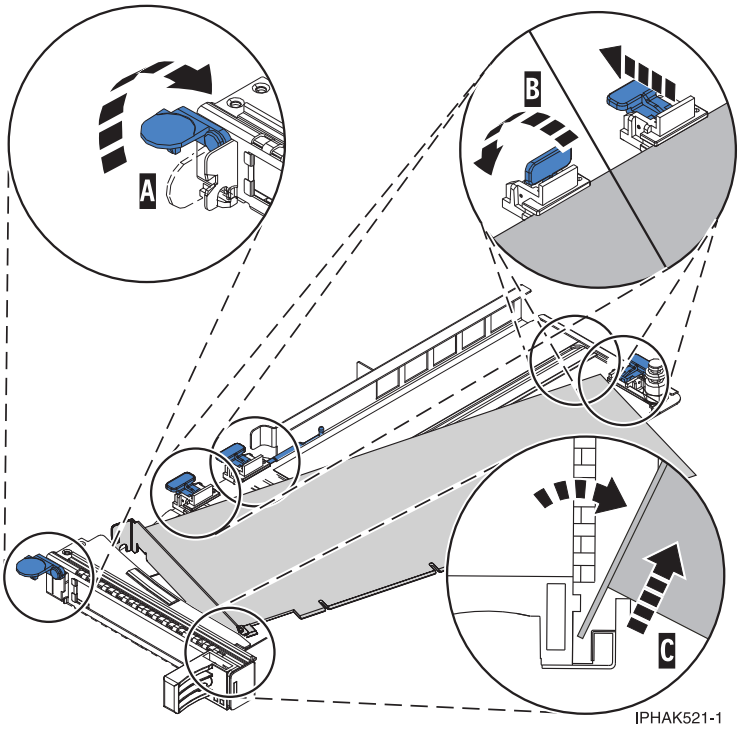


Figure 130. Adapter removed from the PCI adapter cassette

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 156.
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.

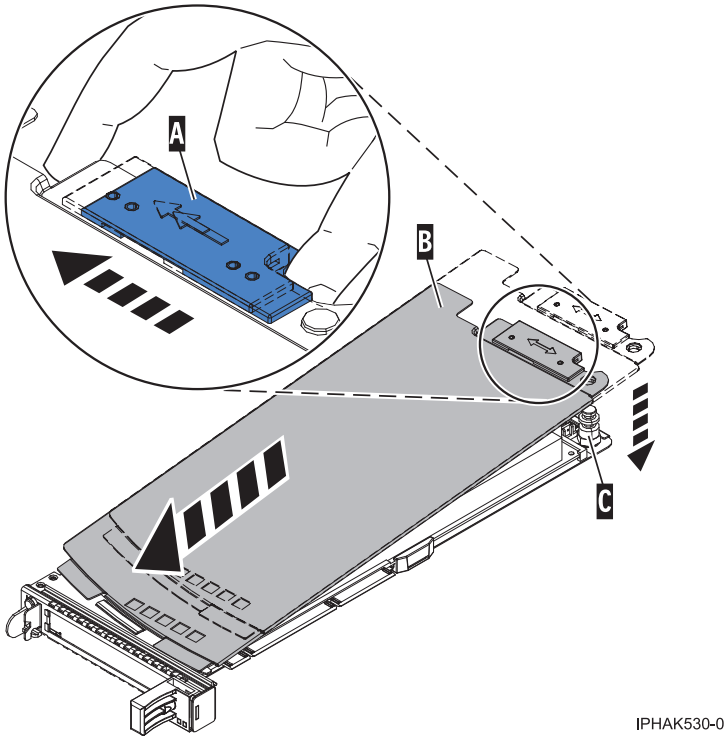


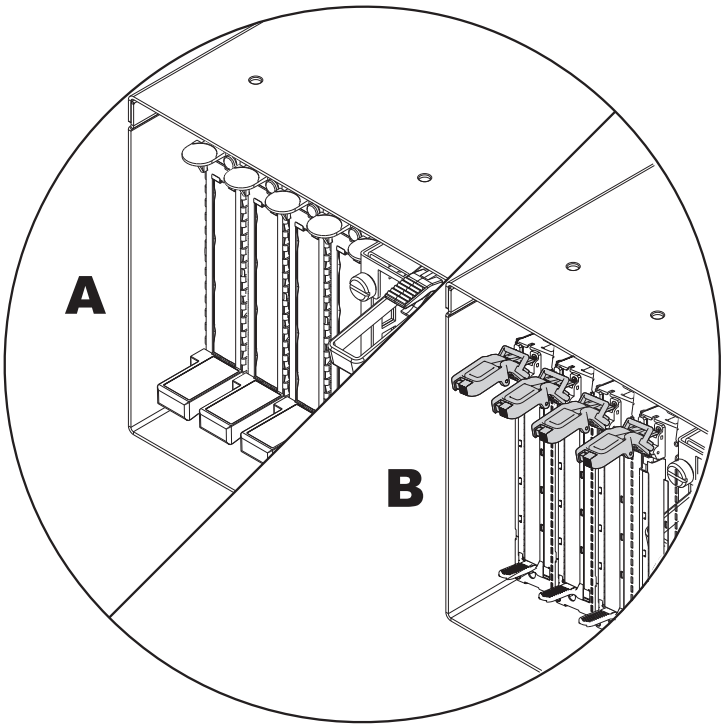
Figure 131. PCI adapter cassette cover replaced

PCI adapter single-width, first and second generation cassettes

You might need to remove, replace, or install PCI adapters in a single-width, generation 1, generation 2, or generation 2.5 cassette.

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

Use the following graphic to determine your PCI cassette generation.



A Generation 3 or higher. Use the procedures in the topic "PCI adapter single-width cassette" on page 156.

B Generation 2.5 or earlier. Use the following procedures.

Related tasks

"Placing a PCI adapter in a single-width cassette" on page 156
You can place a PCI adapter in a single-width cassette.

"Removing an adapter from the PCI adapter single-width cassette" on page 166
You can remove a PCI adapter from a single-width cassette.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

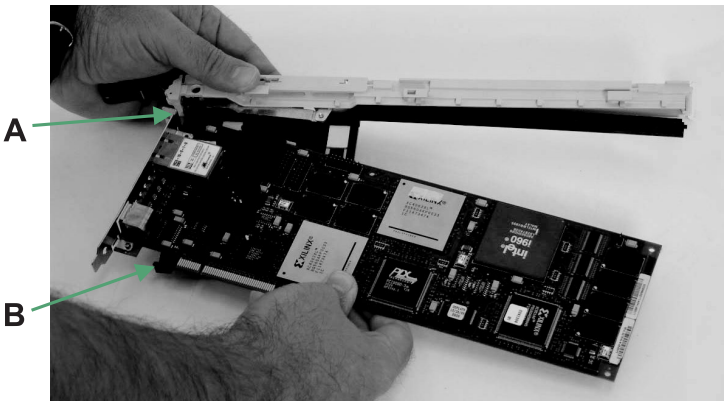
Placing a PCI adapter in a single-width, first or second generation cassette

You can place a PCI adapter in a single-width, generation 1, generation 2, or generation 2.5 cassette. cassette. Use the procedure in this topic to perform this task.

Prerequisite: This procedure begins where "Removing an adapter from the PCI adapter single-width, first or second generation cassette" on page 176 ends.

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

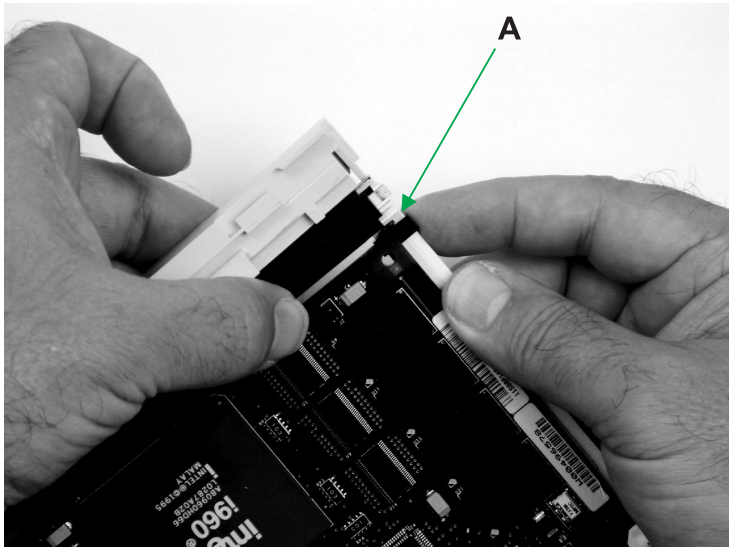
1. Select the PCI adapter type:
   - If you are placing a large adapter, go to step 2.
   - If you are placing a small adapter, go to step 4 on page 171.
2. Install a large adapter in the cassette.



a. Place the adapter into the cassette so that the upper-left corner of the adapter engages the adjustable top adapter retaining clip **A**.
b. Rotate the adapter so that the adapter engages the slot in the bottom adapter retaining clip **B** and the top corner of the adapter is seated into the adjustable top adapter retaining clip.

   If the adapter is not a full-height adapter, you must slide the adjustable top adapter-retaining clip downward until the lower edge of the adapter is seated into the slot on the bottom adapter-retaining clip.

3. Slide the adapter arms toward the large adapter.

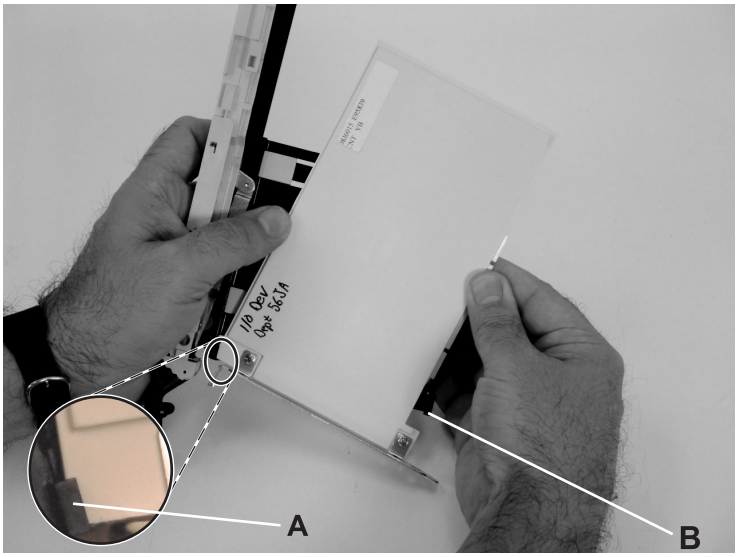


a. Slide the large adapter retaining arm **A** toward the adapter on the cassette linkage rail.
b. Make sure that the top adapter retaining clip holds the top-right corner of the adapter.
c. Make sure that the bottom adapter retaining clip holds the bottom-right corner of the adapter.

   It might be necessary to apply pressure to engage and hold the bottom of the adapter.

d. To ensure that the adapter is secure, slide the large adapter retaining arm closer to the adapter (as needed), until the adapter is firmly held in place.
e. Go to step 6 on page 172.

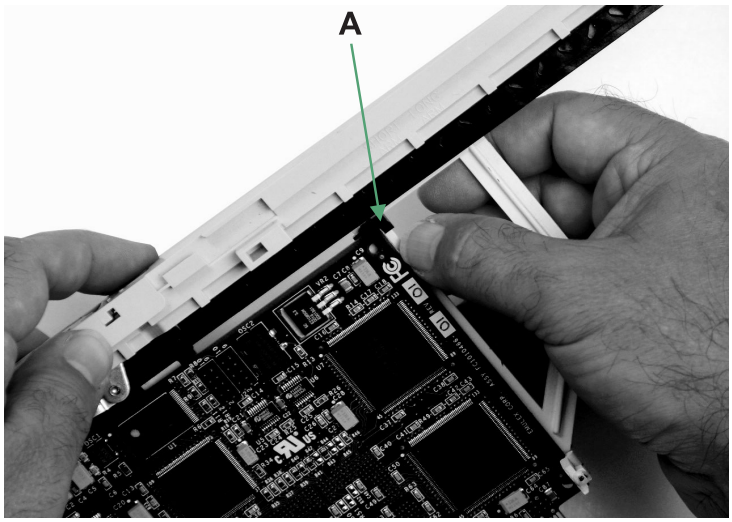
4. Install a small adapter in the cassette.



a. Place the adapter into the cassette so that the upper-left corner of the adapter engages the adjustable top adapter retaining clip **A**.
b. Rotate the adapter so that the adapter engages the slot in the bottom adapter retaining clip **B** and the top corner of the adapter is seated into the adjustable top adapter retaining clip.

   If the adapter is not a full-height adapter, you must slide the adjustable top adapter-retaining clip downward until the lower edge of the adapter is seated into the slot on the bottom adapter-retaining clip.

5. Slide the adapter arms toward the small adapter.



a. Slide the small adapter retaining arm **A** toward the adapter on the cassette linkage rail.
b. Make sure that the top adapter retaining clip holds the top right corner of the adapter.
c. Make sure that the bottom adapter retaining clip holds the bottom right corner of the adapter.

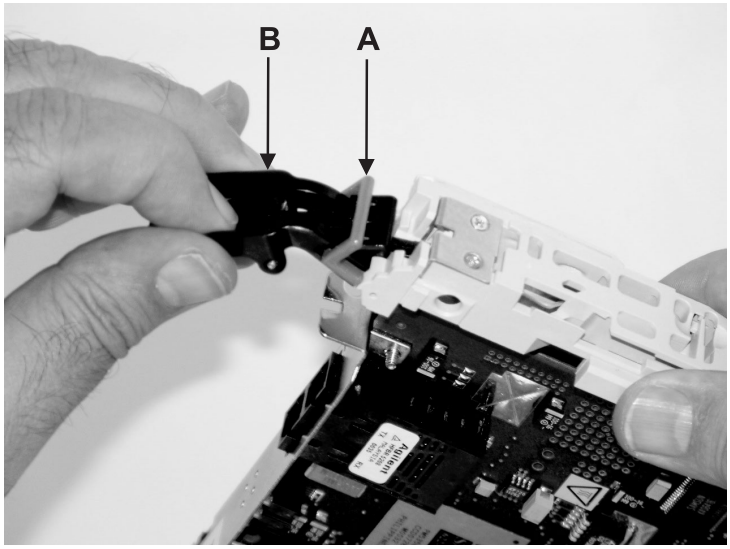
   It might be necessary to apply pressure to engage and hold the bottom of the adapter.

d. To ensure that the adapter is secure, slide the small adapter retaining arm closer to the adapter (as needed), until the adapter is firmly held in place.

6. Install the EMC shield.

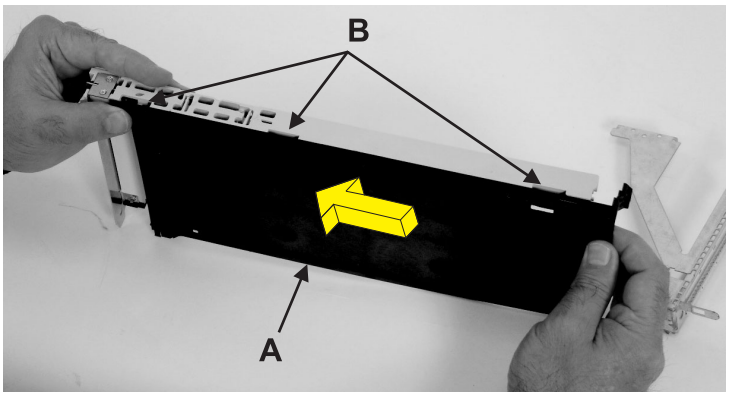
Install the metal EMC shield **A** to the top of the tailstock.

7. Lock the handle.



a. Lower the lever **B** on the cassette linkage assembly until it moves into the down position (the adapter or blank filler should move up into the cassette assembly).
b. Push on both sides of the gray plastic locking bar **A** to ensure that the handle is pushed into the locked position.

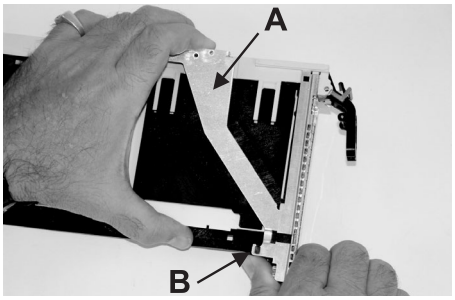
8. Install the cover.

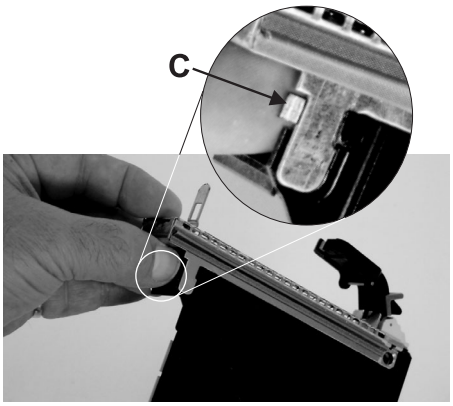


a. Position the adapter and cassette assembly with the handle on the left (in the down position) and the top facing away from you.
b. Place the cover **A** on the cassette assembly and align the tabs on the cover with the holes **B** in the assembly.
c. Slide the cover toward the handle until the hole in the cover aligns with the hole in the cassette assembly.

   The cover might be difficult to slide. If you grasp the left end (handle end) of the cassette and the right end of the cover, you can use enough force to push the cover onto the PCI adapter cassette assembly.

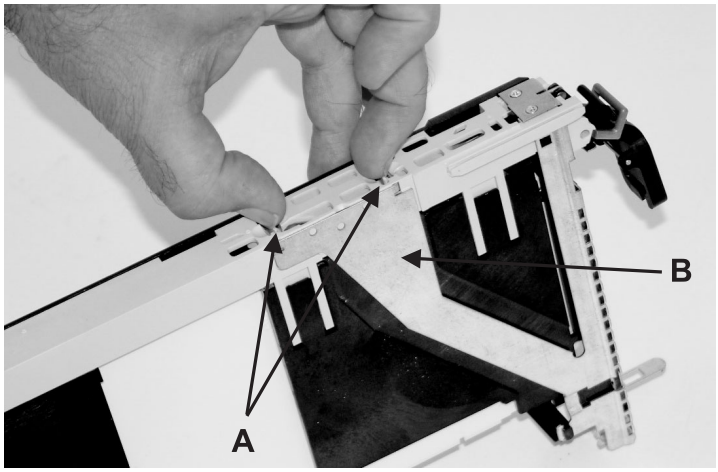
9. Slide on the bezel and latch it.





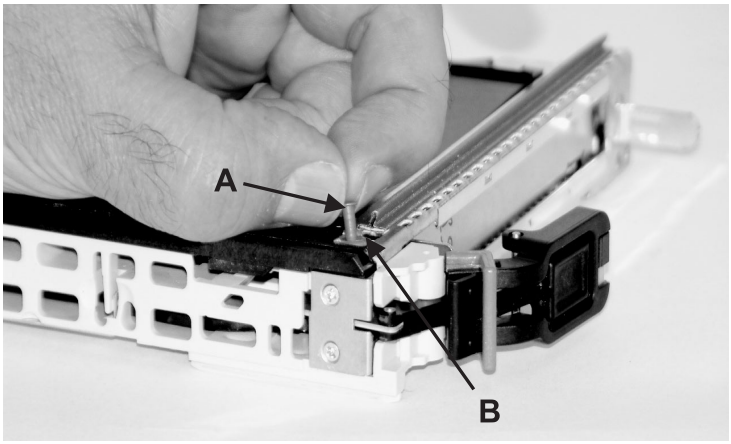
a. Turn over the cassette so the cover side is down.
b. While holding the bezel extension **A** out, slide the bezel onto the cassette assembly.
c. Push the plastic cover arm latch **B** in the bezel hook.
d. Turn over the cassette so the cover side is facing up.
e. Push the cover tab **C** up to ensure that it is holding the bezel to the cover.

10. Lock the bezel.



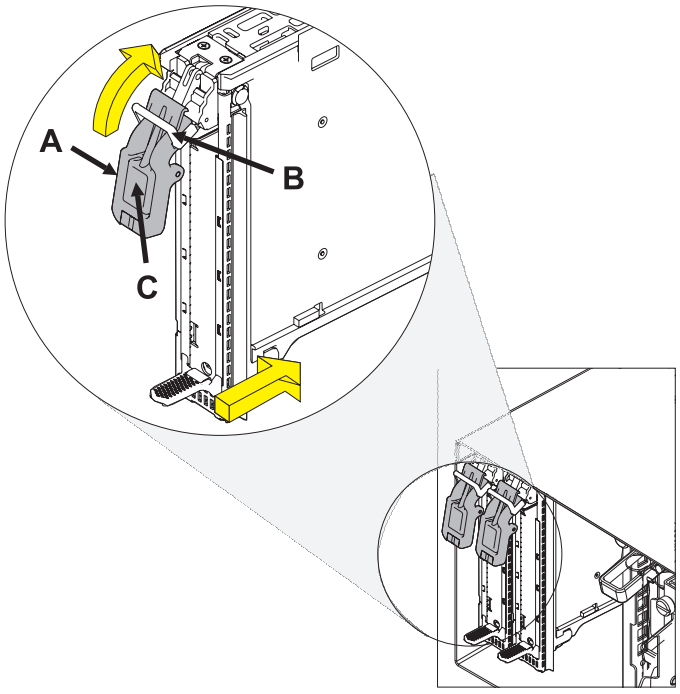
   a. Push the top part of the bezel extension **B** down until the metal tabs lock into the slots in the PCI adapter cassette assembly.
   b. Make sure that the extension arm engages the pins **A** on the cassette assembly. (You should be able to see the pins in the holes in the arm).

11. Install the bushing-lock pin and bushing.



   a. Turn over the cassette so the cover side is up and the top of the adapter is facing you.
   b. Install the bushing **B** in the PCI adapter cassette assembly by pressing it into the cassette assembly hole.
   c. Install the lock pin **A** in the bushing by pressing it into the hole in the bushing.

12. Install the PCI adapter cassette.



a. Before installing the PCI adapter cassette, make sure the lever **A** is down.
b. Push the locking bar **B** upward into the locked position.
c. Slide the PCI adapter cassette all the way into the assembly.
d. Press the tab **C** to unlock the locking bar.
e. Rotate the lever **A** up to install it in the slot.

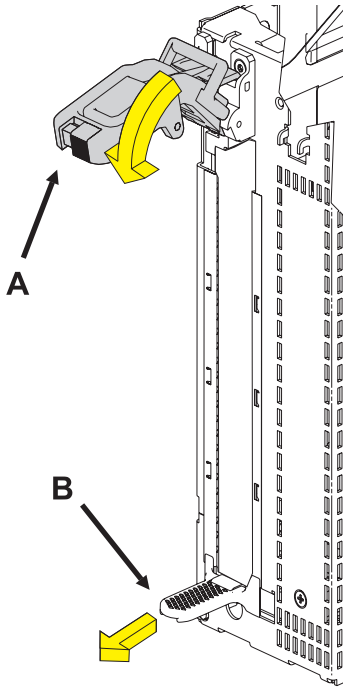
Removing an adapter from the PCI adapter single-width, first or second generation cassette

You can remove a PCI adapter in a single-width, generation 1, generation 2, or generation 2.5 cassette. Use the procedure in this topic to perform this task.

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

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

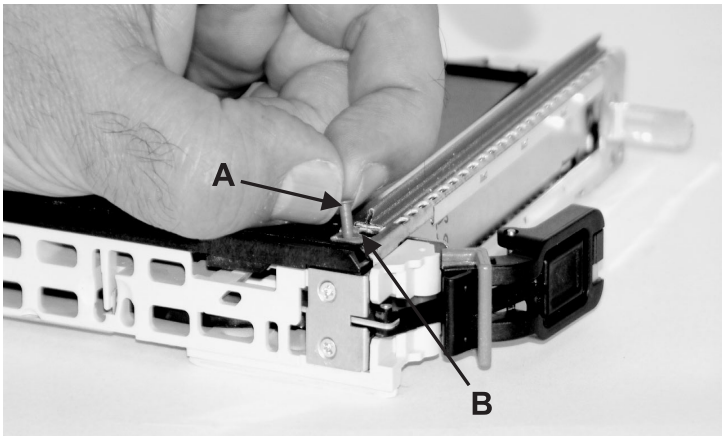
1. Remove the cassette from the system unit.



Follow these steps:

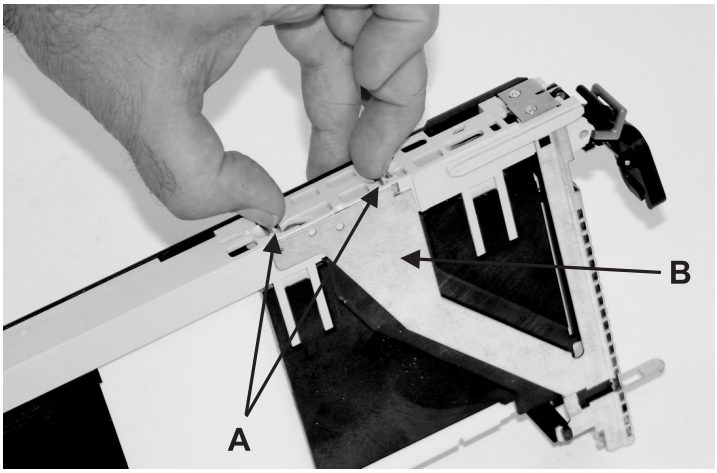
a. Perform the prerequisite tasks described in “Before you begin” on page 288.
b. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
c. Push the lever **(A)** down to unlock the PCI adapter cassette.
d. Lift the lower tab **(B)** and pull the PCI adapter cassette out of the assembly.
e. Set the cassette aside with the cover facing up.

2. Remove the bushing-lock pin and bushing.

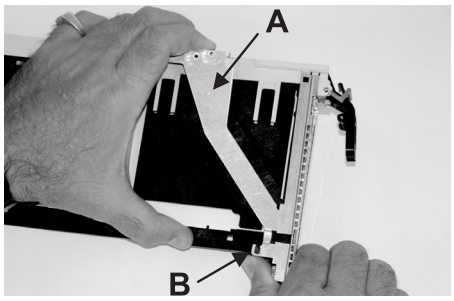


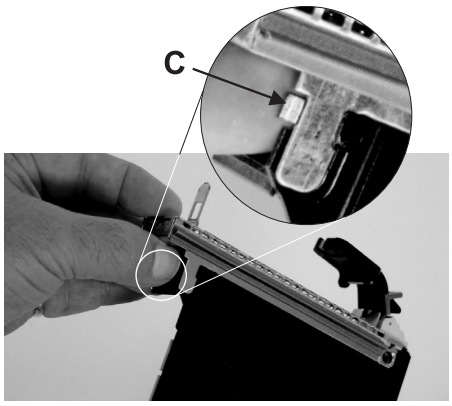
a. Place the PCI adapter cassette assembly on a flat work surface with the cover facing up and the top of the adapter facing you.
b. Using two fingers, remove the bushing-lock pin **A** from the bushing. The pin can be removed by pulling it out of the bushing with your fingernails, tweezers, or a similar tool.
c. Remove the bushing **B**. The bushing can be removed by pulling it out of the PCI adapter cassette assembly with your fingernails, tweezers, or a similar tool.

3. Unlock the bezel.



   a. Turn the PCI adapter cassette assembly over so that the cover side is down.
   b. Locate the plastic latch fingers **A** in the top part of the cassette.
   c. Using one hand, pinch the plastic latch fingers, and, with your other hand, carefully lift the top part of the bezel extension **B** out until the tabs clear the slots in the PCI adapter cassette assembly.
4. Unlatch the bezel and slide off.



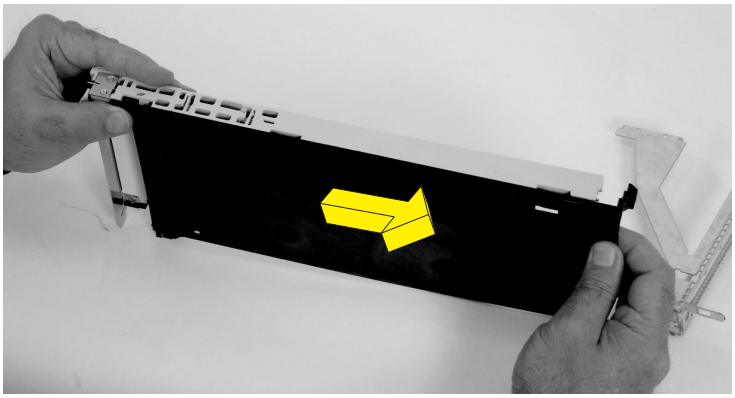


Follow these steps:

   a. While holding up the bezel extension **A**, push the plastic cover latch **B** out of the bezel hook.
   b. Turn the cassette assembly over so that the cover side is up.
   c. Push down on the cover tab **C** to release the bezel.
   d. Turn the cassette assembly over so that the cover side is down.

e. Carefully slide the bezel off of the cassette assembly and set it aside.

5. Remove the cover.



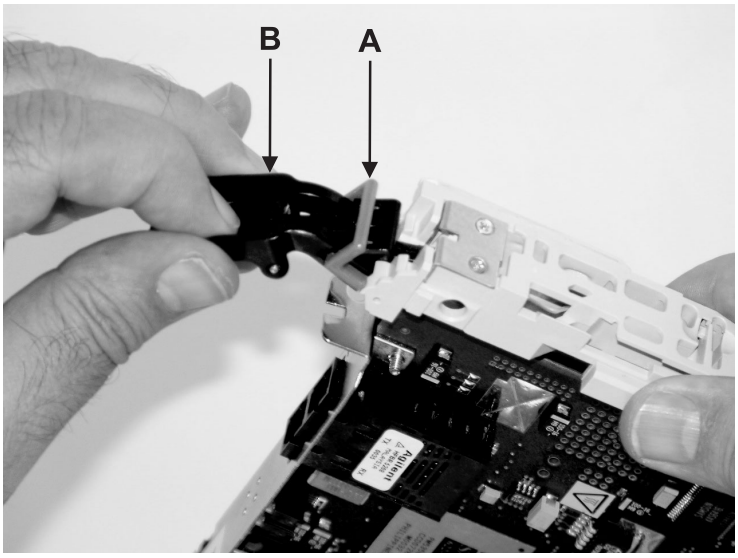
a. Turn over the cassette assembly so that the cover side is up.

b. Slide the cover **A**, until it releases from the cassette assembly.

   The cover might be tight and difficult to slide. If you grasp the left end (handle end) of the cassette and the right end of the cover, you can use enough force to pull the cover off of the PCI adapter cassette assembly.

c. Lift the cover off the assembly, and set it aside.

6. Unlock the handle.



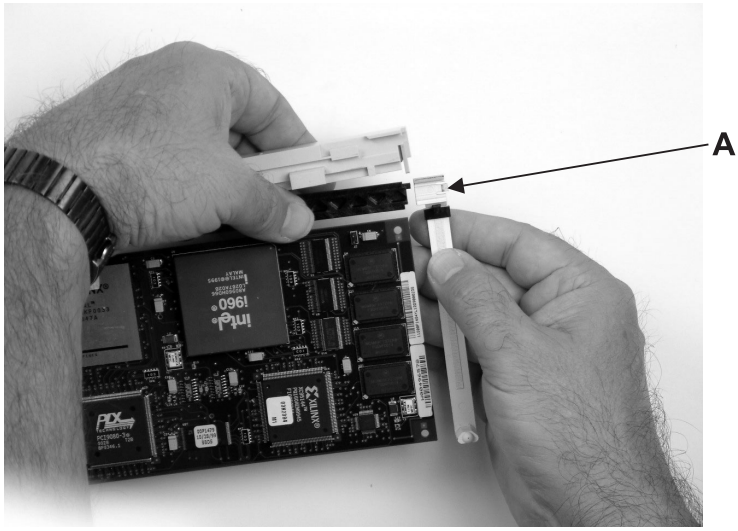
a. Ensure that the handle is pulled into the unlocked position by pulling on both sides of the gray plastic locking bar **A** which is located on the lever **B**.

b. Raise the handle on the cassette linkage assembly until it moves into the up position (the blank filler or adapter moves downward).

7. Remove the electromagnetic compatibility (EMC) shield.

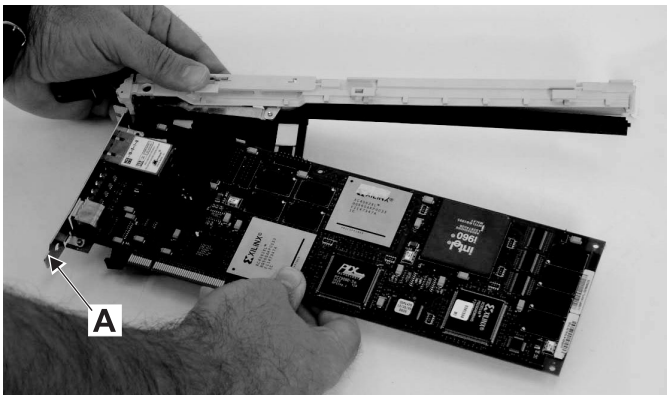
Remove the metal EMC shield **A** from the top of the tailstock.

8. Select the PCI adapter type:
   - If you are removing a large adapter, go to step 9.
   - If you are removing a small adapter, go to step 12 on page 181.
9. Slide the large adapter off the cassette assembly.



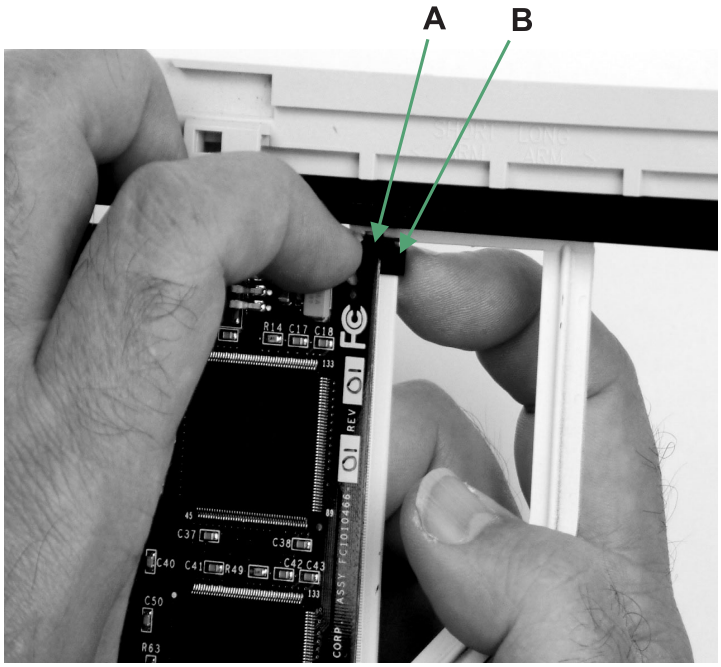
Each adapter arm has a release tab **A** that allows the arm to be moved away from the adapter in the cassette assembly. Use your fingernail to lift the tab, which allows the arm to be moved away from the adapter. Lift the release tab on the large adapter arm, and slide it off the cassette linkage assembly.

10. Remove the large adapter from the cassette.



Remove the adapter from the cassette linkage assembly by rotating the bottom of the tailstock **A** out as shown in the illustration. Store the adapter in a safe place.

11. Go to step 14 on page 182.
12. Slide the adapter arms away from the small adapter.

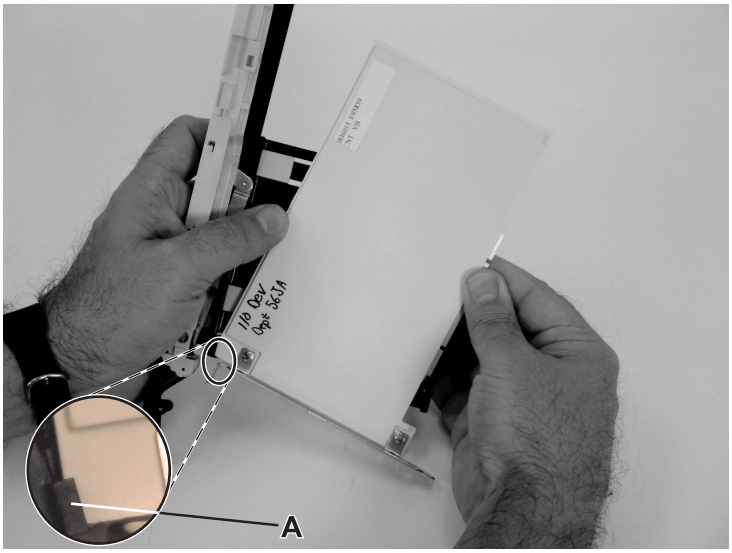


a. Each adapter arm has a release tab **A** that allows the arm to be moved away from the adapter or blank filler in the cassette assembly. Use your fingernail to lift the tab, which allows each arm to be moved away from the adapter. Lift the release tab on the small adapter arm, and push on the slotted tab **B** to release the end of the blank filler.

   Leave the large adapter arm on the cassette linkage assembly.

b. Slide the large and small adapter arms away from the adapter.

13. Remove the small adapter from the cassette.



Remove the adapter or blank filler from the cassette linkage assembly by rotating the bottom of the tailstock **A** out, as shown in the illustration. Store the adapter or blank filler in a safe place.

14. Install a new adapter as described in "Placing a PCI adapter in a single-width, first or second generation cassette" on page 170.

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.

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

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. Remove the PCI adapter contained in a cassette from the system. For information, see "Removing a PCI adapter contained in a cassette from the system" on page 106.
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.

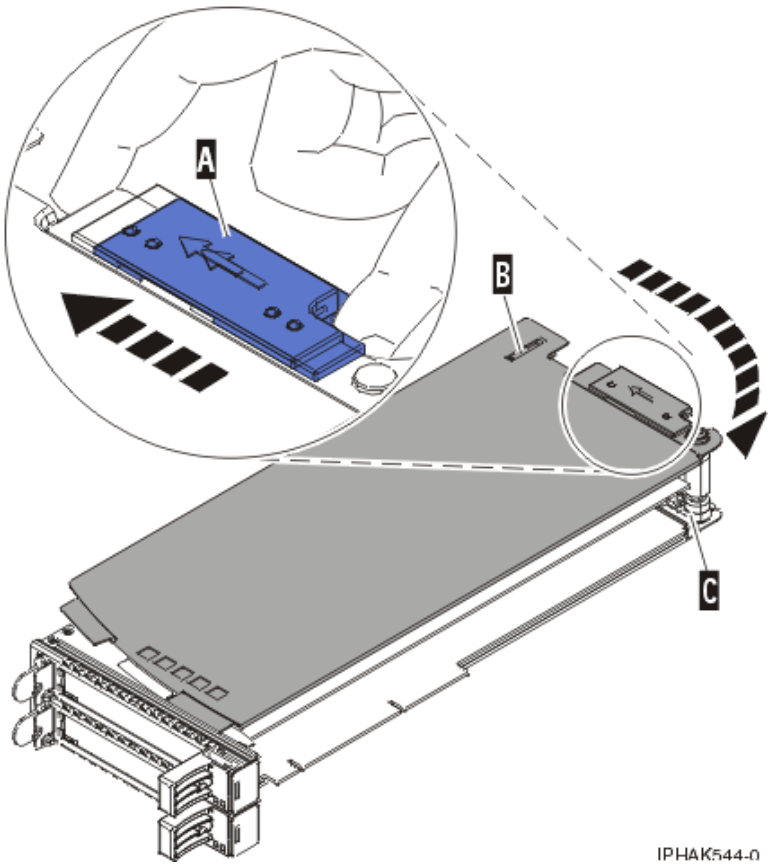


Figure 132. PCI adapter cassette cover removed

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 133 on page 184.

      Note:

      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.

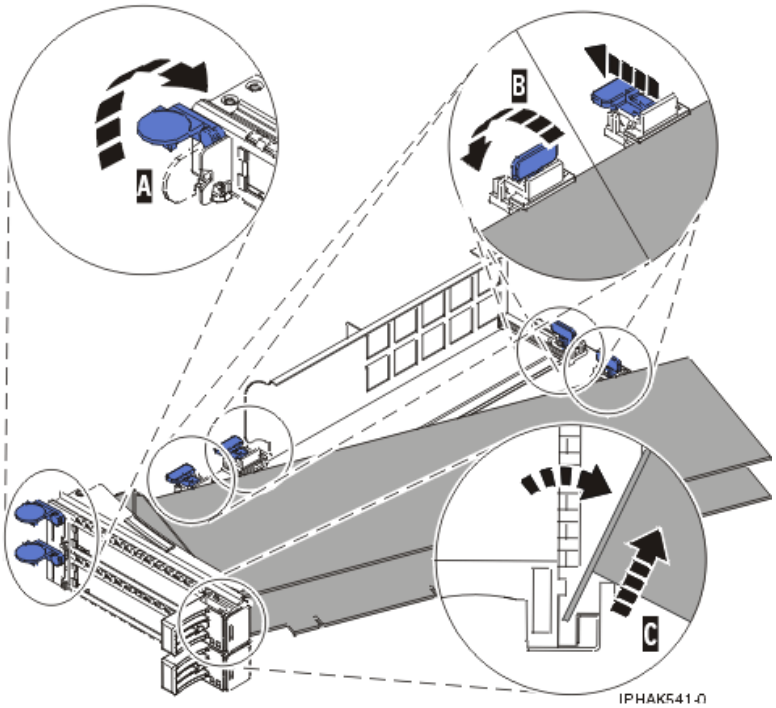


Figure 133. Adapter removed from the PCI adapter cassette

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 185.

   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.

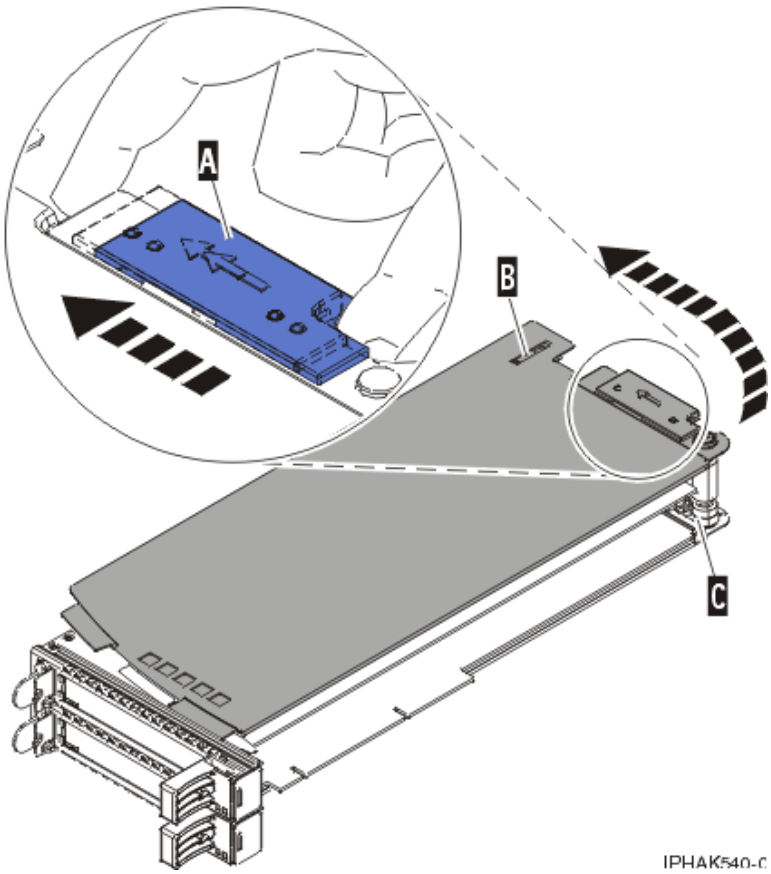


Figure 134. PCI adapter cassette cover replaced

Placing an adapter in the PCI adapter double-wide cassette

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

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

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Remove the PCI adapter contained in a cassette from the system. For information, see "Removing a PCI adapter contained in a cassette from the system" on page 106.
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.

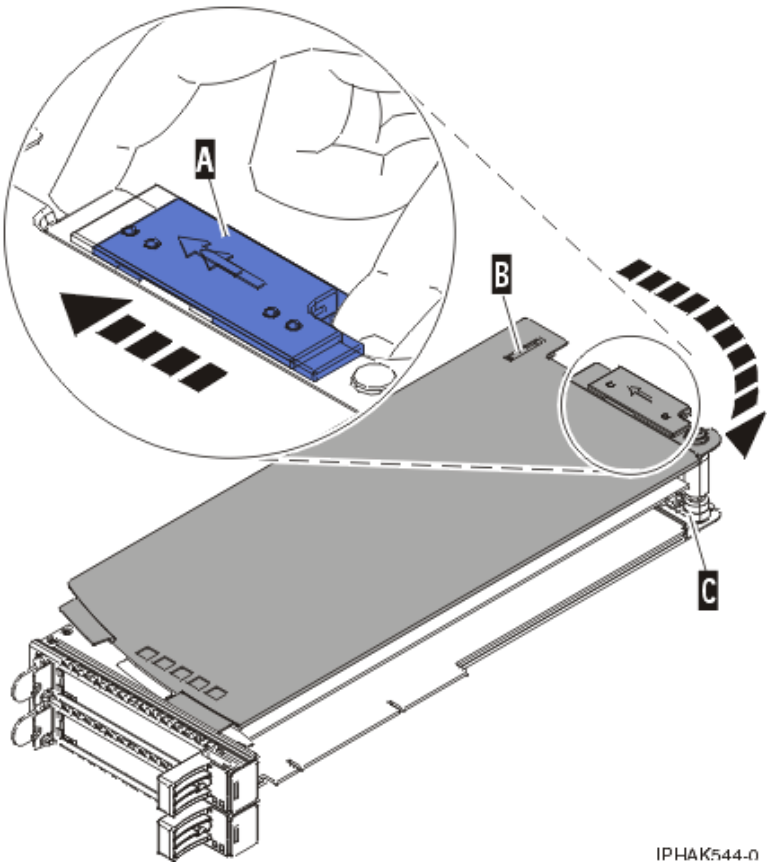


Figure 135. PCI adapter cassette cover removed

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 182.
      - 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 136 on page 187.
   b. Rotate the adapter toward the top of the cassette and into place.
   c. Close the tailstock clamp.

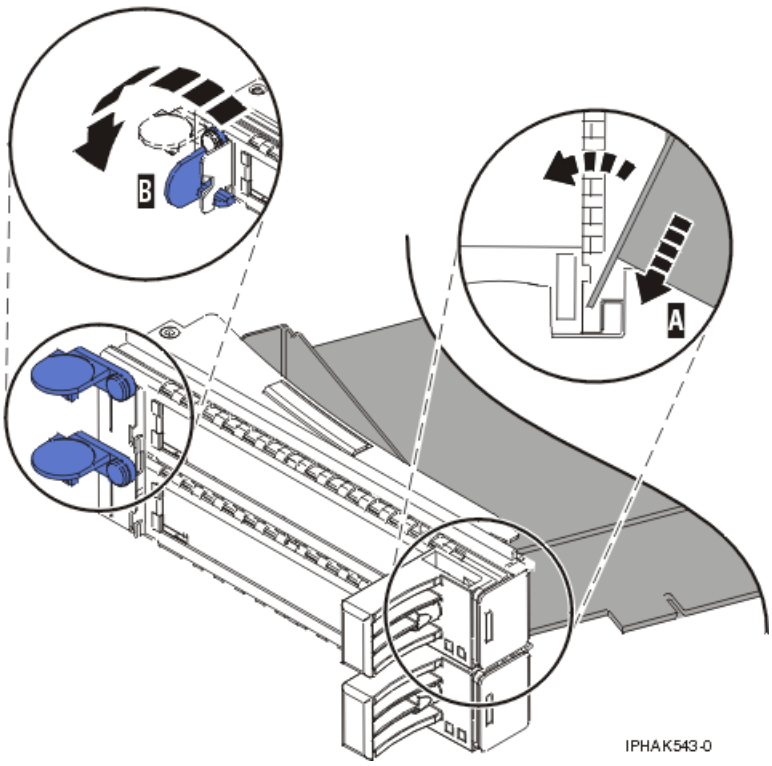


Figure 136. Adapter replaced in the PCI adapter cassette

d. Position the adapter retainers to support the adapter, and then rotate the retainer clip **B** into the closed position. See Figure 136.

   Note:

   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 137 on page 188.

      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.

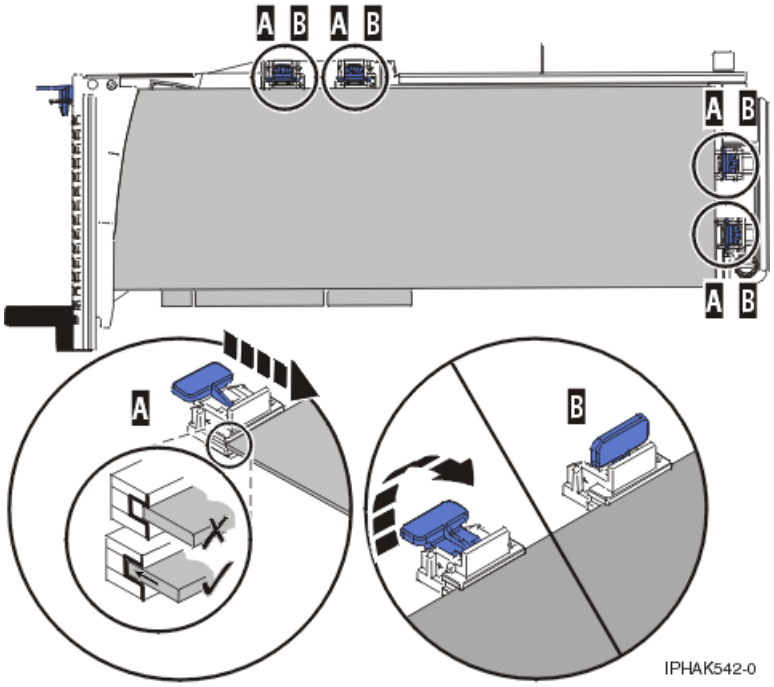


Figure 137. Long adapter in the PCI adapter cassette with the supports and stabilizer in place

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.

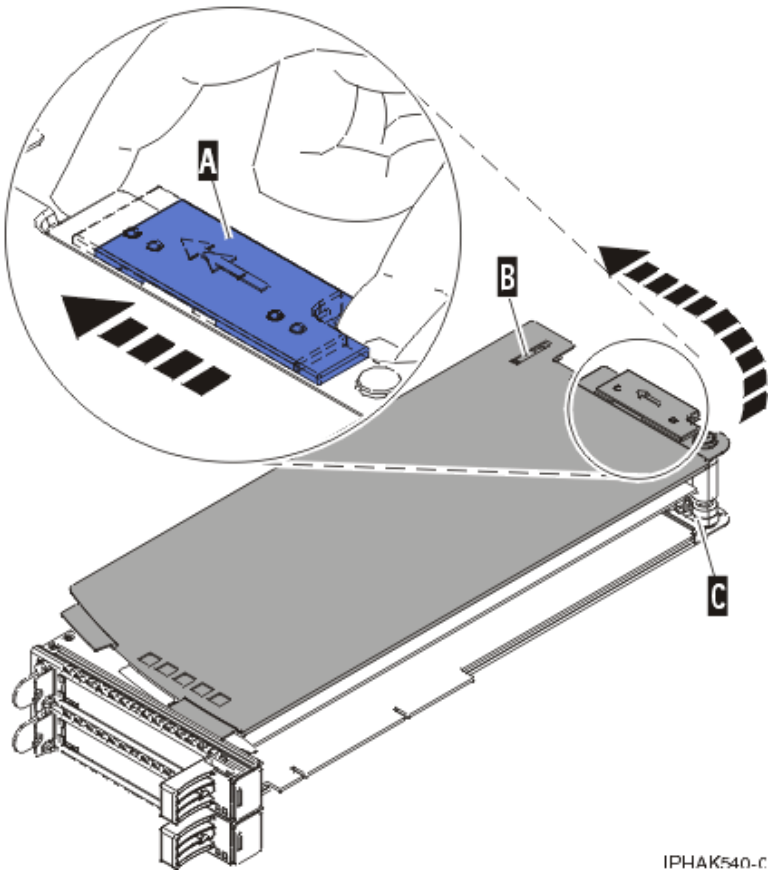


Figure 138. PCI adapter cassette cover replaced

7. Replace the PCI adapter contained in a cassette in the system. For information, see "Replacing a PCI adapter contained in a cassette in the system" on page 128.

   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 concepts

"Model 8234-EMA, 9117-MMA, 9119-FHA, 9125-F2A, 9406-MMA and attached expansion units, PCI adapters, and cassettes" on page 69
You can remove, replace, or install PCI adapter cassettes.

Related reference

"PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller (FC 5739, 5778, 5781, 5782; CCIN 571F, 575B)" on page 300
Learn about the features, specifications, and installation notes for the PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller.

Related information

PCI-X DDR 1.5 GB cache SAS RAID Adapter (FC 5904, 5906, 5908; CCIN 572F and 575C)

PCI adapter double-wide cassette, generation 2.5 cassette

You can remove or place a PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller in a generation 2.5, double-wide cassette.

Placing a PCI adapter in a double-wide, generation 2.5 cassette

You can place a PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller or PCI-X DDR 1.5 GB cache SAS RAID Adapter in a generation 2.5, double-wide cassette. Use the procedure in this topic to perform this task.

This procedure is for use by service providers.

Attention: Do not touch exposed electronic components on the adapter during this procedure or short them with any type of metal object.

Before you begin: Ensure that you have the following tools and parts:

- Phillips screwdriver
- Needle-nose pliers
- Complete cassette-assembly, FRU 44V5205*
  - The cassette assembly contains extra screws or clips. Some of these parts are left over after the assembly.
- One of the following double-wide adapters:
  - PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller, FRU 42R6578*, or later.
  - PCI-X DDR 1.5 GB cache SAS RAID Adapter, FRU 44V5193*, or later.

The cassette assembly can also be ordered with the double-wide adapter already installed using one of the following FRUs:

- PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller, FRU 44V4608*, or later.
- PCI-X DDR 1.5 GB cache SAS RAID Adapter, FRU 44V7627*, or later.

*Designed to comply with RoHS requirement

Figure 139 on page 191 shows the PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller and the main parts that make up the cassette assembly. The PCI-X DDR 1.5 GB cache SAS RAID Adapter looks similar and the same illustrations are used for both adapters.

Some steps refer to the adapter tail stock, which is the front end of the adapter with the external connectors. The other end of the adapter is referred to in the steps as the rear of the adapter.

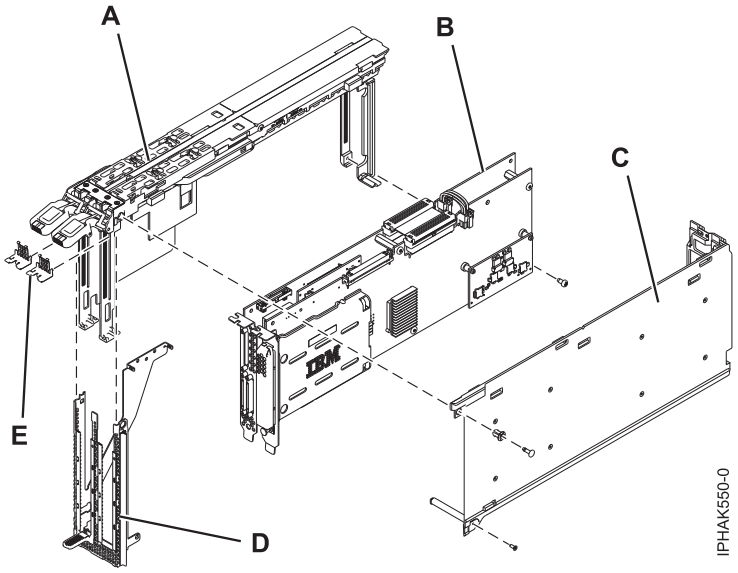


Figure 139. PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller and the main parts that make up the cassette assembly

(A) Cassette assembly
(B) Double-wide adapter
(C) Cover
(D) Face plate
(E) Metal clips

To place the double-wide adapter in the cassette assembly, do the following steps:

1. Remove the adapter handle **(B)** and the spacer **(A)** between the two halves of the adapter. Optionally, you can also remove the cache battery cover. See Figure 140.

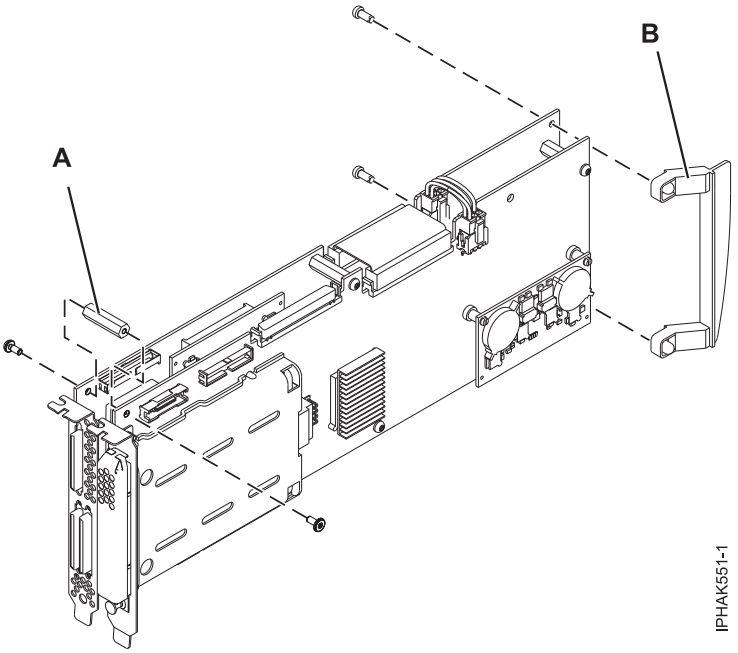


Figure 140. Removing the adapter handle and spacer

2. On a PCI-X DDR 1.5 GB cache SAS RAID Adapter, remove the plastic grid **(C)** from the plastic standoffs, but leave the standoffs in place. See Figure 141.

   Attention: Do not touch exposed electronic components on the adapter during this procedure or short them with any type of metal object.

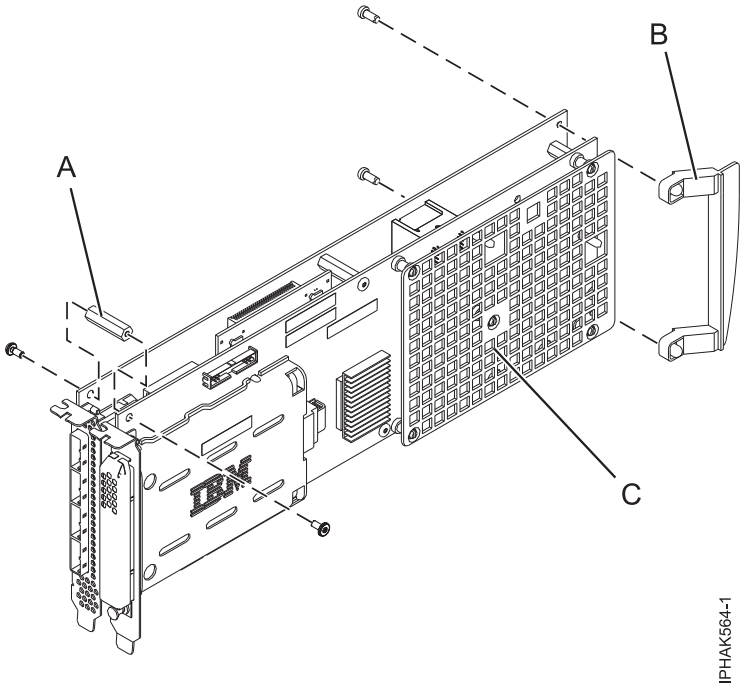


Figure 141. Removing the plastic grid from a PCI-X DDR 1.5 GB cache SAS RAID Adapter

3. Align the double-wide adapter with the cassette assembly so that the spacer **(A)** on the cassette assembly fits between the two sides of the double-wide adapter. Place the cassette onto the adapter. See Figure 142.

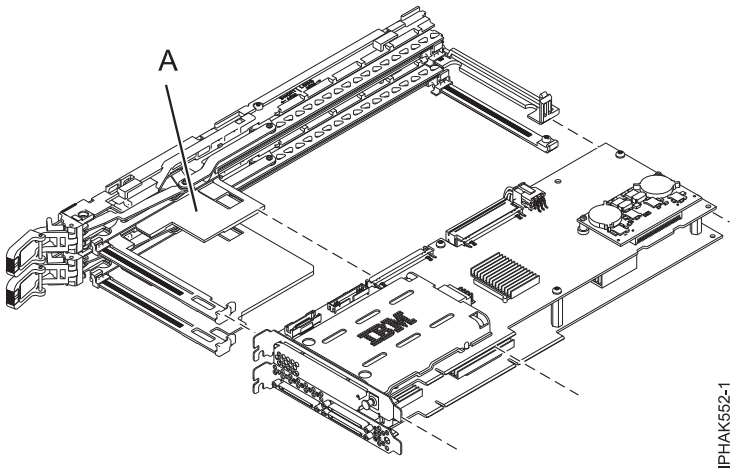


Figure 142. Placing the double-wide adapter in the cassette assembly

4. With the levers on the cassette assembly fully extended out, attach all four corners of the cassette assembly to the double-wide adapter as described in the following substeps:
   a. Insert the top of the double-wide adapter tail stock into the notches in the cassette assembly, and then secure the bottom of the double-wide adapter tail stock to the cassette assembly. See

Figure 143.

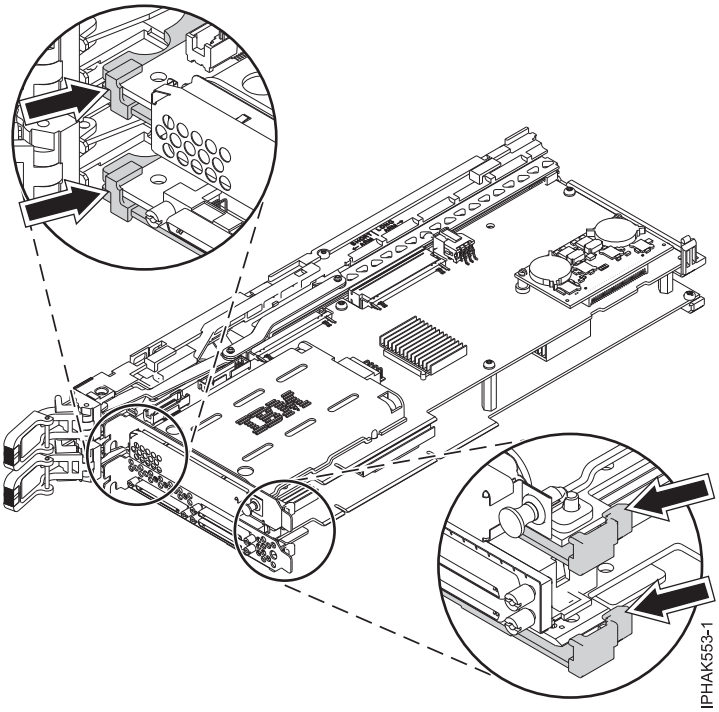


Figure 143. Placing the double-wide adapter in the cassette assembly

b. Attach the notches of the rear arms of the cassette assembly at the rear end of the double-wide adapter. See Figure 144 on page 194. When you attach the upper, right part of the cassette assembly to the adapter, you might need to adjust the slider to set it in place.

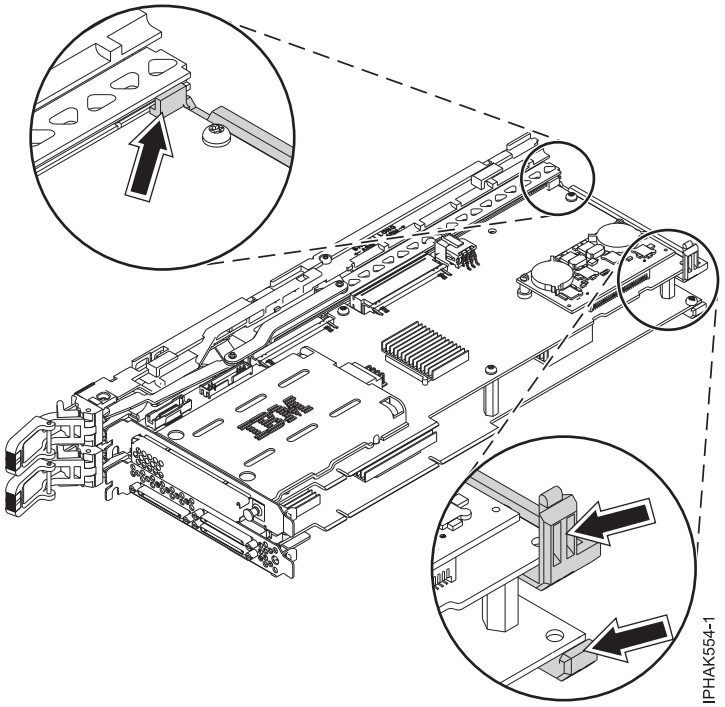


Figure 144. Placing the double-wide adapter in the cassette assembly

5. Secure the lower, rear arm of the cassette assembly to the rear end of the double-wide adapter using the small screw. See Figure 145.

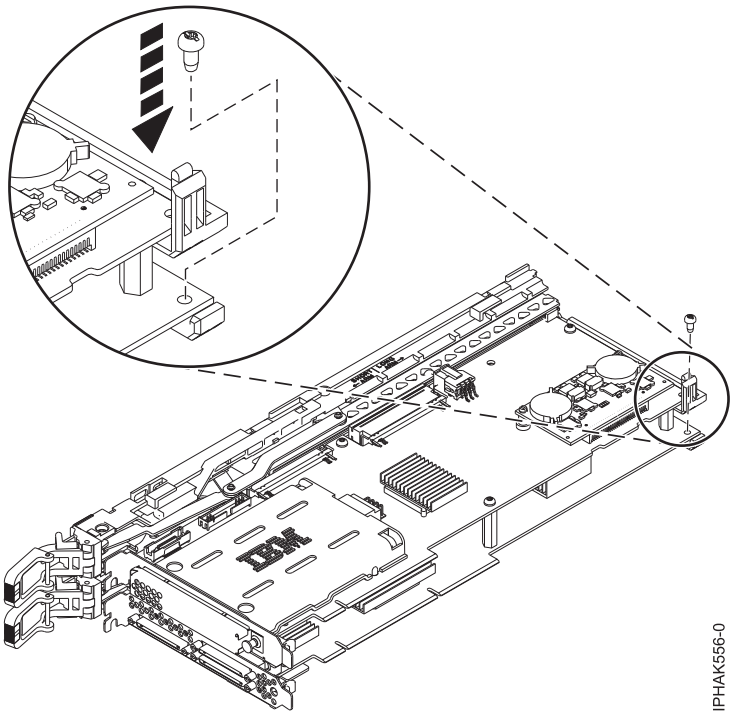


Figure 145. Securing the lower, rear arm of the cassette assembly

6. Install the cover: See Figure 146 on page 195.

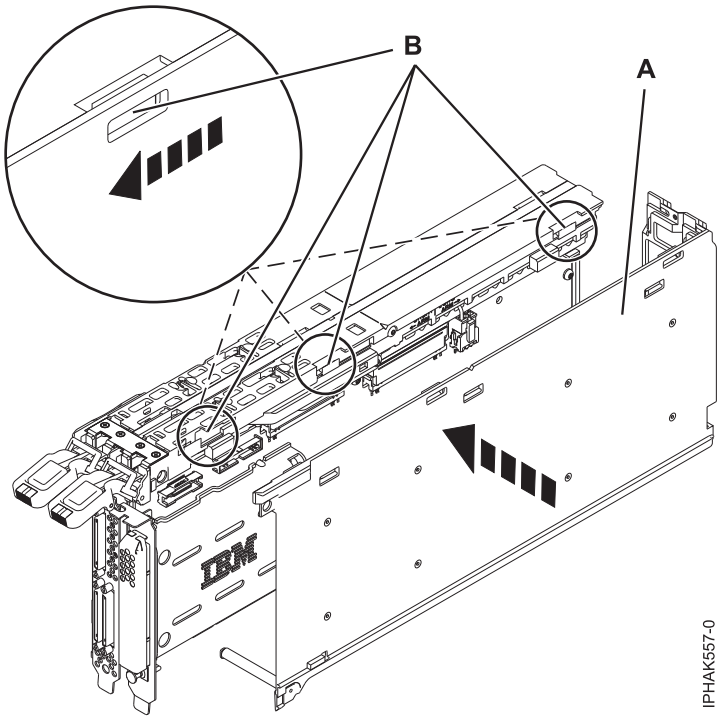


Figure 146. Installing the cover

a. Place the cover **(A)** on the cassette assembly and align the hole on the cover with the tabs **(B)** on the assembly.
b. Slide the cover toward the locking arms until the holes and tabs click into place.

   The cover might be difficult to slide. If you grasp the left end of the cassette assembly and the right end of the cover, you can use enough force to press the cover onto the cassette assembly.

7. Attach the face plate to the front of the cassette assembly as shown in Figure 147 on page 196. Then, insert the tab at the bottom of the cassette cover assembly into the notch on the face plate as shown in Figure 148 on page 196.

   Tips:

   - Starting at the bottom, slide the face plate up into the double-wide cassette assembly.
   - Spread the openings in the face late as you slide it on.
   - Be sure to align the bottom tabs **(B)** on the adapter tail stock with the cutouts **(C)** in the bottom of the face plate.
   - Ensure that the top of the face plate inserts into the notches on both the front and sides of the cassette assembly.
   - When you attach the face plate to notch **(A)**, adjust the cassette cover to make room for the face place to connect.

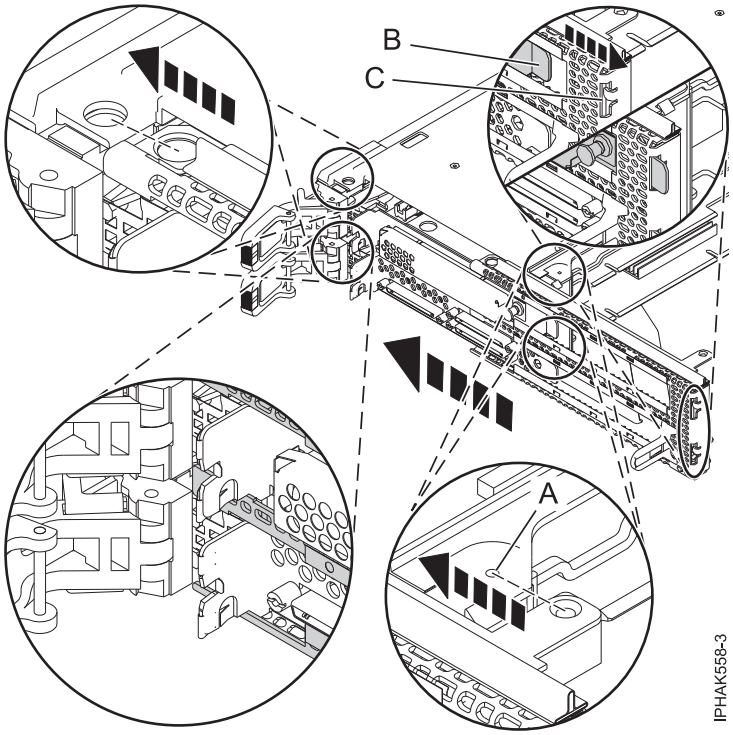


Figure 147. Attaching the face plate

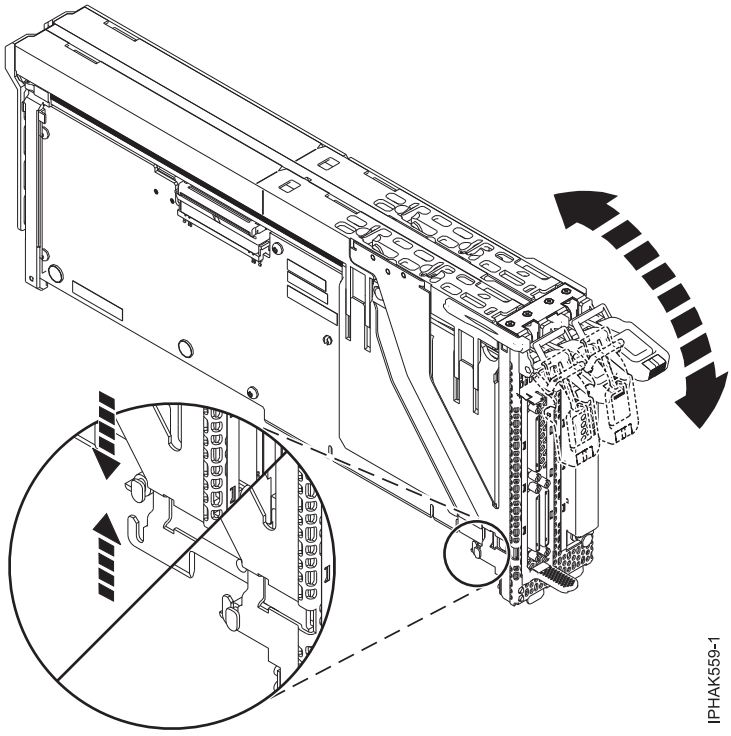


Figure 148. Attaching the face plate

8. Press the outer arms of the face plate assembly into place. See Figure 149 on page 197.

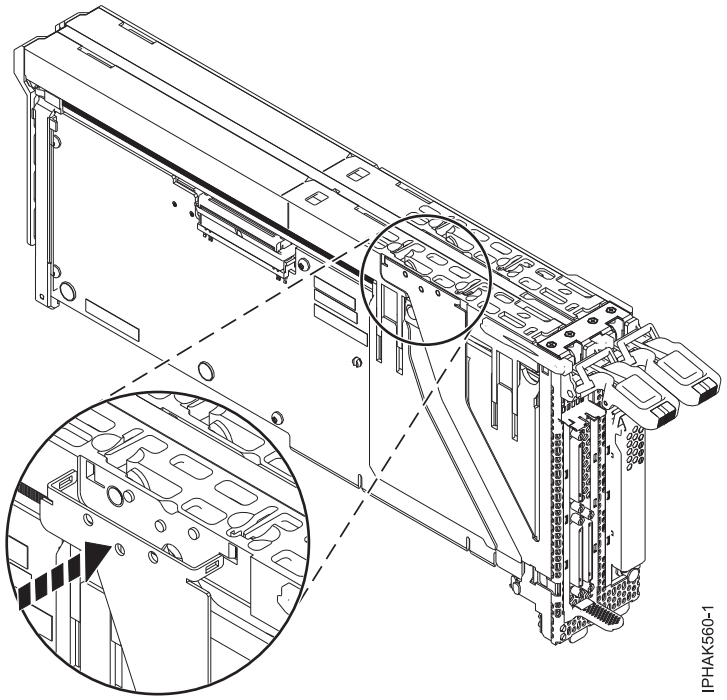


Figure 149. Attaching the face plate

9. Attach the push pin **(A)** to the top of cassette assembly by the tail stock and press into place. See Figure 150.
10. Secure the small, Phillips screw **(B)** into the bottom of the tail stock. See Figure 150.
11. Secure the small, Phillips screw **(C)** at the rear of the cassette assembly. See Figure 150.

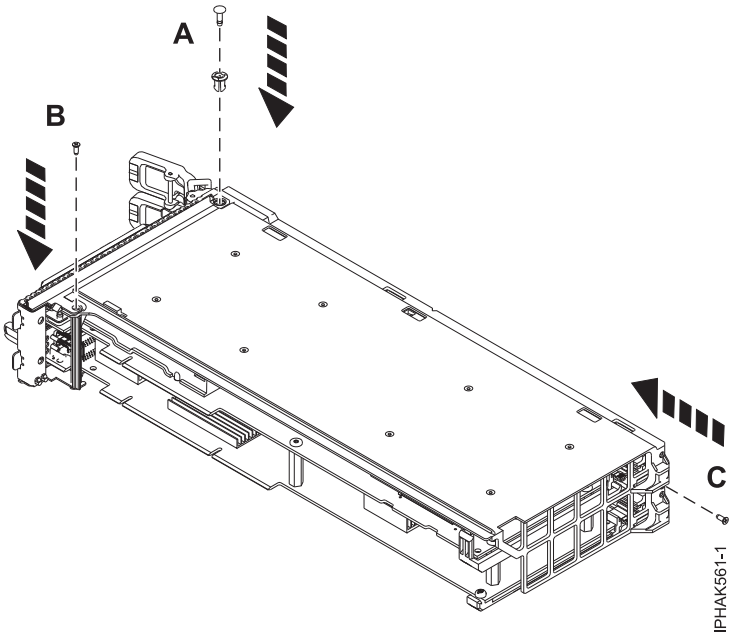


Figure 150. Attaching the push pin and screws

12. Raise the locking arms and insert the two metal clips into the front of the assembly as described in these substeps:

a. Insert the top of the clips first in behind the two small metal tabs just below each lever assembly.
b. Press the bottom of the clips onto the adapter tail stock tabs.
c. Ensure that the locking arms move without obstructions.

See Figure 151.

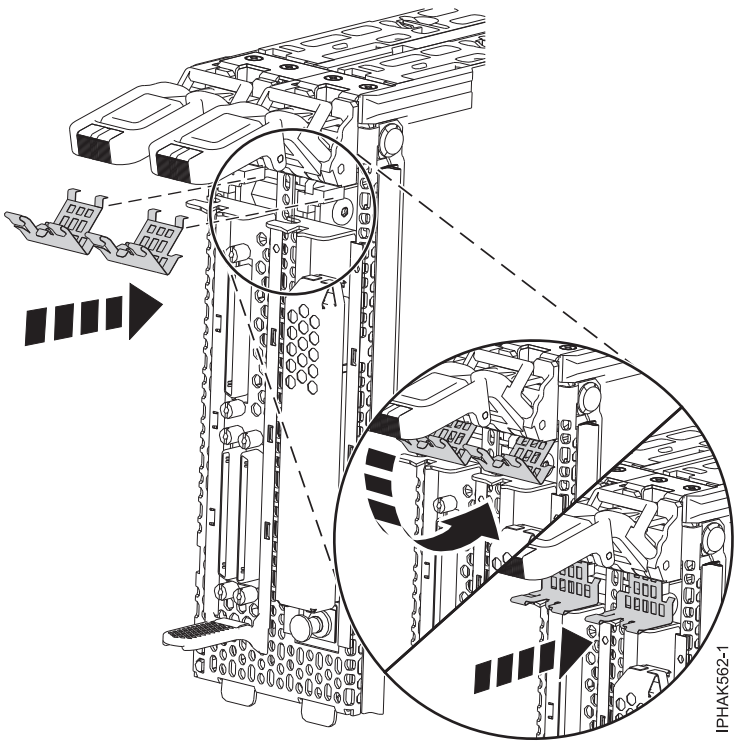


Figure 151. Inserting the two metal clips into the front of the assembly

13. If you removed the cache-battery cover in step 1 on page 191 (optional) and you have not already done so, put the cover back on.
14. Install the cassette assembly into the I/O expansion unit as described in the following substeps:

    a. Ensure the locking arms **(A)** are down.
    b. Carefully slide the cassette assembly all the way into the I/O expansion unit. As you slide the cassette assembly in, keep applying downward pressure to the locking arms to tilt the back of the assembly upward as it is going in.
    c. Ensure that the cassetted adapter is positioned in the I/O expansion unit so that the bottom of the tail stock goes through the openings in the chassis. If they are not aligned, the adapter cannot not plug into the PCI connector.
    d. Secure the cassette assembly by rotating the locking arms up.
    e. Press down on the top of the tail stock brackets to dock the back part of the adapter into the PCI connector on the chassis.

    See Figure 152 on page 199.

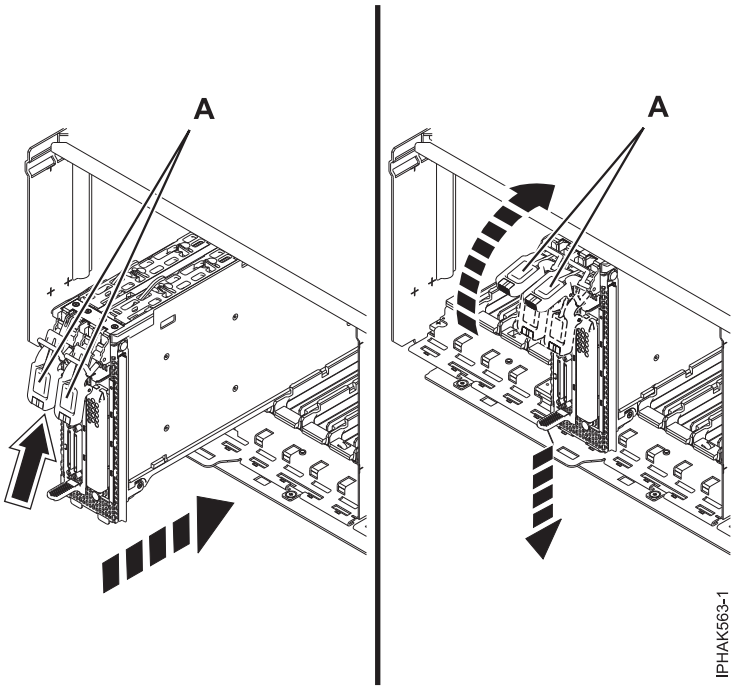


Figure 152. Installing the cassette assembly into the I/O expansion unit

Related concepts

"Model 8234-EMA, 9117-MMA, 9119-FHA, 9125-F2A, 9406-MMA and attached expansion units, PCI adapters, and cassettes" on page 69
You can remove, replace, or install PCI adapter cassettes.

Related tasks

"Removing a PCI adapter from a double-wide, generation 2.5 cassette"
You can remove a PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller or PCI-X DDR 1.5 GB cache SAS RAID Adapter from a generation 2.5, double-wide cassette.

Related reference

"PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller (FC 5739, 5778, 5781, 5782; CCIN 571F, 575B)" on page 300
Learn about the features, specifications, and installation notes for the PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller.

Related information

PCI-X DDR 1.5 GB cache SAS RAID Adapter (FC 5904, 5906, 5908; CCIN 572F and 575C)

Removing a PCI adapter from a double-wide, generation 2.5 cassette

You can remove a PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller or PCI-X DDR 1.5 GB cache SAS RAID Adapter from a generation 2.5, double-wide cassette.

This procedure is for use by service providers.

Attention: Do not touch exposed electronic components on the adapter during this procedure or short them with any type of metal object.

Before you begin: Ensure that you have the following tools and parts:

- Phillips screwdriver
- Needle-nose pliers
- Complete cassette-assembly, FRU 44V5205*

  - The cassette assembly contains extra screws or clips. Some of these parts are left over after the assembly.
- One of the following double-wide adapters:
  - PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller, FRU 42R6578*, or later.
  - PCI-X DDR 1.5 GB cache SAS RAID Adapter, FRU 44V5193*, or later.

The cassette assembly can also be ordered with the double-wide adapter already installed using one of the following FRUs:

- PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller, FRU 44V4608*, or later.
- PCI-X DDR 1.5 GB cache SAS RAID Adapter, FRU 44V7627*, or later.

*Designed to comply with RoHS requirement

Tip: If you are reassembling an adapter into the cassette, pay close attention to how the pieces come apart.

The following figure shows the PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller and the main parts that make up the cassette assembly. The PCI-X DDR 1.5 GB cache SAS RAID Adapter looks similar and the same illustrations are used for both adapters. Some steps refer to the adapter tail stock, which is the front end of the adapter with the external connectors. The other end of the adapter is referred to in the steps as the rear of the adapter.

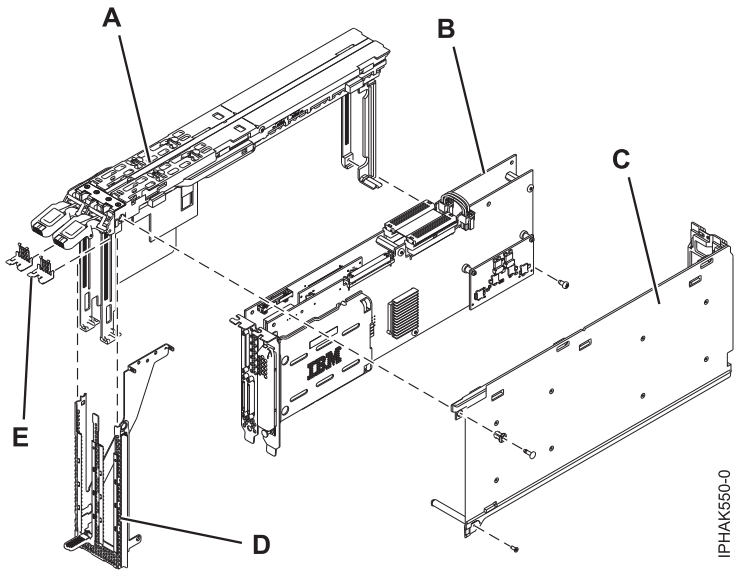


Figure 153.

(A) Cassette assembly
(B) Double-wide adapter
(C) Cover
(D) Face plate
(E) Metal clips

To remove the double-wide adapter from the cassette assembly, do the following steps:

1. Remove the cassette assembly from the I/O expansion unit:

   a. Ensure that the locking arms **(A)** are down as shown in Figure 154 on page 201.

b. Lift on the top of the tail stock brackets to undock the back part of the adapter from the PCI connector on the chassis and detach the tail stock from the openings in the chassis.
c. Carefully slide the cassette assembly all the way out of the I/O expansion unit. See Figure 154.

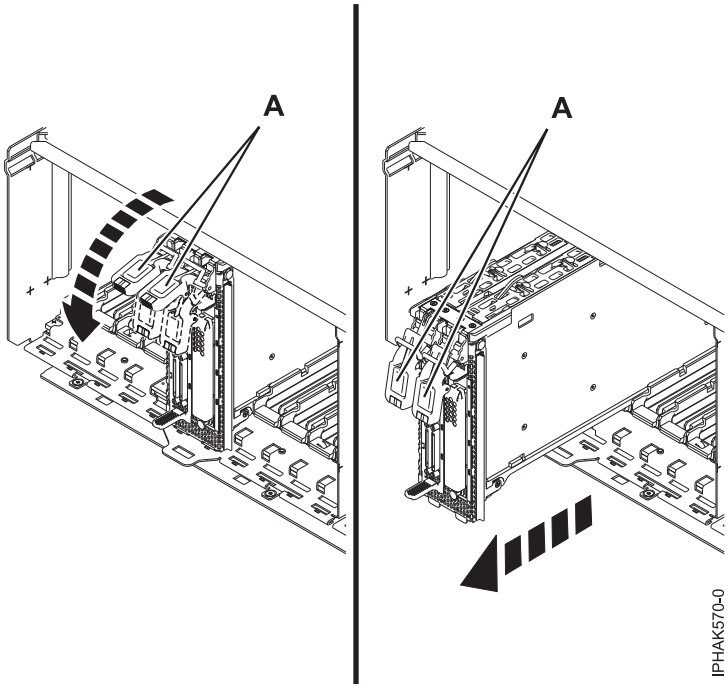


Figure 154. Removing the cassette assembly from the I/O expansion unit

2. Raise the locking arms to the full up position and remove the two metal clips from the front of the assembly. See Figure 155 on page 202

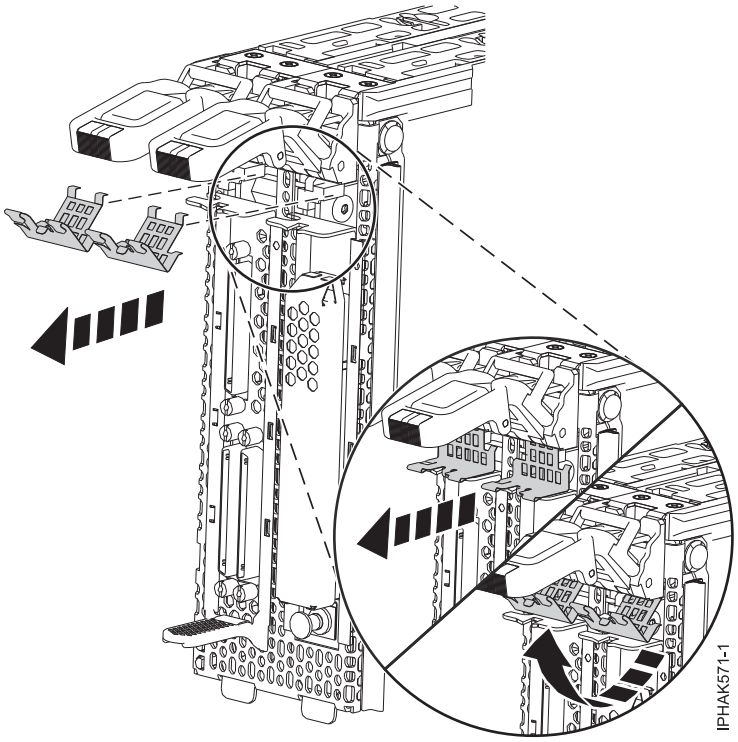


Figure 155. Removing the two metal clips into the front of the assembly

3. Remove the push pin **(A)** from the top of cassette assembly by the tail stock. See Figure 156.
4. Remove the screw **(B)** from the bottom of the tail stock. See Figure 156.
5. Remove the screw **(C)** from the rear of the cassette assembly. See Figure 156.

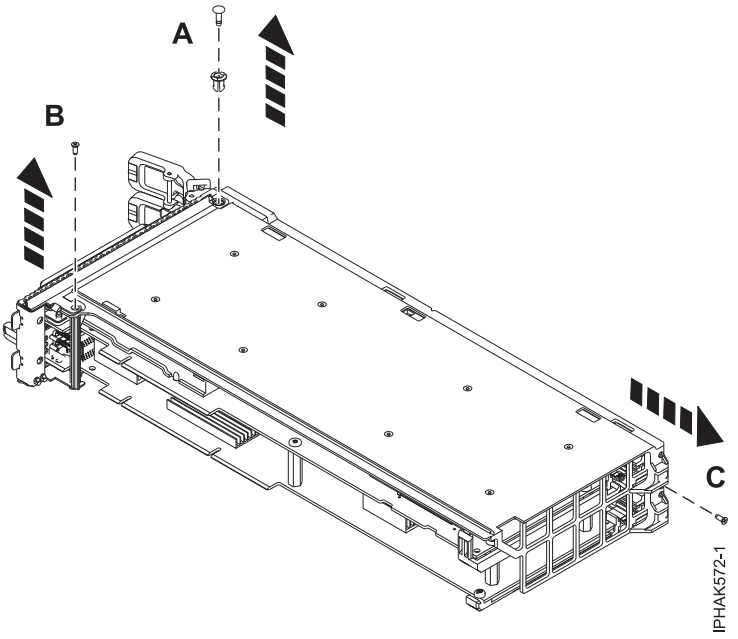


Figure 156. Removing the push pin and screws

6. Detach the outer arms of the face plate assembly by releasing the plastic locking tabs **(A)**. See Figure 157.

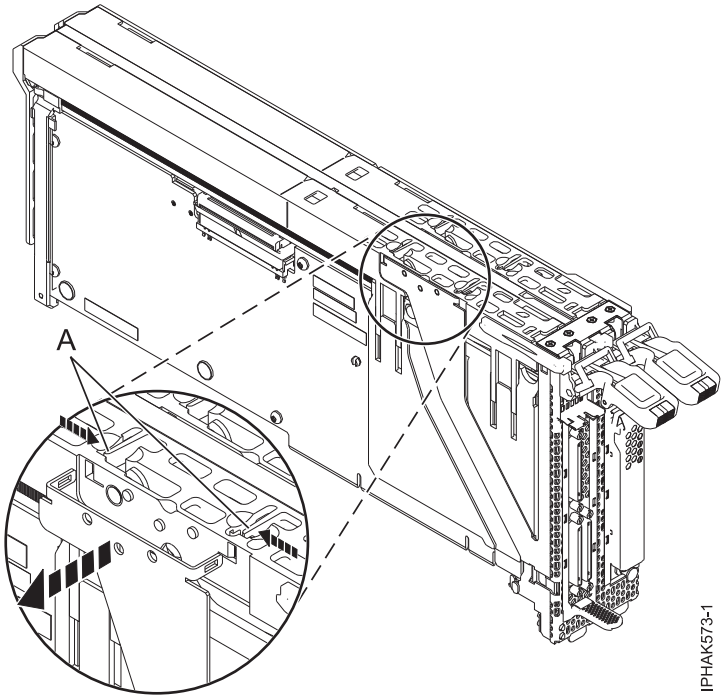


Figure 157. Detaching the face plate

7. Ensure that the locking arms are lowered at the start of this step. Then, detach the tab at the bottom of the cassette assembly from the notches on the face plate and lift on the locking arms. See Figure 158 on page 204. Use care not to damage the plastic tab.

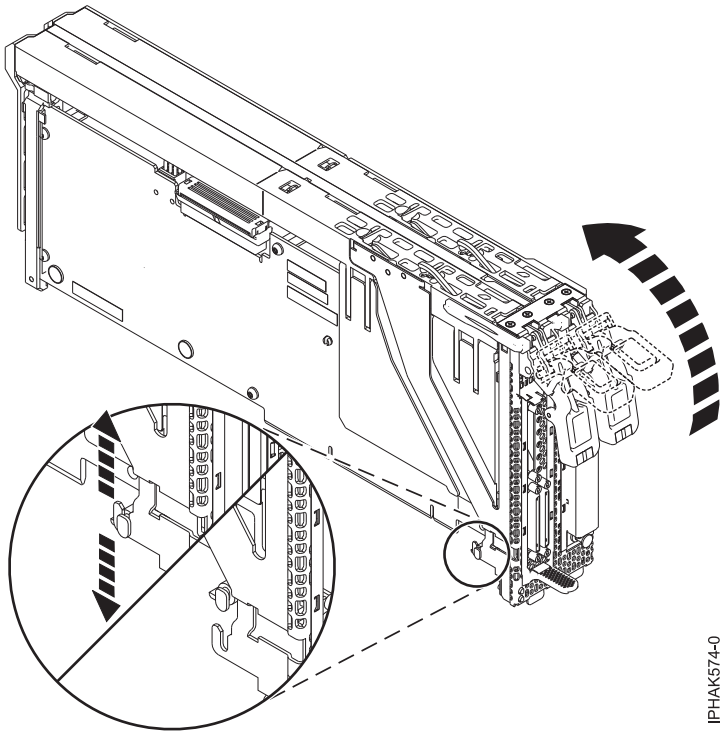


Figure 158. Detaching the face plate

8. Remove the face plate from the front of the cassette assembly by sliding it down. Ensure that the top of the face plate detaches from the notches on both the front and sides of the cassette assembly. See Figure 159 on page 205.

   Important:

   - Press in on the black tab **(A)** to release the metal, bottom, side tab of the face plate. This tab is the same location where you removed a screw in step 4 on page 202
   - While sliding the face plate downwards, you might need to manipulate the top center rail of the face plate for it to continue to slide freely.

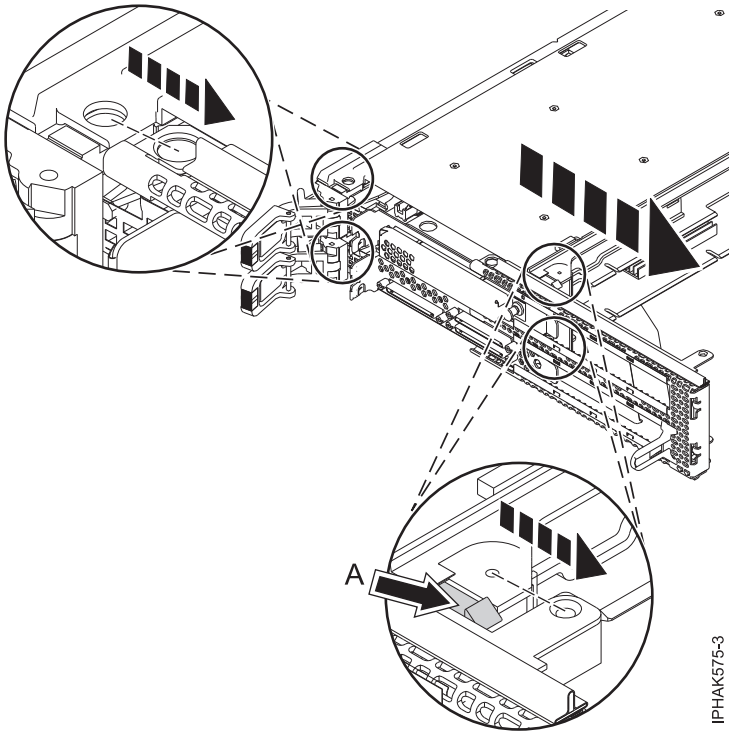


Figure 159. Detaching the face plate

9. Remove the cover:
   a. Slide the cover away from the locking arms until the holes and corresponding tabs detach **(B)**. See Figure 160 on page 206.
   b. Pull the cover away from the adapter **(A)**. See Figure 160 on page 206.

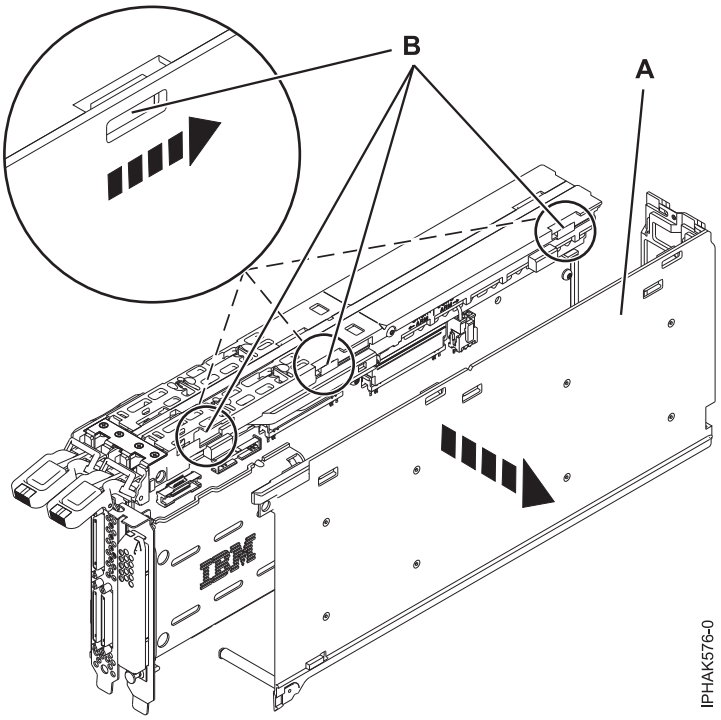


Figure 160. Removing the cover

10. Remove the small screw that secures the lower, rear arm of the cassette assembly from the rear end of the double-wide adapter. See Figure 161.

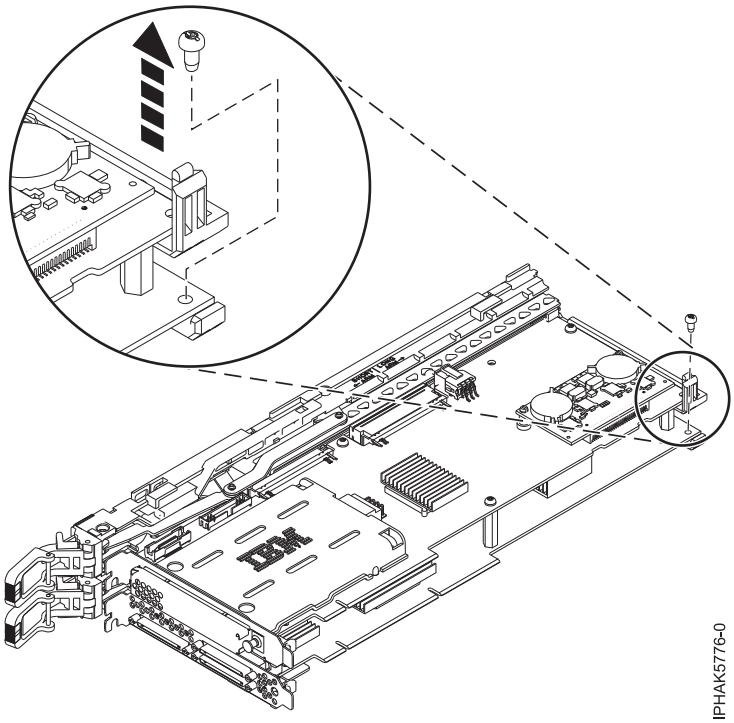


Figure 161. Removing the lower, rear arm of the cassette assembly

11. With the levers on the cassette assembly fully extended out, detach all four corners of the cassette assembly from the double-wide adapter:

a. Remove the top corner of the double-wide adapter tail stock from the notches in the cassette assembly. Then move the double-wide adapter tail stock up to free the bottom of the double-wide adapter tail stock from the cassette assembly. See Figure 162.

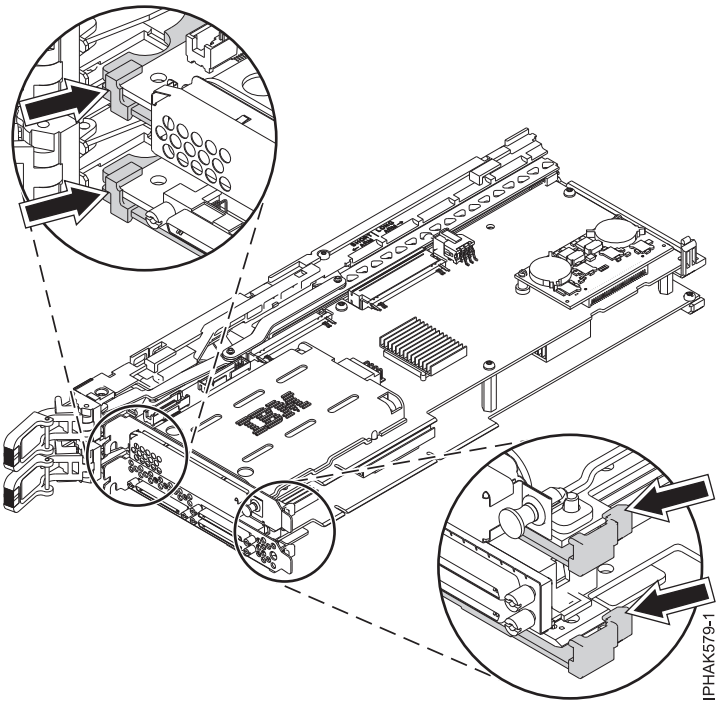


Figure 162. Detaching the corners of the cassette assembly

b. Detach the rear arms of the cassette assembly from the bottom corners of the double-wide adapter. See Figure 163 on page 208.

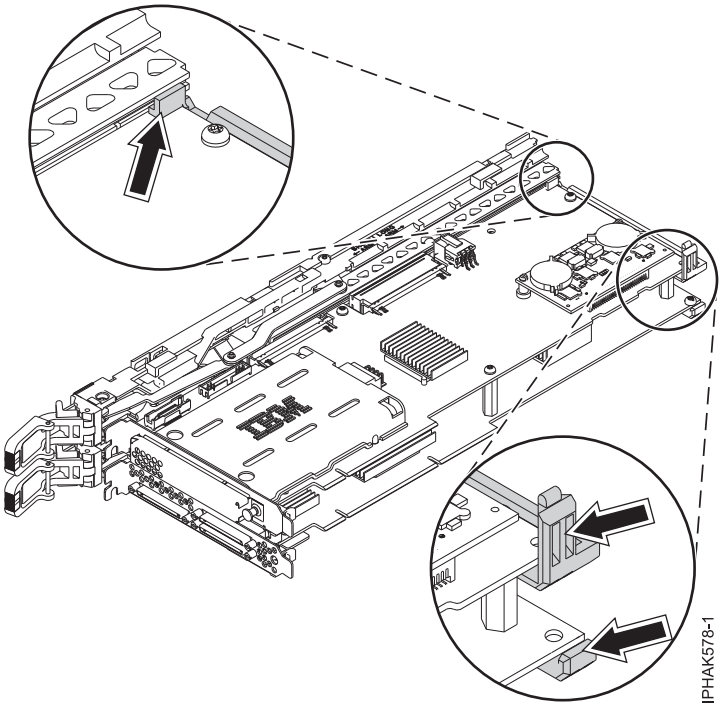


Figure 163. Detaching the rear arms of the cassette assembly

12. Pull the double-wide adapter away from the cassette assembly and carefully place it on an ESD protective surface. See Figure 164.

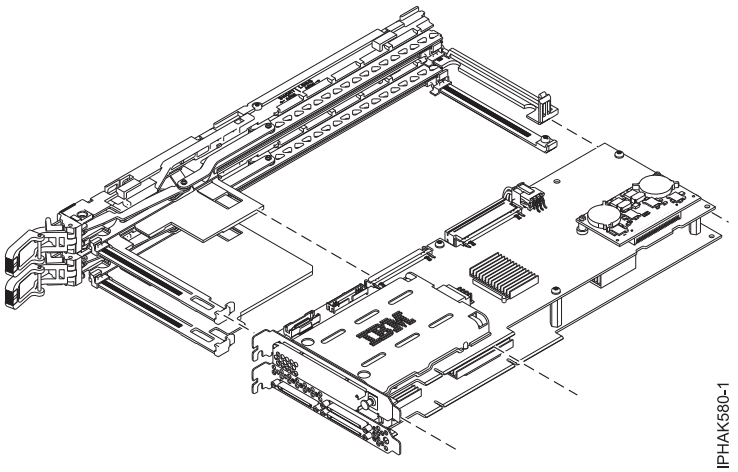


Figure 164. Pulling the double-wide adapter away from the cassette assembly

Related tasks

"Placing a PCI adapter in a double-wide, generation 2.5 cassette" on page 190
You can place a PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller or PCI-X DDR 1.5 GB cache SAS RAID Adapter in a generation 2.5, double-wide cassette. Use the procedure in this topic to perform this task.

Model 5802 and 5877 expansion units, PCI adapters, and cassettes

You can install, remove, replace PCI adapter cassettes in the 5802 or 5877 expansion unit.

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 5802 or 5877 expansion unit.

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

To install, remove or replace an adapter, do the following steps:

1. Perform prerequisite tasks as described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. If you are installing a new adapter, determine in which slot to place the new adapter. See the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.
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.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Installing a PCI adapter contained in a cassette

You can install a PCI adapter cassette in a 5802 or 5877 expansion unit.

Installing a PCI adapter cassette with the power off

You can install a PCI adapter cassette in a 5802 or 5877 expansion unit with the power off.

Before you begin: Prepare to install a PCI adapter cassette. See "Preparing to install, remove, or replace a PCI adapter cassette."

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

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.

   Note: This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
3. Remove the PCI adapter cassette from the system. Refer to "Removing a PCI adapter cassette from the expansion unit" on page 214.
4. Install the adapter into the PCI adapter cassette. Refer to "PCI adapter single-width and double-width cassettes" on page 221.
5. Install the PCI adapter cassette in the system. Refer to "Installing a PCI adapter cassette."
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 cassette

You can install a PCI adapter cassette in a 5802 or 5877 expansion unit.

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.

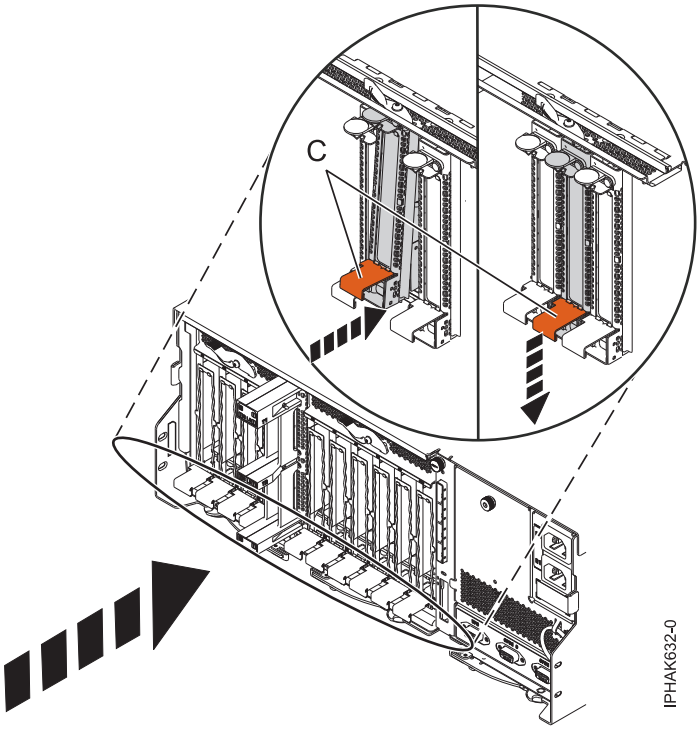


Figure 165. Installing the PCI adapter cassette

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

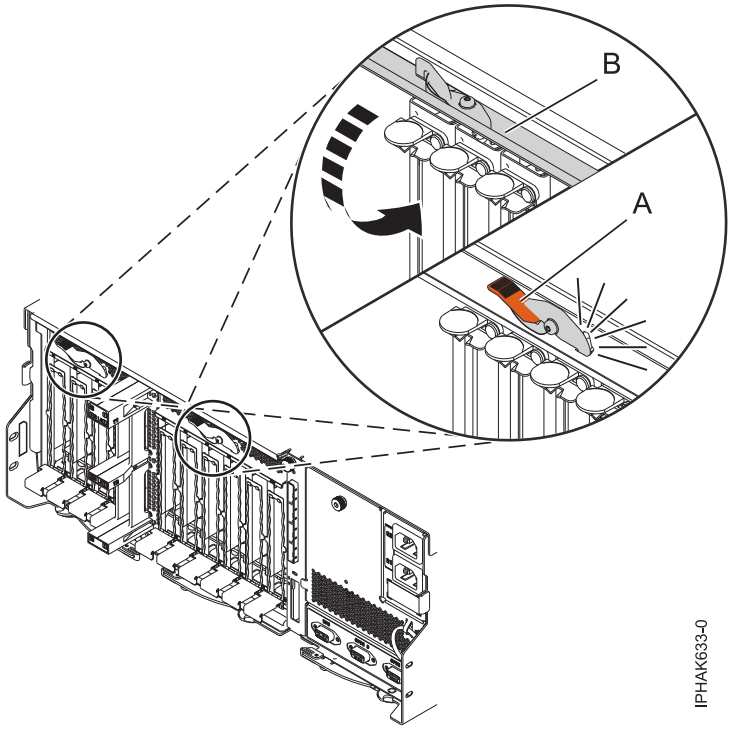


Figure 166. Closing the access door

5. Return to the procedure that sent you here.

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

You can install a PCI adapter cassette in a 5802 or 5877 expansion unit that is running the AIX operating system with the system power on.

Before you begin: Prepare to install a PCI adapter cassette. See "Preparing to install, remove, or replace a PCI adapter cassette" on page 209.

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

1. Refer to "PCI hot-plug manager access for AIX" on page 295, 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 215.
6. Remove the PCI adapter cassette from the system. Refer to "Removing a PCI adapter cassette from the expansion unit" on page 214.
7. Install the adapter into the PCI adapter cassette. Refer to "PCI adapter single-width and double-width cassettes" on page 221.
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 297.
9. Install the PCI adapter cassette in the system. Refer to "Installing a PCI adapter cassette" on page 209.

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 IBM i

You can install a PCI adapter cassette in a 5802 or 5877 expansion unit that is running the IBM i operating system with the system power on.

Before you begin: Prepare to install a PCI adapter cassette. See "Preparing to install, remove, or replace a PCI adapter cassette" on page 209.

To install an adapter with the system power on in the i operating system, do the following steps:

1. Type **strsst** on the command line of the Main Menu and then press Enter.
2. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display. Press Enter.
3. Select **Start a service tool** from the System Service Tools (SST) display and press Enter.
4. Select **Hardware service manager** from the Start a Service Tool display and press Enter.
5. Select **Packaging hardware resources (system, frames, cards)** from the Hardware Service Manager display. Press Enter.
6. Type **9** (Hardware contained within package) in the **System Unit** or **Expansion Unit** field of the unit where you are replacing the card. Press Enter.
7. Select the option to **Include empty positions**.
8. Select **Concurrent Maintenance** on the card position where you want to replace the card, and then press Enter.
9. Select the option **Toggle LED blink off/on**. A light-emitting diode (LED) blinks identifying the position you chose. Physically verify that this is the slot where you want to install the adapter.
10. Select the option **Toggle LED blink off/on** to stop the blinking LED.
11. Select the option **Power off domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
12. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:
    ```
    Power off complete
    ```
13. Locate the PCI adapter slot and cassette you want to use.
14. 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 IBM i" on page 216.
15. Remove the PCI adapter cassette from the system. Refer to "Removing a PCI adapter cassette from the expansion unit" on page 214.
16. Install the adapter into the PCI adapter cassette. Refer to "PCI adapter single-width and double-width cassettes" on page 221.
17. Install the PCI adapter cassette in the system. Refer to "Installing a PCI adapter cassette" on page 209.
18. Select **Power on domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
19. Select **Assign to** on the resource that has an asterisk (*) on the Work with Controlling Resource display. Press Enter.
20. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:
    ```
    Power on complete
    ```
21. 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 Linux

You can install a PCI adapter cassette in a 5802 or 5877 expansion unit that is running the Linux operating system with the system power on.

Before you begin: Prepare to install a PCI adapter cassette. See "Preparing to install, remove, or replace a PCI adapter cassette" on page 209.

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

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 214.
4. Install the adapter into the PCI adapter cassette. Refer to "PCI adapter single-width and double-width cassettes" on page 221.
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 drslot_chrp_pci command to enable an adapter to be installed.

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

   ```
   drslot_chrp_pci -a -s U7879.001.DQD014E-P1-C3
   ```

   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 cassette" on page 209.
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 5802 or 5877 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 5802 or 5877 expansion unit with the system power off.

Before you begin: Prepare to remove a PCI adapter cassette. See “Preparing to install, remove, or replace a PCI adapter cassette” on page 209.

To remove an adapter, do the following steps:

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.

   Note: This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
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 221.

Removing a PCI adapter cassette from the expansion unit

You can remove a PCI adapter cassette from the 5802 or 5877 expansion unit.

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

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)**.

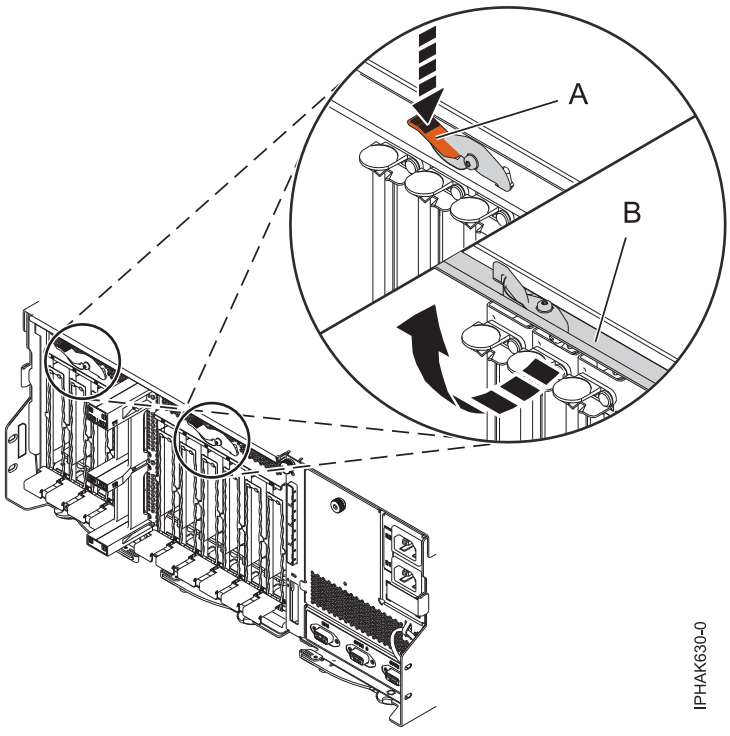


Figure 167. Opening the access door

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

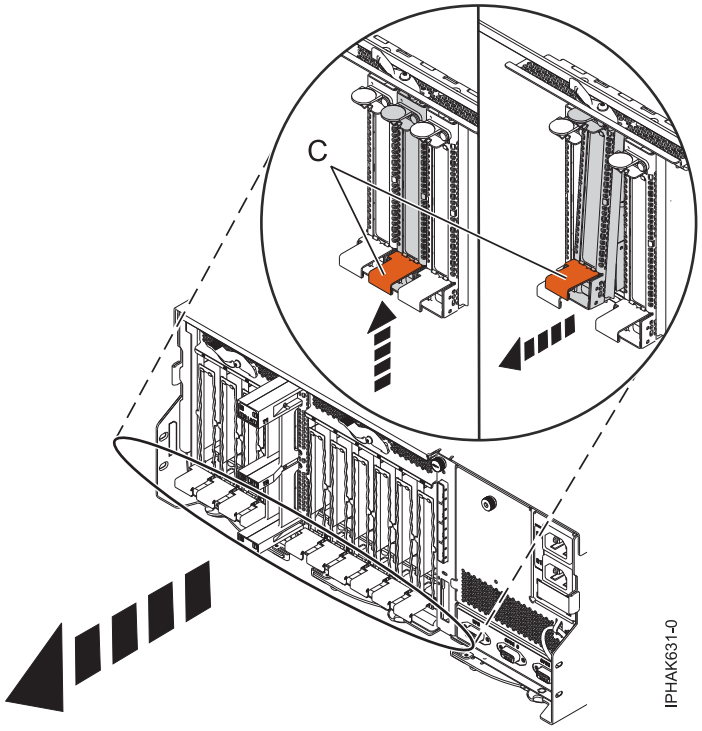


Figure 168. Removing a PCI adapter cassette

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 5802 or 5877 expansion unit that is running the AIX operating system with the system power on.

Before you begin: Prepare to remove a PCI adapter cassette. See "Preparing to install, remove, or replace a PCI adapter cassette" on page 209.

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 AIX" on page 211.
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:

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 NO 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 214.
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 221.
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 IBM i

You can remove a PCI adapter cassette from the 5802 or 5877 expansion unit that is running the IBM i operating system with the system power on.

Before you begin: Prepare to remove a PCI adapter cassette. See “Preparing to install, remove, or replace a PCI adapter cassette” on page 209.

To remove an adapter, do the following steps:

1. Determine the location of PCI adapter in the system.

2. Type `strsst` on the command line of the Main Menu and then press Enter.
3. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display and press Enter.
4. Select **Hardware service manager** from the Start a Service Tool display and press Enter.
5. Select **Packaging hardware resources (system, frames, cards)** from the Hardware Service Manager display. Press Enter.
6. Type **9** (Hardware contained within package) in the **System Unit** or **Expansion Unit** field of the unit where you are removing the card. Press Enter.
7. Select the option **Include empty positions**.
8. Select **Concurrent Maintenance** on the card position where you want to remove the card, and then press Enter.
9. Select the option **Toggle LED blink off/on**. A light-emitting diode (LED) blinks identifying the position you chose. Physically verify that this is the slot where you want to install the adapter.
10. Select the option **Toggle LED blink off/on** to stop the blinking LED.
11. Select the option **Power off domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
12. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:

    ```
    Power off complete
    ```
13. Remove the PCI adapter cassette from the system. Refer to "Removing a PCI adapter cassette from the expansion unit" on page 214.
14. Place the cassette with the cover facing up on an approved ESD surface.
15. To remove the adapter from the cassette, see "PCI adapter single-width and double-width cassettes" on page 221.

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 5802 or 5877 expansion unit that is running the Linux operating system with the system power on.

Do the following actions before beginning the procedure:

- Follow the steps in "Preparing to install, remove, or replace a PCI adapter cassette" on page 209.
- Ensure that the system meets the "Prerequisites for hot-plugging PCI adapters in Linux" on page 298.
- Verify that the Linux, hot-plug PCI tools are installed. See "Verify that the Linux, hot-plug PCI tools are installed" on page 298

To remove an adapter, do the following steps:

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 drslot_chrp_pci 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:

   ```
   drslot_chrp_pci -r -s U7879.001.DQD014E-P1-C3
   ```

   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 214.
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 221.

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 5802 or 5877 expansion unit with the system power off.

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 213 to have the slot powered off.

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

1. If the adapter needs to be placed in a PCI adapter cassette, see “PCI adapter single-width and double-width cassettes” on page 221.
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 cassette” on page 209.
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 5802 or 5877 expansion unit that is running the AIX operating system with the system power on.

Before you begin: Prepare to replace a PCI adapter cassette. See “Preparing to install, remove, or replace a PCI adapter cassette” on page 209.

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 215.
- 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 215, and then install the new adapter as described in “Installing a PCI adapter contained in a cassette with the power on in AIX” on page 211.
- 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:

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 214.
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 221.
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 cassette" on page 209.
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.

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

You can replace a PCI adapter cassette from the 5802 or 5877 expansion unit that is running the IBM i operating system with the system power on.

You must have already completed the procedure "Removing a PCI adapter contained in a cassette from the expansion unit with the power on in IBM i" on page 216 to have the slot powered off.

To replace an adapter, do the following steps:

1. If the adapter needs to be placed in the PCI adapter cassette, see "PCI adapter single-width and double-width cassettes" on page 221.
2. At the back of the system, lift the cassette cover flap and identify the cassette slot you want to use.
3. Install the PCI adapter cassette in the system. Refer to "Installing a PCI adapter cassette" on page 209.
4. Select **Power on domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
5. Select **Assign to** on the resource that has an asterisk (*) on the Work with Controlling Resource display. Press Enter.
6. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:
   ```
   Power on complete
   ```
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 Linux

You can replace a PCI adapter cassette from the 5802 or 5877 expansion unit that is running the Linux operating system with the system power on.

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 217 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, follow the steps in "Installing a PCI adapter contained in a cassette with the power on in Linux" on page 213.

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

1. If the adapter needs to be placed in the PCI adapter cassette, see "PCI adapter single-width and double-width cassettes" on page 221.
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 drslot_chrp_pci 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:
   ```
   drslot_chrp_pci -R -s U7879.001.DQD014E-P1-C3
   ```

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 209.
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. .

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

1. Perform the prerequisite tasks described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
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 the pivot pin.
   c. Slide the cover off the cassette.

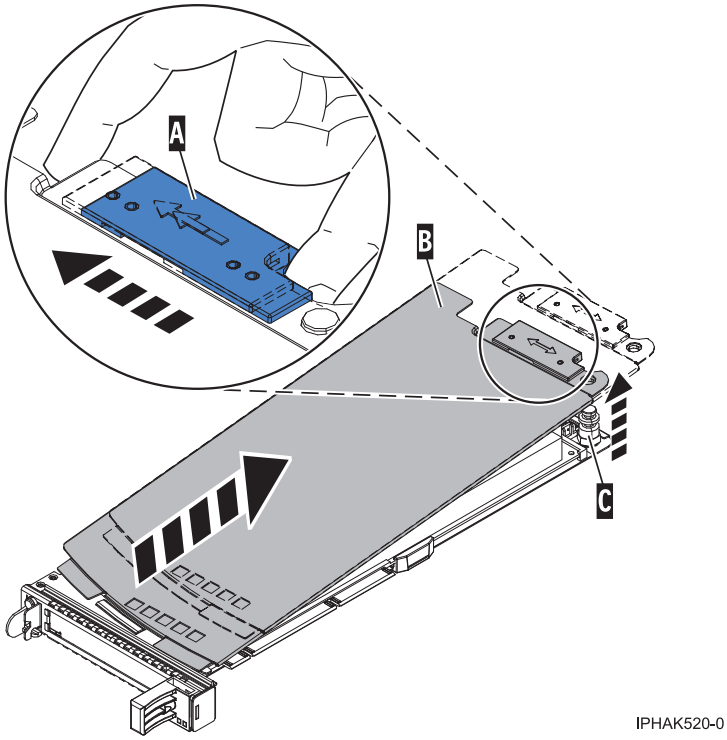


Figure 169. PCI adapter cassette cover removed

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 170.

   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.

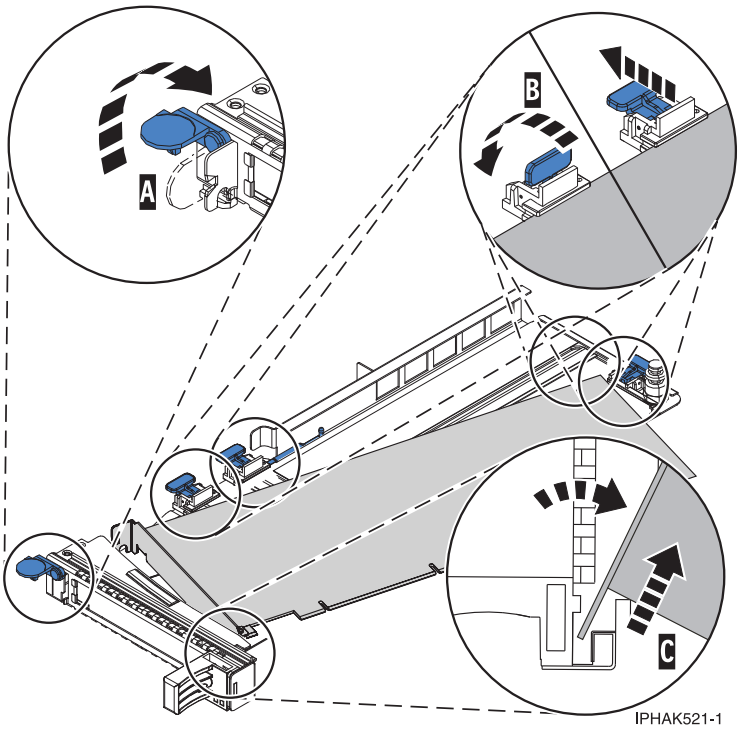


Figure 170. Adapter removed from the PCI adapter cassette

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 223.
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.

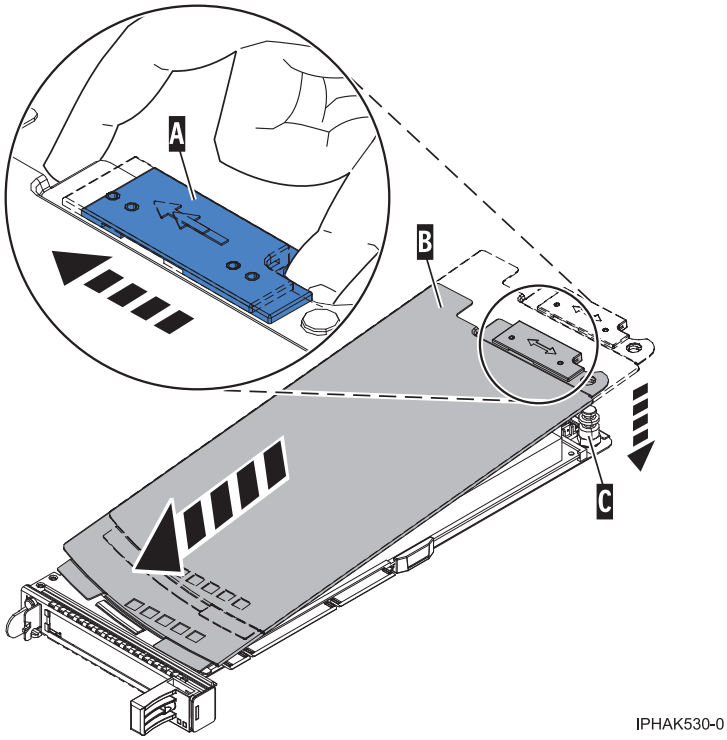


Figure 171. PCI adapter cassette cover replaced

Placing a PCI adapter in a single-width cassette

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

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

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
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 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.

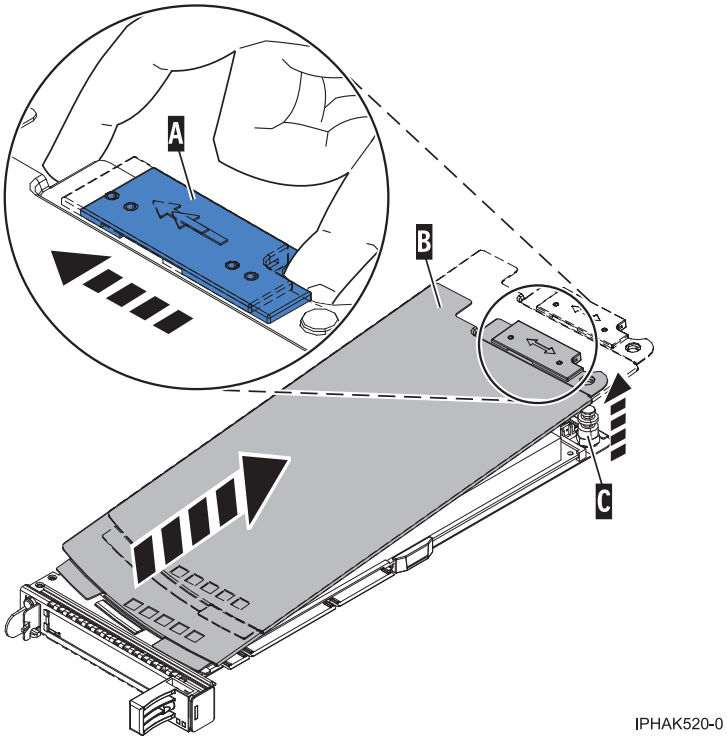


Figure 172. PCI adapter single-width cassette cover removed

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 221.
      - 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 173 on page 225.

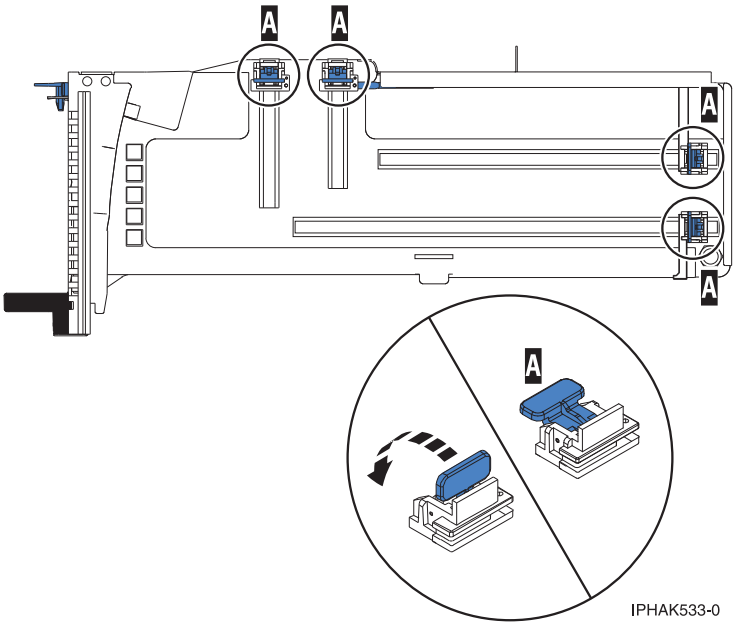


Figure 173. Adapter retainers

c. Rotate the tailstock clamp into the open position.

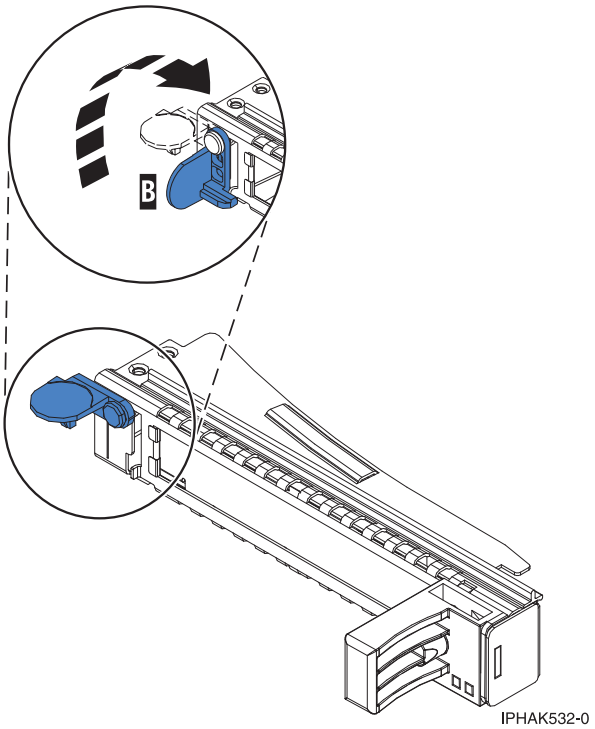


Figure 174. Tailstock clamp in the open position

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 175 on page 226.
   b. Rotate the adapter toward the top of the cassette and into place.

c. Close the tailstock clamp **(B)**. See Figure 175.

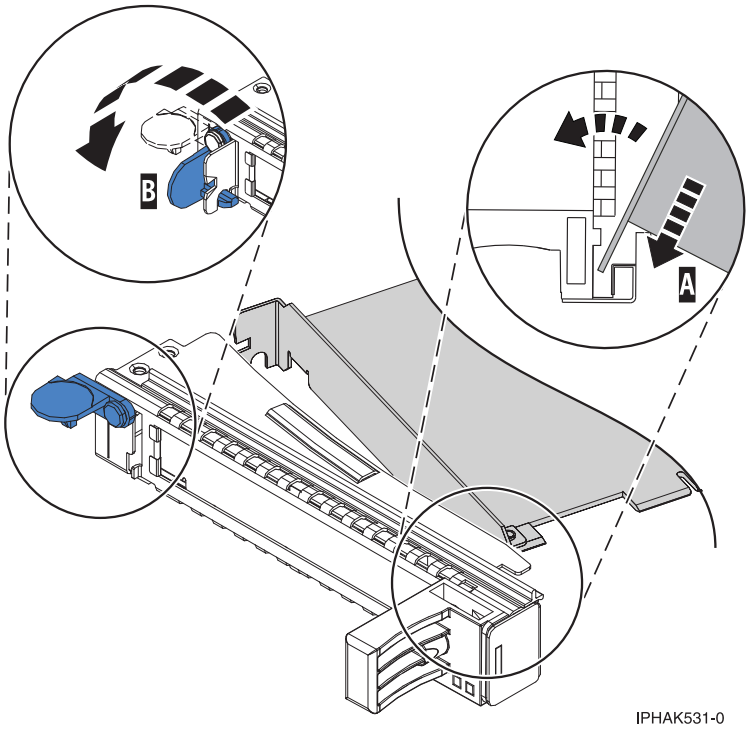


Figure 175. Adapter removed from the PCI adapter single-width cassette

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 176 on page 227.

      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.

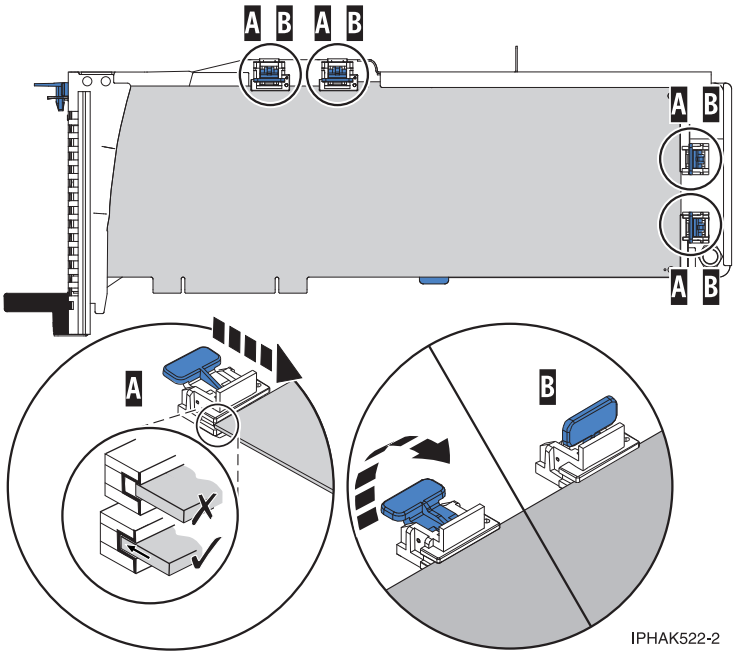


Figure 176. Large adapter in the PCI adapter cassette with the supports and stabilizer in place

Adapter-cassette retainer placement for medium-length adapters

a) Remove the adapter stabilizer **(C)**. See Figure 177 on page 228.

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.

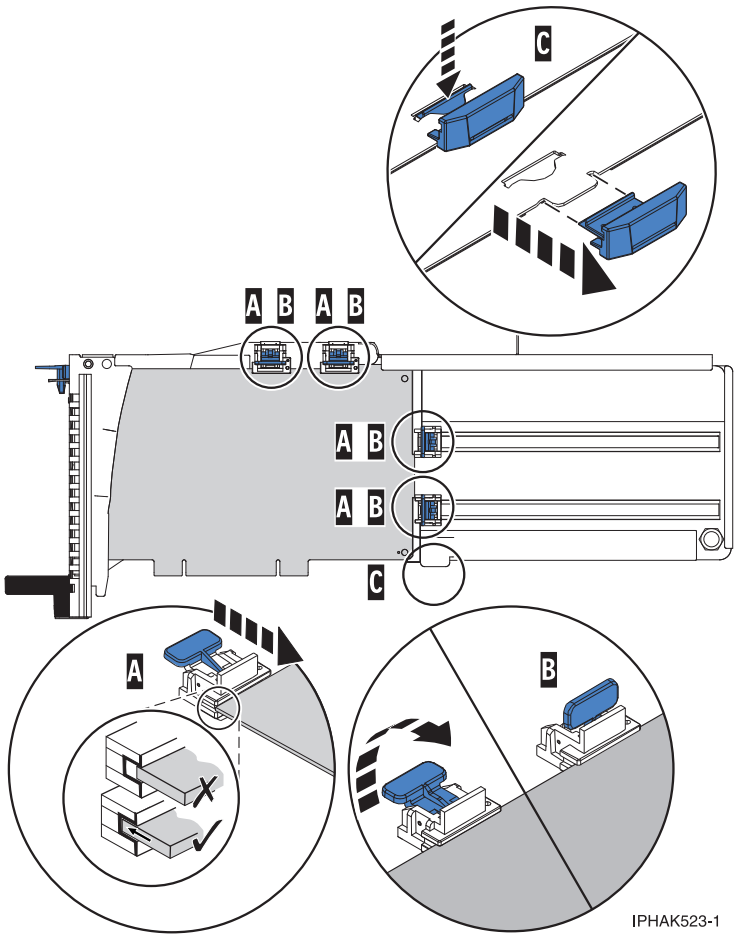


Figure 177. Medium-length adapter in the PCI adapter cassette with the supports in place

Adapter-cassette retainer placement for small adapters

a) Remove the adapter stabilizer **(C)**. See Figure 178 on page 229.

b) 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.

c) Place and lock the retainers **(B)**.

d) 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.

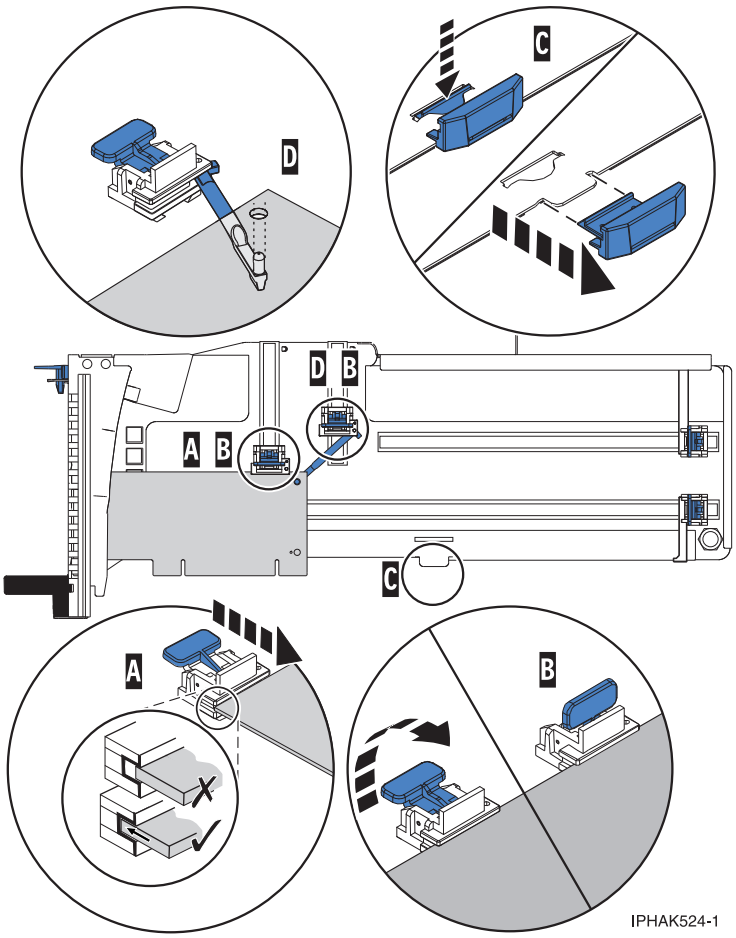


Figure 178. Small adapter in the PCI adapter cassette with the supports and the hookarm in place

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.

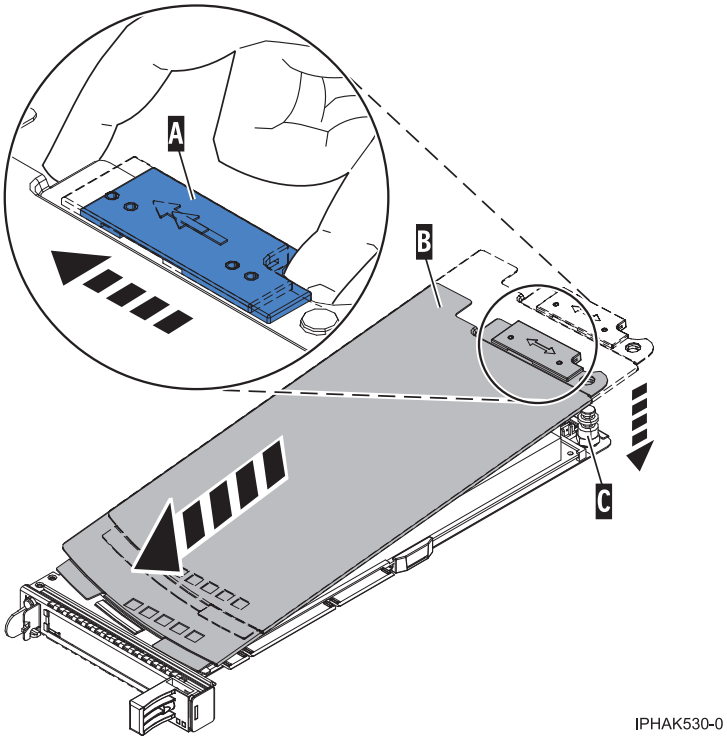


Figure 179. PCI adapter cassette cover replaced

Removing an adapter from the PCI adapter double-wide cassette

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

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

1. Perform the prerequisite tasks described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
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.

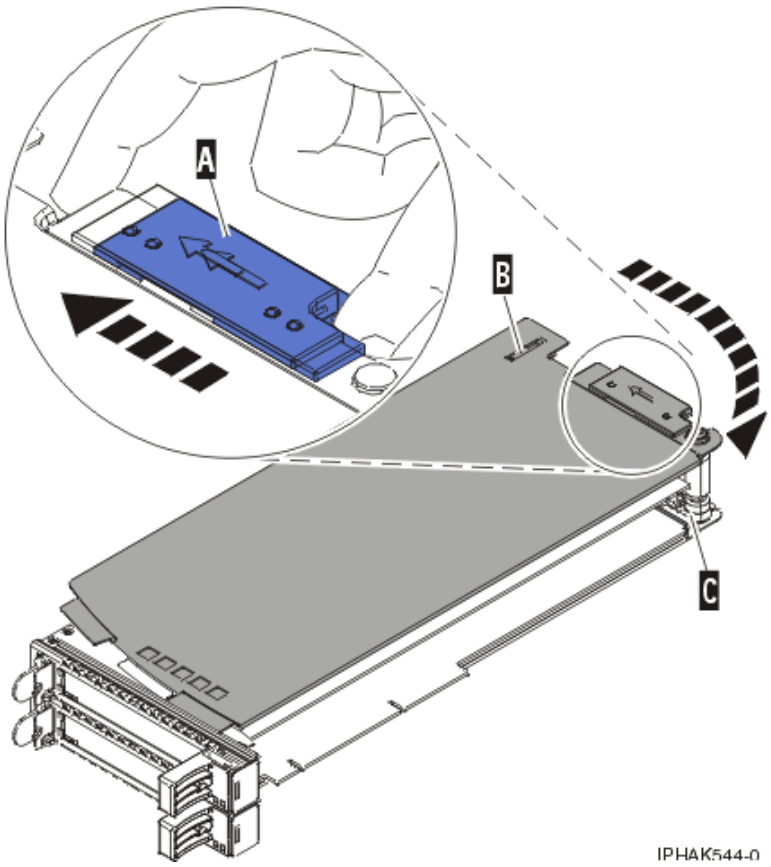


Figure 180. PCI adapter cassette cover removed

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 by rotating the retainer clip **(A)** into the horizontal position. See Figure 181 on page 232.

      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.

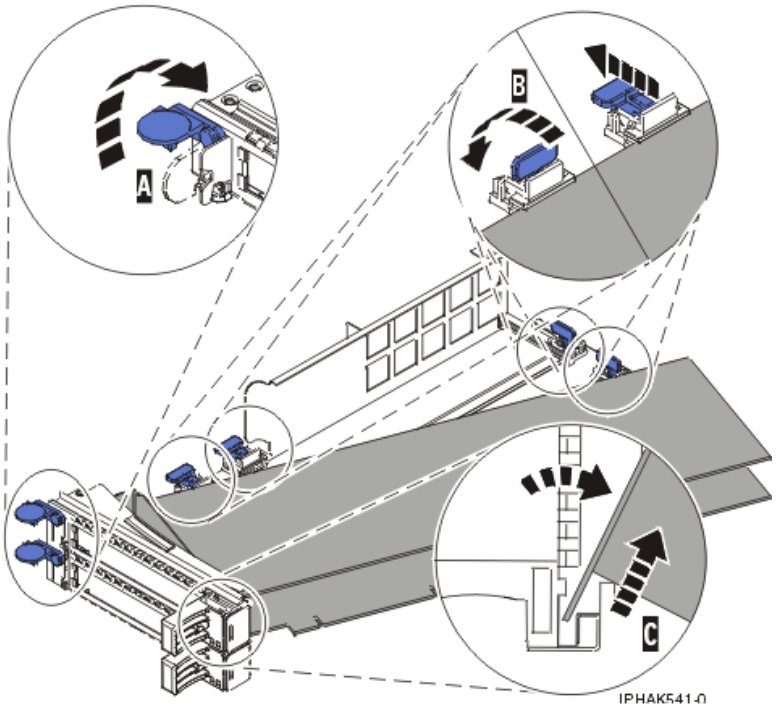


Figure 181. Adapter removed from the PCI adapter cassette

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 233.

   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.

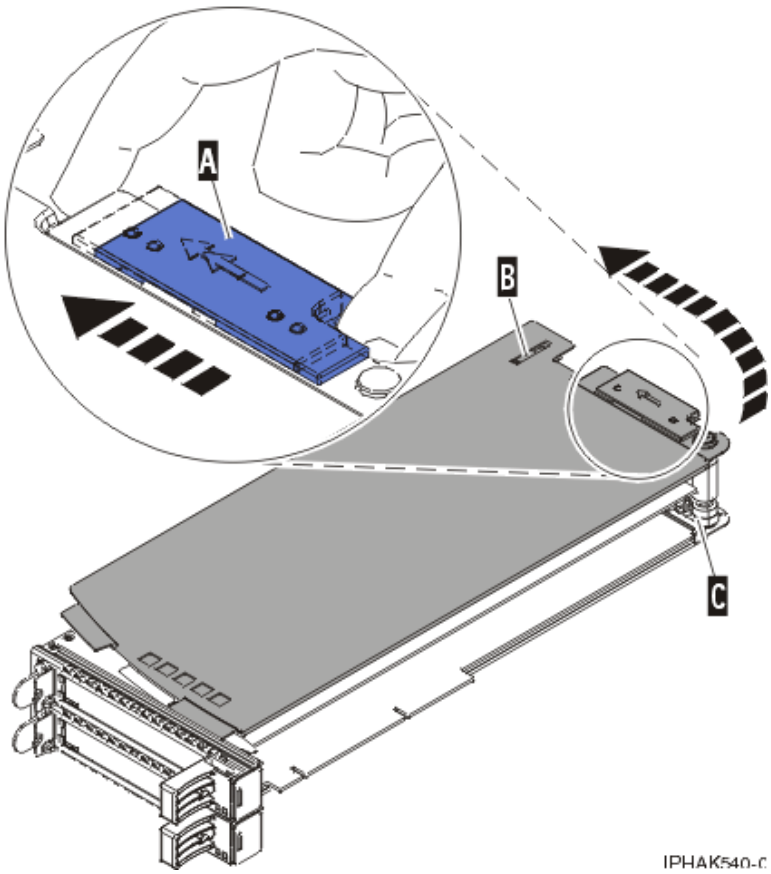


Figure 182. PCI adapter cassette cover replaced

Placing an adapter in the PCI adapter double-wide cassette

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

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

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
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.

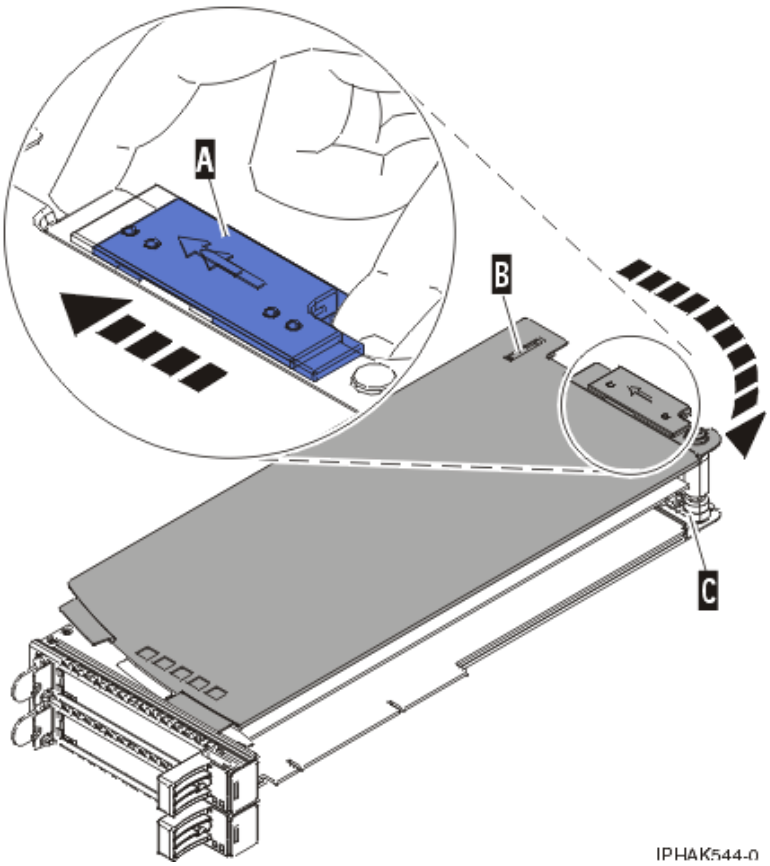


Figure 183. PCI adapter cassette cover removed

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 230.
      - 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 steps:
   a. With the tailstock clamp in the open position, insert the adapter firmly into the tailstock retaining channel **(A)**. See Figure 184 on page 235.
   b. Rotate the adapter toward the top of the cassette and into place.
   c. Close the tailstock clamp.

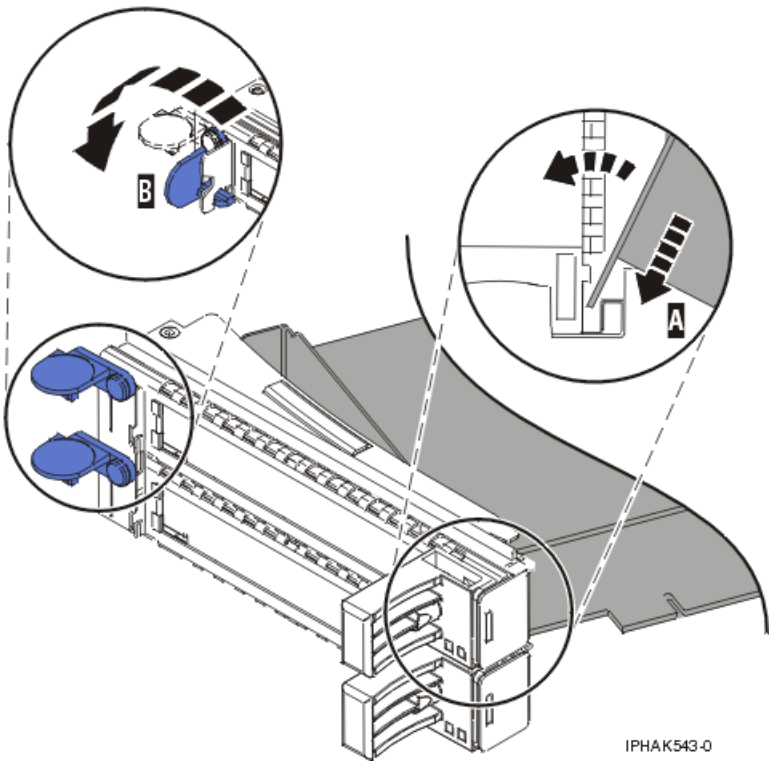


Figure 184. Adapter replaced in the PCI adapter cassette

d. Position the adapter retainers to support the adapter, and then rotate the retainer clip **(B)** into the closed position. See Figure 184.

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 185 on page 236.

   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.

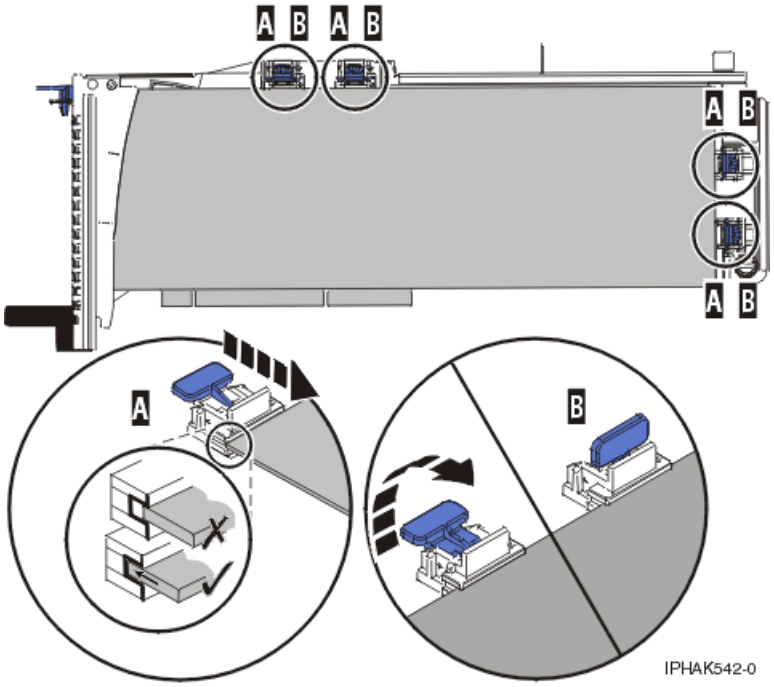


Figure 185. Long adapter in the PCI adapter cassette with the supports and stabilizer in place

6. After the retainers are placed, replace the cassette cover by doing the following 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.

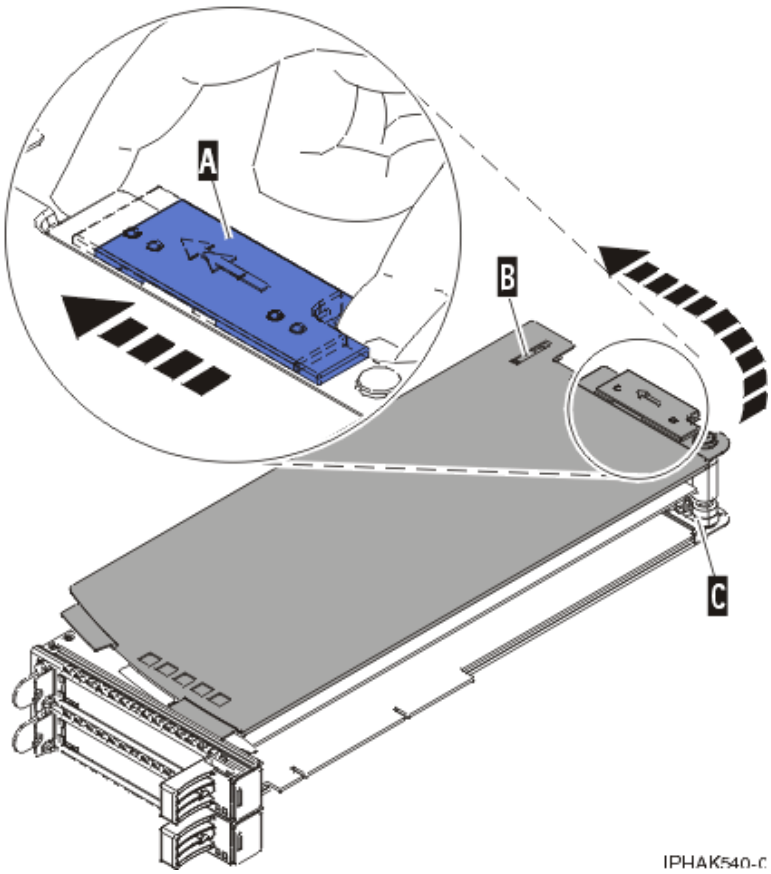


Figure 186. PCI adapter cassette cover replaced

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.

Expansion units that do not use cassettes

You might need remove, replace, or install PCI adapters in expansion units that do not use cassettes.

Important: If you are installing a new feature, ensure that you have the software required to support the new feature and determine whether there are any existing PTF prerequisites to install. To do this, use the IBM Prerequisite Web site at http://www-912.ibm.com/e_dir/eServerPrereq.nsf .

Important:

- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.
- If you are replacing a 2748, 2757, 2763, 2767, 2778, 2780, 2782, 5702, 5703, 5709, or 570B storage IOA, take note of the following: Depending on the configuration of the system, the storage IOA might have been altered or 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 in an expansion unit that does not use cassettes

You can install a PCI adapter.

Installing a PCI adapter in an expansion unit that does not use cassettes, with the power off

You can install a PCI adapter with the power off.

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

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

1. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
2. Determine in which slot to place the PCI adapter. For system-specific adapter placement information, see the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.
3. Perform the prerequisite tasks described in "Before you begin" on page 288.
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.

   Note: This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
6. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system or expansion unit, follow these steps to remove the service access cover. If you are servicing a stand-alone system, go to the next numbered step.
   - For the 0595, 5095, or D20 expansion unit, follow these steps:
     a. Open the front rack door.
     b. Place the system or expansion unit in the service position.
     c. Remove or open the service access cover.
   - For all other rack-mounted expansion units, follow these steps:
     a. Open the back rack door.
     b. Remove the cover or covers.
7. If you are installing a PCI adapter in a stand-alone expansion unit, remove the back door.
8. If necessary, remove the adapter expansion slot shield.
9. If necessary, remove the adapter from the antistatic package.

   Attention: Avoid touching the components and gold connectors on the adapter.
10. Place the adapter, component-side up, on a flat, antistatic surface.
11. 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.
12. Rotate the adapter locking latch counterclockwise as shown in Figure 187 on page 239 or Figure 188 on page 240.

13. Lift the black tab attached to the adapter retainer assembly, and keep the black tab in a vertical position.
14. Ensure the slot is empty. Remove the adapter filler plate if one is present. If an adapter is present in the slot you want to use, see the instructions in “Removing a PCI adapter in an expansion unit that does not use cassettes” on page 257 and then return here.

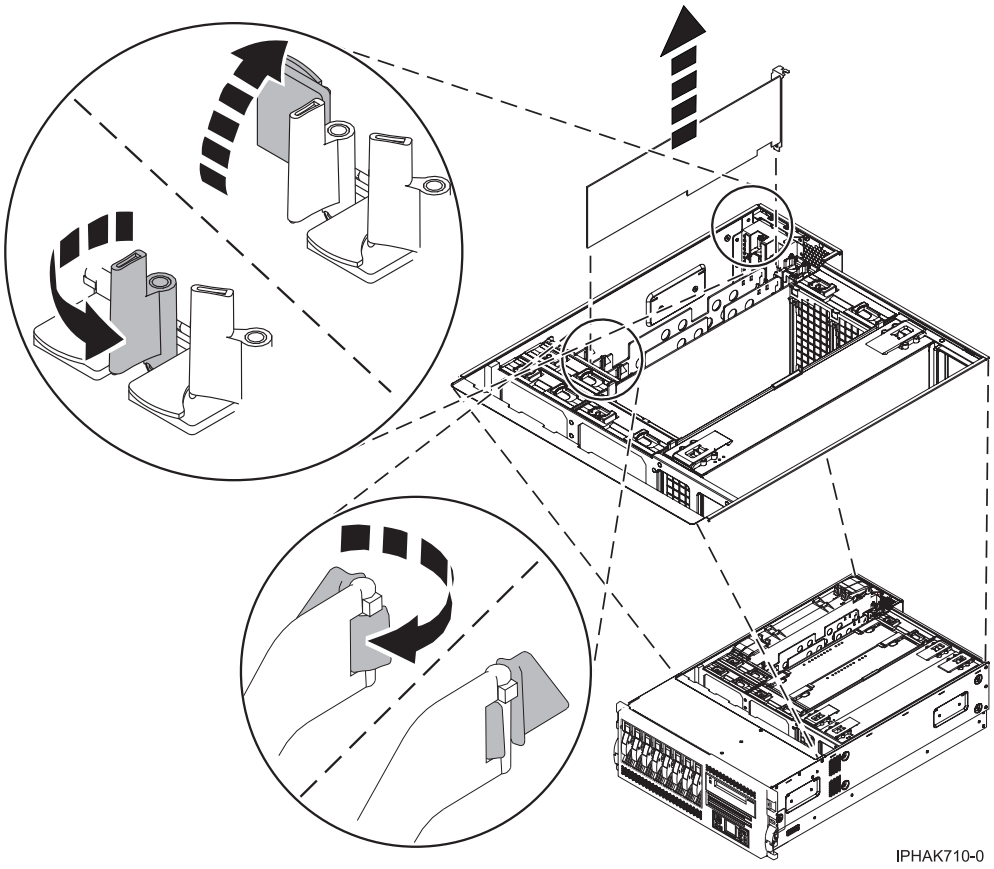


Figure 187. PCI adapter or filler plate removed from the rack-mounted unit

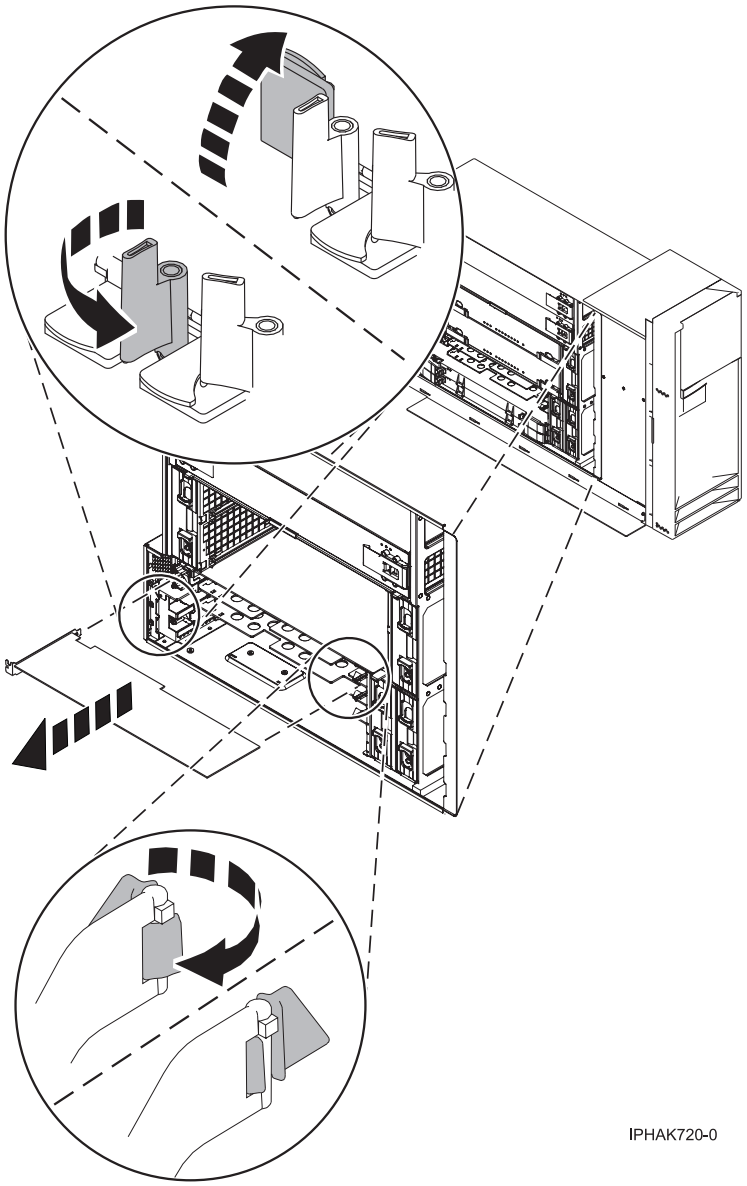


Figure 188. PCI adapter or filler plate removed from the stand-alone unit

15. Carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
16. Press the adapter firmly into its connector.
17. Secure the adapter. Lower the tab onto the PCI adapter faceplate. Rotate the adapter locking latches clockwise as shown in Figure 189 on page 241 or Figure 190 on page 242.

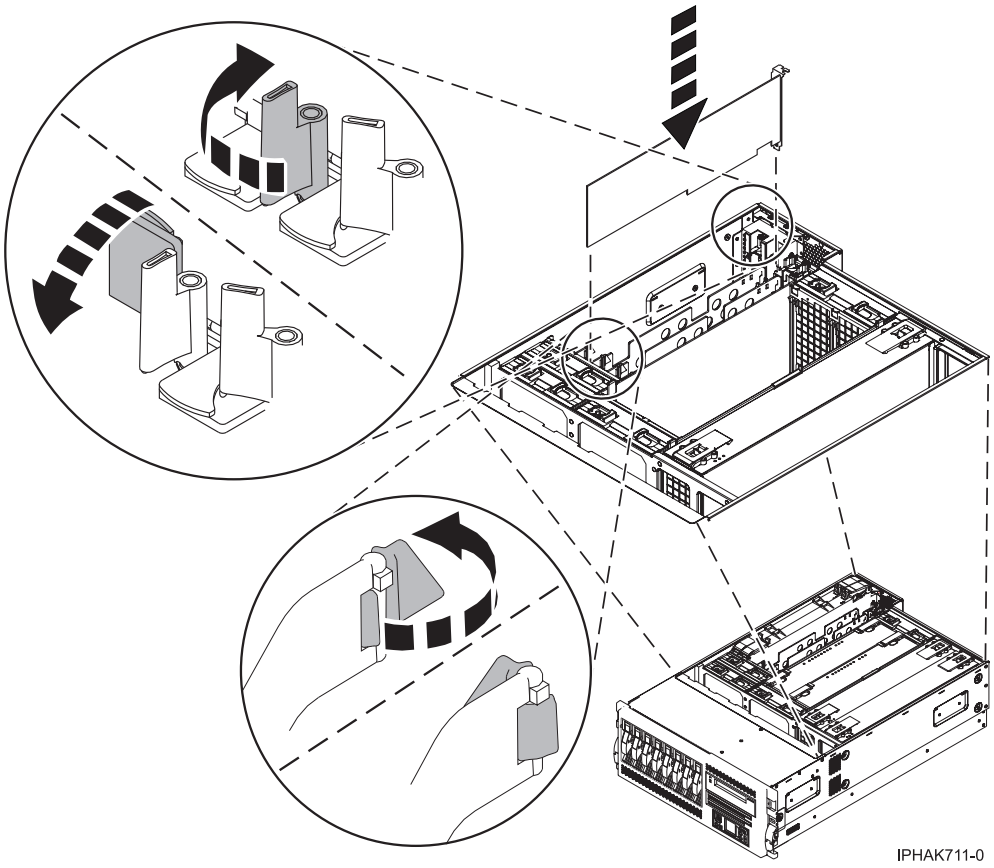


Figure 189. PCI adapter replaced in the rack-mounted unit

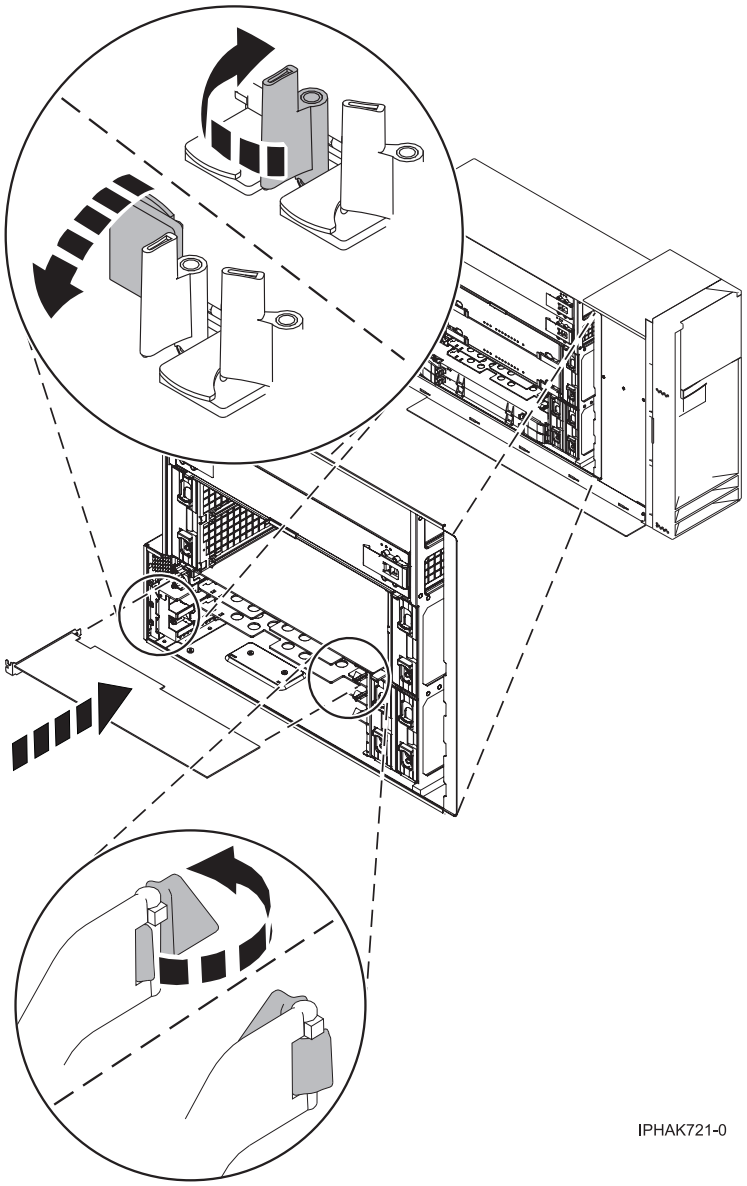


Figure 190. PCI adapter replaced in the stand-alone unit

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

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Installing a PCI adapter in an expansion unit that does not use cassettes, with the power on in AIX

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

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

To install a PCI adapter with the system power on in AIX, do the following steps:

1. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
2. Determine in which slot to place the PCI adapter. For system-specific adapter placement information, see the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.
3. Perform the prerequisite tasks described in "Before you begin" on page 288.
4. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
5. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system or expansion unit, follow these steps to remove the service access cover. If you are servicing a stand-alone system, go to the next numbered step.
   - For the 0595, 5095, or D20 expansion unit, follow these steps:
     a. Open the front rack door.
     b. Place the system or expansion unit in the service position.
     c. Remove or open the service access cover.
   - For all other rack-mounted expansion units, follow these steps:
     a. Open the back rack door.
     b. Remove the cover or covers.
6. If you are installing a PCI adapter in a stand-alone expansion unit, remove the back door.
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. Some PCI adapter cards 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.
11. Refer to "PCI hot-plug manager access for AIX" on page 295, and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.
12. 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.
13. Select the appropriate empty PCI slot from the ones listed on the screen, and press Enter.
14. Rotate the adapter locking latches counterclockwise as shown in the following figures.
15. Lift the black tab attached to the adapter retainer assembly, and keep the black tab in a vertical position.

16. Remove the adapter filler plate if one is present.

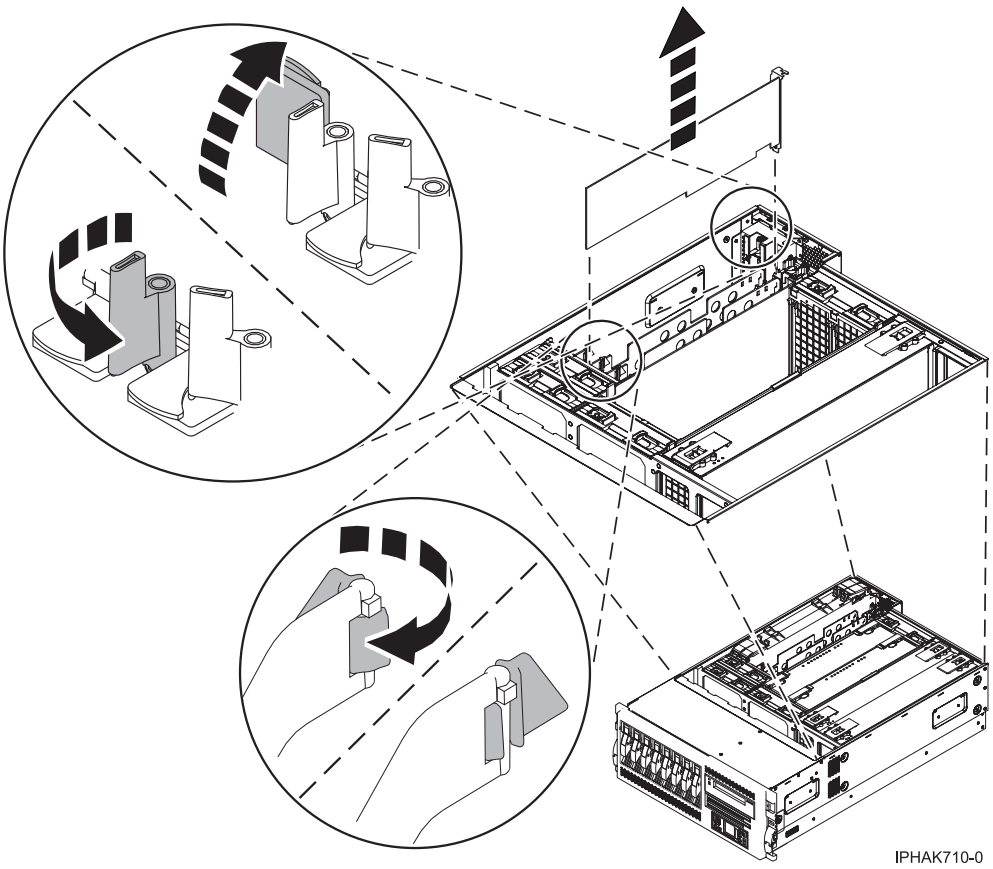


Figure 191. PCI adapter or filler plate removed from the rack-mounted unit

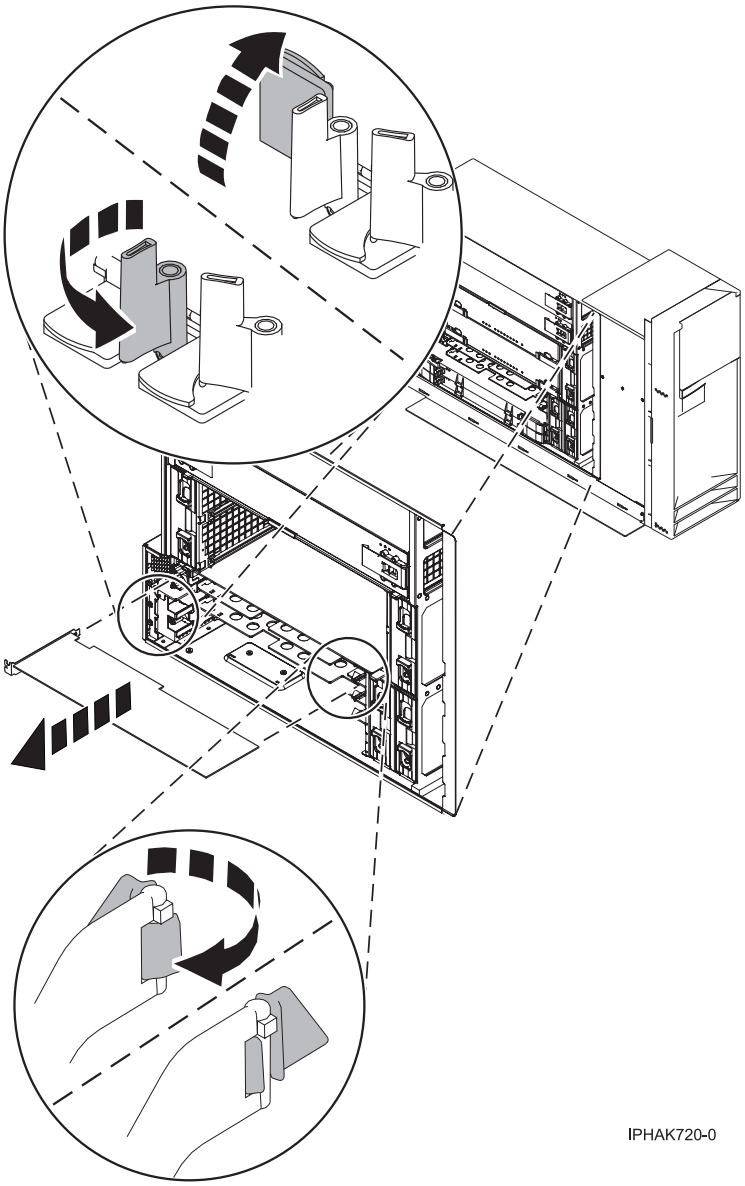


Figure 192. PCI adapter or filler plate removed from the stand-alone unit

17. 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 297.
18. When you are instructed to install the adapter in the adapter slot, carefully grasp the adapter by the edges and align the adapter 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.
19. Press the adapter firmly into its connector.
20. Secure the adapter. Lower the tab onto the PCI adapter faceplate. Rotate the adapter locking latches clockwise as shown in the following figures.

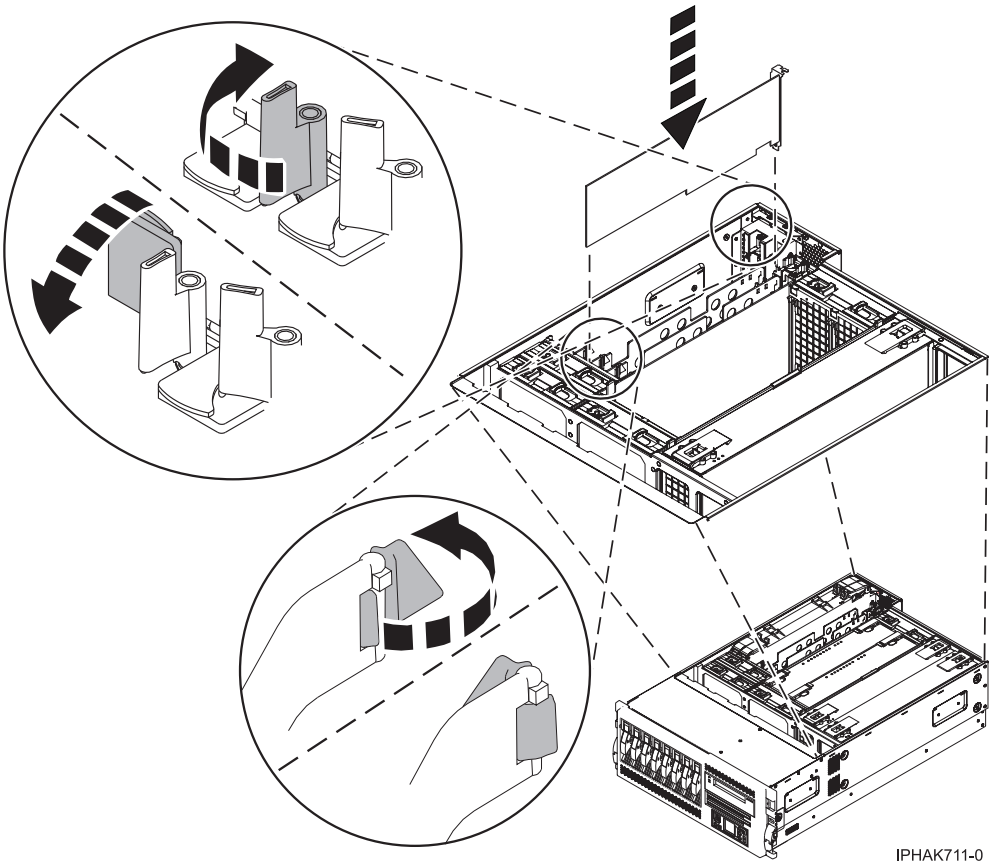


Figure 193. PCI adapter replaced in the rack-mounted unit

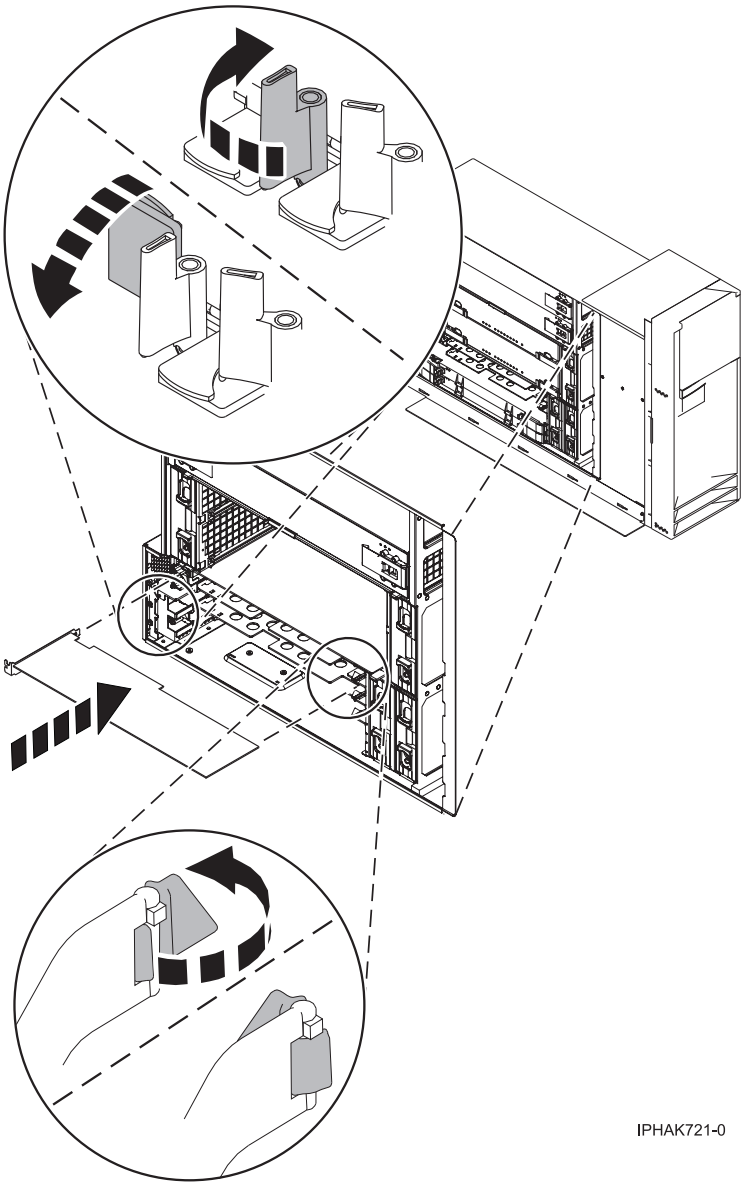


Figure 194. PCI adapter replaced in the stand-alone unit

21. Connect any adapter cables.
22. Replace or close the system covers and, if applicable, return the rack-mounted system to the operating position.
23. Run the cfgmgr command to configure the adapter.
24. Verify that the new resource is functional. See Verify the installed part.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Installing a PCI adapter in an expansion unit that does not use cassettes, with the power on in IBM i

You can install a PCI adapter with the system power on in the i operating system.

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

To install a PCI adapter with the system power on in the i operating system, do the following steps:

1. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
2. Determine in which slot to place the PCI adapter. For system-specific adapter placement information, see the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.
3. Perform the prerequisite tasks described in "Before you begin" on page 288.
4. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system or expansion unit, follow these steps to remove the service access cover. If you are servicing a stand-alone system, go to the next numbered step.
   - For the 0595, 5095, or D20 expansion unit, follow these steps:
     a. Open the front rack door.
     b. Place the system or expansion unit in the service position.
     c. Remove or open the service access cover.
   - For all other rack-mounted expansion units, follow these steps:
     a. Open the back rack door.
     b. Remove the cover or covers.
5. If you are installing a PCI adapter in a stand-alone expansion unit, remove the back door.
6. If necessary, remove the adapter expansion slot shield.
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. Type **strsst** on the command line of the Main Menu and then press Enter.
11. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display. Press Enter.
12. Select **Start a service tool** from the System Service Tools (SST) display and press Enter.
13. Select **Hardware service manager** from the Start a Service Tool display and press Enter.
14. Select **Packaging hardware resources (system, frames, cards)** from the Hardware Service Manager display. Press Enter.
15. Type **9** (Hardware contained within package) in the *System Unit* or *Expansion Unit* field of the unit where you are replacing the card. Press Enter.
16. Select the option to **Include empty positions**.
17. Select **Concurrent Maintenance** on the card position where you want to replace the card and then press Enter.
18. Select the option to **Toggle LED blink off/on**. A light-emitting diode (LED) blinks identifying the position you chose. Physically verify that this is the slot where you want to install the adapter.
19. Select the option to **Toggle LED blink off/on** to stop the blinking LED.
20. Rotate the adapter locking latch counterclockwise as shown in the following figures.
21. Lift the black tab attached to the adapter retainer assembly, and keep the black tab in a vertical position.

22. Remove the adapter filler plate if one is present.

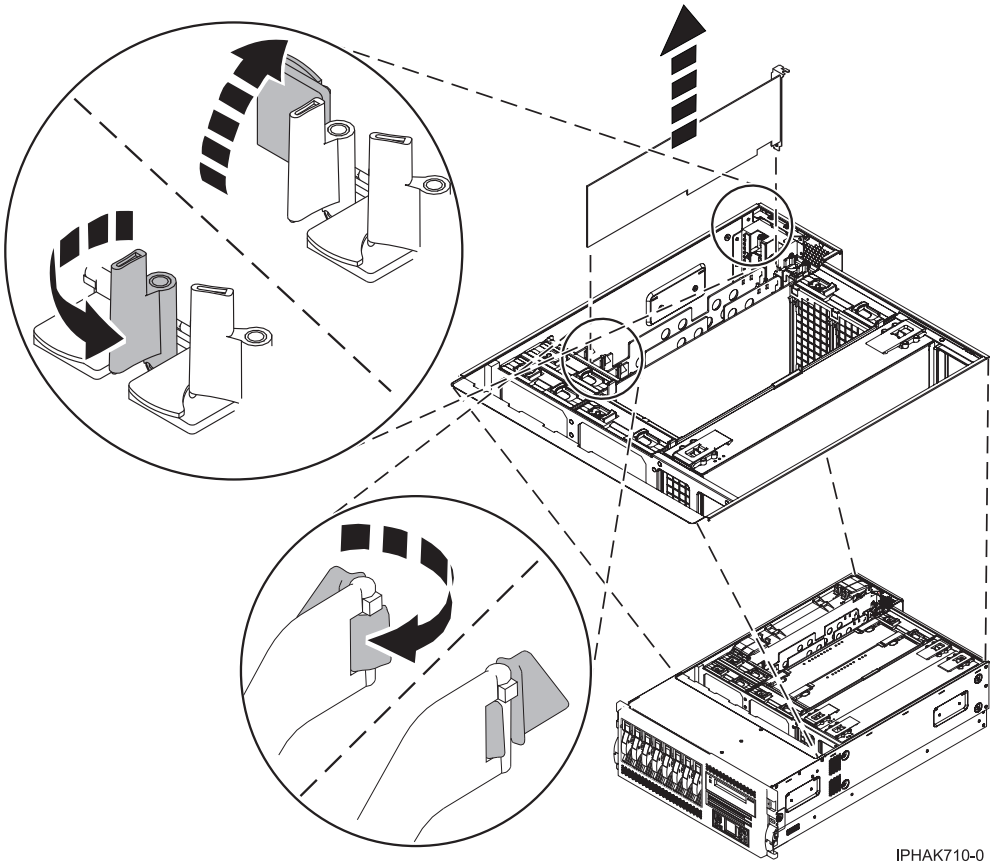


Figure 195. PCI adapter or filler plate removed from the rack-mounted unit

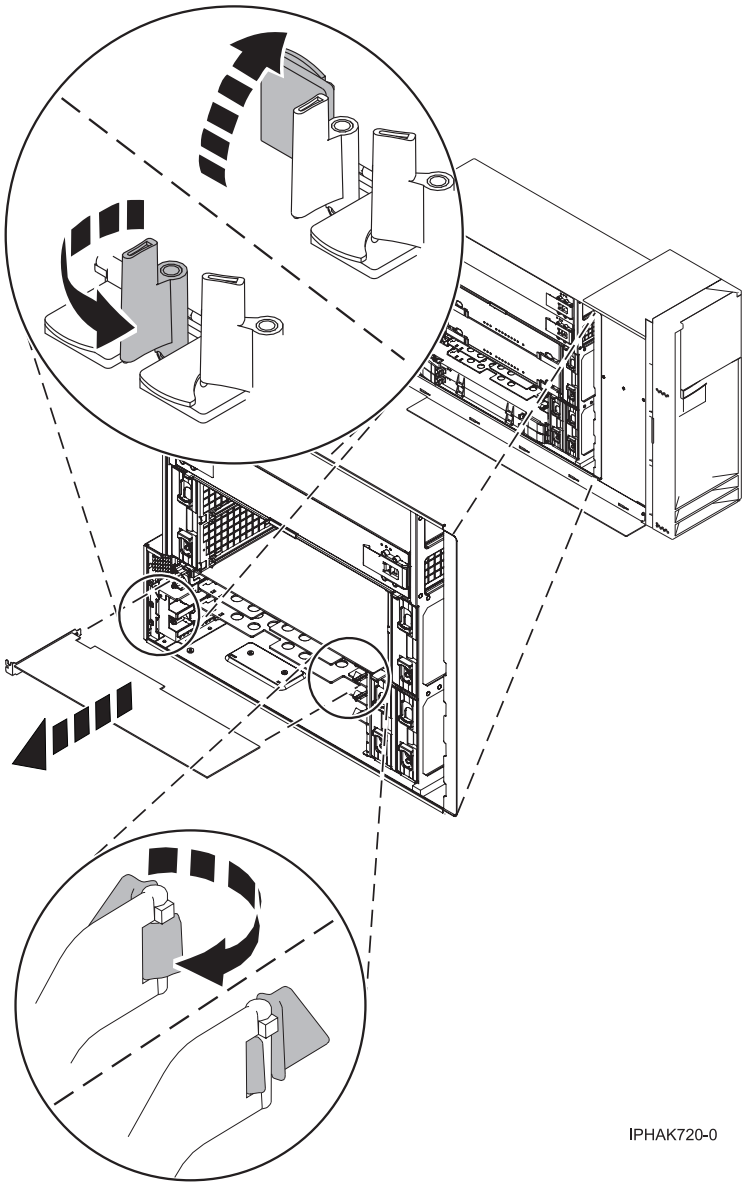


Figure 196. PCI adapter or filler plate removed from the stand-alone unit

23. Carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
24. Press the adapter firmly into its connector.
25. Secure the adapter. Lower the tab onto the PCI adapter faceplate. Rotate the adapter locking latches clockwise as shown in the following figures.

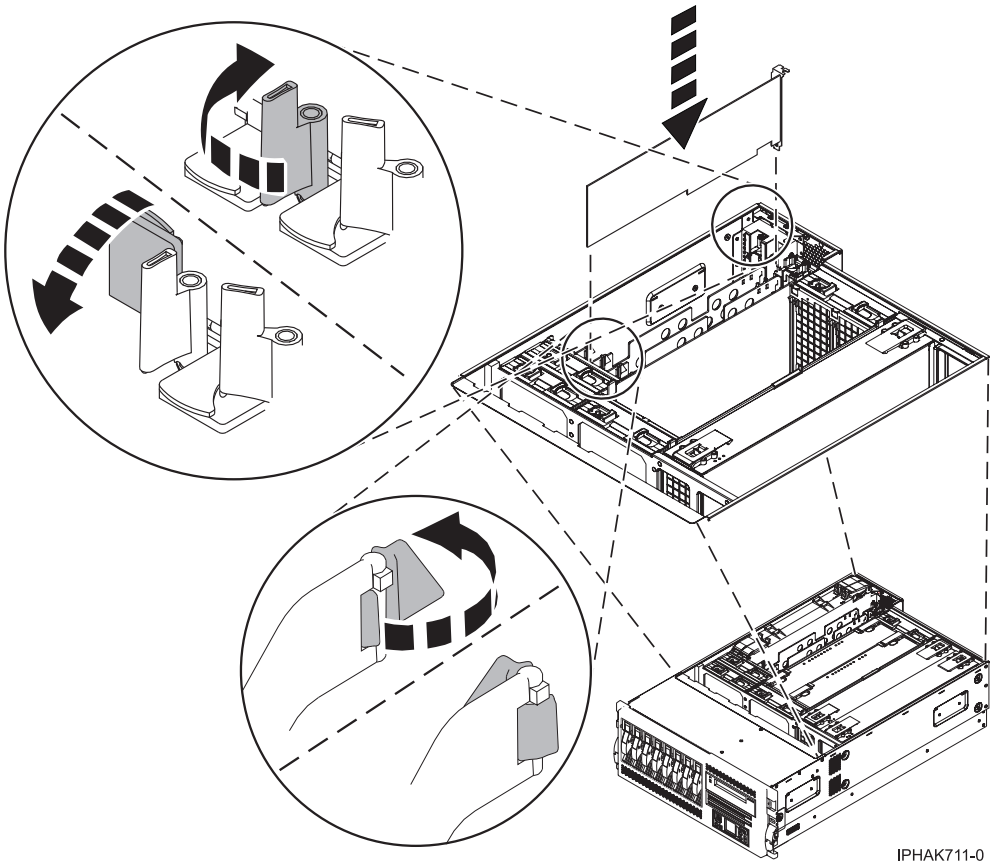


Figure 197. PCI adapter replaced in the rack-mounted unit

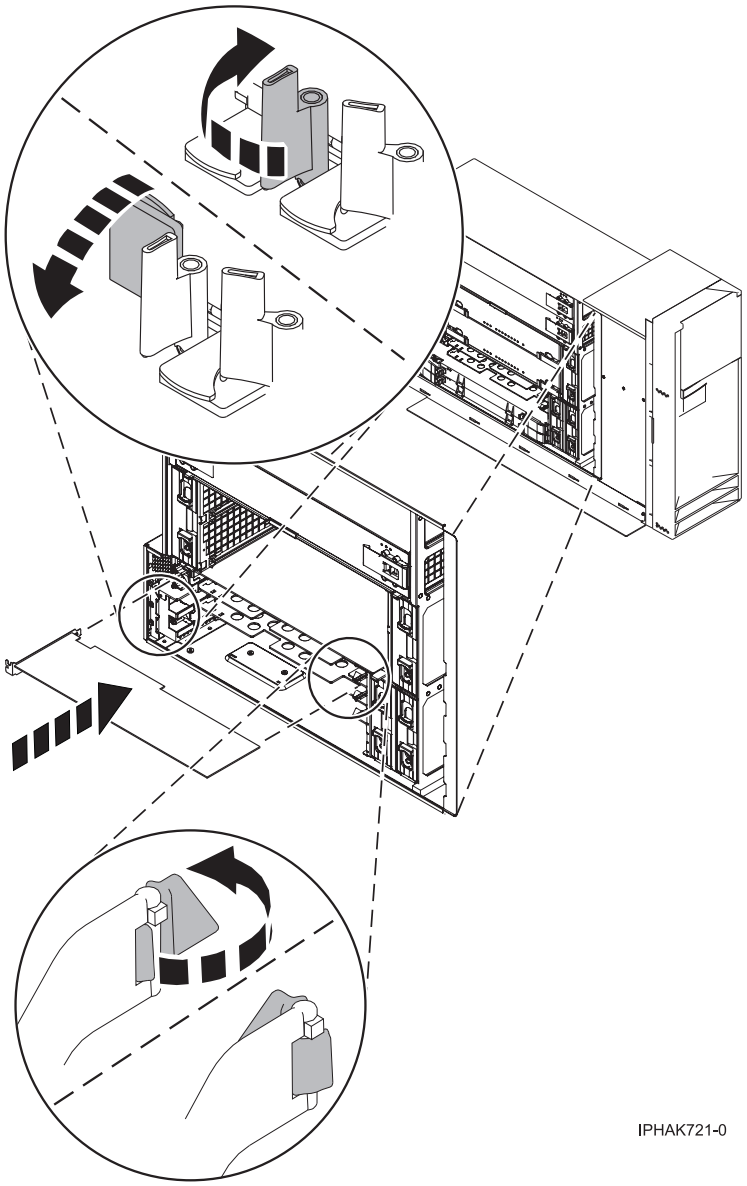


Figure 198. PCI adapter replaced in the stand-alone unit

26. Connect any adapter cables.
27. Select **Power on domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
28. Select **Assign to** on the resource that has an asterisk (*) on the Work with Controlling Resource display. Press Enter.
29. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:
    `Power on complete`
30. Replace or close the system covers and, if applicable, return the rack-mounted system to the operating position.
31. Verify that the new resource is functional. See Verify the installed part.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Installing a PCI adapter in an expansion unit that does not use cassettes, with the power on in Linux

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

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

To install a PCI adapter with the system power on in Linux, do the following steps:

1. Ensure that the system meets the "Prerequisites for hot-plugging PCI adapters in Linux" on page 298.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
3. Verify that the Linux, hot-plug PCI tools are installed. See "Verify that the Linux, hot-plug PCI tools are installed" on page 298.
4. Determine in which slot to place the PCI adapter. For system-specific adapter placement information, see the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.
5. Perform the prerequisite tasks described in "Before you begin" on page 288.
6. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system or expansion unit, follow these steps to remove the service access cover. If you are servicing a stand-alone system, go to the next numbered step.
   - For the 0595, 5095, or D20 expansion unit, follow these steps:
     a. Open the front rack door.
     b. Place the system or expansion unit in the service position.
     c. Remove or open the service access cover.
   - For all other rack-mounted expansion units, follow these steps:
     a. Open the back rack door.
     b. Remove the cover or covers.
7. If you are installing a PCI adapter in a stand-alone expansion unit, remove the back door.
8. If necessary, remove the adapter expansion slot shield.
9. If necessary, remove the adapter from the antistatic package.

   Attention: Avoid touching the components and gold connectors on the adapter.
10. Place the adapter, component-side up, on a flat, antistatic surface.
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. Rotate the adapter locking latch counterclockwise as shown in the following figures.

14. Lift the black tab attached to the adapter retainer assembly, and keep the black tab in a vertical position.
15. Ensure the slot is empty. Remove the adapter filler plate if one is present.

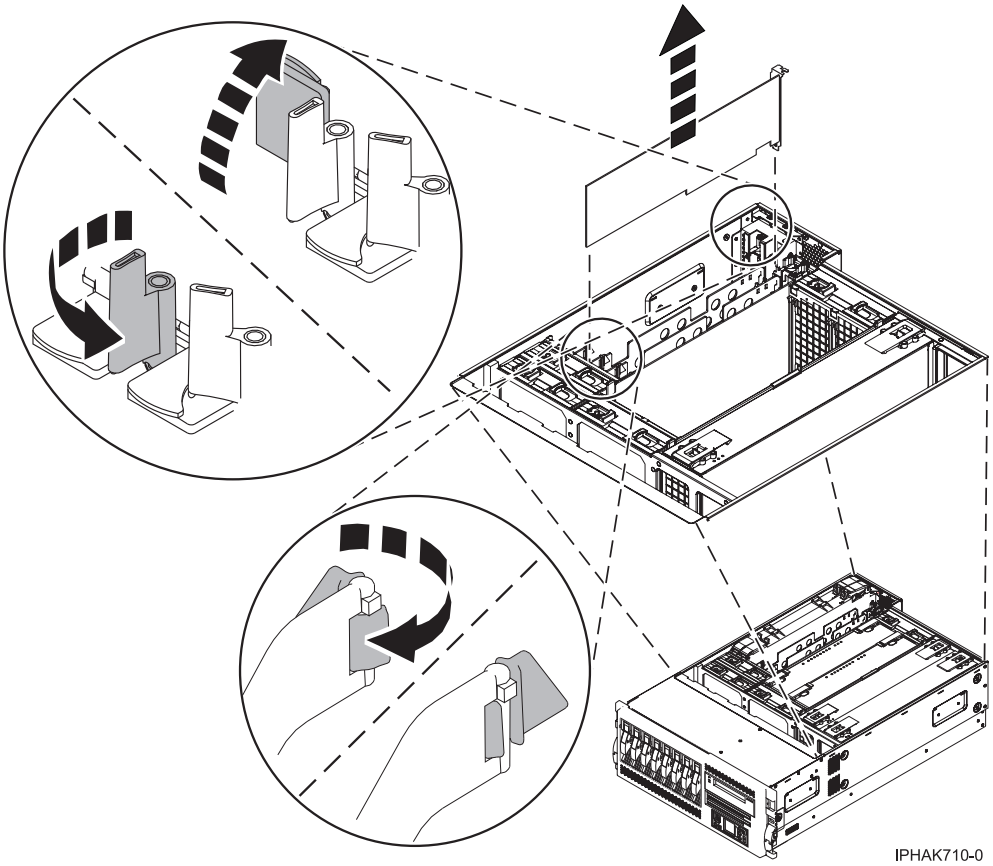


Figure 199. PCI adapter or filler plate removed from the rack-mounted unit

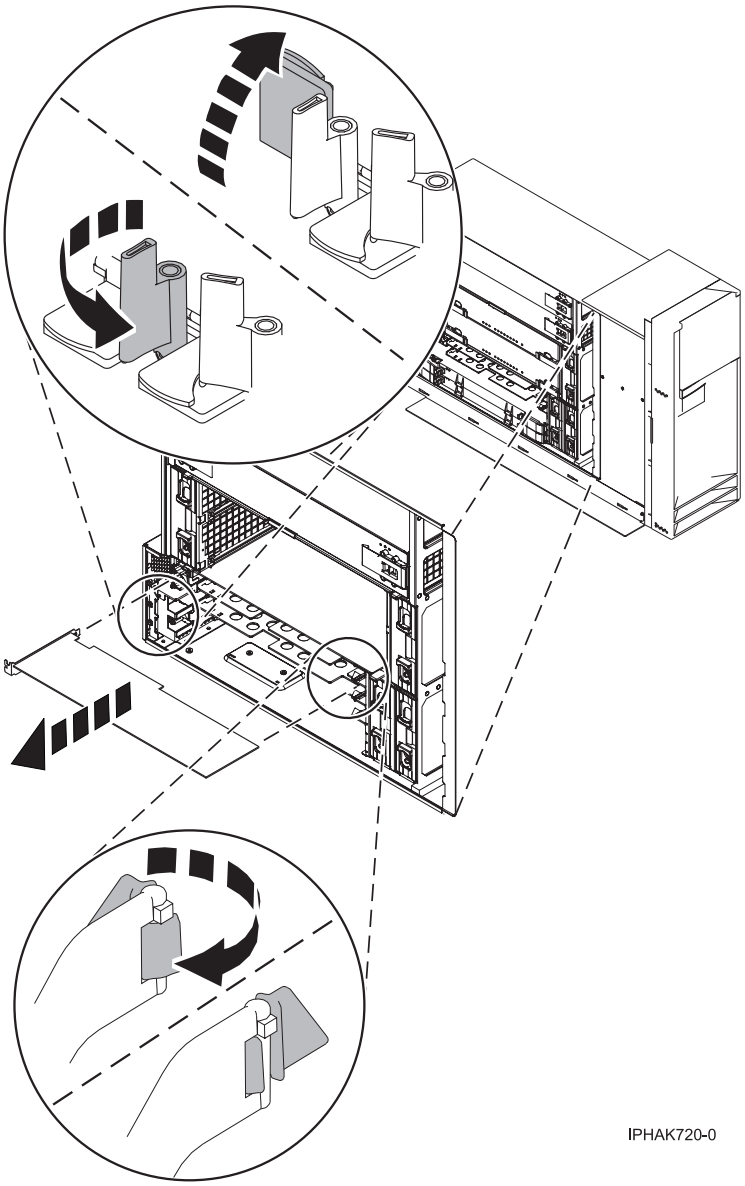


Figure 200. PCI adapter or filler plate removed from the stand-alone unit

16. Run the drslot_chrp_pci 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:

    ```
    drslot_chrp_pci -a -s U7879.001.DQD014E-P1-C3
    ```

    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.
    ```

17. 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.
    ```

18. When you are instructed to install the adapter 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. Secure the adapter. Lower the tab onto the PCI adapter faceplate. Rotate the adapter locking latches clockwise as shown in the following figures.
21. Connect any adapter cables.
22. 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
    ```
23. If you are servicing a rack-mounted system, route the cables through the cable-management arm.
24. Replace or close the system covers and, if applicable, return the rack-mounted system to the operating position.

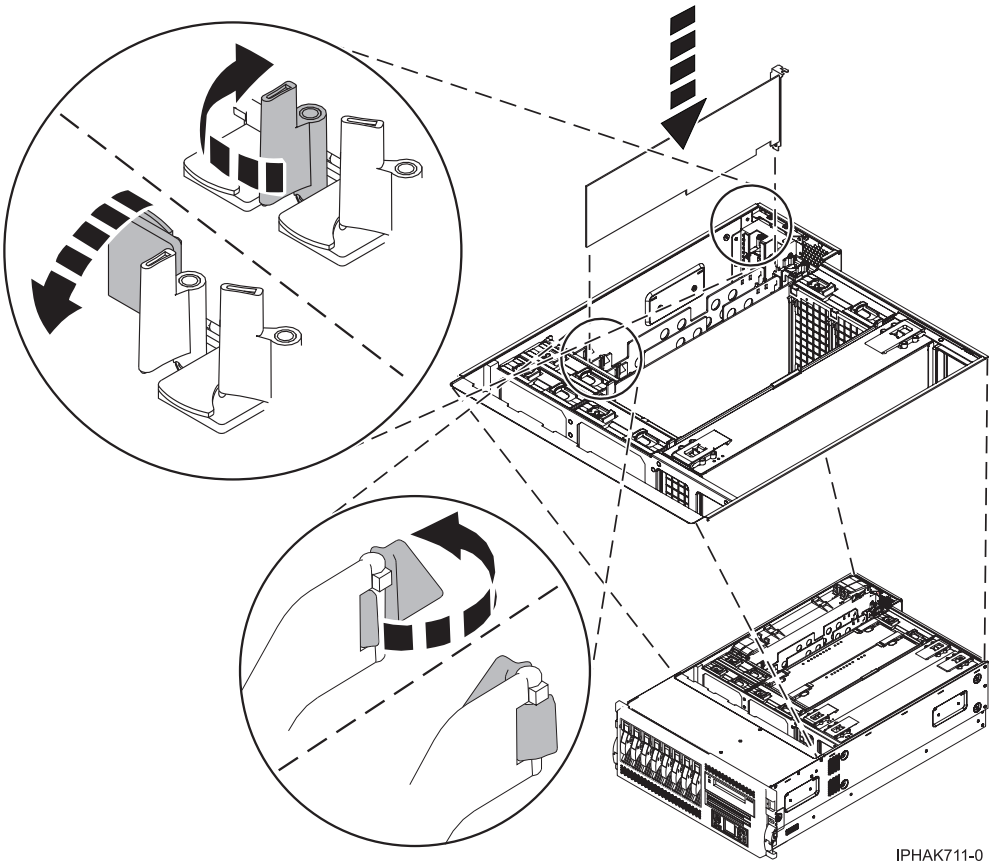


Figure 201. PCI adapter replaced in the rack-mounted unit

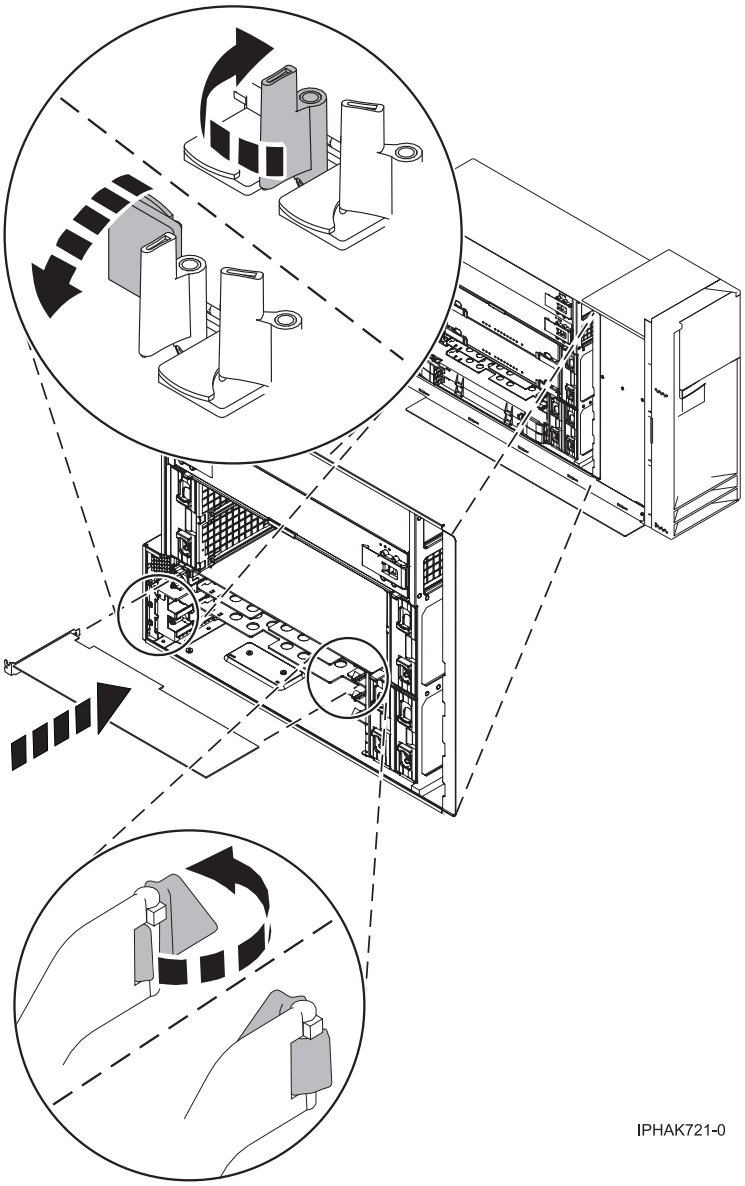


Figure 202. PCI adapter replaced in the stand-alone unit

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing a PCI adapter in an expansion unit that does not use cassettes

You can remove a PCI adapter from an expansion unit that does not use cassettes.

Important:

- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.

- If you are replacing a 2748, 2757, 2763, 2767, 2778, 2780, 2782, 5702, 5703, 5709, or 570B storage IOA, take note of the following: Depending on the configuration of the system, the storage IOA might have been altered or 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.

Removing a PCI adapter in an expansion unit that does not use cassettes, with the power off

You can remove a PCI adapter with the power off.

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

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

1. Perform the prerequisite tasks described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
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. 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.

   Note: This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
6. If you are installing, removing, or replacing a PCI adapter in a rack-mounted system or expansion unit, follow these steps to remove the service access cover. If you are servicing a stand-alone system, go to the next numbered step.
   - For the 0595, 5095, or D20 expansion unit, follow these steps:
     a. Open the front rack door.
     b. Place the system or expansion unit in the service position.
     c. Remove or open the service access cover.
   - For all other rack-mounted expansion units, follow these steps:
     a. Open the back rack door.
     b. Remove the cover or covers.
7. If you are installing a PCI adapter in a stand-alone expansion unit, remove the back door.
8. Determine which adapter you plan to remove, then label and disconnect all cables attached to that adapter.
9. Record the slot number and location of each adapter being removed.

   Note: Adapter slots are numbered on the rear of the system.
10. Rotate the adapter locking latch counterclockwise as shown in the following figures.
11. Lift the black tab attached to the adapter retainer assembly, and keep the black tab in a vertical position.
12. Carefully grasp the PCI adapter by its top edge or upper corners, and remove it from the system. Store the adapter in a safe place.

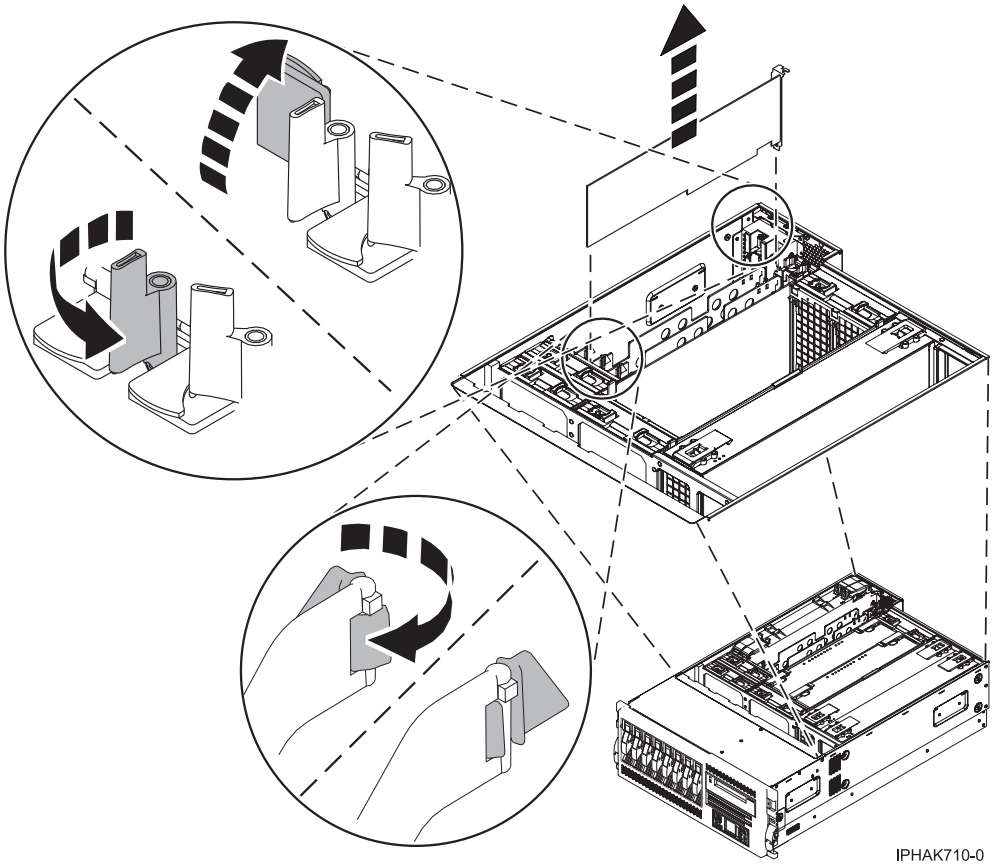


Figure 203. PCI adapter removed from the rack-mounted system unit

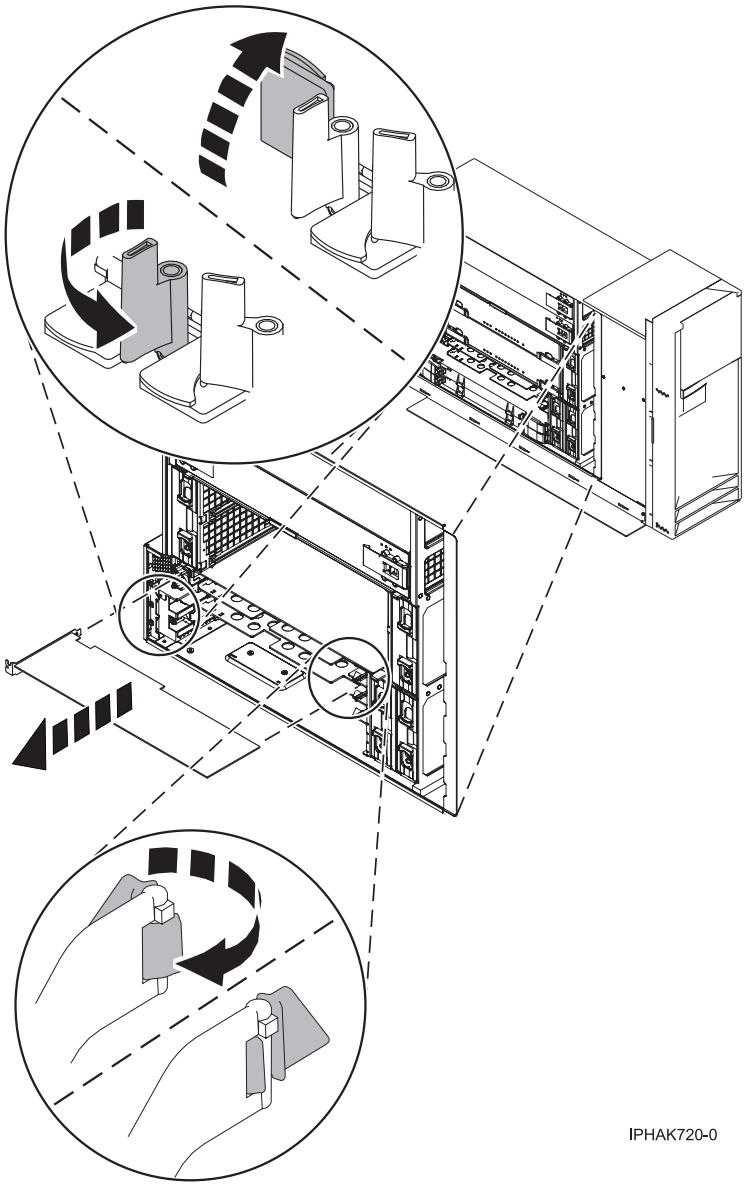


Figure 204. PCI adapter removed from the stand-alone unit

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 an expansion unit that does not use cassettes, with the power off" on page 272; otherwise, continue with the next step.
15. Seal the expansion slot using an expansion-slot cover.
16. Replace or close the system covers and, if applicable, return the rack-mounted 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 an expansion unit that does not use cassettes" on page 272.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing a PCI adapter in an expansion unit that does not use cassettes, with the power on in AIX

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

To remove a failing adapter and replace it with the same adapter, see "Removing and replacing a PCI adapter in an expansion unit that does not use cassettes, with the power on in AIX" on page 275. 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 in an expansion unit that does not use cassettes, with the power on in AIX" on page 243.

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

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 remove a PCI adapter with the system power on in AIX, do the following steps:

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
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 or expansion unit, follow these steps to remove the service access cover. If you are servicing a stand-alone system, go to the next numbered step.
   - For the 0595, 5095, or D20 expansion unit, follow these steps:
     a. Open the front rack door.
     b. Place the system or expansion unit in the service position.
     c. Remove or open the service access cover.
   - For all other rack-mounted expansion units, follow these steps:
     a. Open the back rack door.
     b. Remove the cover or covers.
5. If you are installing a PCI adapter in a stand-alone expansion unit, remove the back door.
6. Determine which adapters you plan to remove.
7. Record the slot number and location of each adapter being removed. Adapter slots are numbered on the rear of the system unit.
8. Ensure that any processes or applications that might use the adapter are stopped.
9. 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.

10. Label, and then disconnect all cables attached to the adapter you plan to remove.
11. Rotate the adapter locking latch counterclockwise.
12. Lift the black tab attached to the adapter retainer assembly, and keep the black tab in a vertical position.
13. Carefully grasp the PCI adapter by its top edge or upper corners, and remove it from the system. Store the adapter in a safe place.

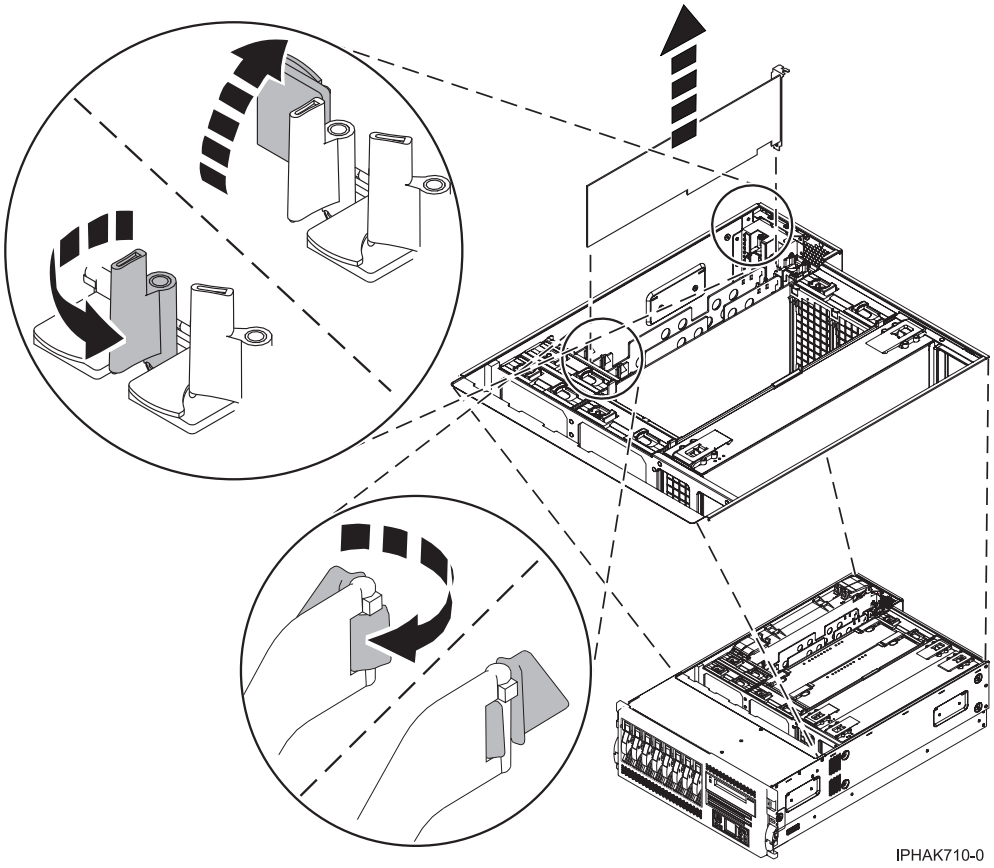


Figure 205. PCI adapter removed from the rack-mounted system unit

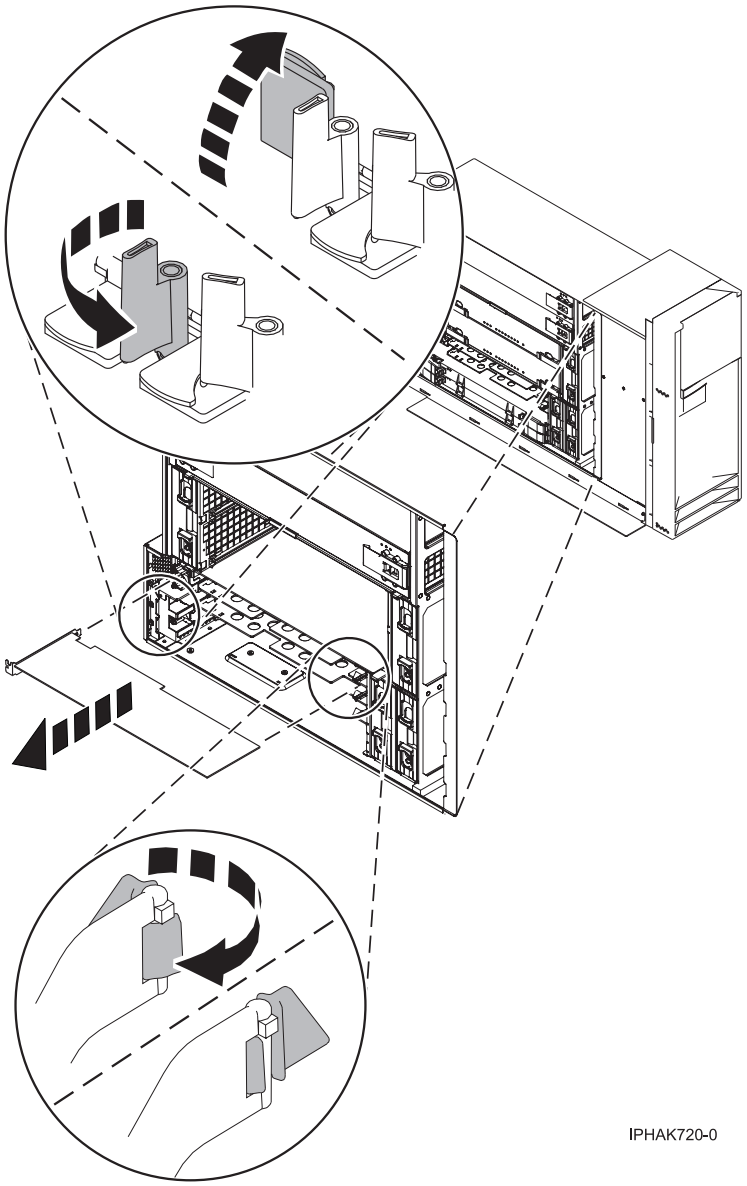


Figure 206. PCI adapter removed from the stand-alone system unit

14. If you plan to install another adapter into the vacated slot, go to "Installing a PCI adapter in an expansion unit that does not use cassettes, with the power on in AIX" on page 243; otherwise, continue with the next step.
15. Seal the expansion slot using an expansion-slot cover.
16. Lower the plastic retainer seat over the PCI adapter faceplate.
17. Rotate the locking latch clockwise until it clicks into the locked position.
18. 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.
19. 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 10 on page 262.

    OR

    If you do not have other adapters to remove, continue with the next step.
20. Press F10 to exit the Hot-Plug Manager.

21. Run the `diag -a` command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.
22. Replace or close the system covers and, if applicable, return the rack-mounted system to the operating position.
23. To replace the PCI adapter, see “Replacing a PCI adapter in an expansion unit that does not use cassettes” on page 272.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing a PCI adapter in an expansion unit that does not use cassettes, with the power on in IBM i

You can remove a PCI adapter with the system power on in thei operating system.

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

Important:

- If the adapter is the load source IOA or the load source IOP, or any other storage IOA or IOP with critical DASD attached for the system/partition, follow the on-screen instructions when you use HSM to power down the IOP or IOA. Instructions to use functions 68 and 69 on the control panel will be included.
- If the adapter is the console IOA or the console IOP for the system or partition, you must perform the maintenance from an IBM i operating system session connected through a different IOA or IOP, or you must power down the partition to perform maintenance.
- If you are removing, installing or replacing a PCI-X double-wide, quad-channel Ultra320 SCSI RAID controller, you must follow the special instructions in the PCI-X double-wide, quad-channel Ultra320 SCSI RAID controller (FC 5739, 5778, 5781, 5782) (CCIN 571F, 575B) topic, before proceeding with the instructions provided here.
- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.
- If you are replacing a 2748, 2757, 2763, 2767, 2778, 2780, 2782, 5702, 5703, 5709, or 570B storage IOA, take note of the following: Depending on the configuration of the system, the storage IOA may have been altered or the storage IOA cache may 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.

To remove a PCI adapter with the system power on in the i operating system, do the following steps:

1. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
2. Perform the prerequisite tasks described in “Before you begin” on page 288.
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 or expansion unit, follow these steps to remove the service access cover. If you are servicing a stand-alone system, go to the next numbered step.
   - For the 0595, 5095, or D20 expansion unit, follow these steps:
     a. Open the front rack door.
     b. Place the system or expansion unit in the service position.
     c. Remove or open the service access cover.
   - For all other rack-mounted expansion units, follow these steps:
     a. Open the back rack door.
     b. Remove the cover or covers.
5. If you are installing a PCI adapter in a stand-alone expansion unit, remove the back door.
6. Type **strsst** on the command line of the Main Menu and press Enter.
7. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display. Press Enter.
8. Select **Start a service tool** from the System Service Tools (SST) display. Press Enter.
9. Select **Hardware service manager** from the Start a Service Tool display and press Enter.
10. Select **Packaging hardware resources (system, frames, cards)** from the Hardware Service Manager display. Press Enter.
11. Type **9** (Hardware contained within package) in the *System Unit* or *Expansion Unit* field of the unit where you are removing the card, then press Enter.
12. Select the option to **Include empty positions**.
13. Select **Concurrent Maintenance** on the card position where you want to remove the card and then press Enter.
14. Select the option to **Toggle LED blink off/on**. A light-emitting diode (LED) blinks identifying the position you chose. Physically verify that this is the slot where you want to remove the adapter.
15. Select the option to **Toggle LED blink off/on** to stop the blinking LED.
16. Select the option to **Power off domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
17. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:
    ```
    Power off complete
    ```
18. Label, and then disconnect all cables attached to the adapter you plan to remove.
19. Record the slot number and location of each adapter being removed.

    Note: Adapter slots are numbered on the rear of the system.
20. Rotate the adapter locking latch counterclockwise.
21. Lift the black tab attached to the adapter retainer assembly, and keep the black tab in a vertical position.
22. Carefully grasp the PCI adapter by its top edge or upper corners, and remove it from the system. Store the adapter in a safe place.

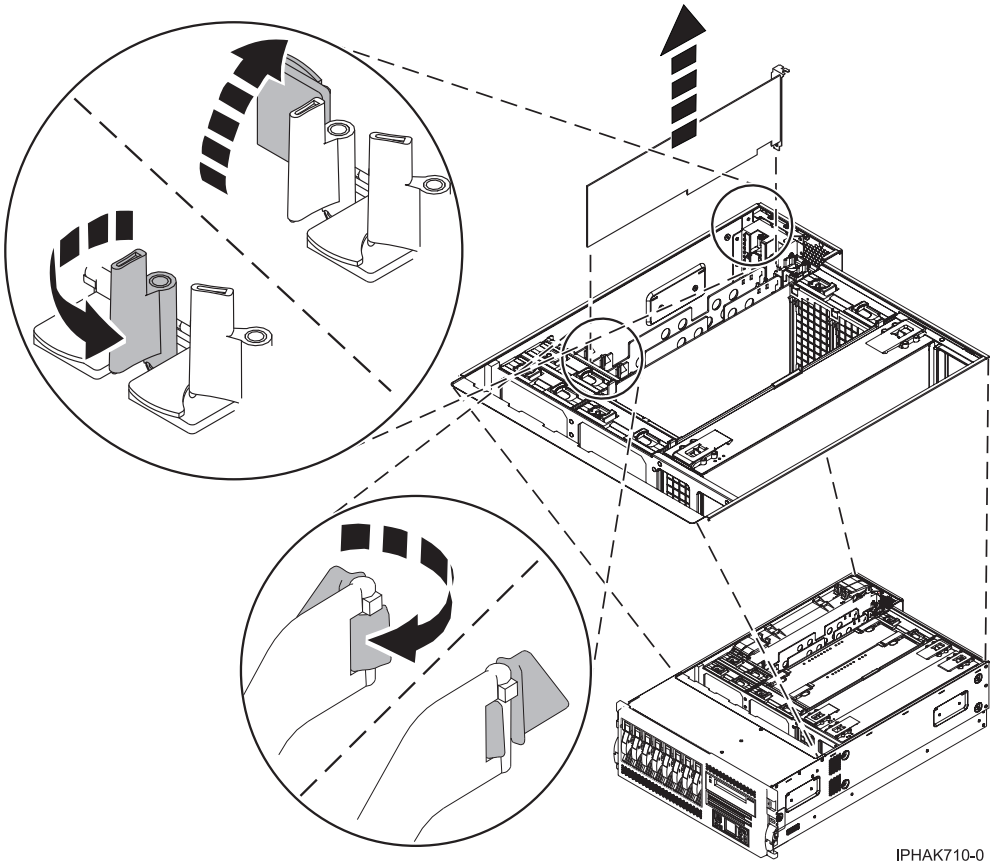


Figure 207. PCI adapter removed from the rack-mounted unit

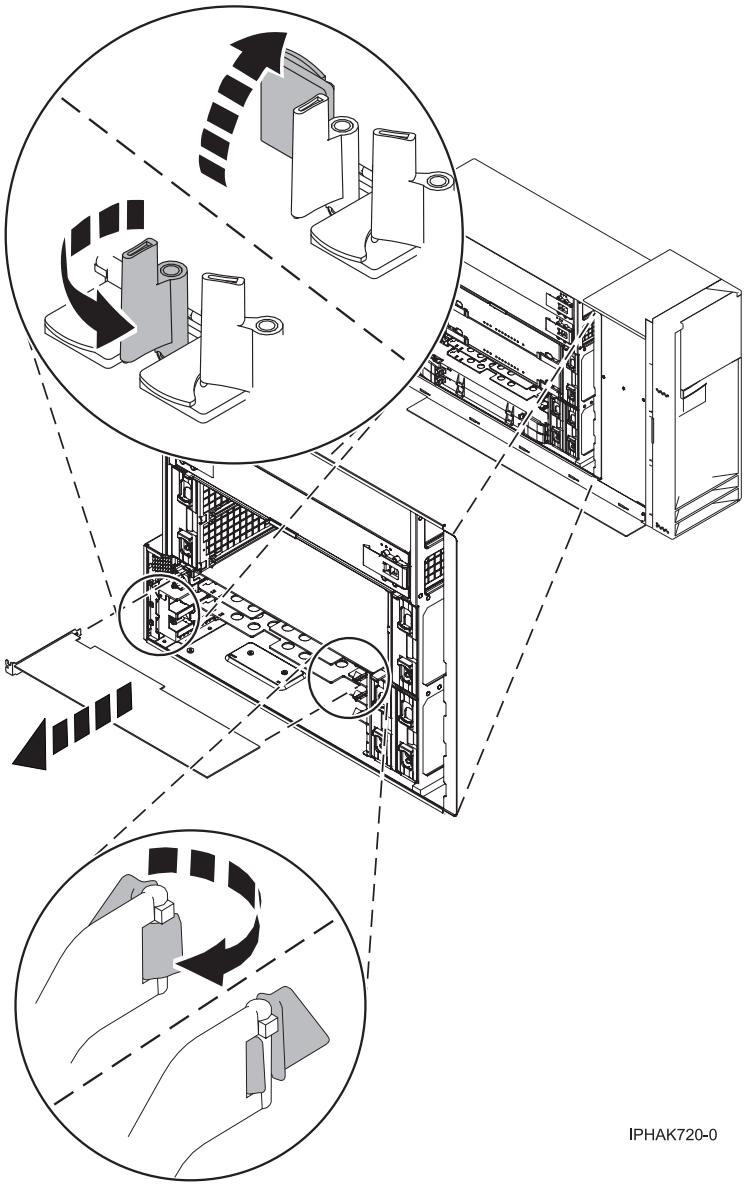


Figure 208. PCI adapter removed from the stand-alone unit

23. If you are removing a PCI adapter as part of another procedure, return to that procedure. If not, continue to the next step.
24. Seal the expansion slot using an expansion-slot cover.
25. Replace or close the system covers and, if applicable, return the rack-mounted system to the operating position.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing a PCI adapter in an expansion unit that does not use cassettes, with the power on in Linux

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

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

To remove a PCI adapter with the system power on in Linux, do the following steps:

1. Ensure that the system meets the "Prerequisites for hot-plugging PCI adapters in Linux" on page 298.
2. Verify that the Linux, hot-plug PCI tools are installed. See "Verify that the Linux, hot-plug PCI tools are installed" on page 298.
3. Perform the prerequisite tasks described in "Before you begin" on page 288.
4. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
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 or expansion unit, follow these steps to remove the service access cover. If you are servicing a stand-alone system, go to the next numbered step.
   - For the 0595, 5095, or D20 expansion unit, follow these steps:
     a. Open the front rack door.
     b. Place the system or expansion unit in the service position.
     c. Remove or open the service access cover.
   - For all other rack-mounted expansion units, follow these steps:
     a. Open the back rack door.
     b. Remove the cover or covers.
7. If you are installing a PCI adapter in a stand-alone expansion unit, remove the back door.
8. Determine which adapter you plan to remove, then label and disconnect all cables attached to that adapter.
9. Record the slot number and location of each adapter being removed.

   Note: Adapter slots are numbered on the rear of the system.
10. 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 file systems on those devices are unmounted.
11. Run the drslot_chrp_pci 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:

    ```
    drslot_chrp_pci -r -s U7879.001.DQD014E-P1-C3
    ```

    Follow the instructions on the display to complete the task.
12. Rotate the adapter locking latch **(A)** counterclockwise as shown in the following figures.
13. Lift the black tab **(B)** attached to the adapter retainer assembly, and keep the black tab in a vertical position.
14. Carefully grasp the PCI adapter by its top edge or upper corners, and remove it from the system. Store the adapter in a safe place.

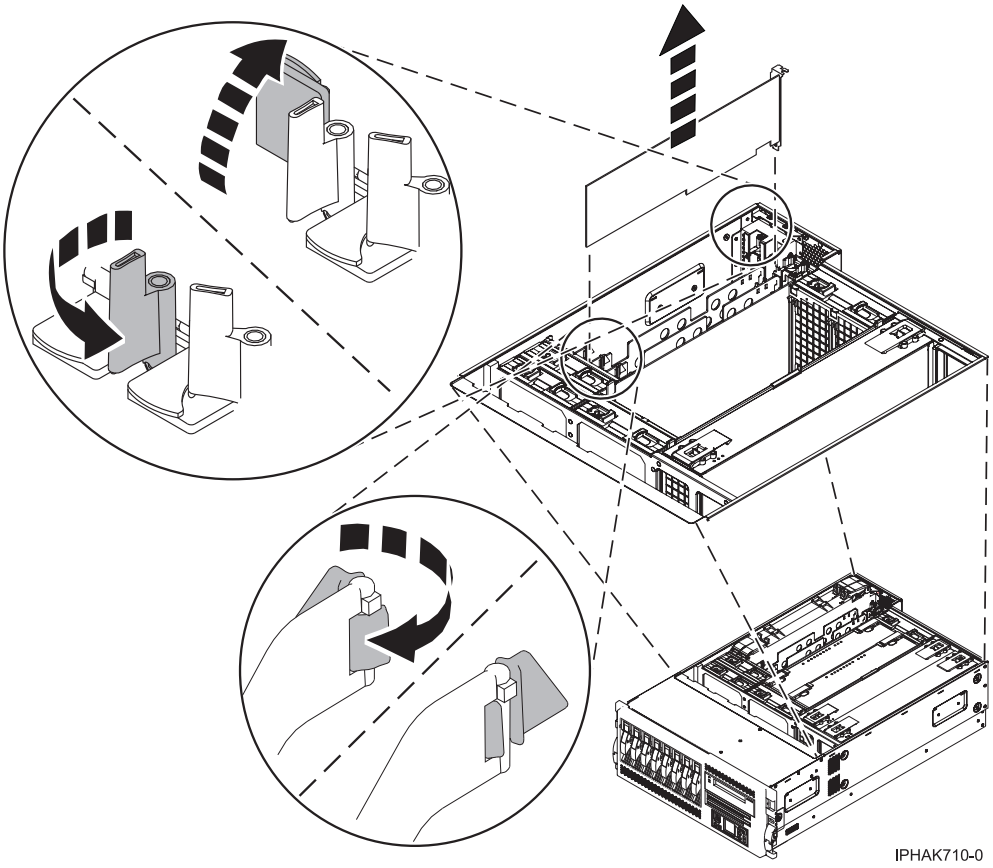


Figure 209. PCI adapter removed from the rack-mounted unit

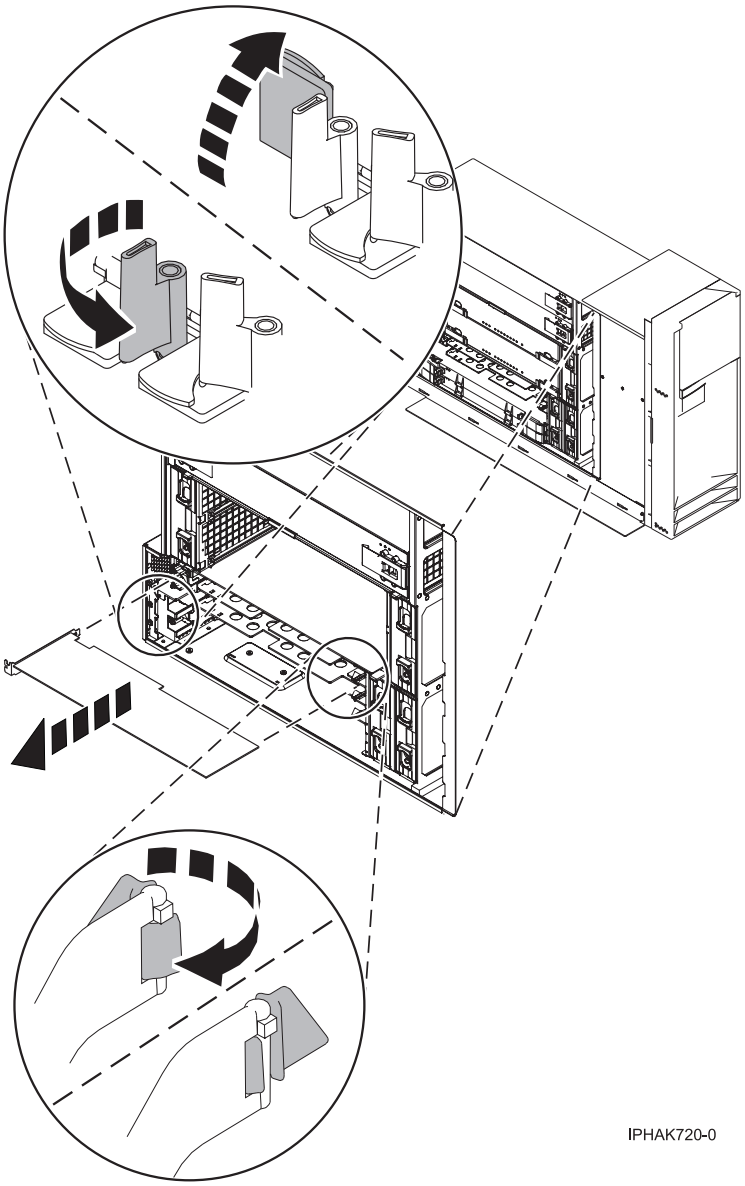


Figure 210. PCI adapter removed from the stand-alone unit

15. If you are removing a PCI adapter as part of another procedure, return to that procedure. If not, continue to the next step.
16. If you plan to install another adapter into the vacated slot, go to "Replacing a PCI adapter in an expansion unit that does not use cassettes, with the power on in Linux" on page 285; otherwise, continue with the next step.
17. Seal the expansion slot using an expansion-slot cover.
18. Replace or close the system covers and, if applicable, return the rack-mounted 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. To replace the PCI adapter, see "Replacing a PCI adapter in an expansion unit that does not use cassettes" on page 272.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Replacing a PCI adapter in an expansion unit that does not use cassettes

You can replace a PCI adapter in an expansion unit that does not use cassettes.

Replacing a PCI adapter in an expansion unit that does not use cassettes, with the power off

You can replace a PCI adapter with the power off.

You must have already completed the procedure “Removing a PCI adapter in an expansion unit that does not use cassettes, with the power off” on page 258 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.

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

1. Perform the prerequisite tasks described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
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 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. Lower the tab onto the PCI adapter faceplate. Rotate the adapter locking latches clockwise as shown in the following figures.

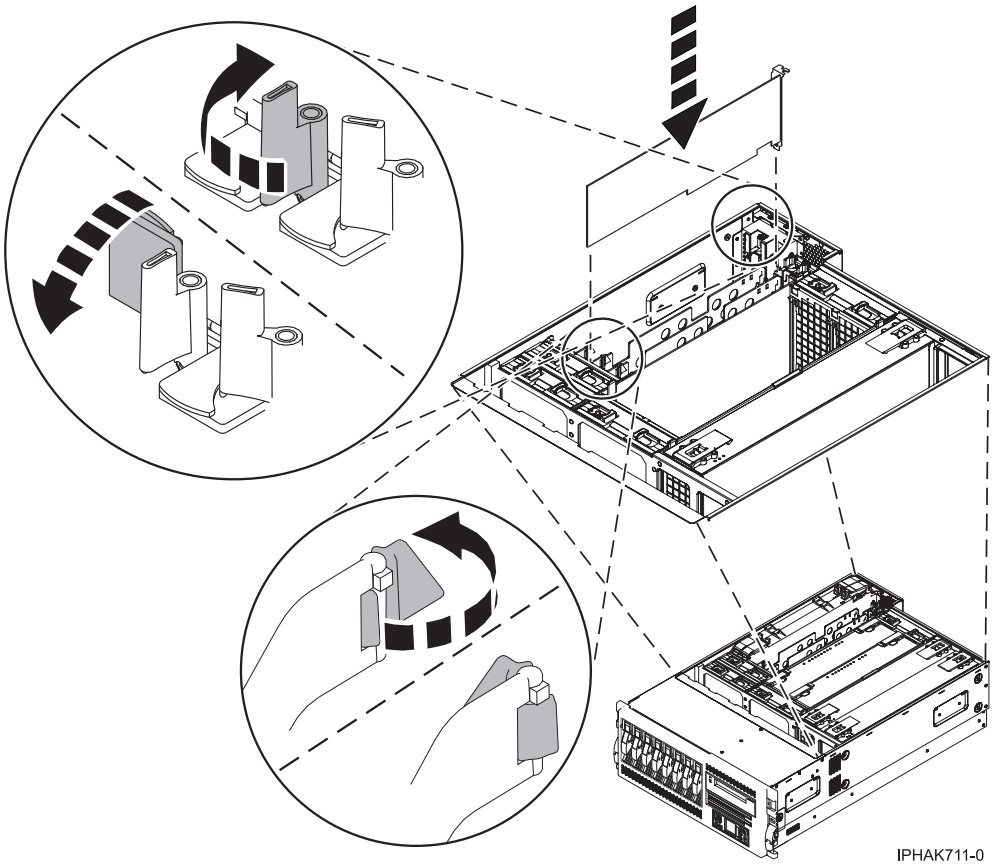


Figure 211. PCI adapter replaced in the rack-mounted unit

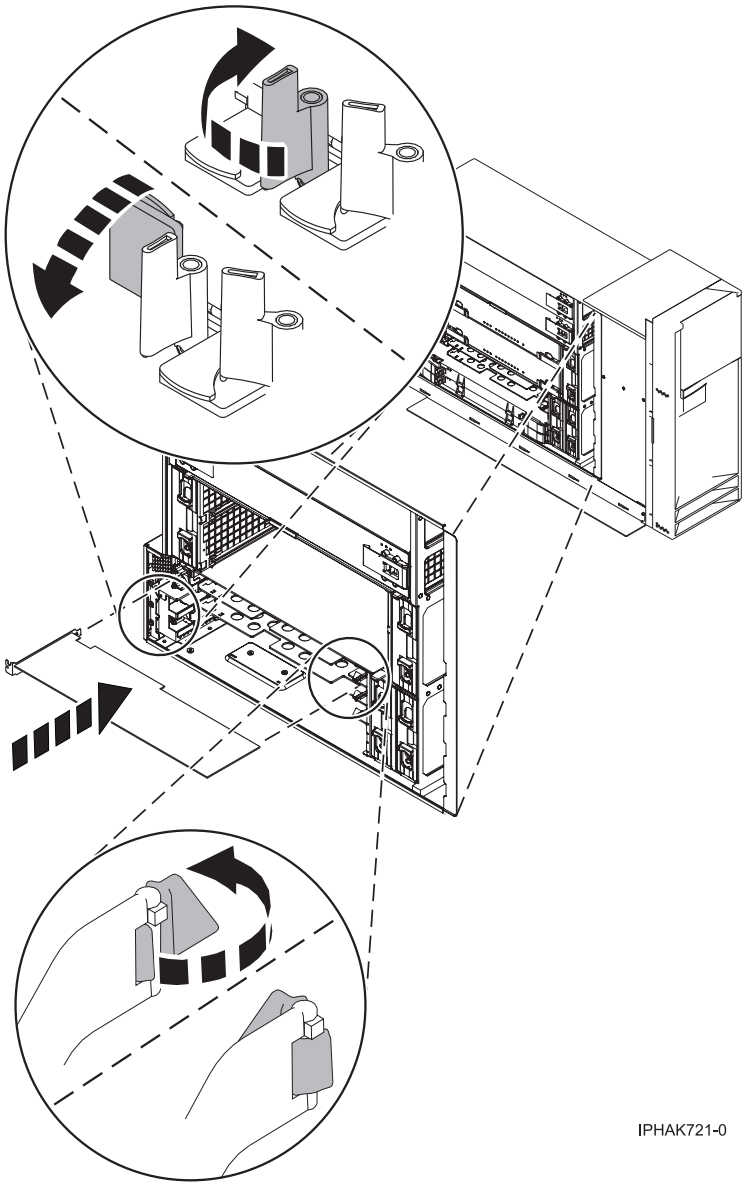


Figure 212. PCI adapter replaced in the stand-alone unit

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 system covers and, if applicable, return the rack-mounted 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.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Removing and replacing a PCI adapter in an expansion unit that does not use cassettes, with the power on in AIX

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

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

Note:

1. If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for replacing a PCI adapter.
2. Use this procedure if you intend to remove a failing PCI adapter and replace it with the same type of adapter.
3. If you plan to remove a failing adapter and leave the slot empty, see "Removing a PCI adapter in an expansion unit that does not use cassettes, with the power on in AIX" on page 261.
4. 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 in an expansion unit that does not use cassettes, with the power on in AIX" on page 261, then install the new adapter as described in "Removing and replacing a PCI adapter in an expansion unit that does not use cassettes, with the power on in AIX."
5. 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 a PCI adapter with the system power on in AIX, do the following steps:

1. Perform the prerequisite tasks described in "Before you begin" on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
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 or expansion unit, follow these steps to remove the service access cover. If you are servicing a stand-alone system, go to the next numbered step.
   - For the 0595, 5095, or D20 expansion unit, follow these steps:
     a. Open the front rack door.
     b. Place the system or expansion unit in the service position.
     c. Remove or open the service access cover.
   - For all other rack-mounted expansion units, follow these steps:
     a. Open the back rack door.
     b. Remove the cover or covers.
5. If you are installing a PCI adapter in a stand-alone expansion unit, remove the back door.
6. Determine which adapters you plan to remove.
7. Record the slot number and location of each adapter being removed.

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

8. Ensure that any processes or applications that might use the adapter are stopped.
9. Enter the system diagnostics by logging in as root user or as the celogin user, type **diag** at AIX command line.
10. When the DIAGNOSTIC OPERATING INSTRUCTIONS menu displays, press Enter.
11. At the FUNCTION SELECTION menu, select **Task Selection**, then press enter.
12. At the Task Selection list, select **PCI Hot Plug Manager**.
13. Select **Unconfigure a Device**, then press Enter.
14. Press F4 (or Esc +4) to display the **Device Names** menu.
15. Select the adapter you are removing in the **Device Names** menu.
16. 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.
17. 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.
18. Press F3 (or Esc +3) twice to return to the **Hot Plug Manager** menu.
19. Select **replace/remove PCI Hot Plug adapter**.
20. Select the slot that has the device to be removed from the system.
21. 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.
22. Press Enter. This places the adapter in the action state, meaning it is ready to be removed from the system.
23. Label, and then disconnect all cables attached to the adapter you plan to remove.
24. Rotate the adapter locking latch counterclockwise.
25. Lift the black tab attached to the adapter retainer assembly, and keep the black tab in a vertical position.
26. Carefully grasp the PCI adapter by its top edge or upper corners, and remove it from the system. Store the adapter in a safe place.

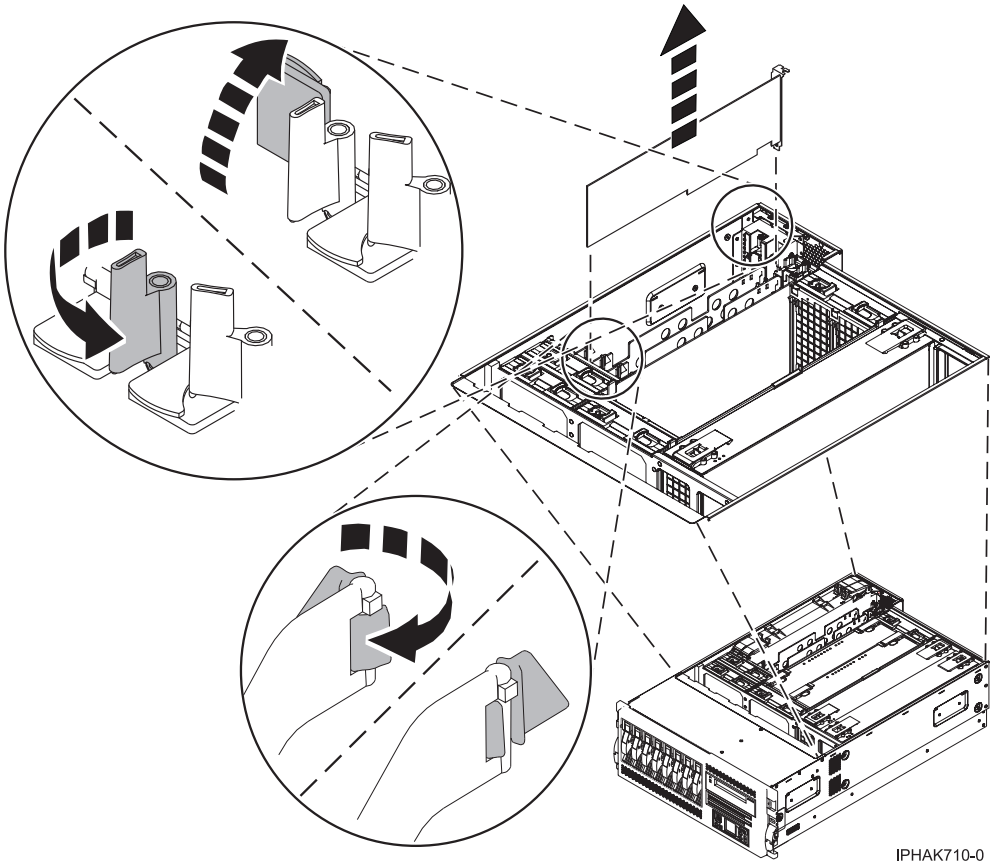


Figure 213. PCI adapter removed from the rack-mounted unit

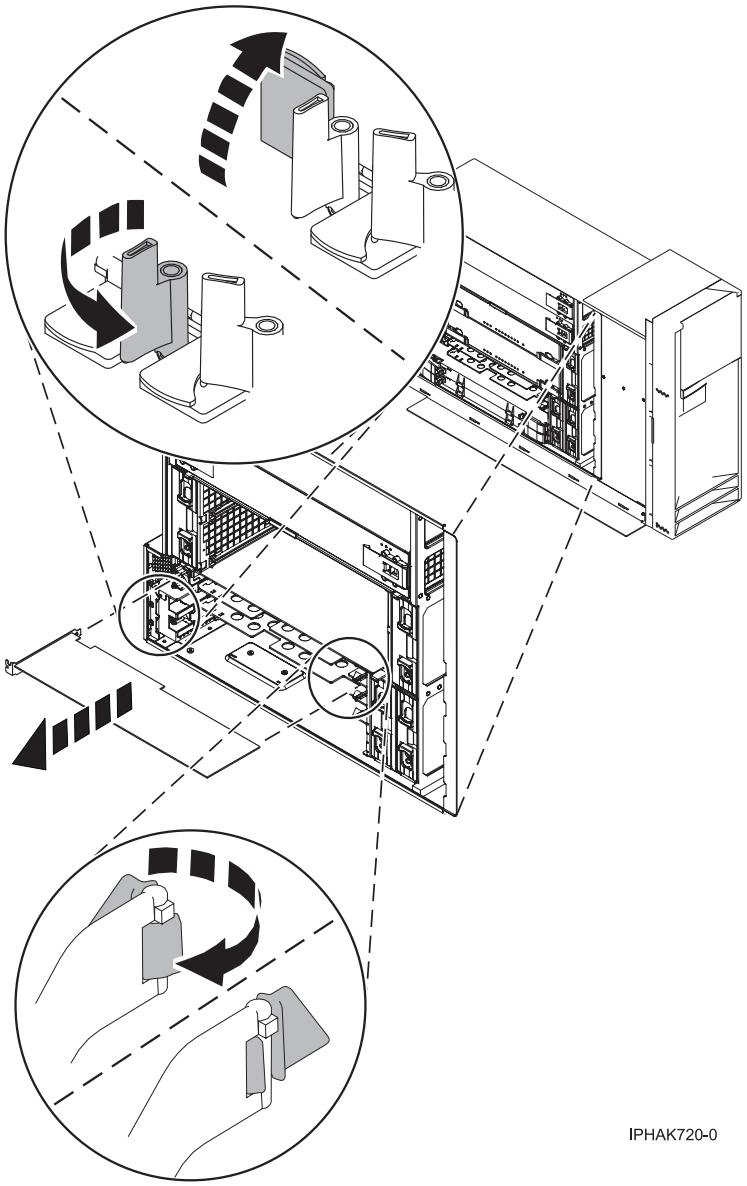


Figure 214. PCI adapter removed from the stand-alone unit

27. If necessary, remove the replacement adapter from the antistatic package.

    Attention: Avoid touching the components and gold connectors on the adapter.
28. Carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
29. 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.
30. Secure the adapter Lower the tab onto the PCI adapter faceplate. Rotate the adapter locking latches clockwise as shown in the following figures.

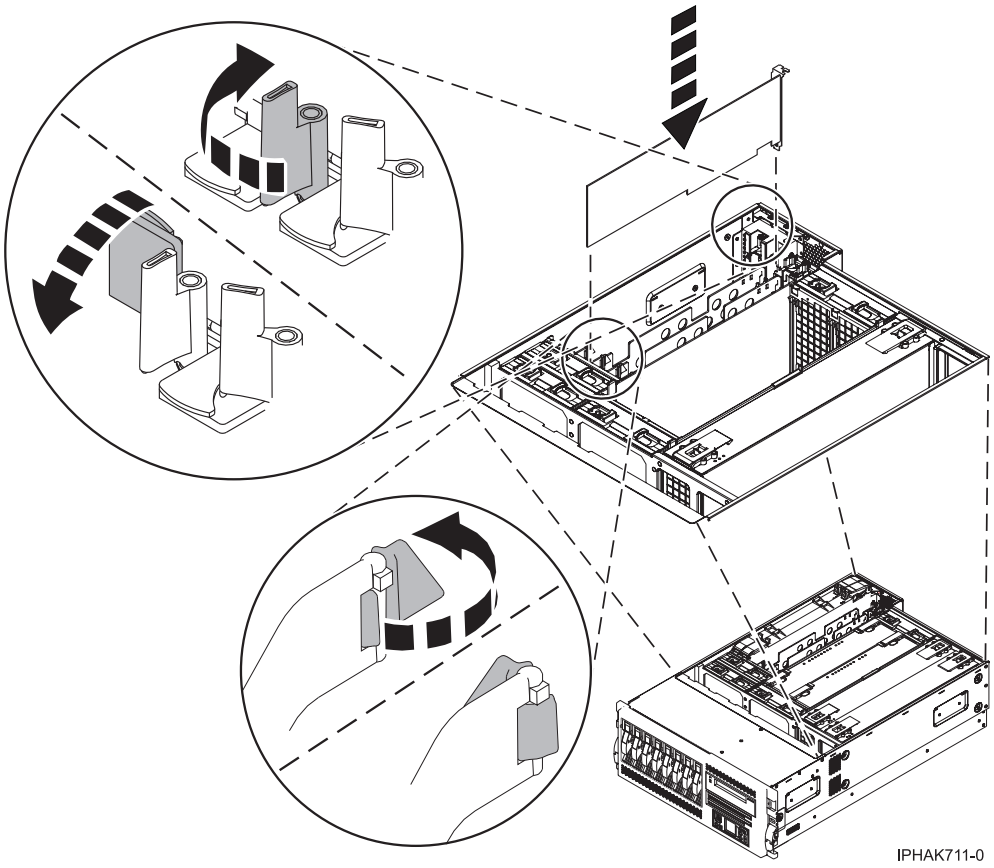


Figure 215. PCI adapter replaced in the rack-mounted system unit

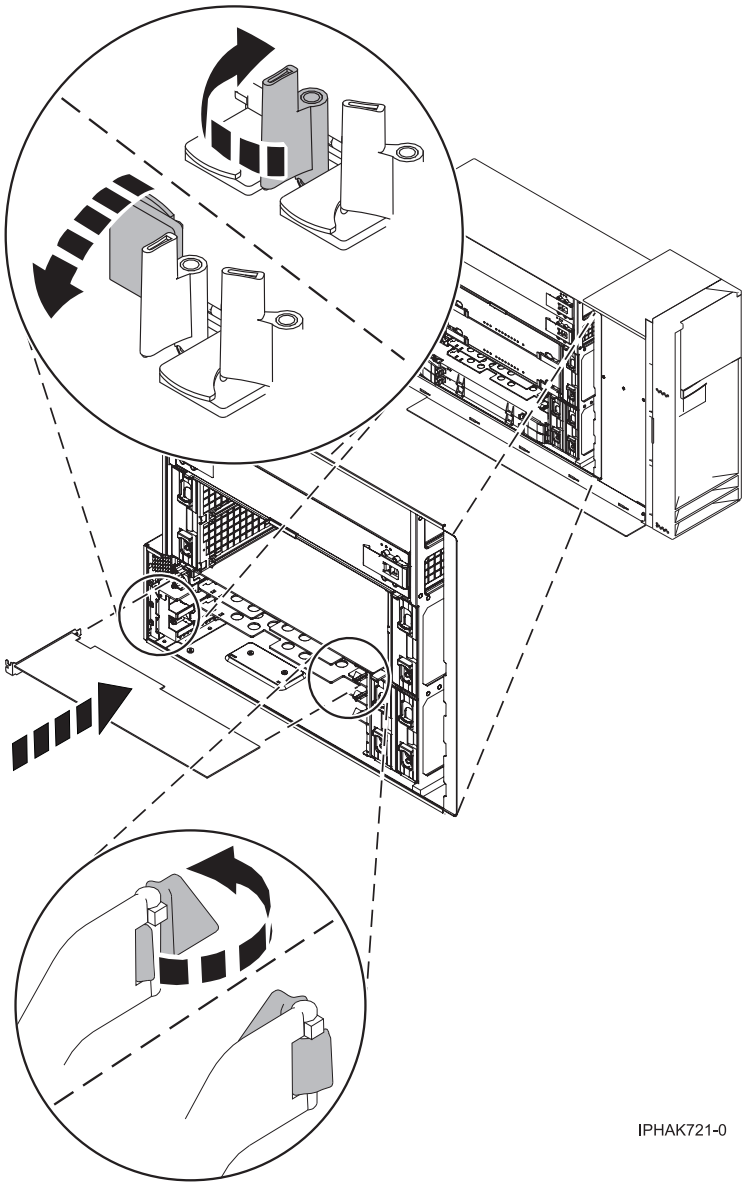


Figure 216. PCI adapter replaced in the stand-alone system unit

31. Connect the adapter cables.
32. 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.
33. Press the F3 (or Esc+3) key to return to the **PCI Hot-Plug Manager** menu.
34. Press the F3 (or Esc+3) key to return to the **TASK** selection list.
35. Select **Log Repair Action**.
36. Select the resource just replaced, press Enter, press Commit (F7 or ESC 7), then press Enter.
37. Press F3 (or Esc+3) to return to **TASK Selection List**.
38. Select **Hot Plug Task**, press enter.
39. Select **PCI Hot Plug Manager**, then select **Configure a defined device**, then press Enter.
40. Select the device just replaced from the list, then press Enter. The device is now configured.
41. Press the F10 key to exit the diagnostic program.

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

42. 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.
43. Press the F10 key to exit the diagnostic program.
44. Replace or close the system covers and, if applicable, return the rack-mounted system to the operating position.
45. Verify that the new resource is functional. See Verify the installed part.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Replacing a PCI adapter in an expansion unit that does not use cassettes, with the power on in IBM i

You can replace a PCI adapter with the system power on in the i operating system.

Attention: You must have already completed the procedure “Removing a PCI adapter in an expansion unit that does not use cassettes, with the power on in IBM i” on page 265 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.

Important:

- If the adapter is the load source IOA or the load source IOP, or any other storage IOA or IOP with critical DASD attached for the system/partition, follow the on-screen instructions when you use HSM to power down the IOP or IOA. Instructions to use functions 68 and 69 on the control panel will be included.
- If the adapter is the console IOA or the console IOP for the system or partition, you must perform the maintenance from an IBM i operating system session connected through a different IOA or IOP, or you must power down the partition to perform maintenance.
- If you are removing, installing or replacing a PCI-X double-wide, quad-channel Ultra320 SCSI RAID controller, you must follow the special instructions in the PCI-X double-wide, quad-channel Ultra320 SCSI RAID controller (FC 5739, 5778, 5781, 5782) (CCIN 571F, 575B) topic, before proceeding with the instructions provided here.
- Fibre Channel Adapters (2766, 2787, 280E, 5735, 576B, or 5774) installed in i 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 i 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 300.

- If you are replacing a 2748, 2757, 2763, 2767, 2778, 2780, 2782, 5702, 5703, 5709, or 570B storage IOA, take note of the following: Depending on the configuration of the system, the storage IOA may have been altered or the storage IOA cache may 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.

To replace a PCI adapter with the system power on in the i operating system, do the following steps:

1. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see "Avoiding electric shock" on page 290 and "Handling static-sensitive devices" on page 291.
2. Perform the prerequisite tasks described in "Before you begin" on page 288.
3. If necessary, remove the adapter from the antistatic package.

   Attention: Avoid touching the components and gold connectors on the adapter.
4. Carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the system backplane.
5. 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.
6. Secure the adapter. Lower the tab onto the PCI adapter faceplate. Rotate the adapter locking latches clockwise as shown in the following figures.

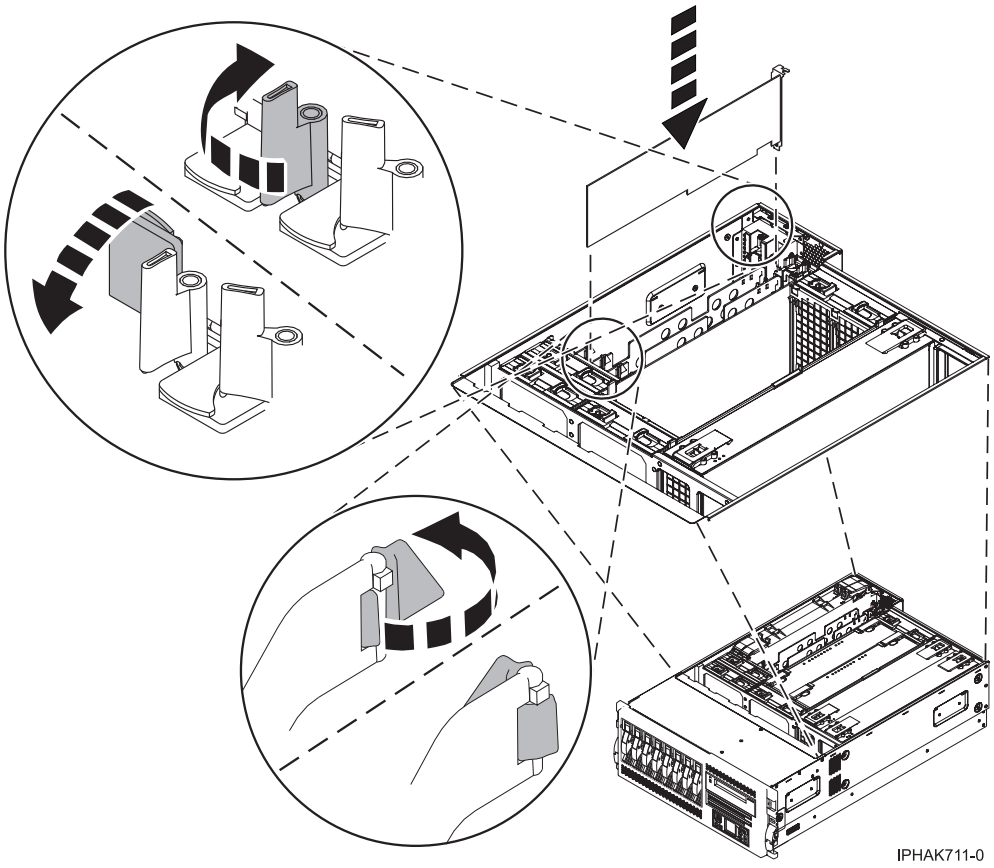


Figure 217. PCI adapter replaced in the rack-mounted unit

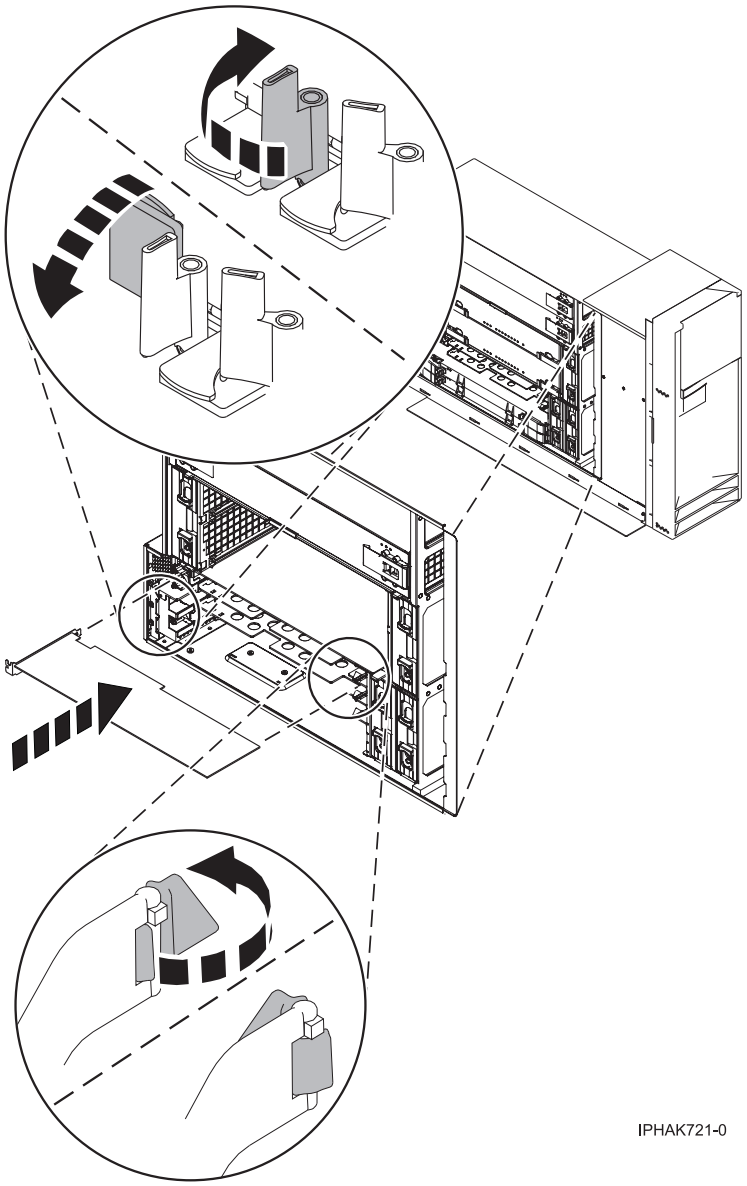


Figure 218. PCI adapter replaced in the stand-alone unit

7. Connect the adapter cables.
8. Select **Power on domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
9. Select **Assign to** on the resource that has an asterisk (*) on the Work with Controlling Resource display. Press Enter.
10. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message:
    ```
    Power on complete
    ```
11. Replace or close the system covers and, if applicable, return the rack-mounted system to the operating position.
12. Verify that the new resource is functional. See Verify the installed part.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Replacing a PCI adapter in an expansion unit that does not use cassettes, with the power on in Linux

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

You must have already completed the procedure “Removing a PCI adapter in an expansion unit that does not use cassettes, with the power on in Linux” on page 268.

To replace a PCI adapter with the system power on in Linux, do the following steps:

1. Perform the prerequisite tasks described in “Before you begin” on page 288.
2. Take appropriate precautions for avoiding electric shock and handling static-sensitive devices. For information, see “Avoiding electric shock” on page 290 and “Handling static-sensitive devices” on page 291.
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 drslot_chrp_pci 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:

   ```
   drslot_chrp_pci -R -s U7879.001.DQD014E-P1-C3
   ```

   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 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.
9. Secure the adapter. Lower the tab onto the PCI adapter faceplate. Rotate the adapter locking latches clockwise as shown in the following figures.

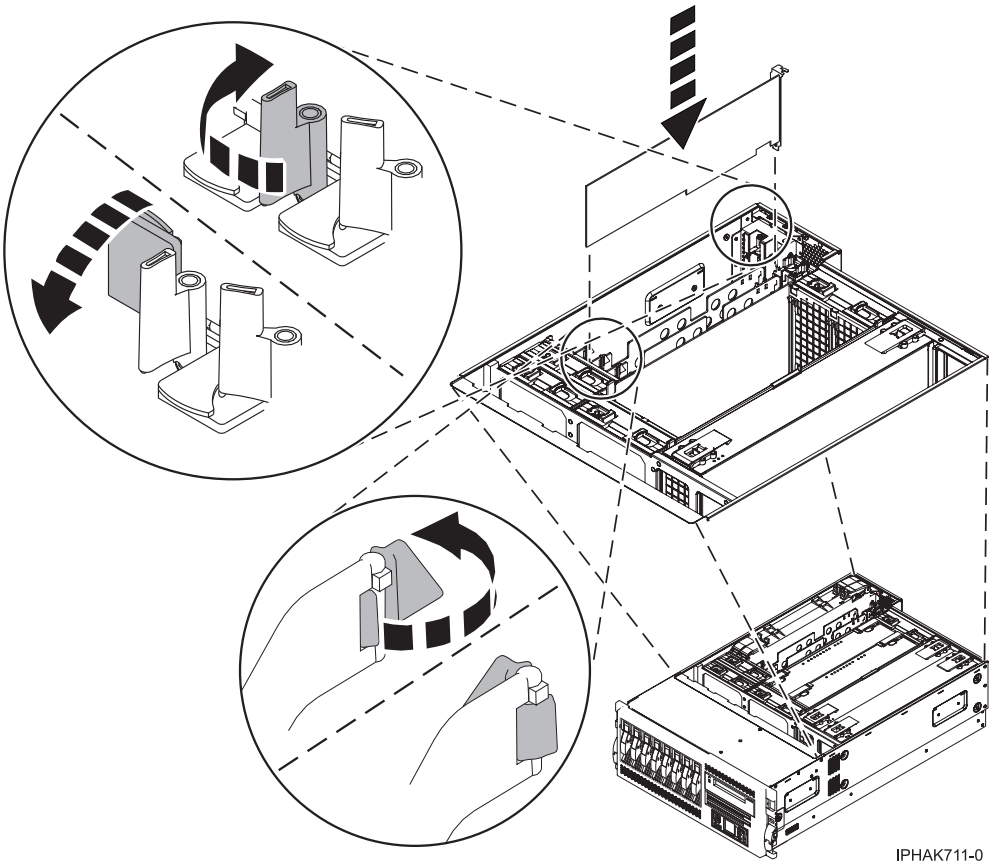


Figure 219. PCI adapter replaced in the rack-mounted system unit

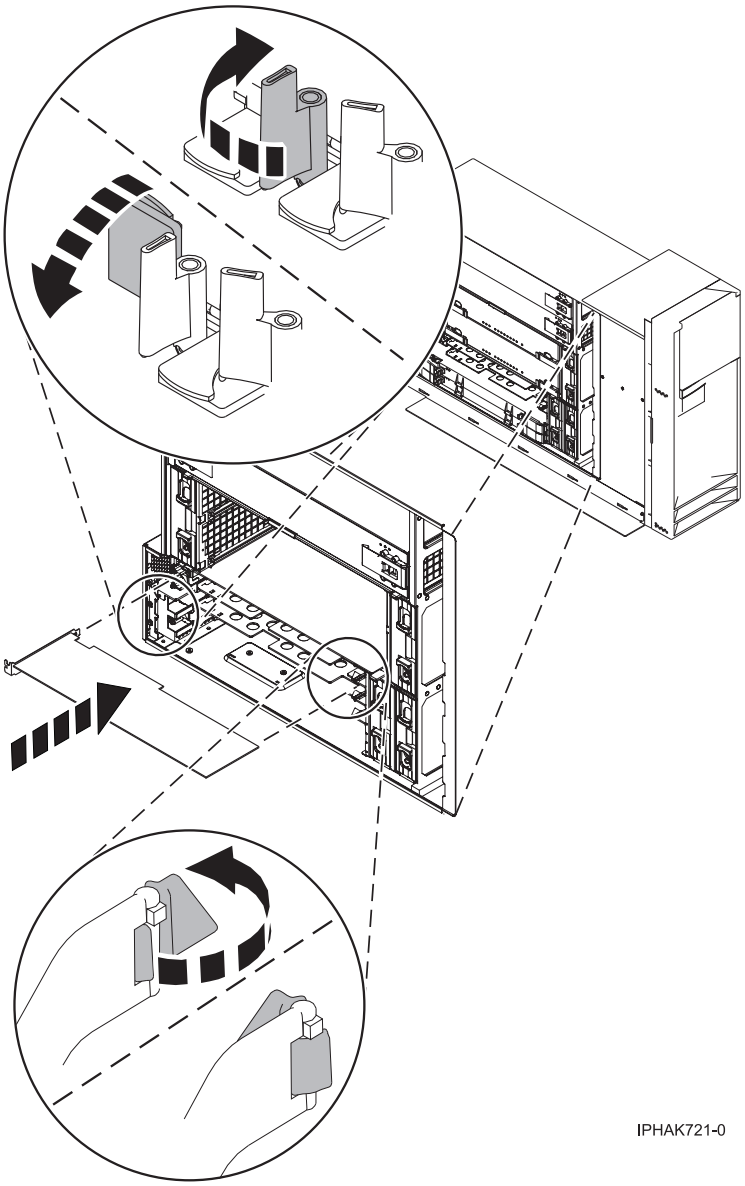


Figure 220. PCI adapter replaced in the stand-alone system unit

10. Connect the adapter cables.
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 system covers and, if applicable, return the rack-mounted system to the operating position.
14. Start the system or logical partition. Refer to Start the system or logical partition
15. Verify that the new resource is functional. See Verify the installed part.

Related information

Installing a feature using the Hardware Management Console

Logical partitioning

Related procedures for installing and removing PCI adapters

These procedures are related to installing and removing PCI adapters.

Before you begin

Understand prerequisites for installing, removing, or replacing features and parts.

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 IBM provided power cord. Do not use the IBM 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.**

  (D005)

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:

1. If you are installing a new feature, ensure that you have the software required to support the new feature.

   To do this, go to the following Web site: http://www-912.ibm.com/e_dir/eServerPrereq.nsf
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.
     – In the United States, the IBM Rochester Manufacturing Automated Information Line (R–MAIL) at 1–800–300–8751.

   In countries and regions outside of the United States, use the following Web site to locate your service and support telephone numbers:

   `http://www.ibm.com/planetwide`
7. If you encounter difficulties during the installation, contact your service provider, your IBM reseller, 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.

Avoiding electric shock

Learn about precautions you should take to avoid electric shock when working on our around a computer 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 IBM provided power cord. Do not use the IBM 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.**

  (D005)

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.

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

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. To do this, use the IBM Prerequisite Web site at http://www-912.ibm.com/e_dir/eServerPrereq.nsf
- If you need help determining the PCI slot in which to place a PCI adapter, see the PCI adapter placement for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.

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

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

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

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. The adapter installation is performed the same as in a stand-alone AIX logical partition and includes the following sequence of events:

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.

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

Prerequisite: Before you can remove or replace a storage adapter, you must unconfigure that adapter. See "Unconfiguring storage adapters" for instructions.

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

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

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" on page 294. 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:

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 `unmount` 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

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.

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. For example, for AIX, see Replacing a disk on the Virtual I/O Server in the IBM System p Advanced POWER® Virtualization Best Practices Redpaper. The procedure for Linux is similar to this procedure for AIX.
You do not have redundant Virtual I/O Server logical partitions.	Shut down the client logical partition. For instructions, see the following topics about shutting down logical partitions: • For systems that are managed by the HMC, see "Shutting down AIX logical partitions using the HMC", "Shutting down IBM i 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" on page 295.
[1]The Logical partitioning can be found on the Hardware Information Web site at http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/iphdx/power_systems.htm .	

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.

Use any role other than View Only to perform 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:

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 shut down.

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 for machine types 82xx and 91xx or the PCI adapter placement for machine type 94xx.

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.

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 297.

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 297.

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.

After the repair action is completed, do the following:

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.

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 power on in Linux you might need 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 file systems on those devices are unmounted. After hot-plugging adapters for storage devices, ensure 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 (http://techsupport.services.ibm.com/server/lopdiags).

Verify that the Linux, hot-plug PCI tools are installed

In the course of installing, removing, or replacing a PCI adapter with the system power on in Linux 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.

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
   - drslot_chrp_pci
4. Return to the procedure that sent you here.

Installing feature code 3650 or 3651 in the 9406-MMA

When you install feature code 3650 or 3651, you might find it difficult to insert and plug in the card assembly. This situation is caused by the interference of a bracket that is installed within the enclosure.

If you encounter this problem, contact IBM service and support to request removal of the bracket and installation of the feature at no charge. Removal of this bracket does not affect the functionality of the system. Only the systems in the following list might be affected.

Machine type	Model	Plant code	Serial number
9117	MMA	10	1CD7F
9117	MMA	10	1CD8F
9117	MMA	10	23C9F
9117	MMA	10	5FCEF
9117	MMA	10	629FF
9117	MMA	10	62A0F
9117	MMA	10	62A1F
9117	MMA	10	62A2F
9117	MMA	10	62B5F
9117	MMA	10	6411F
9117	MMA	10	6421F
9117	MMA	10	64BDF
9117	MMA	10	64D6F
9117	MMA	10	6512F
9117	MMA	10	6547F
9117	MMA	10	66F6F
9117	MMA	10	66F7F
9117	MMA	10	6AB0F
9117	MMA	10	6AC3F
9117	MMA	10	719FF
9117	MMA	10	85A9F
9117	MMA	10	85AAF
9117	MMA	10	85ABF
9117	MMA	10	85ACF
9117	MMA	10	85ADF

Machine type	Model	Plant code	Serial number
9117	MMA	10	85AEF
9117	MMA	10	8664F
9117	MMA	10	8693F
9117	MMA	10	86C4F
9117	MMA	10	86C5F
9117	MMA	10	8742F

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 IOA, the IBM 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 SST or 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 appending the digits "1000" to the beginning of the 12-digit IEEE address found on the tailstock label of the Fibre Channel IOA.

PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller (FC 5739, 5778, 5781, 5782; CCIN 571F, 575B)

Learn about the features, specifications, and installation notes for the PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller.

The PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller is a high-performance SCSI adapter combined with an auxiliary-write cache adapter to form a double-wide, adapter pair. The two adapters are screwed together. This topic contains the following sections:

Features

- 3 external U320 SCSI ports
- 1 internal U320 SCSI port dedicated to connecting the controller to the auxiliary-write cache adapter
- Up to 36 Direct Access Storage Devices (DASD) can be externally attached per adapter
- 320 MB/s data rate per SCSI bus
- Supports low voltage differential (LVD) disk devices only

- Supports RAID 5 and 6 (3–18 drive sets)
- 390 MB/1.5 GB compressed write cache
- 415 MB/1.6 GB compressed read cache
- PCI-X DDR support (storage adapter side)
- IOP or IOPless (5739 requires an IOP. 5778 does not.)

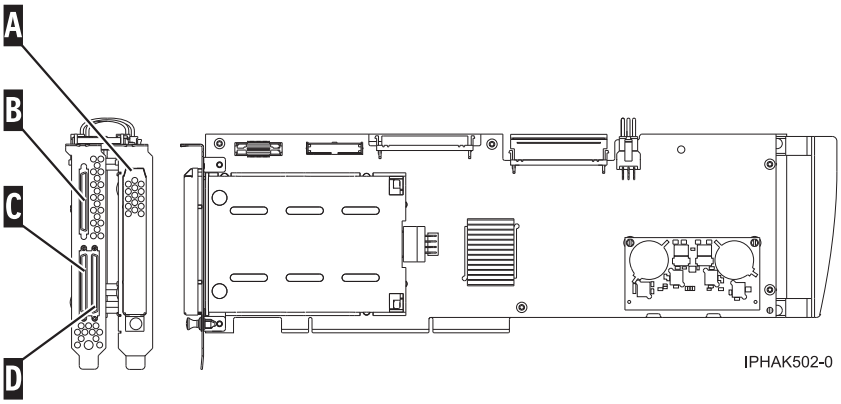


Figure 221. Adapter

(A) Battery cover

(B) SCSI port 2

(C) SCSI port 0

(D) SCSI port 1

Specifications

Item	Description
Adapter FRU number	42R6578
Cache battery FRU number	42R3965
Unit description	• 64 bit, 133 MHz, 3.3 V • PCI-X 2.0 compliant • Double-wide adapter, requires 2, adjacent, long slots. The SCSI controller side of the adapter pair requires a 64-bit slot. (The controller side is the side with the external SCSI connectors.) • The auxiliary-write cache adapter contains a dual, concurrently maintainable, cache-battery pack, which maintains cache memory on both adapters in the event of an abnormal termination.
Operating system or partition requirements	• IBM i V5R3, V5R3M5, and V5R4 with PTFs. • AIX 5L™ Version 5.2 with the 5200-10 Technology Level, or later • AIX 5L Version 5.3 with the 5300-06 Technology Level, or later • Red Hat Enterprise Linux version 4 U4, or later • SUSE Linux Enterprise Server 10, or later Check the IBM Prerequisite Web page for further details and updates. You can find a link to that Web page at the end of this topic.

Item	Description
Maximum number	See Placement information.

Placement information

For placement information for this adapters, see the PCI adapter placement for machine type 94xx or the PCI adapter placement for machine types 82xx and 91xx.

Logical partitioning

When used in a logical partition (LPAR) environment, this double-wide adapter must have both slots of the adapter assigned to the same logical partition. When implementing dynamic logical partitioning (DLPAR), both slots of the adapter must be managed together.

Placing the adapter in a double-wide cassette

To place this double-wide adapter in a double-wide cassette, first remove the adapter handle **(B)**, and the two plastic covers from the SCSI jumper cable **(A)**, as shown in the following figure. (The two plastic covers are only found on adapters made before August 2008.) Then follow the general procedures to place a double-wide adapter in a double-wide cassette. See "Placing an adapter in the PCI adapter double-wide cassette" on page 185 or "Placing a PCI adapter in a double-wide, generation 2.5 cassette" on page 190.

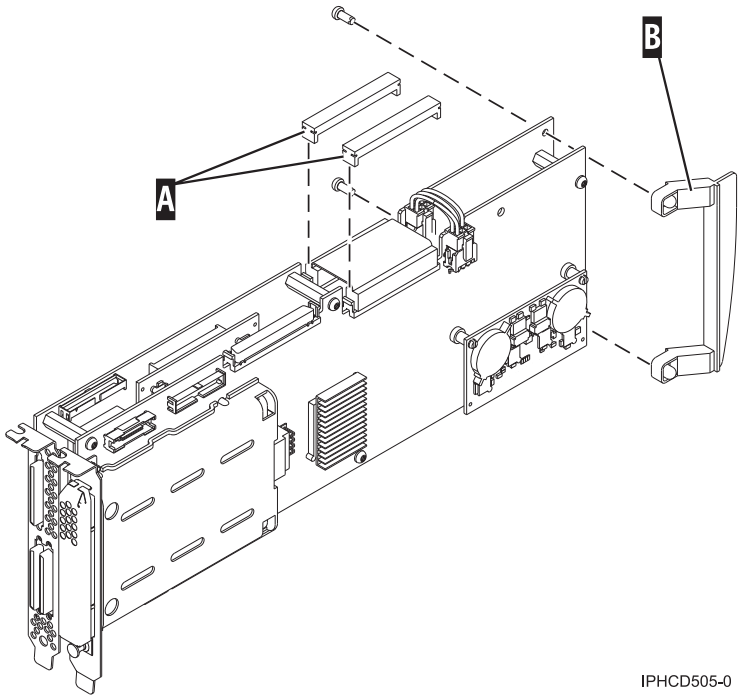


Figure 222. Preparing the adapter for placement in a cassette

Installing the cassette containing the adapter in a system

To install the cassette containing the adapter into a system unit or expansion unit, following the procedures in Model 8234-EMA, 9117-MMA, 9119-FHA, 9125-F2A, 9406-MMA and attached expansion units, PCI adapters and cassettes. See "Model 8234-EMA, 9117-MMA, 9119-FHA, 9125-F2A, 9406-MMA and attached expansion units, PCI adapters, and cassettes" on page 69.

Placing the double-wide adapter in a system that does not use cassettes

If you are installing the double-wide adapter in the internal PCI slots on an 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50, remove the lower, right standoff shown in Figure 223.

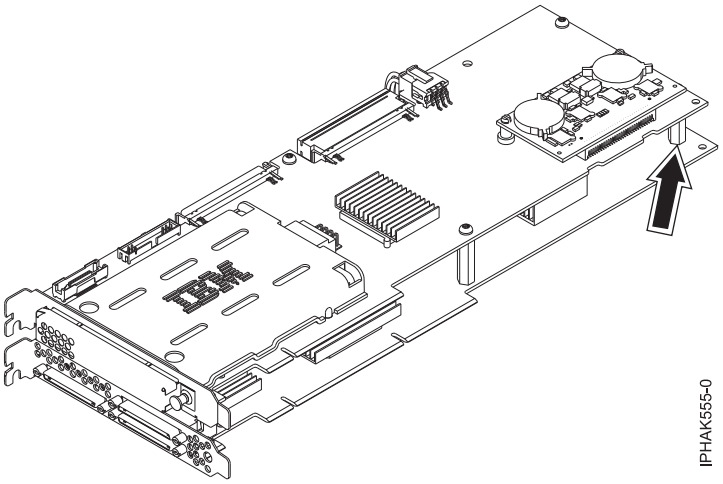


Figure 223. Removing the standoff

Power LED

For a double-wide adapter, there is only one power LED visible for both slots.

Concurrent maintenance procedure

Concurrent maintenance of this double-wide adapter is not supported through the Hardware Management Console (HMC). Concurrent maintenance must be done from the Hardware Service Manager (HSM) of the system or owning partition. The HSM automatically powers off and on both PCI slots when either slot is selected. In AIX or Linux, you must manually power off and on each slot separately.

Important:

- Both PCI slots must be powered off when installing or removing this adapter with the system power on.
- If this adapter is the load source IOA, or under the load source IOP, or any other storage IOA/IOP with critical DASD attached for the system, have a qualified service provider perform the concurrent maintenance procedure. At step 12 on page 304, the HSM directs you to use control panel functions 68 and 69 to power off the domain.

The following steps are a general concurrent maintenance procedure for installing, removing, or replacing an adapter in IBM i operating system. If you were sent here by another procedure, additional specific instructions for removing and replacing a PCI adapter can be found in that procedure.

1. Start an IBM i session for the system or partition containing the adapter and sign on to the system or partition.
2. Type **strsst** on the command line of the Main menu and then press Enter.
3. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display and press Enter.
4. Select **Start a service tool** from the System Service Tools (SST) display and press Enter.
5. Select **Hardware service manager** from the Start a Service Tools display and press Enter.

6. Select **Logical hardware resources (system, frames, cards)** from the Hardware Service Manager display and press Enter.
7. Select **System bus resources** and press Enter. The display changes to the Logical Hardware Resources on System Bus display.
8. Page down and locate the **IOP** that controls the IOA to be serviced.

   If you are installing a new IOPless adapter in an empty slot, the IOP is not shown.
9. Enter 9 in the Opt field for the **IOP** to be serviced.
10. Locate the **Storage IOA** resource for the adapter to be serviced and enter 8 in the Opt field for that resource.
11. Enter 3 for **Concurrent maintenance** in the Opt field for the **Storage IOA** resource to be serviced. The display changes to the Hardware Resource Concurrent Maintenance display.
12. Press F9 to power off the domain.

    In some cases the card slots are already powered off if empty.
13. Press Enter to start power off. The display changes to the Hardware Resource Concurrent Maintenance Status display, which shows the status of the power off.

    When the power off is complete, the display returns to the Hardware Resource Concurrent Maintenance display. The display shows that the **Power Status** is off for **Storage IOA**. Leave this display on the HSM while you install, remove, or replace the adapter.
14. Check the slot power LED state for the slot in which the adapter resides to verify that the adapter is powered off.

    For a double-wide adapter, there is only one power LED visible for both slots.
15. Install, remove, or replace the adapter. See “Model 8234-EMA, 9117-MMA, 9119-FHA, 9125-F2A, 9406-MMA and attached expansion units, PCI adapters, and cassettes” on page 69. Links to procedures for other systems can be found at “Installing PCI adapters,” on page 1.
16. After the replacement is complete, return to the Hardware Resource Concurrent Maintenance display on the HSM.
17. If you were previously instructed to use operator panel function 69 to power on the adapter, do so now. Then go to step 22, otherwise continue with next step.
18. Enter F10 to power the adapter on.
19. Press Enter to begin power on.
20. If the Work with Controlling Resource display appears, enter 7 in the Opt field for the **IOP** to assign the IOA to.

    The Hardware Resource Concurrent Maintenance Status display shows the status of the power on.
21. When the power on is complete, the display returns to the Hardware Resource Concurrent Maintenance display. The display shows that the **Power Status** is on for the **Storage IOA**.
22. Check the LED status to verify that the adapter is powered on.

    For a double-wide adapter, there is only one power LED visible for both slots.
23. Return to the procedure that sent you here.

Related concepts

"Model 8234-EMA, 9117-MMA, 9119-FHA, 9125-F2A, 9406-MMA and attached expansion units, PCI adapters, and cassettes" on page 69
You can remove, replace, or install PCI adapter cassettes.

Related tasks

"Placing a PCI adapter in a double-wide, generation 2.5 cassette" on page 190
You can place a PCI-X double-wide, quad-channel Ultra320 SCSI RAID Controller or PCI-X DDR 1.5 GB cache SAS RAID Adapter in a generation 2.5, double-wide cassette. Use the procedure in this topic to perform this task.

"Placing an adapter in the PCI adapter double-wide cassette" on page 185
You might need to place a PCI adapter in a double-wide cassette. .

Related reference

IBM Prerequisite Web page
Find prerequisite information for features you currently have or plan to add to your system.

PCI adapter placement for machine types 82xx and 91xx
Find PCI adapter placement information for machine types 82xx and 91xx.

PCI adapter placement for machine type 94xx
Find PCI adapter placement information for machine type 94xx.

PCI-X DDR 1.5 GB cache SAS RAID Adapter (FC 5904, 5906, 5908; CCIN 572F and 575C)

Learn about the specifications and operating system requirements for the 5904, 5906, and 5908 adapter.

Overview

The PCI-X DDR 1.5 GB cache SAS RAID Adapter is a SAS disk controller with a maximum of 1.5 GB compressed write cache and a maximum 1.6 GB compressed read cache. Auxiliary write cache and concurrent battery maintenance are provided. The controller is implemented using two physical adapters that are securely connected to form a double-wide adapter. The double-wide adapter requires two adjacent Peripheral Component Interconnect-X (PCI-X) slots. The auxiliary write cache side of the double-wide adapter contains a dual, concurrently maintainable cache battery pack which maintains cache memory on both adapters in the event of an abnormal termination.

When used in a logical partition (LPAR) environment, this double-wide adapter must have both slots of the adapter assigned to the same logical partition. When implementing dynamic LPAR (DLPAR), both slots of the adapter must be managed together.

Feature 5904, 5906, and 5908 are all feature codes representing the same PCI-X DDR 1.5 GB cache SAS RAID Adapter. Different feature codes indicate if a blind swap cassette is used and its type:

- Feature 5904 indicates no blind swap cassette. The feature is used in enclosures that do not use blind swap cassettes.
- Feature 5906 indicates a gen-2.5 blind swap cassette. The feature is used in the 5797 and 5798 enclosures.
- Feature 5908 indicates a gen-3 blind swap cassette. This feature is used in the 5790, 5796, and 9117-MMA enclosures.

572F is the CCIN number on the RAID adapter side of the double-wide adapter pair. 575C is the CCIN number on the write-cache adapter.

The adapter provides RAID 0, RAID 5, RAID 6, and RAID 10 for the AIX and Linux operating systems. Under the IBM i operating system, mirroring, and data spreading are provided by the operating system, and RAID 5 and RAID 6 are provided by the adapter. [1]

The adapter provides three mini-SAS 4x connectors for the attachment of SAS drives located in 5886 EXP 12S Expansion Drawers. The adapter supports a maximum of five 5886 EXP 12S Expansion Drawers.[1] With proper cabling and configuration, multiple wide ports are used to provide redundant paths to each dual port SAS drive. If a SAS failure occurs, then the adapter manages SAS path redundancy and path switching.

This adapter supports the multi-initiator and high availability configurations. With the optional pairing of adapter sets, an even higher level of protection is provided by using a dual controller I/O configuration[1] to protect against the failure of an entire adapter set. In such a high availability I/O configuration, SAS X cables are used to attach 5586 EXP 12S Expansion Drawers, and the fourth (top) mini-SAS connector on each card set is used to directly connect the card sets by using a SAS AA cable. See Serial attached SCSI cable planning for more information.

Important: See the following topics for more information and important considerations for multi-initiator and high availability configurations: SAS RAID controllers for AIX, SAS RAID controllers for IBMi, or SAS RAID controllers for Linux. See also Important partitioning considerations with dual-slot and multiadapter configurations.

[1] See "POWER5 restrictions" on page 308.

The following figure shows the adapter.

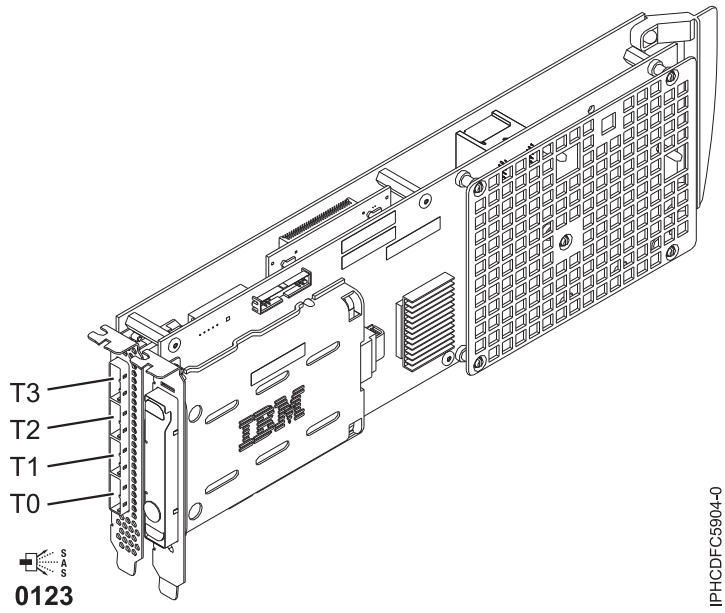


Figure 224. PCI-X DDR 1.5GB cache SAS RAID Adapter

Note: Port T3 does not support any device attachment. T3 is only used in dual controller I/O configurations for adapter to adapter communication.

Specifications

Item Description

Adapter FRU number

44V8622 (Adapter only) (Designed to comply with RoHS requirement.)

44V7627 (Adapter in a gen-2.5 blind swap cassette)

42R4008 (Adapter in a gen-3 blind swap cassette)

Battery FRU number
42R3965 or 74Y5665 (Designed to comply with RoHS requirement.)
I/O bus architecture
PCI-X
Slot requirement
Two, long, adjacent PCI-X slots.
Cables
SAS device attachment requires specific cables that are provided with the subsystem or device features being attached. Special cabling is required for multi-initiator and high availability configurations. See Serial attached SCSI cable planning.
Voltage
3.3V
Form factor
Long
Maximum number
See PCI adapter placement for machine types 82xx and 91xx.
Attributes
- SAS speed: 3 Gbps
- SAS, SAS Serial SCSI Protocol (SSP) and Serial Management Protocol (SMP) supported
- Single controller supported with SAS y cables (3692, 3693, 3694)
- Dual controller supported with SAS x cables (3661, 3662, 3663) and SAS AA cable (3681, 3682)
- Single controller supports mirrored write cache data with auxiliary cache
- Dual controller supports mirrored-write cache data and mirrored-RAID parity footprints between card sets
- Solid® state drives (SSDs) supported
- Removable media devices are not supported

Operating system or partition requirements

This adapter is supported for the following operating systems:
- AIX:
  - AIX 5L Version 5.3 with the 5300-07 Technology Level and Service Pack 8, or later
  - AIX 5L Version 5.3 with the 5300-08 Technology Level and Service Pack 6, or later
  - AIX 5L Version 5.3 with the 5300-09 Technology Level and Service Pack 2, or later
  - AIX 5L Version 5.3 with the 5300-10 Technology Level, or later
  - AIX 6.1 and Service Pack 8, or later
  - AIX Version 6.1 with the 6100-01 Technology Level and Service Pack 4, or later
  - AIX Version 6.1 with the 6100-02 Technology Level and Service Pack 3, or later
  - AIX Version 6.1 with the 6100-03 Technology Level, or later
- Linux:
  - Red Hat Enterprise Linux version 4, with update 7, or later
  - Red Hat Enterprise Linux version 5, with update 2, or later
  - SUSE Linux Enterprise Server 10, with service pack 2, or later
- IBM i
  - IBM i V5R4m5 and Resave F, or later
  - IBM i 6.1 and Resave F, or later
  - IBM i 6.1.1 and Resave A, or later, is required for Dual Storage IOA support.

This adapter requires the following drivers:
- AIX: devices.pci.1410bd02 device driver package
- Linux:

- iprutils version 2.4.1 and ipr driver version 2.0.11.6 (or newer) for RHEL4 kernels
- iprutils version 2.4.1 and ipr driver version 2.2.0.2 (or newer) for RHEL5 kernels
- iprutils version 2.4.1 and ipr driver version 2.2.0.2 (or newer) for SLES10 kernels

If you are installing a new feature, ensure that you have the software required to support the new feature and that you determine if there are any existing prerequisites. To do this, use the IBM Prerequisite Web site at http://www-912.ibm.com/e_dir/eServerPrereq.nsf .

Concurrent maintenance procedure

Concurrent maintenance of this double-wide adapter is not supported through the Hardware Management Console (HMC). Concurrent maintenance must be done from within the partition operating system. In IBM i, the Hardware Service Manager (HSM) of the system or owning partition will automatically power off or on both PCI slots when either slot is selected. In AIX or Linux, you must manually power off and on each slot separately.

Important:

- Both PCI slots must be powered off when installing or removing this adapter with the system power on.
- If this adapter is the load source IOA, or any other storage IOA with critical DASD attached for the system, this concurrent maintenance procedure should be done by a qualified service provider.

POWER5 restrictions

When the feature is used in system configuration based on a POWER5™ processor, the following restrictions apply:

- A maximum of three 5886 EXP 12S Expansion drawers can be attached per controller. with one on each port and no cascading.
- IBM i support only. AIX and Linux are not supported.
- IBM i load source capability is not provided.
- The optional dual controller I/O configuration is not supported.

See also the following topics for the POWER5 restrictions:

- PCI adapter placement for IBM System i5® and eServer™ i5 system units and expansion units
- Determine the best place to install your adapter
- i5/OS® PCI adapters table
- High-performance SCSI and SAS controller placement

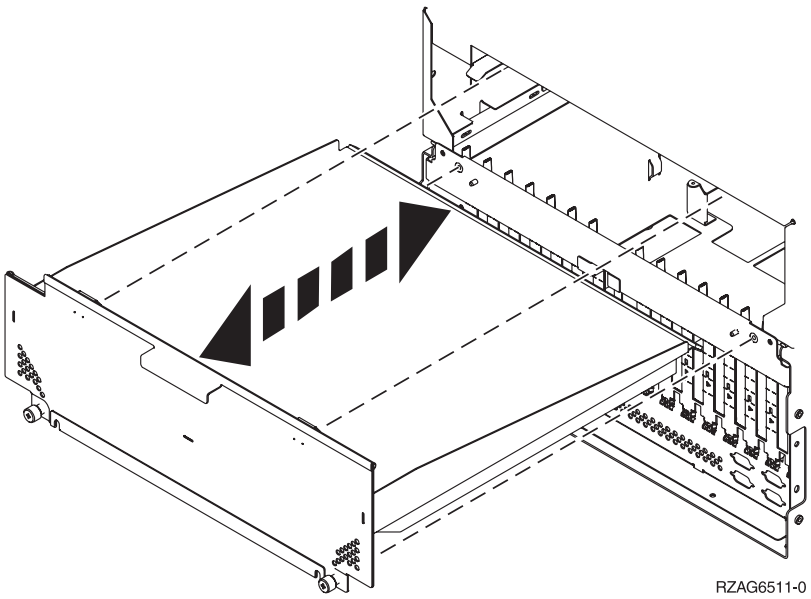
Removing and replacing the expansion unit cover or door

You might need to remove, replace, or install covers or doors on an expansion unit as a part of accessing components or performing a service action.

Removing the rear cover from the 0588 expansion unit

You might need to remove the cover to access components or perform service. Use the instructions in this section to accomplish this task.

Open the rear cover and remove the air flow shield, as shown in the following figure.



Opening the 0595, 5095, or D20 service access cover

Learn how to open the service access cover to service the 0595, 5095, or D20 expansion unit.

To open the service access cover, do the following steps:

1. Ensure the expansion unit is in the service position as described in "Placing the rack-mounted system or expansion unit in the service position" on page 326.
2. Loosen the three thumbscrews located on the cover at the back of the system.
3. Lift the cover into the open position.

Removing the rear door from the 5074, 5079, or 5094 expansion unit

You can remove the door to access components or perform service. Use the instructions in this section to accomplish this task.

To remove the rear door from the expansion unit, follow these steps:

- Open the rear door **(A)** as shown in the following figure.
- Press the latch **(B)** to remove the door.

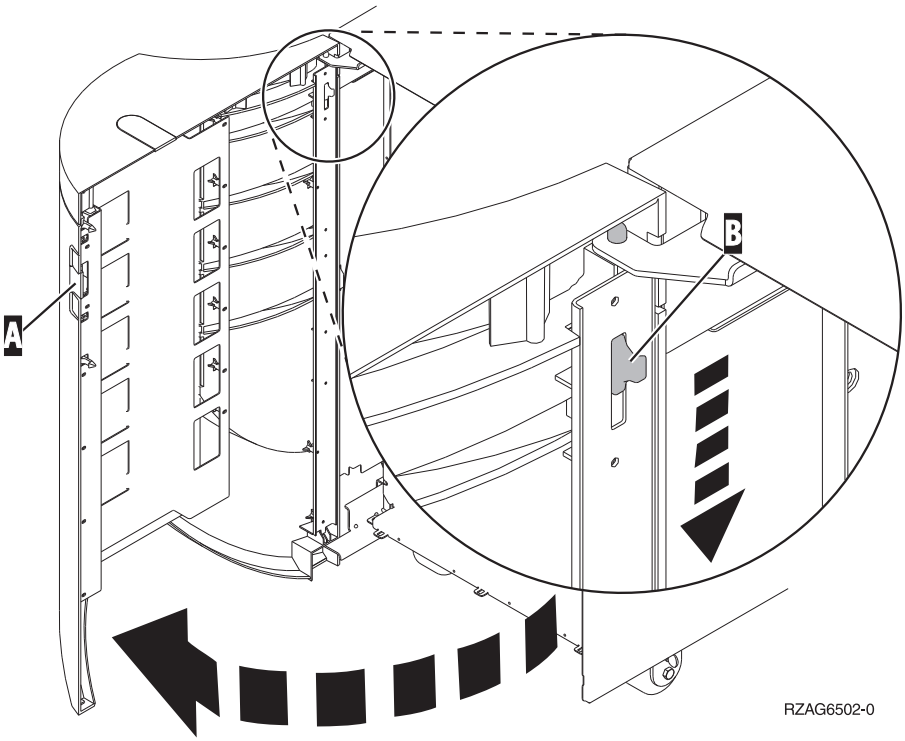


Figure 225. Removing the expansion unit rear door

Removing the rear door from the 5088, 5094, or 5096 expansion unit

You can remove the door to access components or perform service. Use the instructions in this section to accomplish this task.

To remove the rear door from the expansion unit, follow these steps:

1. Open the rear door **(A)** as shown in the following figure.
2. Press the latch **(B)** to remove the door.

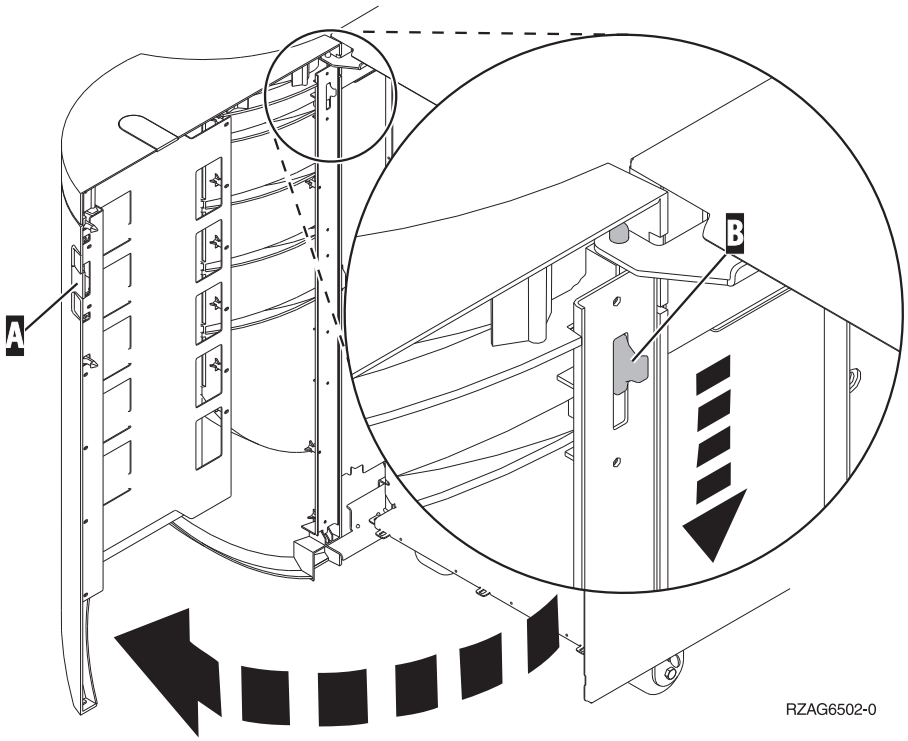


Figure 226. Removing the expansion unit rear door

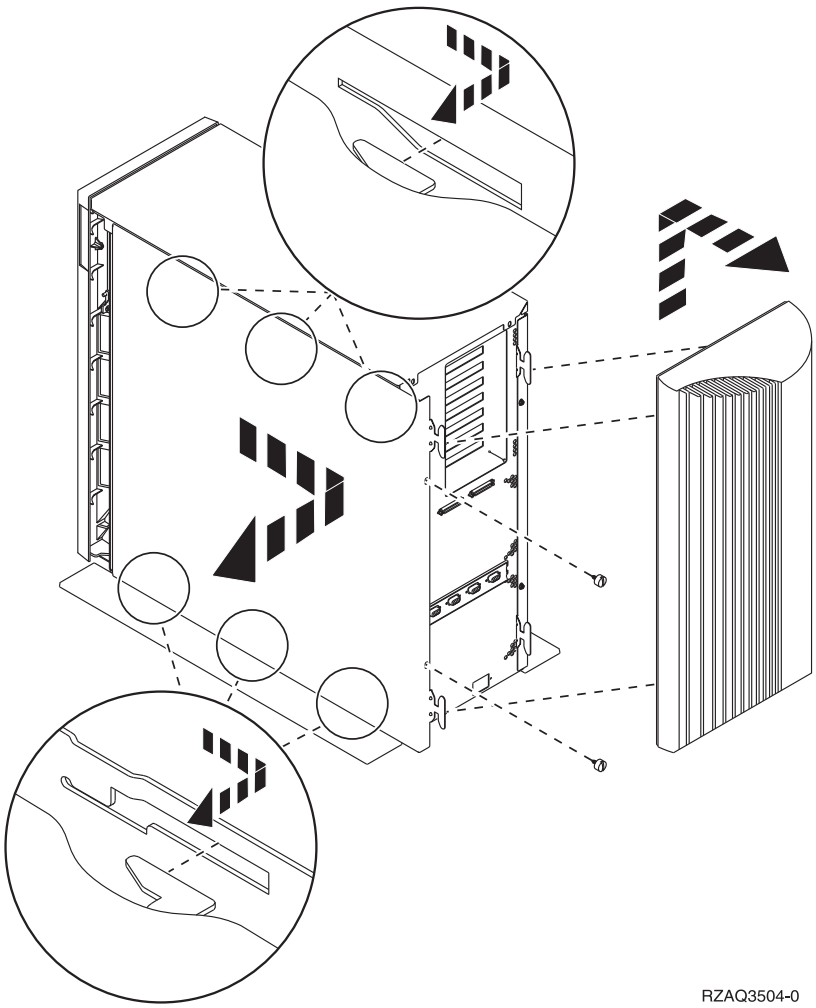
Removing the rear door and cover from the 5095 expansion unit

You might need to remove the door and cover to access components or perform service. Use the instructions in this section to accomplish this task.

To remove the rear door and cover from the expansion unit, follow these steps:

1. Place your hand near the bottom of the rear cover and lift up and out.

   Attention: If you remove the cover while the server is powered on, errors might occur due to electromagnetic interference.
2. Remove the left cover, view from rear, by loosening the thumbscrews and sliding the cover from front to rear until it stops.



3. Pull the cover out.

Removing the front cover on the 7314-G30 or 5796

You might need to remove the front cover to perform service to the system.

To remove the front cover follow these steps.

1. Remove the two thumbscrews **(B)** located on the left and right of the cover.

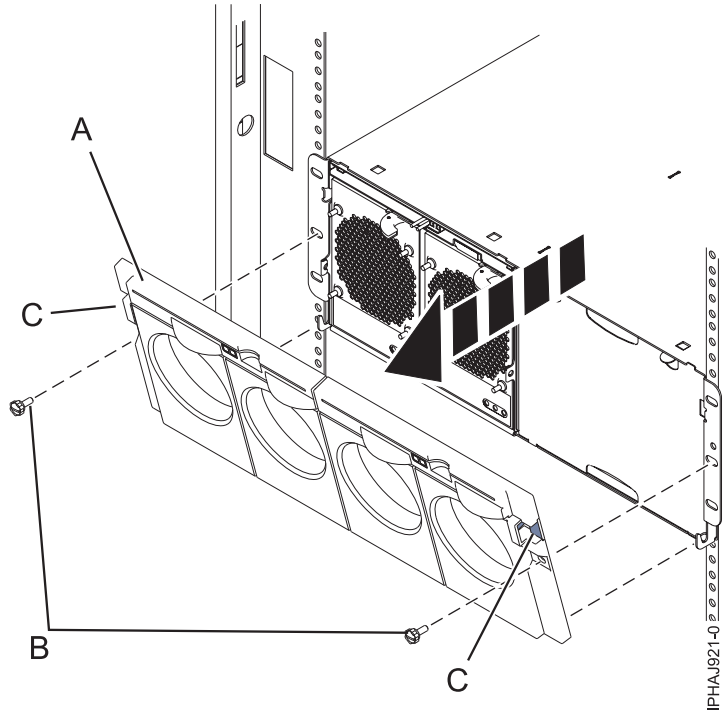


Figure 227. Remove the front cover for model 7314-G30 or 5796

2. Press in on the two latches **(C)** located left and right of the cover to release the cover.
3. Lift the cover **(A)** out and away from the chassis.

   Tip: If an airflow block is present on an unpopulated side of the chassis do not remove it unless you are populating that side of the chassis.

Removing the rear door from the 5088, 5094, or 5096 expansion unit

You can remove the door to access components or perform service. Use the instructions in this section to accomplish this task.

To remove the rear door from the expansion unit, follow these steps:

1. Open the rear door **(A)** as shown in the following figure.
2. Press the latch **(B)** to remove the door.

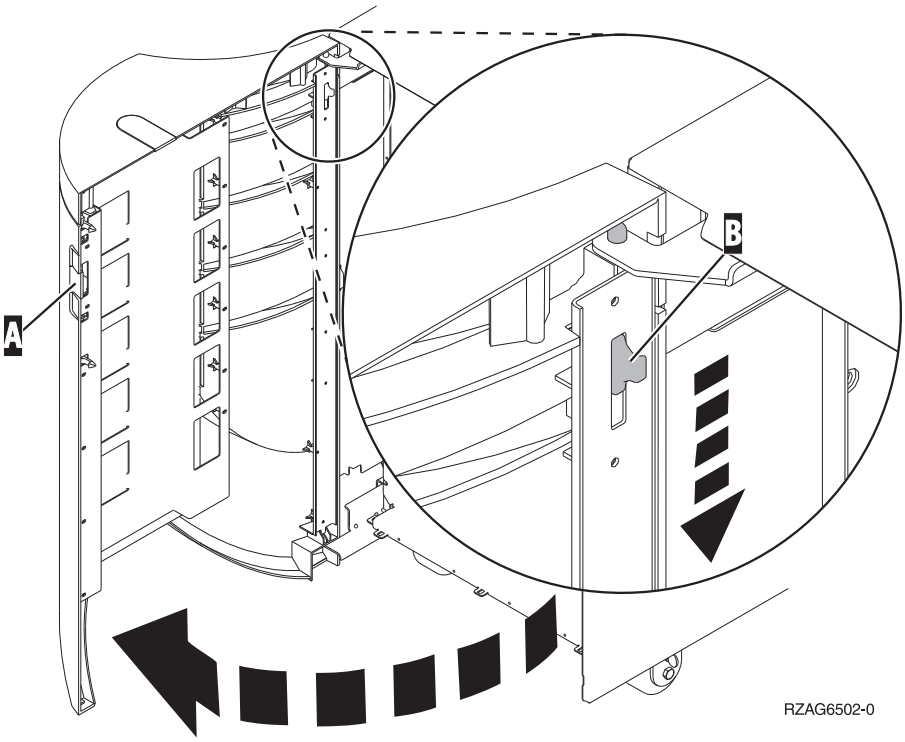


Figure 228. Removing the expansion unit rear door

Installing the front cover on the 7314-G30 or 5796

Use this procedure to install the front cover after installing the system or performing a service action.

If you only have one side of the chassis populated, ensure that the airflow block is present on the unpopulated side.

1. Insert the posts on the bottom of the cover **(A)** into the hooks on the chassis of the enclosure.
2. Press in on the two latches **(C)** on the right and left of the front cover.

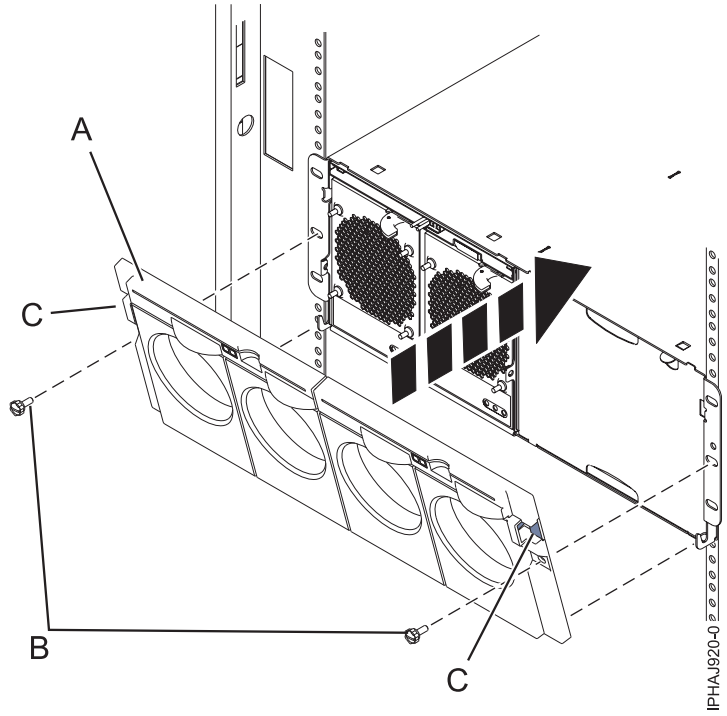


Figure 229. Front cover on a model 7314-G30 or 5796

3. Push the cover onto the chassis and release the latches. The cover should securely snap into place.
4. Replace the two thumbscrews **(B)** into the slots on the left and right of the front cover.

Removing the front cover from a 7311-D11, 5791, or 5794 expansion unit

Use this procedure to remove the cover to access components or perform a service action.

To remove the front cover, follow these steps:

1. Open the rack front door, if necessary.
2. Press down on both release tabs and pivot the cover from the top forward.
3. Pull the cover out and away from the expansion unit.

Installing the front cover on a 7311-D11, 5791, or 5794 expansion unit

Use this procedure to install the cover after accessing components or performing service.

To install the front cover, follow these steps:

1. Position the cover on the front of the expansion unit so that the pins on the cover line up with the slots on the front of the expansion unit.
2. Insert the tabs on the bottom of the cover into the slots at the front of the expansion unit.
3. Push the cover up and forward until the tabs on the top secure the cover in place.

Removing the front cover from a 7311-D20 expansion unit

Use this procedure to remove the cover to access components or perform service.

To remove the expansion unit front cover, follow these steps:

1. If necessary, open the front rack door.
2. Remove the thumbs screws that are securing the covers to the rack.

3. Push both cover-release latches in the direction of the arrows to release the cover as shown in the following figure.

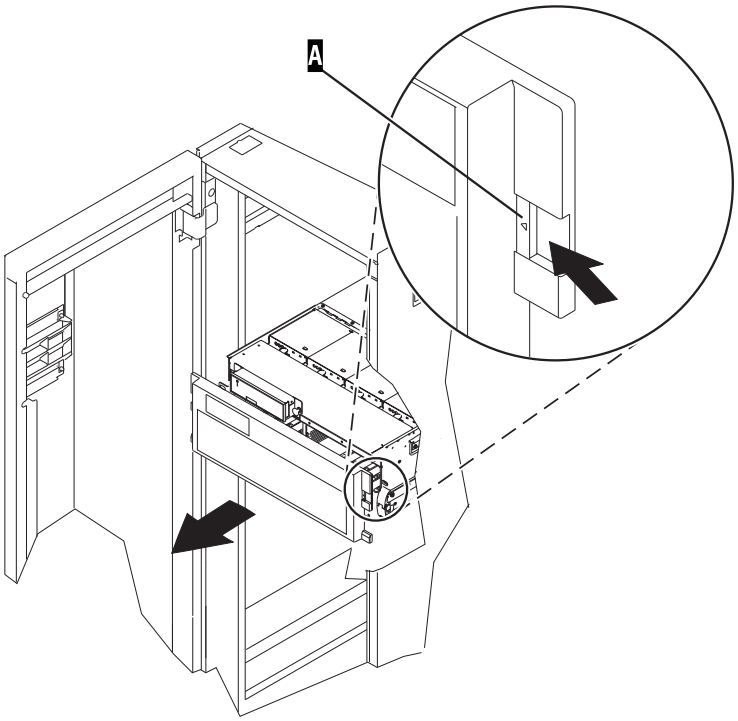


Figure 230. Removing the front cover

4. Pivot the cover from the bottom and swing the top of the cover out.
5. Pull the bottom of the cover up and then away from the expansion unit. This releases the two tabs located on the bottom of the cover.
6. Put the cover in a safe place.

Installing the front cover on a 7311-D20 expansion unit

Use this procedure to install the cover after accessing components or performing service.

To install the expansion unit front cover, follow these steps:

1. If necessary, open the front rack door.
2. Insert the two tabs located on the bottom edge of the cover into their locking slots, located on the expansion unit frame.
3. Pivot the front cover up toward the top of the expansion unit frame.
4. Align the tabs to the matching slots located on the front of the expansion unit frame.
5. Gently push the tabs into the slots until the cover seats against the front of the expansion unit.
6. Install the thumbs screws to secure the covers to the rack.
7. Close the front rack door.

Removing and replacing covers and doors

Use these instructions to remove, replace, or install covers to access components or perform service.

Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the service access cover to perform service or to gain access to internal components.

1. Place the system into the service position. For instructions, see "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 331.
2. Loosen the two thumbscrews **(A)** located at the back of the cover.
3. Slide the cover **(B)** toward the back of the system unit. When the front of the service access cover clears the upper frame ledge, lift the cover up and off the system unit.

Attention: For proper cooling and airflow, install the cover before starting the system. Operating the system without the cover for more than 30 minutes could damage the system components.

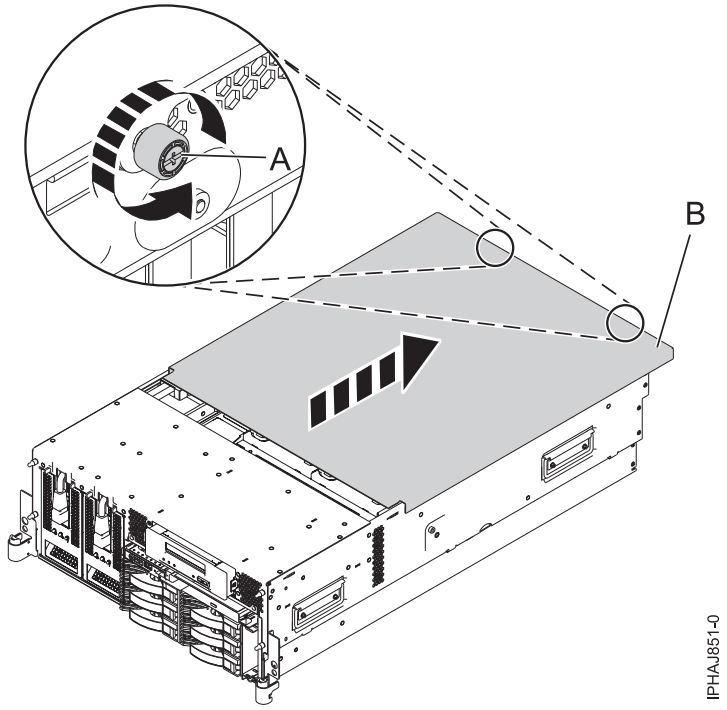


Figure 231. Remove the service access cover from a rack-mounted model

Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to install the service access cover after performing service or accessing internal components.

1. Place the service access cover **(A)** on the top of the system unit, approximately 25 mm (1 in.) from the front of the system unit.
2. Hold the service access cover against the system unit, and slide it toward the front of the system.

   The tabs on the service access cover slide beneath the upper chassis ledge, and the two thumbscrews align with the screw holes at the back of the system unit.
3. Tighten the thumbscrews **(B)** located at the back of the cover.

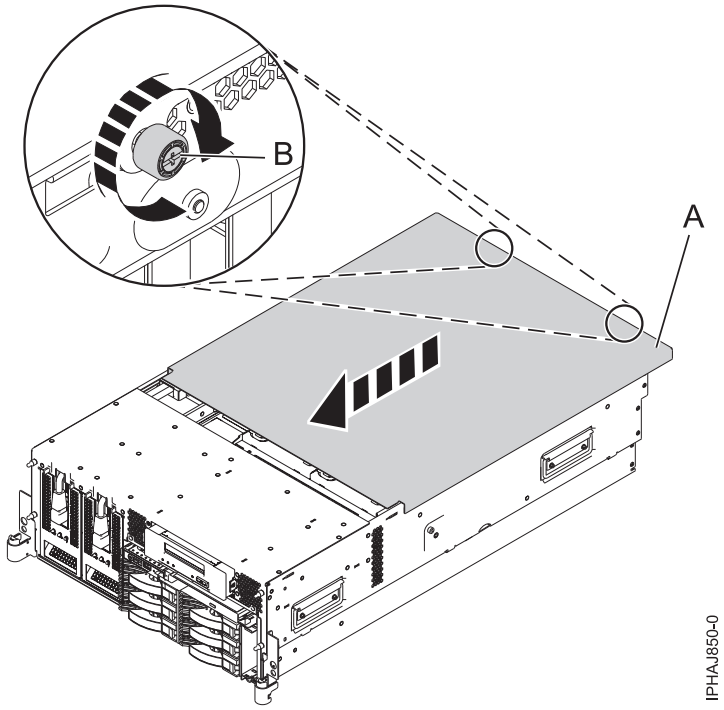


Figure 232. Install the service access cover on the rack-mounted model

Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the service access cover to perform service or to gain access to internal components.

To remove the service access cover from a stand-alone model, do the following steps:

1. Loosen the two thumbscrews **(A)** located at the back of the service access cover as shown in the following figure.
2. Slide the service access cover **(B)** toward the back of the system. When the front of the cover clears the front frame ledge, lift the cover off the system.

   Attention: For proper cooling and airflow, install the cover before starting the system. Operating the system without the cover for more than 30 minutes might damage the system components.

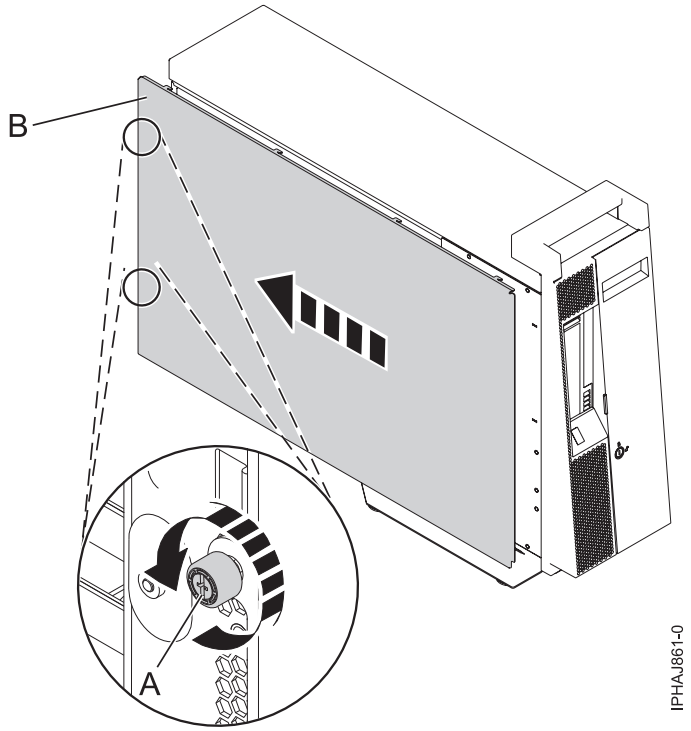


Figure 233. Removing the service access cover from the stand-alone model

Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to install the service access cover after performing service or accessing internal components.

1. Align the service access cover pins with the slots in the system. The flanges on the top and bottom of the cover wrap around the system frame.
2. Hold the service access cover against the system unit **(A)** and slide it toward the front of the system.
3. Tighten the two thumbscrews **(B)** located at the back of the cover.

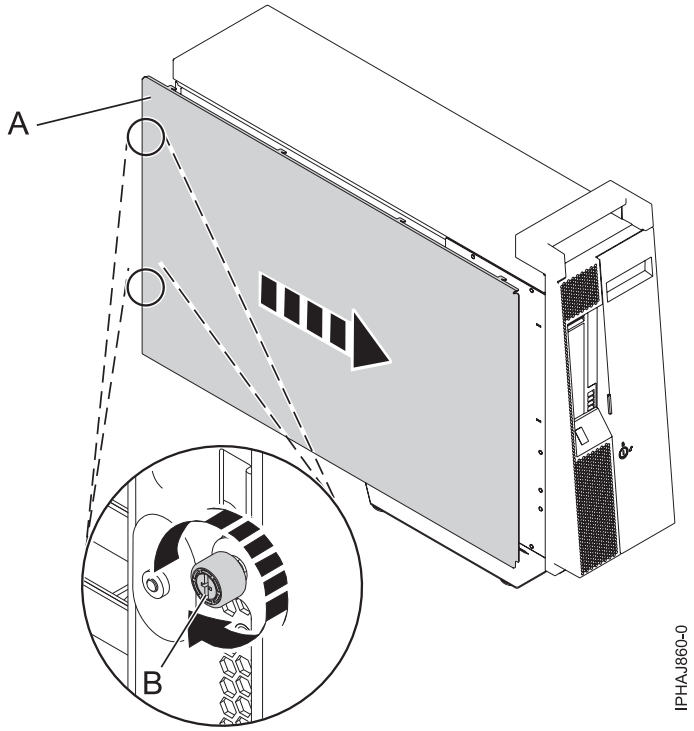


Figure 234. Installing the service access cover on a stand-alone model

Removing the front cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the cover to access components or perform service.

1. Remove the two thumbscrews **(A)** that secure the system to the rack **(B)** as shown in the following figure.
2. Push in the release latches **(C)** and pull the cover away from the system.

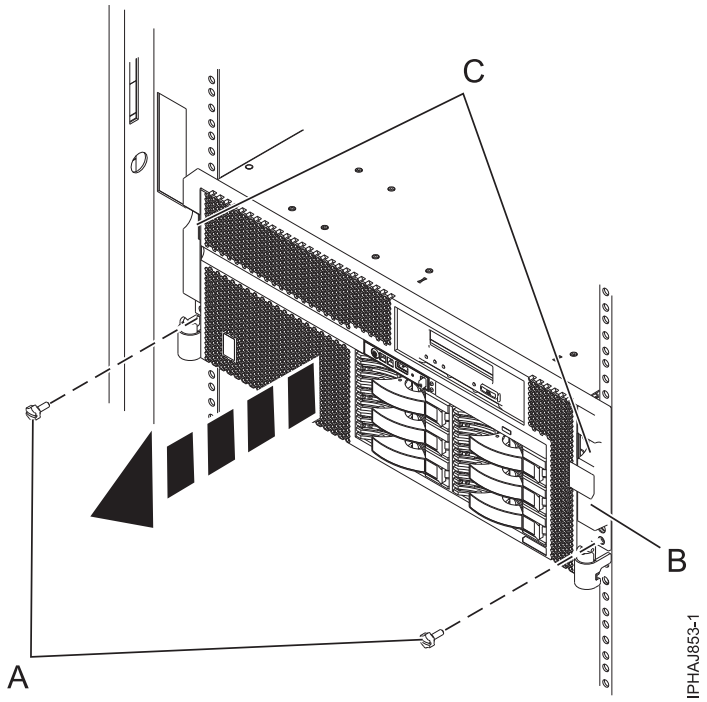


Figure 235. Removing the front cover from a rack-mounted model

Installing the front cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to install the cover after accessing components or performing service.

1. Push in the release latches **(B)** and push the cover onto the system.
2. Gently push the cover in until the two cover-release latches **(B)** are seated in their respective slots as shown in the following figure.
3. Replace the two thumbscrews **(C)** that secure the system to the rack **(A)**.

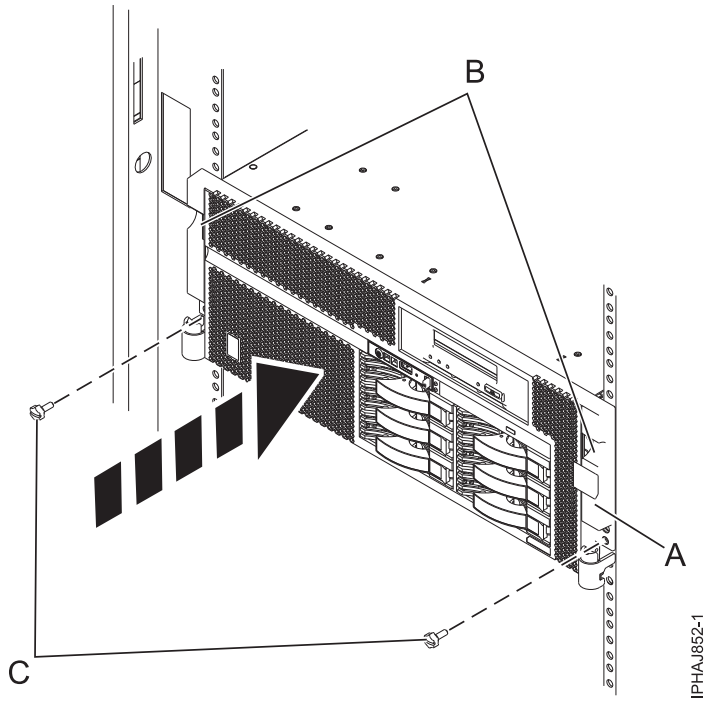


Figure 236. Installing the front cover on a rack-mounted model

Removing the door from the 8204-E8A or 9409-M50

Use this procedure to remove the door to access components or perform service.

1. Open the front door by grasping the door handle and pulling the door out and away from the system unit.
2. To remove the door, press down on the top back edge of the door.
3. Gently swivel the top back edge of the door forward and out past the top of the system unit.
4. Lift the door up to release it from the lower retaining post.

Installing or replacing the door on the 8204-E8A or 9409-M50

Use this procedure to install the door after accessing components or performing service.

1. Set the door on the lower retaining post.
2. Rotate the door toward the top of the system unit.
3. Press down on the lower back edge of the door, and seat the top post into its matching slot.
4. Close and secure the door.

Removing the front cover from the stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the cover to access components or perform service.

1. Open the door that covers the disk drives by unlocking and pulling the door open.
2. Press down on the cover-release tab **(A)** as shown in the following figure.
3. Pull the top of the cover **(B)** out and away from the system.

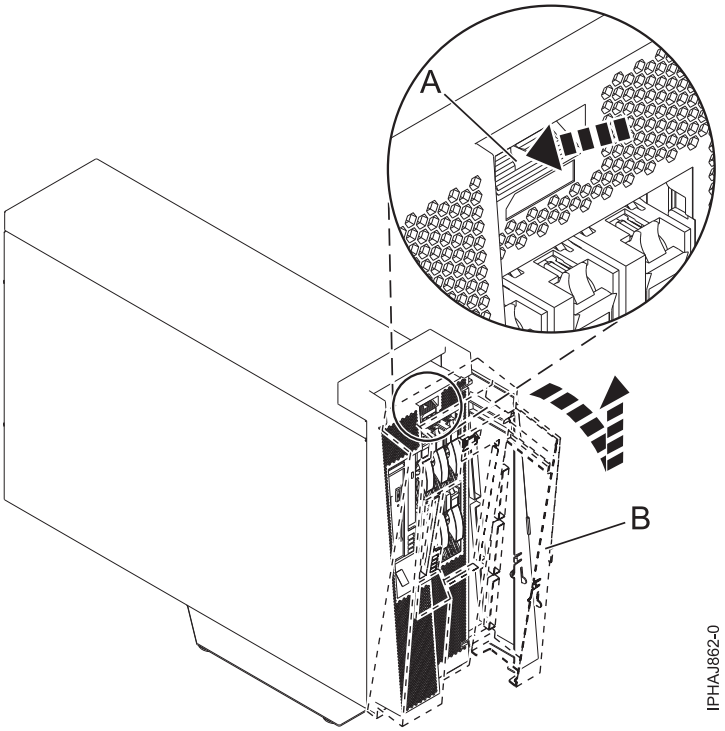


Figure 237. Remove the door from the model

4. Gently pull the cover up and off the base.

Installing the front cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to install the cover after accessing components or performing service.

1. Place the two lower cover-locking tabs into the retaining slots located on the base of the system unit as shown in the following figure.

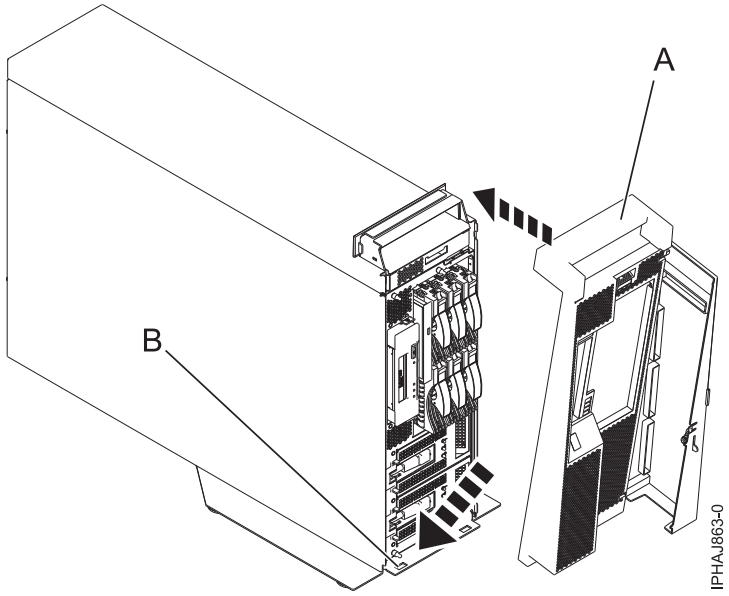


Figure 238. Replacing the cover on the model

2. Push the cover up toward the top of the system **(A)**, ensuring that the aligning pins are aligned with their matching slots **(B)** located on the system.
3. Gently push the cover in until the cover-release tab snaps into place.
4. Close and secure the door.

Removing and replacing the front cover for the 8234-EMA, 9117-MMA, or 9406-MMA

Use these procedures to remove and replace the cover to access components or perform service.

Removing the front cover from the 8234-EMA, 9117-MMA, or 9406-MMA:

Use this procedure to remove the cover to access components or perform service.

To remove the front cover follow these steps:

1. If necessary, open the front rack door.
2. Loosen the thumbscrew on the right side of the cover as shown in the following figure.

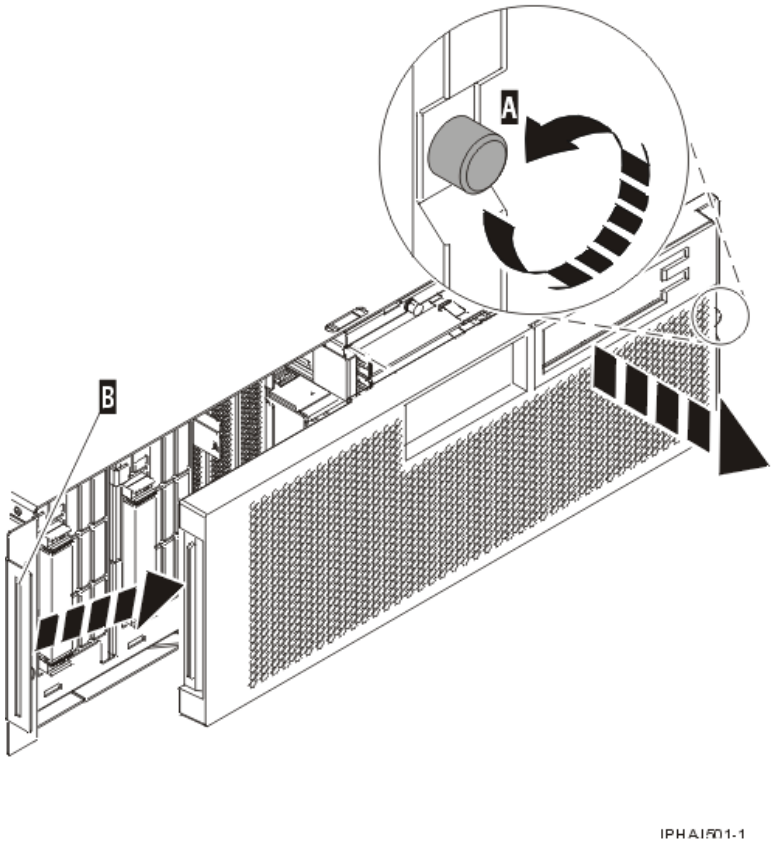


Figure 239. Removing the front cover

3. Slide the cover to the right, and remove it from the system unit.

Installing the front cover on the 8234-EMA, 9117-MMA, or 9406-MMA:

Use this procedure to install the cover after accessing components or performing service.

To install the front cover follow these steps:

1. Position the cover on the front of the system unit so that the tab on the left side of the cover is in the matching slot on the left side of the system unit as shown in the following figure.

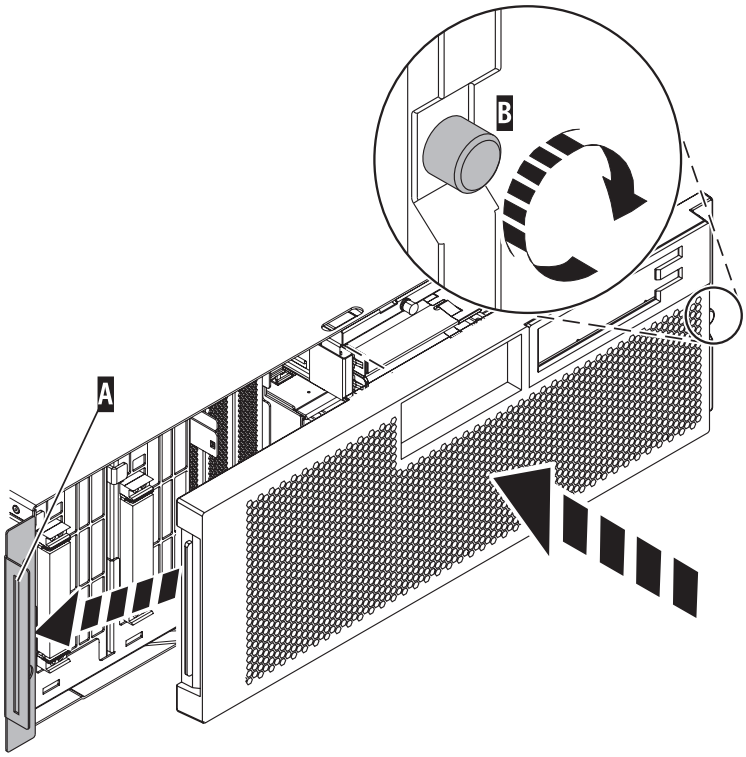


Figure 240. Installing the front cover

2. Tighten the thumbscrew on the right side of the cover.
3. Close the front rack door.

Placing the rack-mounted system or expansion unit in the service position or operating position

Use these procedures to place a system or expansion unit into the service position or operating position to perform service or to gain access to internal components.

Placing the rack-mounted system or expansion unit in the service position

Use this procedure to perform service or gain access to internal components by placing the rack-mounted system or expansion unit in the service position.

Note: Some of the figures in these procedures might not look exactly like the system or expansion unit that you have. However, the steps to perform the task are the same.

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 IBM provided power cord. Do not use the IBM 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.**

  (D005)

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)

To place a rack-mounted system or expansion unit into the service position, follow these steps:

1. If necessary, open the front rack door.
2. Remove the two thumbscrews **(A)** that secure the system or expansion unit **(B)** to the rack as shown in the following figure.

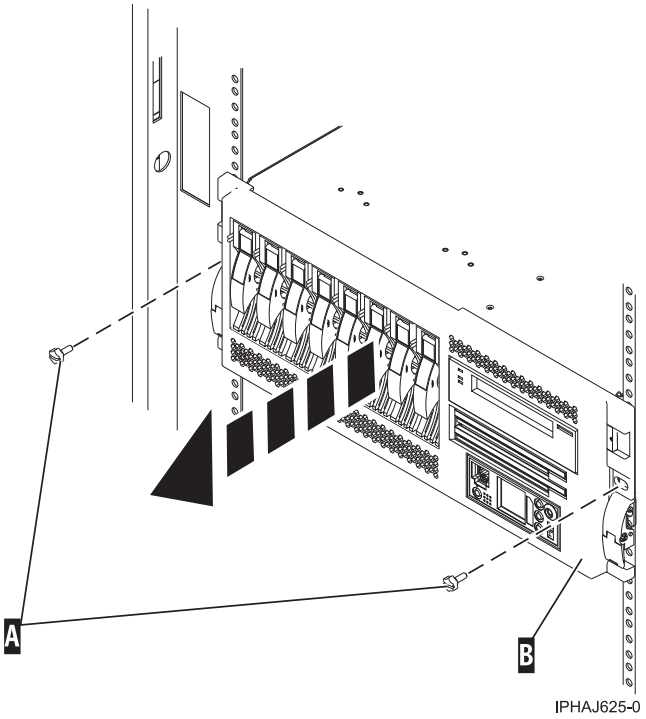


Figure 241. Removing the thumbscrews from the system and rack

3. Release the rack latches **(A)** on both the left and right sides as shown in the following figure.

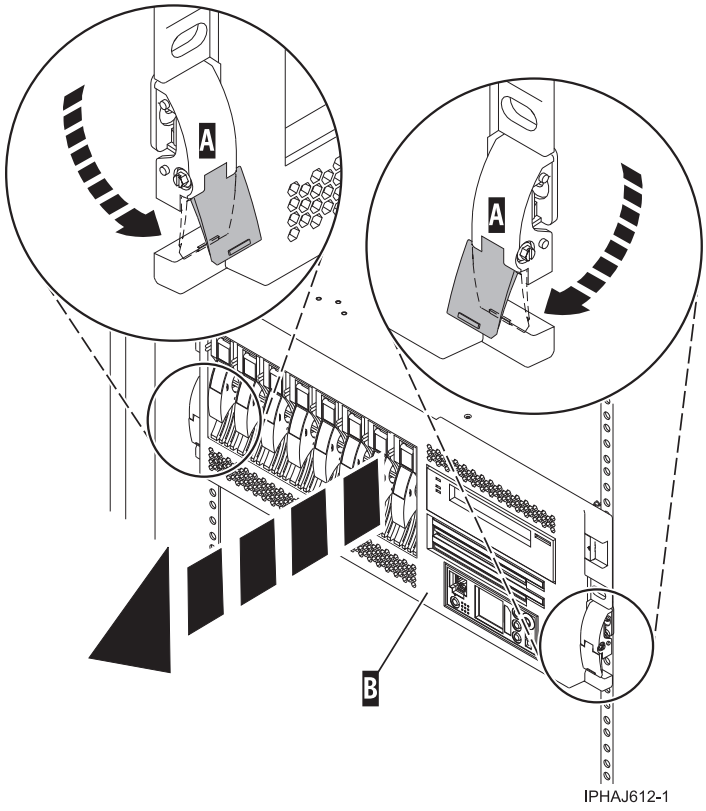


Figure 242. Releasing the rack latches

4. Read the following note, and then slowly pull the system or expansion unit out from the rack until the rails are fully extended and locked.

   Remember:

   - If the procedure you are performing requires you to unplug cables from the back of the system or expansion unit, do so before you pull the unit out from the rack.
   - Ensure that the cables at the rear of the system or expansion unit do not catch or bind as you pull the unit out from the rack.
   - Ensure the rails are fully extended. When the rails are fully extended, the rail safety latches lock into place. This action prevents the system or expansion unit from being pulled out too far.

Placing the rack-mounted system or expansion unit in the operating position

Use this procedure to place the rack-mounted system or expansion unit in the operating position to make the unit available for use.

Tip: Some of the figures in these procedures might not look exactly like the system or expansion unit that you have. However, the steps to perform the task are the same.

To place the rack-mounted system or expansion unit into the operating position, follow these steps:

1. Simultaneously release the blue rail safety latches **(A)**, located near the front of each rail, and push the system or expansion unit into the rack as shown in the following figure.

   Note: Ensure that the cables at the rear of the system or expansion unit do not catch or bind as you push the unit back into the rack.

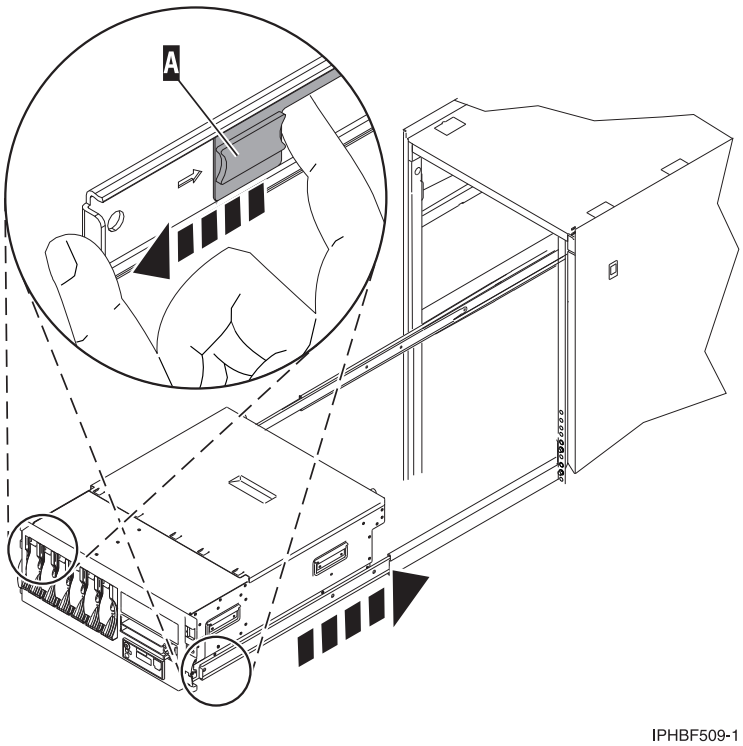


Figure 243. Releasing the rail safety latches

2. Replace and tighten the two thumbscrews **(C)** that secure the system or expansion unit **(A)** to the rack as shown in the following figure.

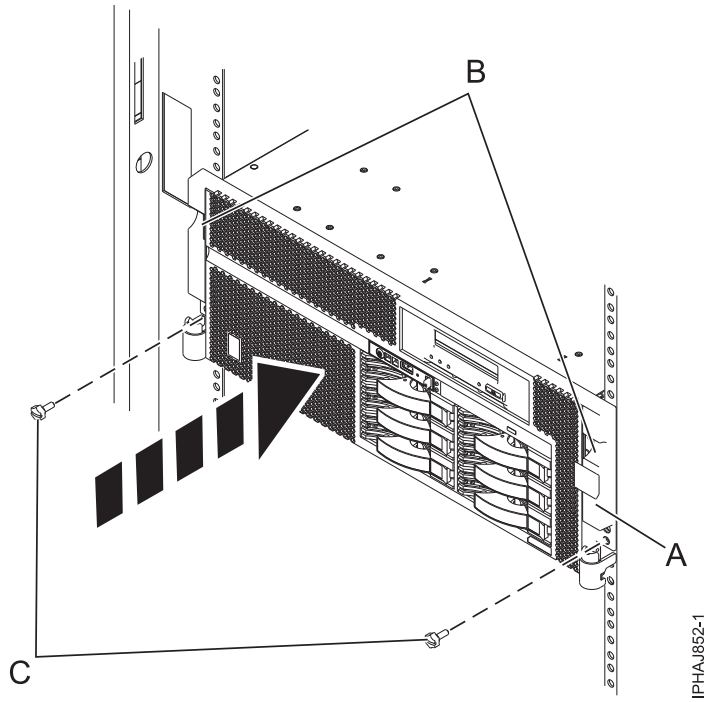


Figure 244. Pushing the system into the rack and attaching the thumbscrews

3. Close the front rack door.

Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position

Use this procedure to perform service or gain access to internal components by placing the rack-mounted system or expansion unit in the service position.

Note: Some of the figures in these procedures might not look exactly like the system or expansion unit that you have. However, the steps to perform the task are the same.

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 IBM provided power cord. Do not use the IBM 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.**

  (D005)

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)

To place the rack-mounted system or expansion unit into the service position, follow these steps:

1. If necessary, open the front rack door.
2. Remove the two thumbscrews **(A)** that secure the system unit to the rack as shown in the following figure.
3. Release the rack latches **(B)** on both the left and right sides as shown in the following figure.

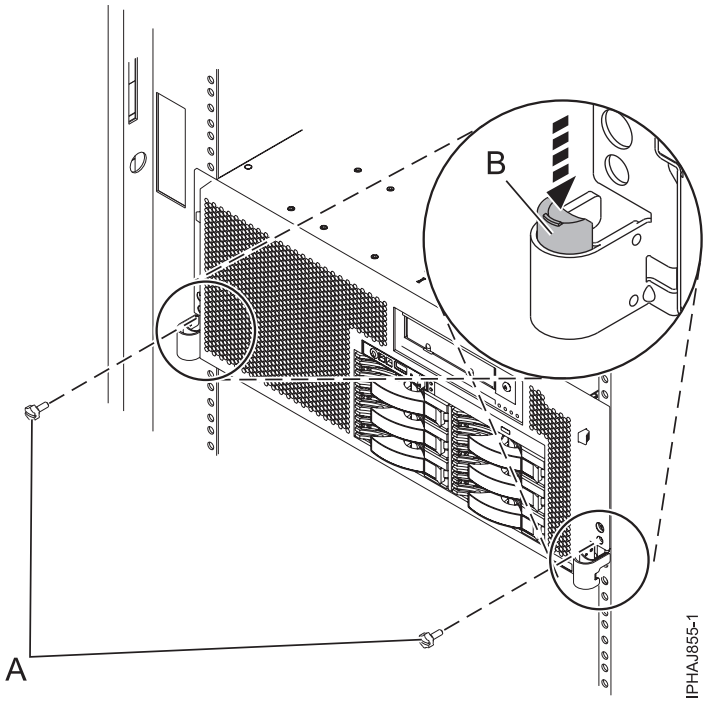


Figure 245. Releasing the rack latches

4. Read the following note, and then slowly pull the system or expansion unit out from the rack until the rails are fully extended and locked.

   Remember:
   - If the procedure you are performing requires you to unplug cables from the back of the system or expansion unit, do so before you pull the unit out from the rack.
   - Ensure that the cables at the rear of the system or expansion unit do not catch or bind as you pull the unit out from the rack.
   - Ensure the rails are fully extended. When the rails are fully extended, the rail safety latches lock into place. This action prevents the system or expansion unit from being pulled out too far.

Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position

Use this procedure to place the rack-mounted system or expansion unit in the operating position to make the unit available for use.

To place the rack-mounted model into the operating position follow these steps:

Tip: Some of the figures in these procedures might not look exactly like the system or expansion unit that you have. However, the steps to perform the task are the same.

1. Simultaneously release the blue rail safety latches **(B)**, located near the front of each rail, and push the system or expansion unit into the rack as shown in the following figure.

   Note: Ensure that the cables at the rear of the system or expansion unit do not catch or bind as you push the unit back into the rack.

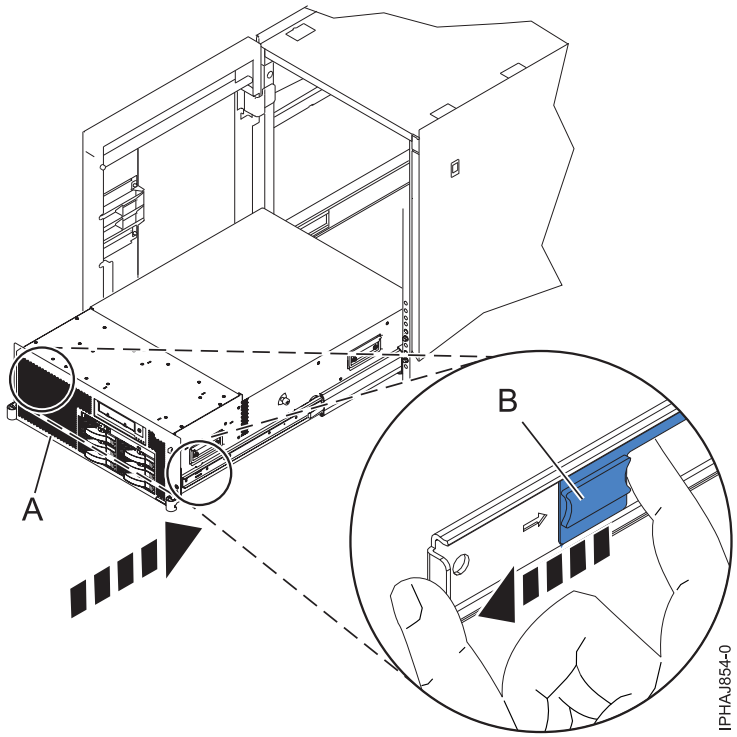


Figure 246. Releasing the rail safety latches

2. Replace and tighten the two thumbscrews **(C)** that secure the system or expansion unit **(A)** to the rack as shown in the following figure.

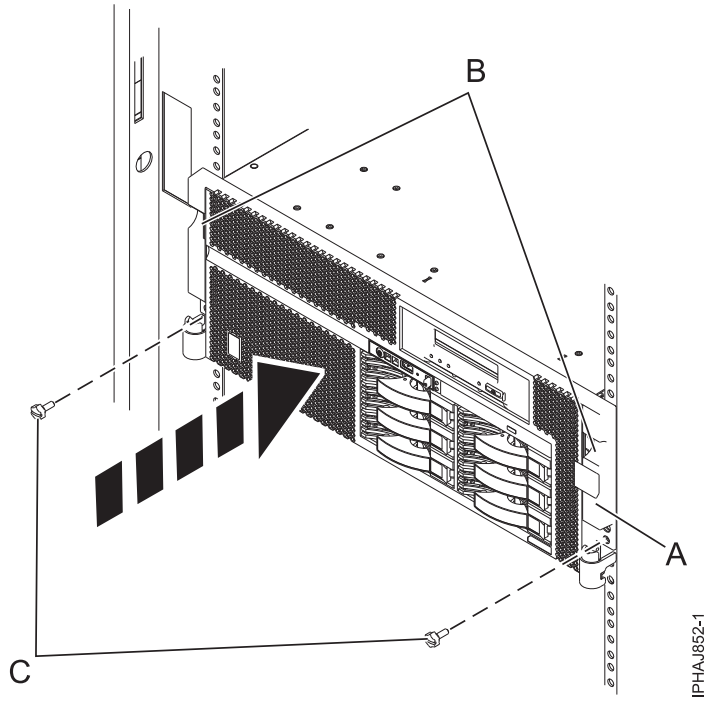


Figure 247. Replacing the thumbscrews

3. Close the front rack door.

Installing a feature using the Hardware Management Console

You can use the Hardware Management Console to perform many service actions, including the installation of a new feature or part.

To use the Hardware Management Console user interface to install a feature or part into a system or expansion unit that is managed by an HMC, follow these steps:

1. In the navigation area, expand **Systems Management** → **Servers**.
2. Select the managed system you will install the part in.
3. In the Tasks area expand **Serviceability** → **Hardware**.
4. Select **Add FRU** (field replaceable unit).
5. In the Add/Install/Remove Hardware window select the system or enclosure into which you are installing the feature.
6. Select the type of feature you are installing from the menu and click **Next**
7. Select the location code for where you will install the feature, and click **Add**.
8. After the FRU is placed in the **pending actions** category 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 using the Hardware Management Console

You can use the Hardware Management Console (HMC) to perform many service actions, including the removal of a field replaceable unit (FRU) or part.

To use the Hardware Management Console user interface to remove a part in a system or expansion unit that is managed by an HMC, follow these steps:

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**.
4. Select **Remove FRU**.
5. In the Add/Install/Remove Hardware - Remove FRU, Select FRU Type window, select the system or enclosure from which you are removing the part.
6. Select the type of part you are removing from the menu and click **Next**.
7. Select the location of the part you are removing and click **Add**.
8. After the part is listed in the **Pending Actions** display 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.

Exchanging a part using the Hardware Management Console

You can use the Hardware Management Console (HMC) to perform many service actions, including exchanging a field replaceable unit (FRU) or part.

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 using HMC Version 7 or later use these steps:

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**.
4. Select **Exchange FRU**.
5. In the Replace Hardware - Replace FRU, Select FRU Type window select the system or enclosure in which you will exchange a part from the list.
6. Select the type of part you will exchange from the menu and click **Next**.
7. Select the location code of the part you will exchange from the menu and click **Add**.
8. After the FRU is placed in the **pending actions** category click **Launch Procedure** and follow the instructions to exchange the feature.

   Note: The HMC might open external instructions for replacing the part. If so, follow those instructions to replace the part.

Installing a part by using the Systems Director Management Console

You can use the IBM Systems Director Management Console (SDMC) to perform many service actions, including the installation of a new field-replaceable unit (FRU) or part.

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:

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** tab, select the system or enclosure type.
4. Select the FRU type you are installing from the menu and click **Next**
5. Select the location code for where you want to install the part, and click **Add**.
6. After the FRU is placed in the **pending actions** category, 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.

Removing a part by using the Systems Director Management Console

You can use the IBM Systems Director Management Console (SDMC) to perform many service actions, including the removal of a field replaceable unit (FRU) or part.

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:

1. In the Power Systems Resources area, select the managed system from which you are removing a part.
2. Select one of the following options:
   - If you are installing a new part as part of an upgrade, from the **Actions** menu, expand **Service and Support** → **Hardware** → **MES Tasks**.
   - If you are removing a part as part of a service action, from the **Actions** menu, expand **Service and Support** → **Hardware** → **Exchange FRU**.
3. To install a new part as part of an upgrade, select **Add FRU**. To replace a part as part of a service action, select **Exchange FRU**.
4. On the Add FRU tab or the Exchange FRU tab, select the system or expansion unit from which you are removing the part.
5. Select the type of part you are removing from the menu and click **Next**.
6. Select the location of the part you are removing and click **Add**.
7. After the part is listed in the **Pending Actions** window, 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.

Replacing a part by using the Systems Director Management Console

You can use the IBM Systems Director Management Console (SDMC) to perform many service actions, including exchanging a field replaceable unit (FRU) or part.

If you are exchanging a part to repair a serviceable event follow those instructions.

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. To replace a part as part of a service action, select **Exchange FRU**.
4. From the Exchange FRU tab, select the system or expansion unit in which you want to exchange a part.
5. Select the type of part you want to exchange from the menu and click **Next**.
6. Select the location code of the part you want to exchange from the menu and click **Add**.
7. After the FRU is placed in the **Pending actions** window, 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.

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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

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Avis de conformité à la réglementation d'Industrie Canada

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European Community contact:
IBM Technical Regulations
Pascalstr. 100, Stuttgart, Germany 70569
Tele: 0049 (0)711 785 1176
Fax: 0049 (0)711 785 1283
E-mail: tjahn@de.ibm.com

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