

IBM

@server

iSeries

PCI Card

Version 5





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iSeries

PCI Card

Version 5

Fourth Edition (August 2005)

This edition applies to version 5, release 3, modification 0 of IBM Operating System/400® (product number 5722-SS1) and to all subsequent releases and modifications until otherwise indicated in new editions. This version does not run on all reduced instruction set computer (RISC) models nor does it run on CISC models.

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PCI card

What's new as of October 2004: Information about the Integrated xSeries[®] Adapter can now be found in a separate procedure, Integrated xSeries Adapter.

If you are installing 5580 or 5581, go to Type 5708, auxiliary-write cache IOA for more information.

Replacing and installing PCI cards are customer tasks. However, these tasks should be performed by an experienced user who understands industry terminology and who has system experience. When you use these instructions, you will perform some or all of the following tasks:

- Perform prerequisite tasks.
- Power down the system unit.
- Remove the system unit covers.
- Remove hardware.
- Install new hardware.
- Install covers.
- IPL your operating system.
- Verify your new hardware configuration.

You may need to allow additional time to complete your jobs, back up your system, IPL your system, and verify your hardware configuration.

You can choose to perform these tasks yourself or contact IBM[®] or an authorized service provider to make arrangements for them to perform the tasks for a fee. Should you encounter difficulties when performing a task, contact your authorized dealer or service provider.

Select the instructions for the task you want to perform:

- "Move a card in your iSeries" on page 38
- "Replace a PCI card" on page 2
- "Install your new PCI card" on page 15

Before you begin

Before you begin a replacement or installation task, follow these steps:

- ___ 1. **For an installation and if possible, for a replacement, ensure that you have a current backup of your system (including operating system, licensed programs, and data).** If you have backed up the operating system and licensed programs since the last time you applied PTFs, that backup is acceptable.
- ___ 2. Ensure that you take a few minutes to become familiar with these instructions.
- ___ 3. Ensure that you have access to a medium flat-bladed screwdriver.
- ___ 4. If there are incorrect, missing, or visibly damaged parts, contact one of the following:
 - Your authorized service provider
 - In the United States: IBM Rochester Manufacturing Automated Information Line (R-MAIL) at 1-800-300-8751
 - In countries outside of the United States: Use the following Web site to locate your service and support numbers:
<http://www.ibm.com/planetwide>

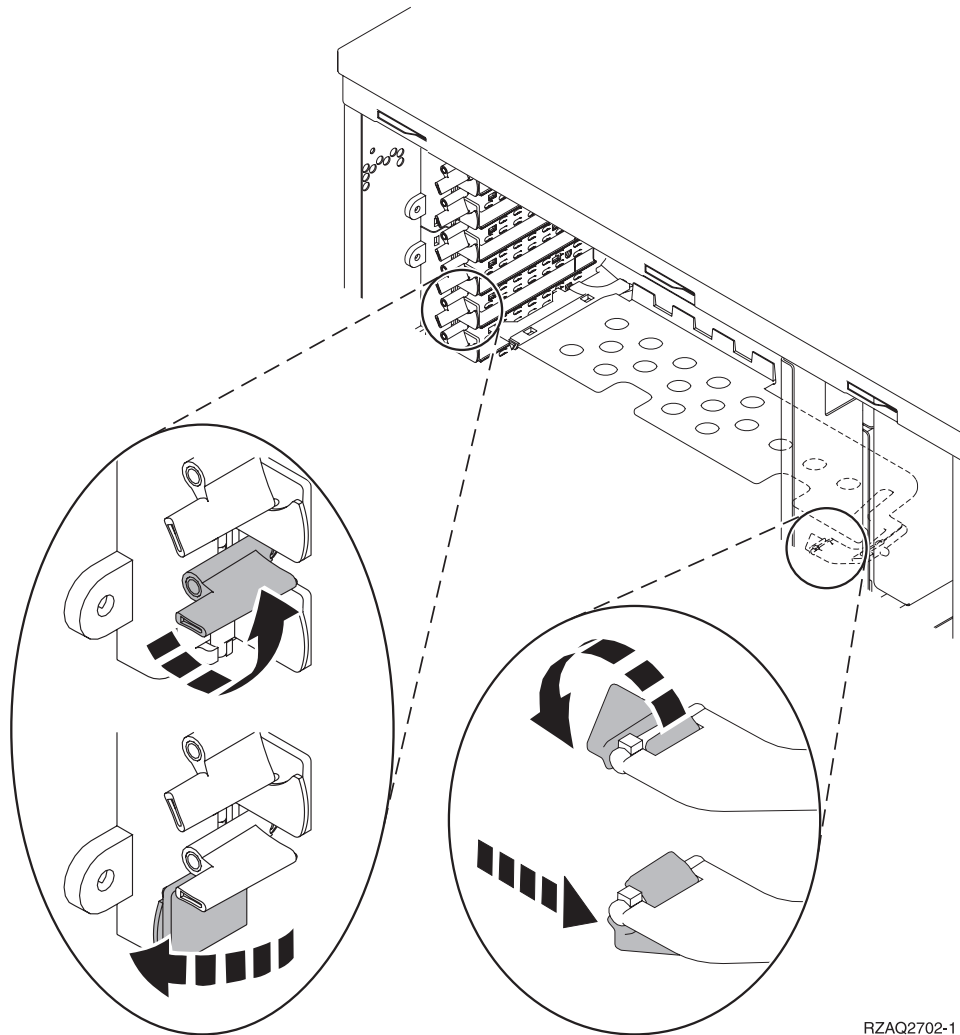
- __ 5. If you are installing new hardware in logical partitions, you need to plan and understand the requirements to be successful. Go to Logical partitions in the *Information Center*. Then return to these instructions.
- __ 6. If you encounter difficulties during the procedure, contact your authorized service provider or your authorized dealer.
- __ 7. Determine if there are any existing PTF prerequisites before you install your new feature. Go to the following Web site:
http://www-912.ibm.com/s_dir/slkbases.NSF/slkbases
 - a. Select **All Documents**.
 - b. Select **General Information**.
 - c. Select **Offerings**.
 - d. Select **Feature Prerequisites**.
 - e. Select **Customer Installation Features Prerequisites**.
 - f. Locate your feature number and OS/400® release, and check the prerequisites.

Replace a PCI card

To replace a PCI card, follow these steps:

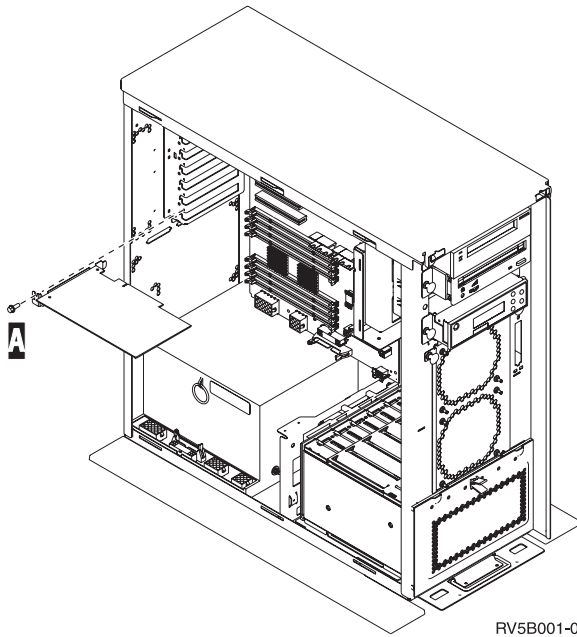
Note: Some of the figures in these instructions may not look exactly like the system unit that you have. However, the steps to perform the task are the same.

- __ 1. Perform prerequisite tasks as described in “Before you begin” on page 1.
- __ 2. Remove or open the back cover and if necessary, the side cover of the system unit or expansion unit where you will replace the PCI card. Refer to “Remove the covers” on page 71 for more information.
- __ 3. Locate the PCI card to be replaced.
- __ 4. Either latches or screws secure the card in place.
Does the PCI card have latches?
 - __ **Yes:** Your system can either be powered off (non-concurrent) or powered on (concurrent) when you replace the PCI card. Select the preferred procedure from the following:
 - “Replace the PCI card with system powered on” on page 4
 - “Replace the PCI card with system powered off” on page 8



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- **No:** The card is secured with screws.
 - a. To replace a PCI card, your system must be powered off.
 - b. Go to “Replace the PCI card with system powered off” on page 8.




Replace the PCI card with system powered on

Be sure you understand the steps in this procedure before you begin. If you do not feel comfortable using the concurrent procedure, go to “Replace the PCI card with system powered off” on page 8.

To replace the PCI card, follow these steps:

- ___ 1. Type **strsst** on the command line of the *Main Menu* and press Enter.
- ___ 2. Type **your service tools user ID and service tools password** on the *System Service Tools (SST) Sign On* display and 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 and press Enter.
- ___ 6. Type **9** on the *System Unit* or *Expansion Unit* line of the unit where you are replacing the card and press Enter.
- ___ 7. Select **Include empty positions**.
- ___ 8. **If possible, use a wrist strap to prevent electrostatic discharge from damaging your hardware.** If you do not have a wrist strap, touch a metal surface of the system or expansion unit before installing or replacing hardware.

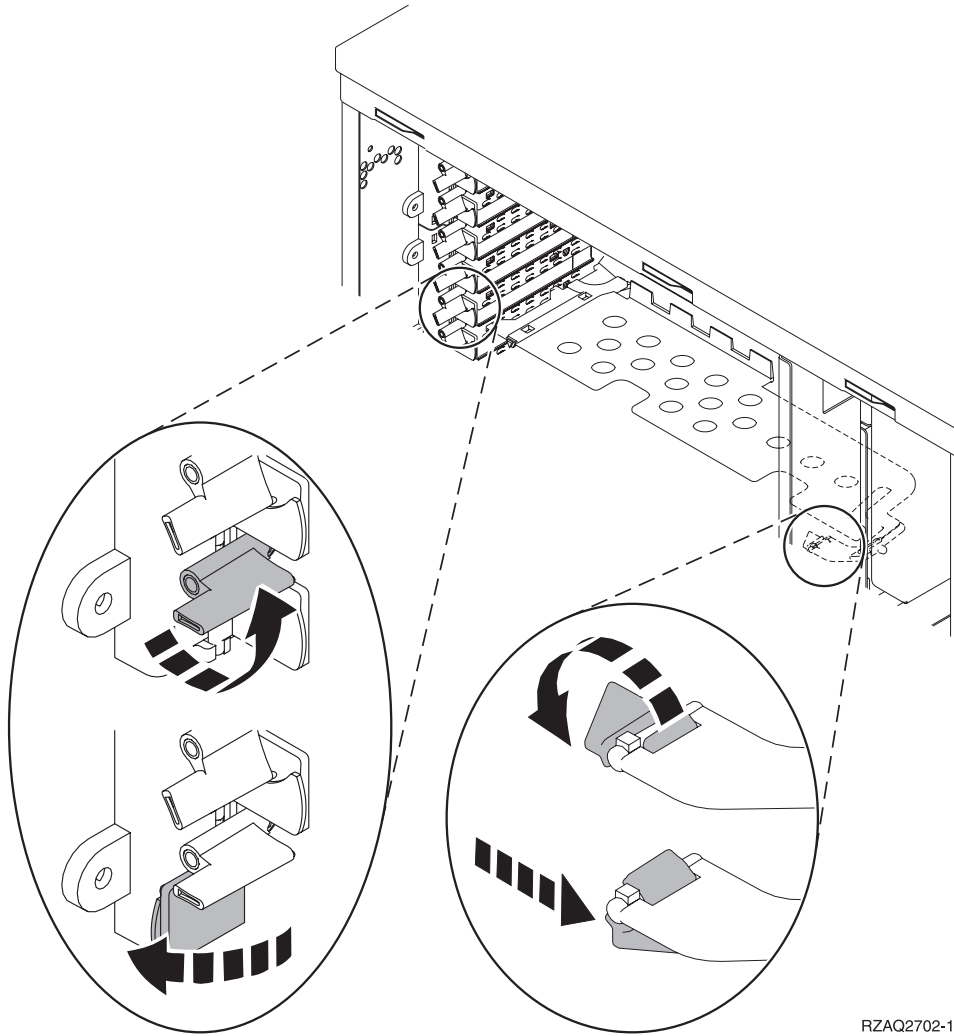
If you received the 2209 Disposable Wrist Strap, follow these steps:

- ___ a. Attach the disposable wrist strap.  [View video](#).
- ___ b. When you unroll the strap, remove the liner from the copper foil at the end.
- ___ c. Attach the adhesive part of the copper foil to an **exposed, unpainted** metal surface on the frame of the unit.

Note: Follow the same precautions you would use without the wrist strap. The 2209 Disposable Wrist Strap is for static control. It will not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.

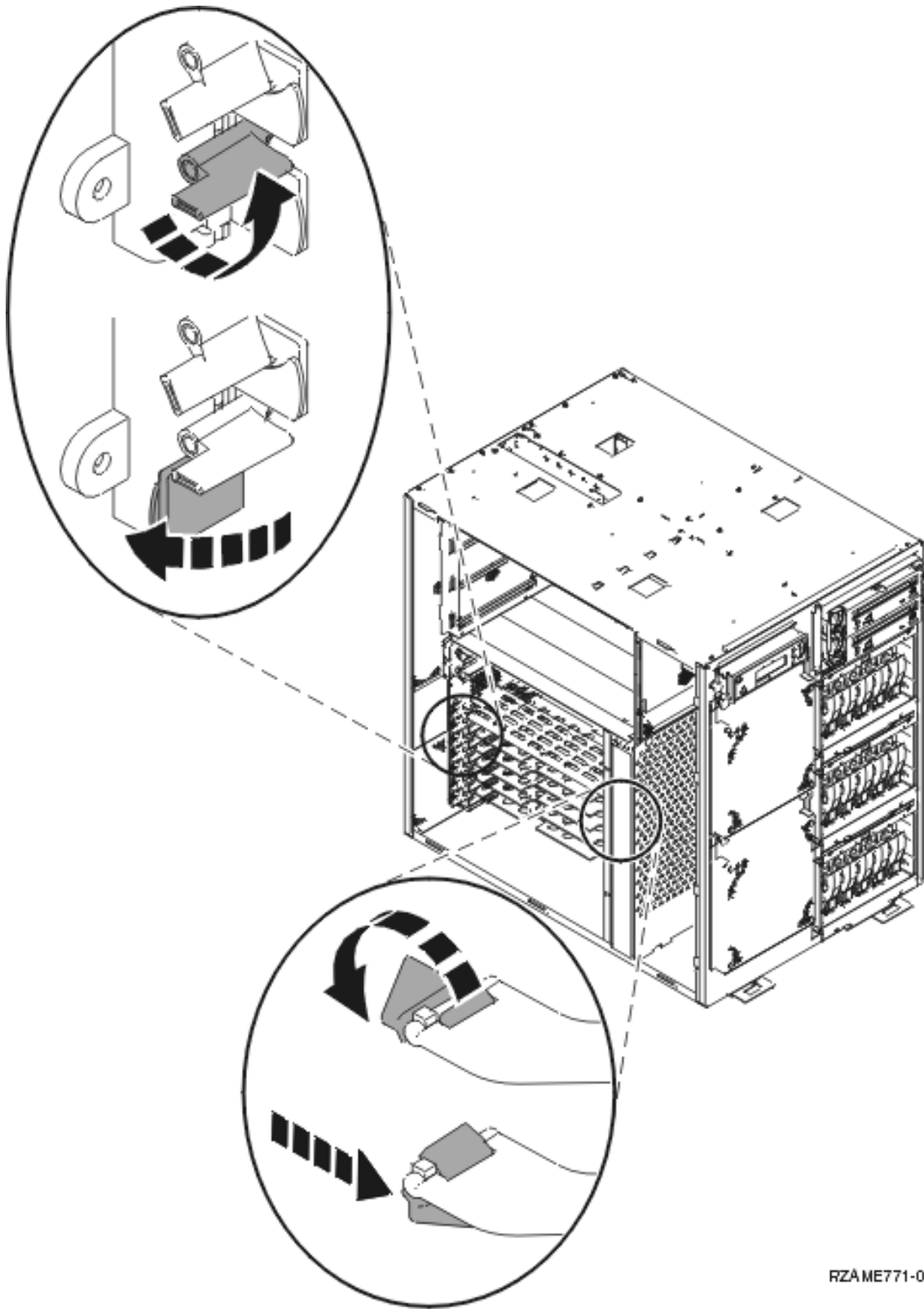
- ___ 9. Select **Concurrent Maintenance** on the card position where you want to replace the card. Press Enter.

- ___ 10. Select **Toggle LED blink off/on**. A light-emitting diode (LED) blinks identifying the position you chose.
- ___ 11. Select **Toggle LED blink off/on** to stop the blinking LED.
- ___ 12. Open the latch at the card position where you plan to replace the card. Move the latch counterclockwise and then swing the latch out.



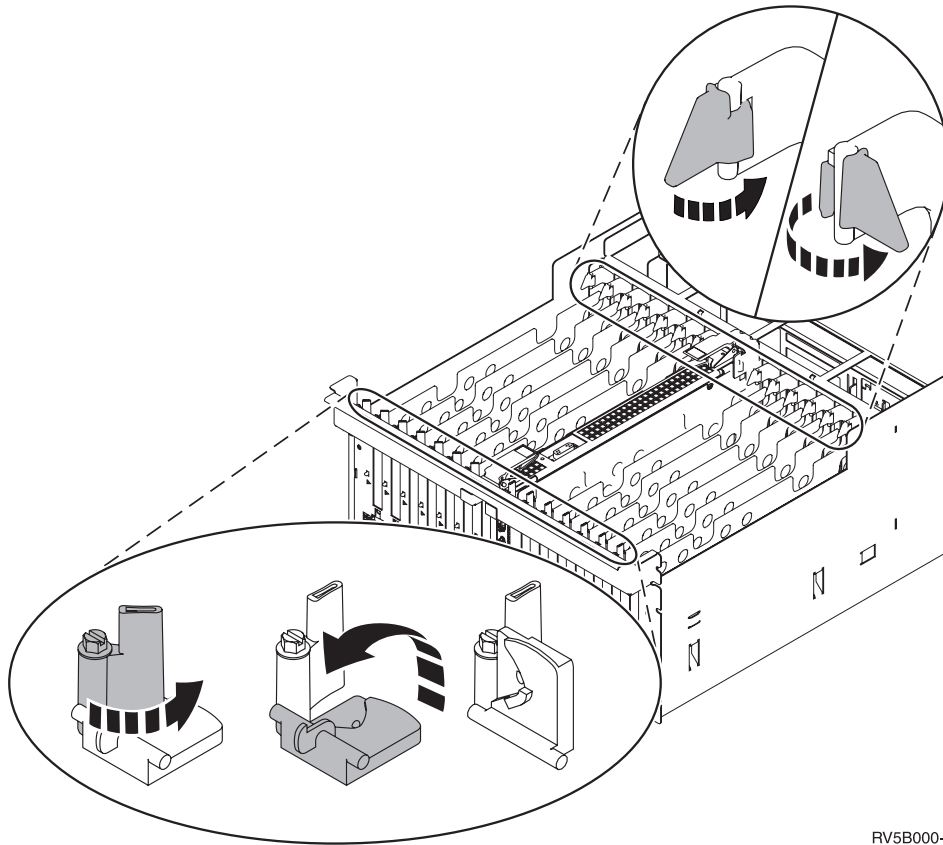
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Figure 1. Example of 270, 800, 810, 820, 5075 Card Latch




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Figure 2. Example of 825 Card Latch



RV5B000-0

Figure 3. Example of 830, 840, SB2, SB3, 5079 Card Latches

- __ 13. Remove the card and place it in a protective package.
- __ 14. Remove the new adapter card from the package.
 - Attention:** Adapter cards are fragile:
 - Handle only by the edges.
 - Keep fingers off printed circuit area.
 - Use static strap when handling.
 - Leave in protective packaging until ready to install.
- __ 15. Align the adapter card with the card connector inside the system unit or expansion unit and push until it is connected securely.  View video.
- __ 16. Swing the latch in and move the latch clockwise to secure the card.
- __ 17. **DANGER**

To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. (RSFTD004)

- Connect any cables and label the cables with the card slot position.
- __ 18. Select **Power on domain** on the *Hardware Resource Concurrent Maintenance* display. Press Enter.
- __ 19. Select **Assign to** on the resource with the asterisk (*) on the *Work with Controlling Resource* display. Press Enter.
- __ 20. Wait for the *Hardware Resource Concurrent Maintenance* display to appear with the message indicating Power on complete.
- __ 21. Install the unit covers.
- __ 22. Did you replace a 289x or 4810 IXS card?

- ___ **No:** Follow these steps:
 - ___ a. Sign on the system unit. Ensure that you have service tools authority.
 - ___ b. Type **strsst** on the command line and press Enter.
 - ___ c. Type **your service tools user ID and service tools password** on the *Start Service Tools (STRSST) Sign On* display and press Enter.
 - ___ d. Select **Start a service tool** from the *Start a Service Tools* display and press Enter.
 - ___ e. Select **Hardware service manager** from the display and press Enter.
 - ___ f. Select **Packaging hardware resources (system, frames, cards...)** from the display and press Enter.
 - ___ g. Type **9** on the *System Unit or Expansion Unit* line.
 - ___ h. Press Page Down if needed and look at the *Card Pos* column for the adapter card you just installed.
 - ___ i. Did you find the card you just replaced?
 - ___ **Yes:** Go to step 24.
 - ___ **No:** Return to step 1 on page 4 and verify the replacement procedure steps.
- ___ **Yes:** Follow these steps:
 - ___ a. If you replaced a 289x or 4810 IXS card, it is recommended that you perform a verification test.
 - ___ b. Sign on the system unit. Ensure that you have service tools authority.
 - ___ c. Type **strsst** on the command line and press Enter.
 - ___ d. Type **your service tools user ID and service tools password** on the *System Service Tools (SST) Sign On* display and press Enter.
 - ___ e. Select **Start a service tool** from the *Start a Service Tools* display and press Enter.
 - ___ f. Select **Hardware service manager** from the display and press Enter.
 - ___ g. Select **Packaging hardware resources (system, frames, cards...)** from the display and press Enter.
 - ___ h. Type **9** on the *System Unit or Expansion Unit* line.
 - ___ i. Press Page Down if needed and look at the *Card Pos* column for the card you just installed.
 - ___ 1) Select **Associated Logical Resources** on the line next to the 289x or 4810 that was just installed.
 - ___ 2) Select **Verify** on the line next to the 289x or 4810 card.
 - ___ 3) Press Enter at the *Verification Test* display.
 - ___ 4) Select **Processor Internal Test** and wait for it to complete.
 - ___ 5) Select **Hardware Memory Test** and wait for it to complete.
 - ___ 6) Press Enter at the *Number of Test Runs* display.


Note: If the test fails, make sure that you have installed the card properly. If the test continues to fail, contact your authorized dealer or service provider.
 - ___ 7) When the test is complete, the message *This test is successful* appears on the *Verification Test Results* display.
 - ___ 8) Press Enter twice.
- ___ 23. Press F3 three times and press Enter to get back to the *Main Menu*.
- ___ 24. The replacement procedure is complete.

Replace the PCI card with system powered off

To replace the PCI card, follow these steps:

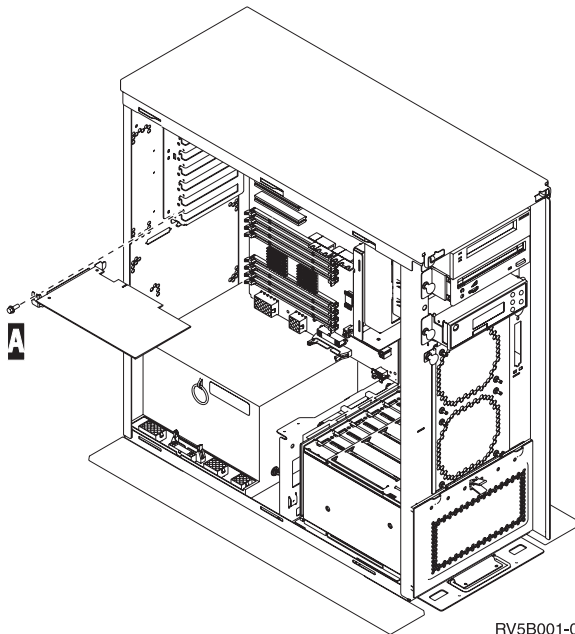
- ___ 1. If an Integrated xSeries Adapter (IXA) is present on the system, shut it down using the OS/400 options.
- ___ 2. Ensure that all jobs are complete.
- ___ 3. When all jobs are complete, type **pwrdownsys *immed** on an OS/400 command line and press Enter.
- ___ 4. When the power down is complete, unplug any power cords, such as printers and displays, from electrical outlets.
- ___ 5. Unplug the system or expansion unit power cord from the electrical outlet.
- ___ 6. **If possible, use a wrist strap to prevent electrostatic discharge from damaging your hardware.** If you do not have a wrist strap, touch a metal surface of the system or expansion unit before installing or replacing hardware.

If you received the 2209 Disposable Wrist Strap, follow these steps:

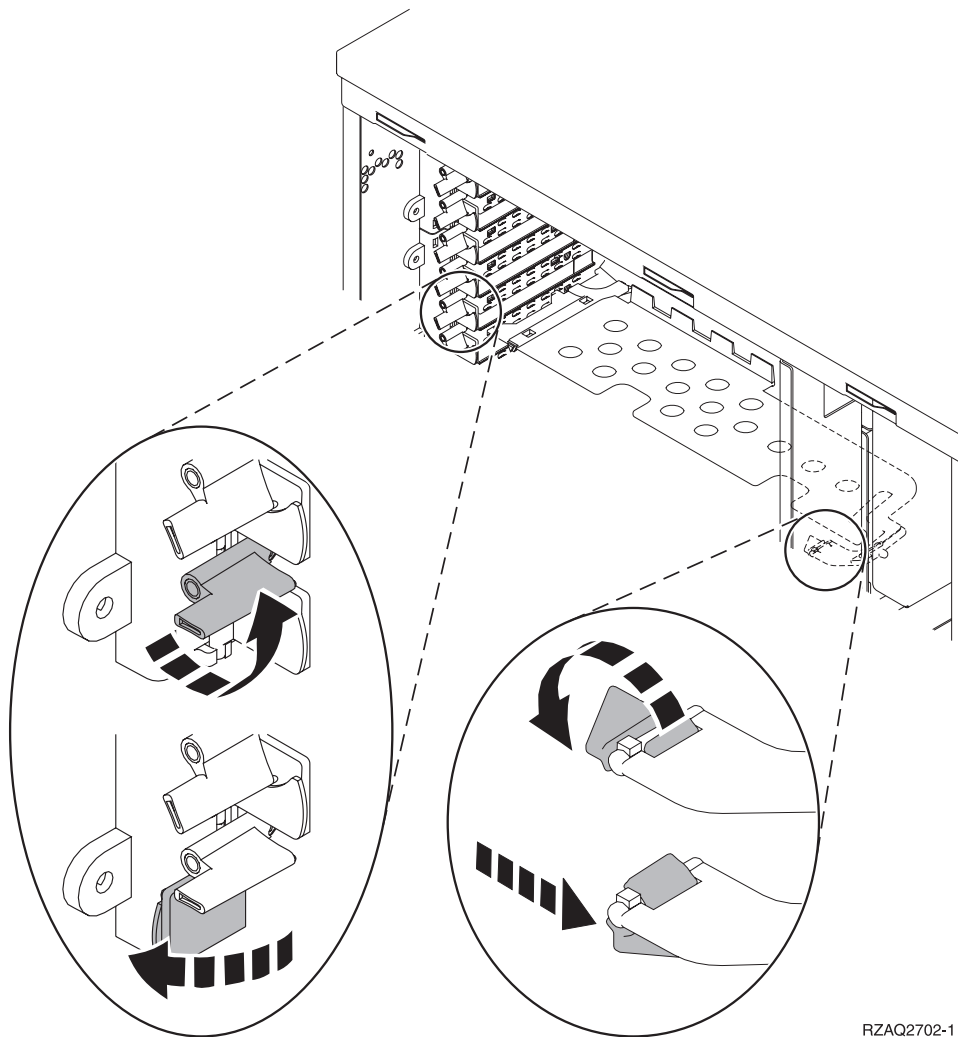
- ___ a. Attach the disposable wrist strap.  View video.
- ___ b. When you unroll the strap, remove the liner from the copper foil at the end.
- ___ c. Attach the adhesive part of the copper foil to an **exposed, unpainted** metal surface on the frame of the unit.

Note: Follow the same precautions you would use without the wrist strap. The 2209 Disposable Wrist Strap is for static control. It will not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.

- ___ 7. Does your unit have screws to secure the cards?



- ___ **No:** Continue with the next step.
- ___ **Yes:** Do the following:
 - ___ a. Remove the screw from the card position where you plan to remove the card.
 - ___ b. Go to step 9 on page 12.
- ___ 8. Open the latch at the card position where you plan to remove the card. Move the latch counterclockwise and then swing the latch out.



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Figure 4. Example of 270, 800, 810, 820, 5075 Card Latch

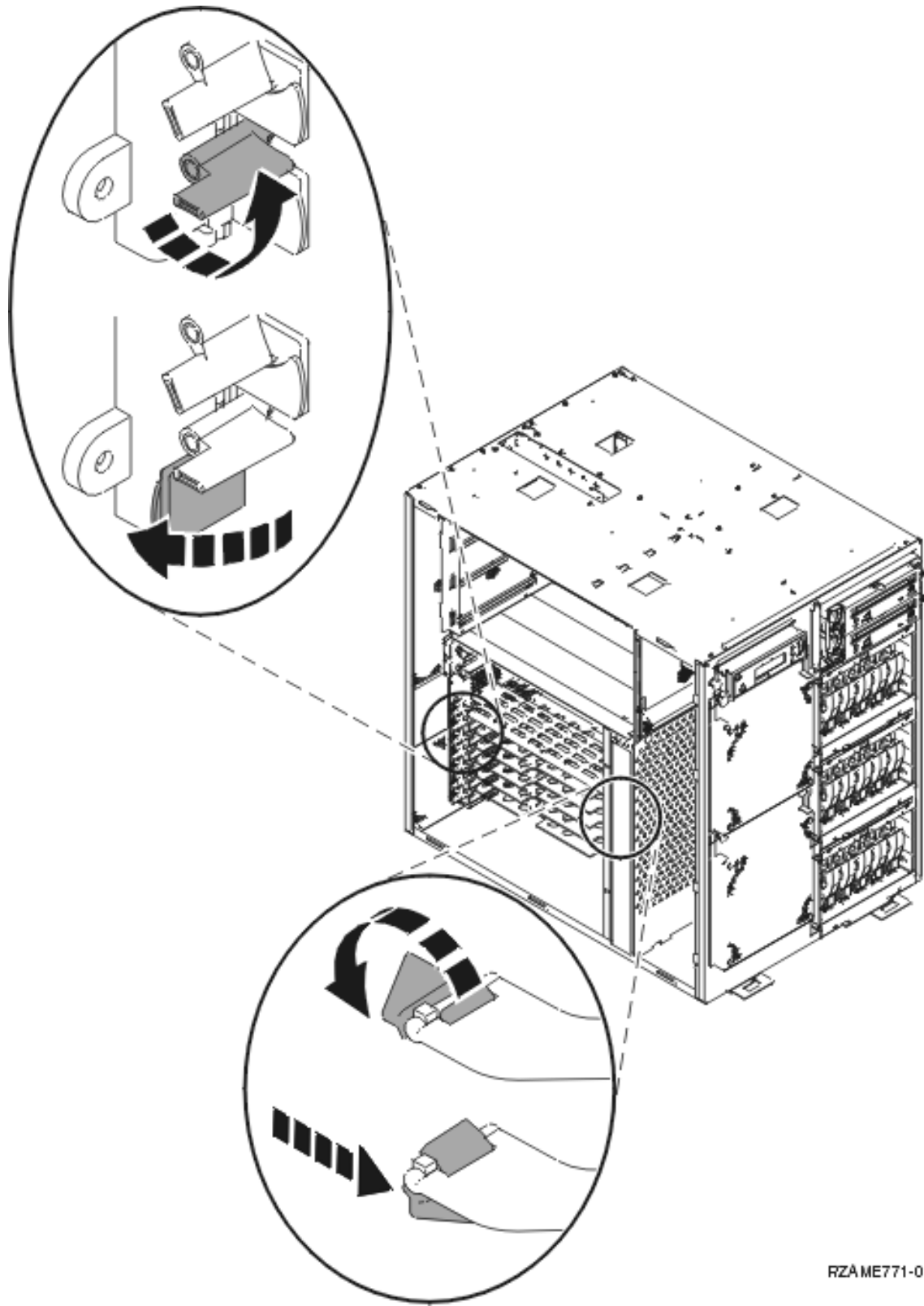
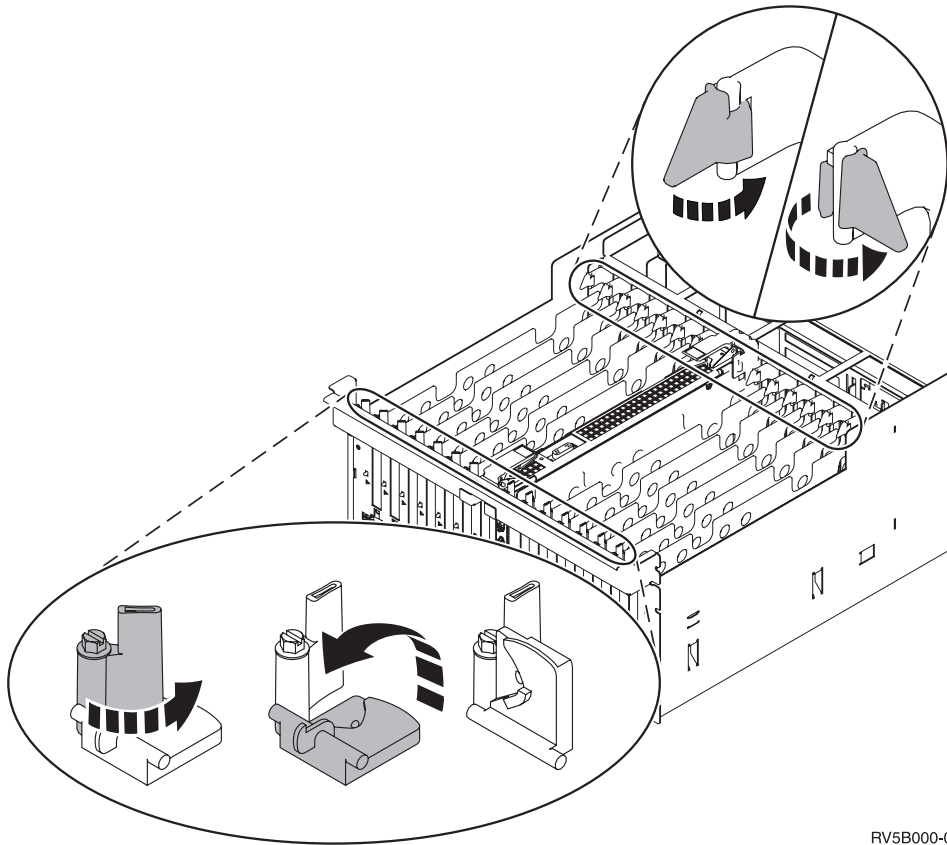


Figure 5. Example of 825 Card Latch



RV5B000-0

Figure 6. Example of 830, 840, 870, 890, SB2, SB3, 5079 Card Latches

- ___ 9. Remove the card and place it in a protective package.
- ___ 10. Remove the new adapter card from the package.
 - Attention:** Adapter cards are fragile:
 - Handle only by the edges.
 - Keep fingers off printed circuit area.
 - Use static strap when handling.
 - Leave in protective packaging until ready to install.
- ___ 11. Align the adapter card with the card holders inside the system unit and push until it is connected securely.
- ___ 12. Swing the latch in and move the other latch clockwise or install the screw to secure the card.
- ___ 13. **DANGER**

To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. (RSFTD004)

Connect any cables and label the cables with the card position.

- ___ 14. When you are finished, remove the wrist strap.
- ___ 15. Install the unit covers.

__ 16. DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the products that attach to the system. It is the customer's responsibility to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (RSFTD201)

Plug in the system unit and system unit console into an electrical outlet. Plug in everything you previously unplugged such as printers and displays.

- __ 17. Is your system unit a 270, 800, 810 or 820, 825, 830, 840, 870, 890?
__ 270, 800, or 810: Continue with the next step.
__ 820, 825, 830, 840, 870, 890: Go to step 20.
- __ 18. Look at the Function/Data display on the control panel.
- __ 19. Does **01 B V=S** appear in the Function/Data display with IPL mode Normal (OK) selected?
__ Yes: Go to step 22 on page 14.
__ No: Do the following:
__ a. Press the Mode Select button until the Manual mode indicator (a small hand) lights up.
__ b. Press the Increment/Decrement push button until **02** appears in the Function/Data display.
__ c. Press the Enter push button on the control panel.
__ d. Press the Increment/Decrement push button until **B** appears in the Function/Data display.
__ e. Press the Enter push button on the control panel.
__ f. Press the Increment/Decrement push button until **S** appears in the Function/Data display
__ g. Press the Enter push button on the control panel.
__ h. Press the Mode Select button until the Normal indicator (**OK**) lights up.
__ i. Press the Increment/Decrement push button until **01** appears in the Function/Data display.
__ j. Press the Enter push button on the control panel.
01 B S should appear in the Function/Display display. If it does not appear, repeat steps 19a through 19j. If it does, continue to the next step.
- __ 20. Look at the Function/Data display on the control panel.
- __ 21. Does **01 B V=S** appear in the Function/Data display?
__ Yes: Continue with the next step.
__ No: Do the following:
__ a. Press the Increment/Decrement push button until **02** appears in the Function/Data display.
__ b. Press the Enter push button on the control panel.
__ c. Press the Increment/Decrement push button until **B** appears in the Function/Data display.
__ d. Press the Enter push button on the control panel.
__ e. Press the Increment/Decrement push button until **S** appears in the Function/Data display
__ f. Press the Enter push button on the control panel.
__ g. Press the Increment/Decrement push button until **01** appears in the Function/Data display.
__ h. Press the Enter push button on the control panel.

01 B S should appear in the Function/Display panel. If it does appear, not repeat steps 21a on page 13 through 21h on page 13.

- ___ i. Go to step 22.
- ___ 22. Press the Power push button that is located on the control panel. There is approximately a 10-second delay before the power-on light comes on, and data appears in the Function/Data display.

Note: The system takes approximately 5 to 20 minutes to power on and complete an IPL. When the IPL is complete, **01 B N S** appears in the Function/Data display.

- ___ 23. Did you replace a 289x or 4810 IXS card?

___ **No:** Follow these steps:

- ___ a. Sign on the system unit. Ensure that you have service tools authority.
- ___ b. Type **strsst** on the command line and press Enter.
- ___ c. Type **your service tools user ID and service tools password** on the *System Service Tools (SST) Sign On* display and press Enter.
- ___ d. Select **Start a service tool** from the *Start a Service Tools* display and press Enter.
- ___ e. Select **Hardware service manager** from the display and press Enter.
- ___ f. Select **Packaging hardware resources (system, frames, cards...)** from the display and press Enter.
- ___ g. Type **9** on the *System Unit or Expansion Unit* line.
- ___ h. Press Page Down if needed and look at the *Card Pos* column for the adapter card you just replaced.
- ___ i. Did you find the card you just replaced?
 - ___ **Yes:** Go to step 25 on page 15.
 - ___ **No:** Return to step 2 on page 9 and verify the replacement procedure steps.


___ **Yes:** Follow these steps:

- ___ a. If you replaced a 289x or 4810 IXS card, it is recommended that you perform a verification test.
- ___ b. Sign on the system unit. Ensure that you have service tools authority.
- ___ c. Type **strsst** on the command line and press Enter.
- ___ d. Type **your service tools user ID and service tools password** on the *System Service Tools (SST) Sign On* display and press Enter.
- ___ e. Select **Start a service tool** from the *Start a Service Tools* display and press Enter.
- ___ f. Select **Hardware service manager** from the display and press Enter.
- ___ g. Select **Packaging hardware resources (system, frames, cards...)** from the display and press Enter.
- ___ h. Type **9** on the *System Unit or Expansion Unit* line.
- ___ i. Press Page Down if needed and look at the *Card Pos* column.
 - ___ 1) Select **Associated Logical Resources** on the line next to the 289x or 4810 that was just replaced.
 - ___ 2) Select **Verify** on the line next to the 289x or 4810 card.
 - ___ 3) Press Enter at the *Verification Test* display.
 - ___ 4) Select **Processor Internal Test** and wait for it to complete.
 - ___ 5) Select **Hardware Memory Test** and wait for it to complete.
 - ___ 6) Press Enter at the *Number of Test Runs* display.

Note: If the test fails, make sure that you have installed the card properly. If the test continues to fail, contact your authorized dealer or service provider.

- ___ 7) When the test is complete, the message *This test is successful* appears on the *Verification Test Results* display.
 - ___ 8) Press Enter twice.
 - ___ 9) Press F3 three times to return to the *Main Menu*.
- ___ 24. Press F3 three times and press Enter to get back to the *Main Menu*.
- ___ 25. The replacement procedure is complete.

Install your new PCI card

These instructions help you install a new feature card in your unit. In some cases it may be necessary to move cards already in your system. For more information on when it may be necessary to move PCI cards, refer to the iSeries™ System Builder . Then return here and refer to “Move a card in your iSeries” on page 38.

Terms you need to know

IOA Input/output adapter

IOP Input/output processor

IOP card group

An IOP and all the IOAs controlled by that IOP.

- A maximum of one IOP and four IOAs are allowed in an IOP card group.
- An exception is the IXS card (feature card 289x or 4810), which has a maximum of three IOAs in the same IOP card group.

Feature number

The numbers used to order new features for system units and expansion units.

CCIN (customer card identification number)

The identifier number on the feature card.

PCI bridge set

A set of PCI card positions. IOP card groups may not cross PCI bridge set boundaries.

Find your current system configuration

Find out the current configuration of your iSeries system unit or expansion unit. Bring up an iSeries session and sign on to the system. If you have more than one iSeries, bring up a session on the system that is being upgraded and for which you have service tools authority.

- ___ 1. Type **strsst** on the command line of the *Main Menu* and press Enter.
- ___ 2. Type **your service tools user ID and service tools password** on the *Start Service Tools (STRSST) Sign On* display and 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 and press Enter.
- ___ 6. Type **9** on the **System Unit** line and press Enter.
- ___ 7. Select **Include empty positions**.
- ___ 8. Look for the cards in the **Card Pos** column (xxx). Write the **Type** number of the existing cards (xxxx) in the appropriate “Current configuration tables” on page 51.

- 9. Press F12 one time.
- 10. Do you have an expansion unit attached?
 - No:** Continue with the instructions.
 - Yes:** Do the following:
 - a. Type **9** for the **System Expansion Unit** field and press Enter.
 - b. Select **Include empty positions**.
 - c. Look for the cards in the **Card Pos** column (Cxx). Write the **Type** number of the existing cards (Cxx) in the appropriate "Current configuration tables" on page 51.
 - d. When complete, press F12 one time.
 - e. If you have more than one expansion unit, go to step 10a and repeat the steps for each expansion unit that is listed.

Determine the best place to install your card

- 1. Are you installing the card in logical partitions?
 - No:** Continue with the next step.
 - Yes:** The LPAR Validation Tool should be used to determine card placement. Go to Use the LPAR Validation Tool in the *Information Center*. Then return to these instructions and go to "Install your card" on page 25.
- 2. Are you installing a 289x or 4810 feature?
 - No:** Continue with the next step.
 - Yes:** The 289x or 4810 IOP (IXS) card is customer installable in the 270 system unit with 5075, 5095 or 0595 expansion units attached or an 800 or 810 system unit with 5075, 5078, 0578, 5088, 0588, 5095, or 0595 expansion units attached.

You may need to install memory cards on the 289x or 4810 IOP (IXS) card.

Are you installing a 289x or 4810 in a 270 system unit with 5075, 5095 or 0595 expansion units attached or an 800 or 810 system unit with 5075, 5078, 0578, 5088, 0588, 5095, or 0595 expansion units attached?

- No:** The 289x or the 4810 card is only customer installable in units listed above. Contact IBM Service to install the 289x or the 4810 in other units.
- Yes:** Do the following:
 - a. The 289x or 4810 is installed in the card position labeled **IXS**. Refer to "Current configuration tables" on page 51 for the IXS location.
 - b. In the 270, 800, or 810 system unit, the 2890, 2891, and 2899 card occupies one card position, and a second card position is reduced to a short card position. The 2892 and the 4810 occupy one card position.
 - c. In the expansion units, the 2890, 2891, and 2899 card occupies two card positions, and a third card position is reduced to a short card position. The 2892 and the 4810 occupy two card positions.
 - d. For the 2890, 2891, and 2899, place the first LAN IOA in the short card position. For the 2892 and the 4810, place the first LAN IOA in the position next to the 2892 or the 4810 card.
 - e. If there is a second LAN, place that card in the next position.
 - f. If there is a third LAN, place that card in the next position.
 - g. Check your current system configuration to see if the IXS position and LAN IOA positions are available. If not, you need to move cards. Go to "Move a card in your iSeries" on page 38 if you need to move a card, or go to "Install your card" on page 25 if you can install the IXS card now.
- 3. Are you installing a 2842, 2843, or 2844 IOP feature?
 - Yes:** Continue with the next step.

___ No: Go to step 6 on page 18.

___ 4. Use Table 1 to locate values of your current configuration.

- Install the 2842, 2843, or 2844 IOP in any card position labeled **IOP**. There are some imbedded IOPs. Refer to “Current configuration tables” on page 51 for the IOP locations.
- You may need to move an IOA card to install your IOP. If you need to move an IOA, go to step 6 on page 18 to determine where to move the card.
- By installing an IOP, you are creating a new IOP card group.
- IOPs cannot be placed in consecutive positions. IOPs can be placed in the position following 2792, 2892, 4710, or 4810.

Table 1. IOP Card numbers, names, memory values, performance values and restrictions

Feature number	CCIN	Description	Restrictions	Maximum number IOAs	Memory value	Performance value
Imbed IOP	284B, 284C, 284D, 284E, 286C, 286F	Imbed IOP	<ul style="list-style-type: none"> • IOPs cannot be placed in consecutive positions 	4	100	100
2790 2791 2799	2890–001 2890–002 2890–003	PCI Integrated xSeries Server	<ul style="list-style-type: none"> • Not customer installable 	3	Not applicable	Not applicable
2792	2892–001	PCI Integrated xSeries Server	<ul style="list-style-type: none"> • Not customer installable 	3	Not applicable	Not applicable
2842	2842	PCI Node Input/Output Processor (IOP)	<ul style="list-style-type: none"> • Only 270, 800, or 810 and 5075, 0595, 5095 • IOPs cannot be placed in consecutive positions • A maximum of: <ul style="list-style-type: none"> – Two 2842s in 270, 800, and 810 units – Three 2842’s in 5075 units – Two 2842’s in 5095 or 0595 units 	4	100	100
2843	2843	PCI Node Input/Output Processor (IOP)	<ul style="list-style-type: none"> • IOPs cannot be placed in consecutive positions • A maximum of: <ul style="list-style-type: none"> – Two 2843s in 800 or 810 units – Five 2843s in 820 units – Three 2843s in 825 units – Three 2843s in 5075 units – Two 2843s in 5095 or 0595 – Four 2843s in 830, 840, 870, 890 units – Five 2843s in 5074, 5094, 0594, 8093 units – Two 2843s in SB2/SB3 units 	4	211	100

Table 1. IOP Card numbers, names, memory values, performance values and restrictions (continued)

Feature number	CCIN	Description	Restrictions	Maximum number IOAs	Memory value	Performance value
2844	2844	PCI Input/Output Processor	<ul style="list-style-type: none"> IOPs cannot be placed in consecutive positions A maximum of: <ul style="list-style-type: none"> Two 2844s in 270, 800, 810, 5095, 0595 units Five 2844s in 820, 5074, 8093–002, 5094, 8093, 5088, 0588 units Three 2844s in 825, 5075 units Four 2844s in 830, 840, 870, 890 units 	4	211	100
2890 2891 2899	2890–001 2890–002 2890–003	Integrated xSeries Server Input/Output Processor (IOP)	<ul style="list-style-type: none"> IOPs cannot be placed in consecutive positions Only 4838, 2743, 2760, and 2744 IOAs can be added in the same CCIN 2890 card group Two positions are used by the 2890 card except for 270, 800, or 810 units 	2 (270, 800, 810, 5075, 5095, 0595) 3 (5078, 0578, 5088, 0588)	Not applicable	Not applicable
2892	2892–001	PCI Integrated xSeries Server	<ul style="list-style-type: none"> IOPs cannot be placed in consecutive positions Only 2744, 5700, 5701 IOAs can be added in the same IOP card group Two positions are used by the 2892 or the 4810 card, except for 270, 800 or 810 	2 (270, 800, 810, 5075, 5095, 0595) 3 (5078, 0578, 5088, 0588)	Not applicable	Not applicable
4710	2892–002	PCI Integrated xSeries Server	<ul style="list-style-type: none"> Not customer installable 	3	Not applicable	Not applicable
4810	2892–002	PCI Integrated xSeries Server	<ul style="list-style-type: none"> IOPs cannot be placed in consecutive positions Only 2744, 5700, 5701 IOAs can be added in the same IOP card group Two positions are used by the 2892 or the 4810 card, except for 270, 800, or 810 	2 (270, 800, 810, 5075, 5095, 0595) 3 (5078, 0578, 5088, 0588)	Not applicable	Not applicable

- ___ 5. Install your IOP card. Go to “Install your card” on page 25.
- ___ 6. Fill in the “Placement tables” on page 67 to determine the best place to install or move your IOA card, using the card information on the “Current configuration tables” on page 51 (entered at step 8 on page 15).
 - ___ a. Locate the first IOP (2842, 2843, 2844, 289x, 4810 Imbed).
 - ___ b. Determine the IOAs controlled by the IOP (IOP card group).
 - An IOP card group is an IOP and all IOAs controlled by that IOP.
 - IOP card groups cannot cross PCI bridge set boundaries. Refer to “Current configuration tables” on page 51.

- __ c. Locate the first IOP card group with an empty position.
- __ d. Find and enter (on the placement table) the values of each IOA that is currently installed in this IOP card group with an empty position. Use Table 2 to find the values.
- __ e. Install the new card in the next available position in the IOP card group. Do not leave open positions if possible.
You should try to not move your console position.
- __ f. Write down the feature number or CCIN of the new card in the table.
- __ g. Find and enter the values of the new card in the placement table.
- __ h. Add together the IOA's *Memory Value* and write down in the *IOA Totals*.
- __ i. Add together the IOA's *Performance Value* and write down in the *IOA Totals*.
- __ j. If the totals are **not** greater than the value of the IOP for that card group, verify the restrictions, such as card length to make sure the card can be installed in the empty position. If the restrictions are not met, choose another empty position and repeat the process. Otherwise, you are ready to install the new card in that empty position.
- __ k. If the totals **are** greater than either IOP card value, it is recommended to move to the next available IOP card group with an empty card position and repeat the steps to complete another *Placement Worksheet*.
- __ l. Press F3 three times and press Enter to return to the *Main Menu*.
- __ m. Go to "Install your card" on page 25.

Table 2. Card numbers, names, memory values, performance values and restrictions

Feature Number	CCIN Number	Description	Restrictions	Card Length	Memory Value	Performance Value
0092	2689	Integrated Adapter for xSeries		Long	N/A	N/A
2742	2742	PCI Two-line WAN		Short	15	14
2743 2760	2743 2760	PCI Ethernet/IEEE 802.3 adapter	<p>These restrictions do not apply if 2743 is part of a CCIN 2890 IOP card groups. Only TCP/IP supported.</p> <ul style="list-style-type: none"> • Do not place in a 5V position • Place in a 64-bit position except in 270, 800, and 810 where a 32-bit position must be used because there are no 64-bit positions or in 820 where a 64-bit position is preferred but a 32-bit position may be used • Limited to one 2743, 2760, 5700, or 5701 per PCI bridge set boundary • An IOP with a 2743 supports a maximum of one other IOA of any kind 	Short	2	26
2744	2744	PCI 100/16/4MB Token-Ring	<ul style="list-style-type: none"> • No more than a total of two 4838, 2849 and 2744 in any combination allowed per IOP, except for CCIN 289x IOPs 	Short	25	36
2749	2749	PCI Ultra Magnetic Media Controller	<ul style="list-style-type: none"> • If this card is added to PCI-X, system or tower performance could be reduced 	Short	22	25

Table 2. Card numbers, names, memory values, performance values and restrictions (continued)

Feature Number	CCIN Number	Description	Restrictions	Card Length	Memory Value	Performance Value
2757, 2780	2757, 2780	PCI RAID Disk Unit Controller	<ul style="list-style-type: none"> No more than one 2757, 2763, 2780, 2782, 4748, 5703, 5715, 9748, 9757, 9763, 9778 or 9782 allowed per IOP when this IOP is also driving a 2817, 4815, 4816, or 4818 A maximum of three 2757, 2763, 2780, 2782, 4748, 9748, 4778, 9778, 5703, 5705 or 5715 allowed per IOP in any combination 	Long	29	30
2760, 2743	2760, 2743	PCI 1 Gbps Ethernet UTP	<p>These restrictions do not apply if 2760 is part of a CCIN 2890 IOP card group.</p> <ul style="list-style-type: none"> Do not place in a 5V position Place in a 64-bit position except in 270, 800, and 810 where a 32-bit position must be used because there are no 64-bit positions or 820 where a 64-bit position is preferred but a 32-bit position may be used Limited to one per PCI bridge set boundary An IOP with a 2743 supports a maximum of one other IOA of any kind 	Short	2	26
2763	2763	PCI 2-Port RAID Disk Unit Controller	<ul style="list-style-type: none"> Only on 270, 800, 810, 820, 5075, 5095, 0595 No more than two allowed per IOP No more than one 2757, 2763, 2780, 2782, 4748, 5703, 9748, 9757, 9763, 9778 or 9782 allowed per IOP when this IOP is also driving a 2817, 4815, 4816, or 4818 	Long	29	21
2765	2765	PCI Fibre Channel Tape Controller	<ul style="list-style-type: none"> For best performance, place in a 64-bit position Limited to no more than two 2765s, 2766s, 2787s, or 5704s per PCI bridge set boundary 	Short	36	50
2766	2766	PCI Fibre Channel Disk Unit Controller	<ul style="list-style-type: none"> For best performance, place in a 64-bit position Only one per IOP and no other IOAs Limited to no more than two 2765s, 2766s, 2787s, or 5704s per PCI bridge set boundary Not permitted in any SB2 or SB3 systems and attached units 	Short	–	–

Table 2. Card numbers, names, memory values, performance values and restrictions (continued)

Feature Number	CCIN Number	Description	Restrictions	Card Length	Memory Value	Performance Value
2772	2772	Dual WAN/Modem Adapter	Non-CIM (complex impedance matching)	Short	15	14
2773	2773	Dual WAN/Modem Adapter	CIM (complex impedance matching)	Short	15	14
9767	2767	PCI Disk Unit Controller IOA	<ul style="list-style-type: none"> Only on 270, 820, 5075 	Short	29	21
2776		HSL-2 Ports 8 Copper	Not customer installed.			
2768	2768	PCI Magnetic Media Controller		Short	22	25
2782	2782	PCI RAID Disk Unit Controller	<ul style="list-style-type: none"> No more than one 2757, 2763, 2780, 2782, 4748, 5703, 5715, 9748, 9757, 9763, 9778, or 9782 allowed per IOP when this IOP is also driving 2817, 4815, 4816, or 4818 2782 and 5703 are supported on 270, 800, 810, 820, 825, 5075, 5095, 0595 A maximum of three 2782, 2763, 2780, 2757, 4748, 9748, 4778, 9778, 5703, 5705 or 5715 allowed per IOP in any combination 	Long	29	21
2785	2785	HSL 2-Ports Copper				
2786	2786	HSL 2-Ports Optical				
2787	2787	PCI Fibre Channel Disk Unit Controller	<ul style="list-style-type: none"> For best performance, place in a 64-bit position Only one per IOP and no other IOAs Limited to no more than two 2765s, 2766s, 2787s, or 5704s per PCI bridge set boundary Not permitted in any SB2 or SB3 systems and attached units 	Short	–	–
2788	2788	HSL-2 Ports – 8 optical				
2793	2793	PCI 2-Line WAN with Modem	Non-CIM (complex impedance matching)	Short	15	14
2794	2793	PCI 2-Line WAN with Modem	CIM (complex impedance matching)	Short	15	14
2805	2805	PCI Quad Modem IOA Non-CIM (Complex impedance matching)		Long	15	14
2806	2806	PCI Quad Modem IOA CIM (Complex impedance matching)		Long	15	14

Table 2. Card numbers, names, memory values, performance values and restrictions (continued)

Feature Number	CCIN Number	Description	Restrictions	Card Length	Memory Value	Performance Value
2817	2817	PCI 155 Mbps MMF ATM	<ul style="list-style-type: none"> • ATM is not supported after V5R2 • Only one 2817, 4815, 4816, or 4818 per IOP • Only one 2757, 2763, 2780, 2782, 4748, 4778, 5703, 5705, 9748, 9778 within the same IOP card group as 2817 • If you have one 2817, 4815, 4816, or 4818, then you can have only one 2744, 2849, or 4838 in the IOP card group 	Short	35	47
2849	2849	PCI 100/10 Mbps Ethernet	<ul style="list-style-type: none"> • If this card is added to PCI-X, system or tower performance could be reduced • No more than total of two 2849, 4838 and 2744 in any combination allowed per IOP 	Short	25	36
2886	2886	Optical Bus Adapter				
2887	2887	HSL-2 Bus Adapter				
4723	2723	PCI Ethernet/IEEE 10		Short	25	12
4745	2745	PCI Node WAN		Short	15	14
4746	2746	PCI Twinaxial Workstation Controller		Short	10	6
4748/ 9748	2748	PCI RAID Disk Unit Controller	<ul style="list-style-type: none"> • No more than three 4748, 9748, 2757, 2780, 2782, 5703, 5705, 4778, or 9778 allowed per IOP • No more than one 2757, 2763, 2780, 2782, 4748, 5703, 9748, 9757, 9763, 9778 or 9782 allowed per IOP when this IOP is also driving a 2817, 4815, 4816, or 4818 	Long	29	21
4750	2750	PCI ISDN BRI U	<ul style="list-style-type: none"> • No more than one allowed per IOP • Not supported after V5R1 	Long	25	7
4751	2751	PCI ISDN BRI S/T	<ul style="list-style-type: none"> • No more than one allowed per IOP • Not supported after V5R1 	Long	25	7
4761	2761	Remote Access Integrated Modem (8-port)	<ul style="list-style-type: none"> • No more than one allowed per IOP • Not supported after V5R1 	Long	22	7

Table 2. Card numbers, names, memory values, performance values and restrictions (continued)

Feature Number	CCIN Number	Description	Restrictions	Card Length	Memory Value	Performance Value
4778/ 9778	2778/ 4778/ 9778	PCI RAID Disk Unit Controller	<ul style="list-style-type: none"> No more than three 4748, 9748, 2757, 2780, 2782, 5703, 5705, 5715, 4778, or 9778 allowed per IOP Only one 2763, 4748 or 9748 in the same IOP card group with 2817, 4815, 4816, or 4818 	Long	29	25
4801	4758-023	PCI Cryptographic Coprocessor	<ul style="list-style-type: none"> Cannot be controlled by the Imbed IOP in 270, 800, 810 or 820 units Cannot be controlled by the load source IOP in 825, 830, 840, 870, 890, SB2, or SB3 units 	Short	11	18
4805	2058	PCI Cryptographic Accelerator	<ul style="list-style-type: none"> Cannot be controlled by the load source IOP. Maximum of one 4805 if 2743, 2760, 5700, or 5701 is also in the same IOP card group Maximum of two 4805 per IOP 	Short	2	26
4812	4812	PCI Integrated xSeries Server	<ul style="list-style-type: none"> Maximum of 1 per IOP. Requires 2 consecutive long slots. Requires feature 2844 to serve as the IOP Requires 3.3 v PCI slot. 64 bit slot recommended for best performance, but not required. Maximum of 3 IXS adapters per tower in any combination. 	Double-width	25	51
4815	2815	PCI 155MBPS UTP OC3 ATM	<ul style="list-style-type: none"> Not supported after V5R2 Only one 2817, 4815, 4816, or 4818 per IOP Only one 2763, 4748, 4778, 9748, 2782, 2780, 2757, 5703, 5705 or 9778 within the same IOP card group as 4815 If you have one 2817, 4815, 4816, or 4818, then you can have only one 2744, 2849 or 4838 in the IOP card group 	Short	35	47
4816	2816	PCI 155Mbps MMF ATM	<ul style="list-style-type: none"> Not supported after V5R2 Only one 2817, 4815, 4816, or 4818 per IOP Only one 2763, 4748, 4778, 9748, 2782, 2780, 2757, 5703, 5705 or 9778 within same IOP card group as 4816 If you have one 2817, 4815, 4816, or 4818, then you can have only one 2744, 2849 or 4838 in the IOP card group 	Short	35	47

Table 2. Card numbers, names, memory values, performance values and restrictions (continued)

Feature Number	CCIN Number	Description	Restrictions	Card Length	Memory Value	Performance Value
4818	2818	PCI 155Mbps SMF OC3 ATM	<ul style="list-style-type: none"> • Not supported after V5R2 • Only one 2817, 4815, 4816, or 4818 per IOP • Only one 2763, 4748, 4778, 9748, 2782, 2780, 2757, 5703, 5705 or 9778 within the same IOP card group as 4818 • If you have one 2817, 4815, 4816, or 4818, then you can have only one 2744, 2849 or 4838 in the IOP card group 	Short	35	47
4838	2838	PCI 100/10Mbps Ethernet	<ul style="list-style-type: none"> • No more than a total of two 4838, 2849 and 2744 in any combination allowed per IOP 	Short	25	36
5580/ 5581	5708	Disk Controller and auxiliary write cache adapter	<ul style="list-style-type: none"> • A maximum of three 2757, 2780, 2782, 9748, 4778, 9778, 5703, 5702 5715 5712, 5705 or CCIN 5708 allowed per IOP in any combination. In secondary partitions if used as load source the disk controller and aux write cache must be under the same Load Source IOP. Both 5580/5581 adapters have to be in the same partition but can be under different IOPs if not a secondary partition and load source adapter. • Two adapter set, requires two open slots within the same enclosure or IOP domain. • The 2780 and 2557 controllers are high bandwidth. • The 5708 Auxiliary Write Cache is low bandwidth. • If possible, place in 64 bit/133 MHz slot for best performance. • For more detailed information see Planning for Disk Storage Availability with Cache Solutions. • Go to Type 5708, auxiliary-write cache IOA for more information. • ATM not allowed under same IOP with 5580/5581 	CCIN 5708 long	CCIN 5708 is 29 per card (58 for both cards)	CCIN 5708 is 9, 2757 is Disk Cntl 30, Aux cache 9 (39 for both cards)
5700 5701	5700 5701	PCI 1 Gbps Ethernet	<ul style="list-style-type: none"> • If installing in the 270, 820, 830, SB2, 840, SB3, 9074, 0550, 9079, 8079, 8093–002, 5074, 5075, or 5079, if possible, place in the 32-bit position. For any other system, place in the 64-bit position. 	Short	2	26

Table 2. Card numbers, names, memory values, performance values and restrictions (continued)

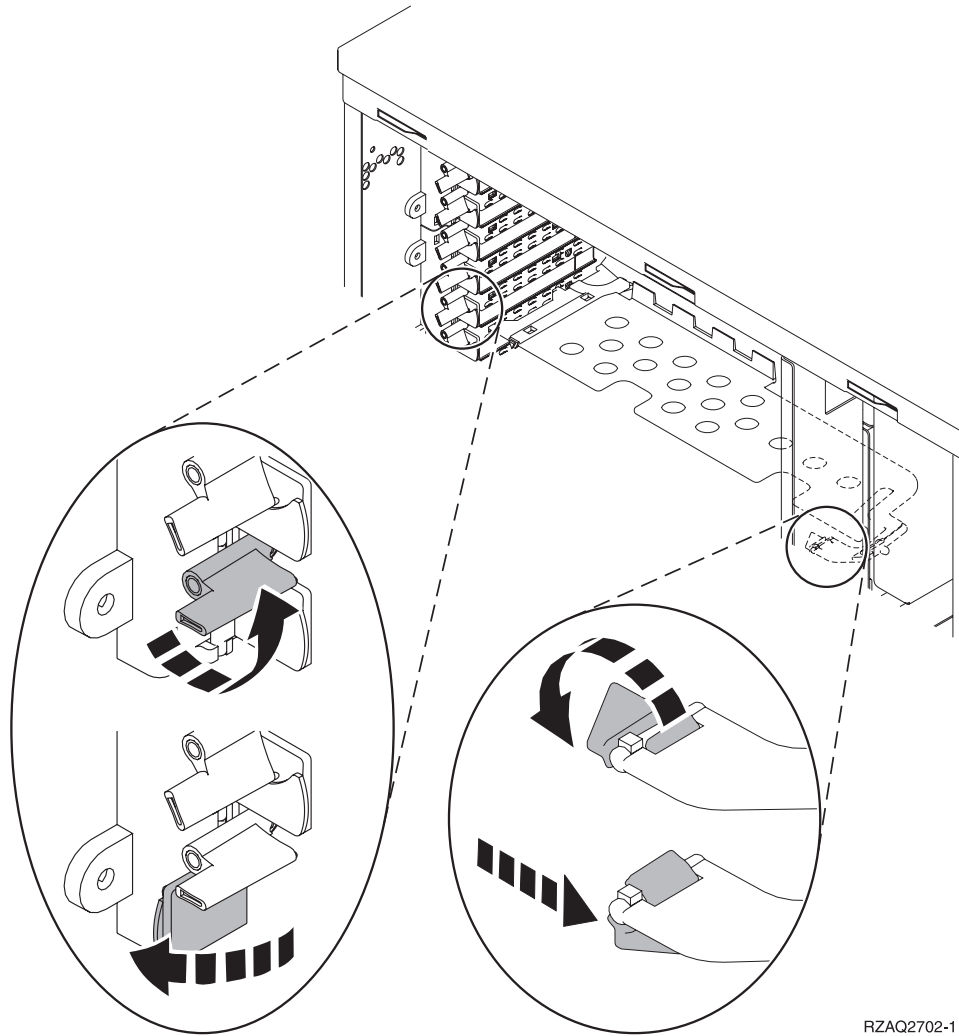
Feature Number	CCIN Number	Description	Restrictions	Card Length	Memory Value	Performance Value
5702, 5712	5702, 5712	PCI Ultra Tape Controller	<ul style="list-style-type: none"> No more than one 2757, 2763, 2780, 2782, 4748, 5703, 9748, 9757, 9763, 9778, or 9782 allowed per IOP when this IOP is also driving 2817, 4815, 4816, or 4818 A maximum of three 5702, 2763, 2757, 2780, 2782, 4778, 5703, 5705, 5712, 9778 allowed per IOP in any combination 	Short	2	21
5703	5703	PCI RAID Disk Unit Controller	<ul style="list-style-type: none"> No more than one 2757, 2763, 2780, 2782, 4748, 5703, 9748, 9757, 9763, 9778, or 9782 allowed per IOP when this IOP is also driving 2817, 4815, 4816, or 4818 2782 and 5703 are supported on 270, 800, 810, 820, 825, 5075, 5095, 0595 A maximum of three 2782, 2763, 2780, 2757, 4748, 9748, 4778, 9778, 5703, 5705, 5712 or 5715 allowed per IOP in any combination 	Long	29	21
5704	5704	PCI Fibre Channel Tape Controller	<ul style="list-style-type: none"> For best performance, place in a 64-bit position Limited to no more than two 2765s, 2766s, 2787s, or 5704s per PCI bridge set boundary 	Short	36	50
5705	5705	PCI Tape/DASD Controller	<ul style="list-style-type: none"> No more than one 2757, 2763, 2780, 2782, 4748, 9748, 5703, 9757, 9763, 9778, or 9782 allowed per IOP when this IOP is also driving 2817, 4815, 4816, or 4818 5705 is supported on 800 and 810 A maximum of three 2782, 2763, 2780, 2757, 4748, 9748, 4778, 9778, 5703, 5705 (only one 5705 allowed) allowed per IOP in any combination 	Short	2	21
9767	2767	PCI Disk Unit Controller	<ul style="list-style-type: none"> Only one per system Only in 270, 820 and 5075 units 	Short	29	21
9771	2771	PCI 2-Line WAN w/Modem	<ul style="list-style-type: none"> Only one per system 	Short	15	14

Install your card

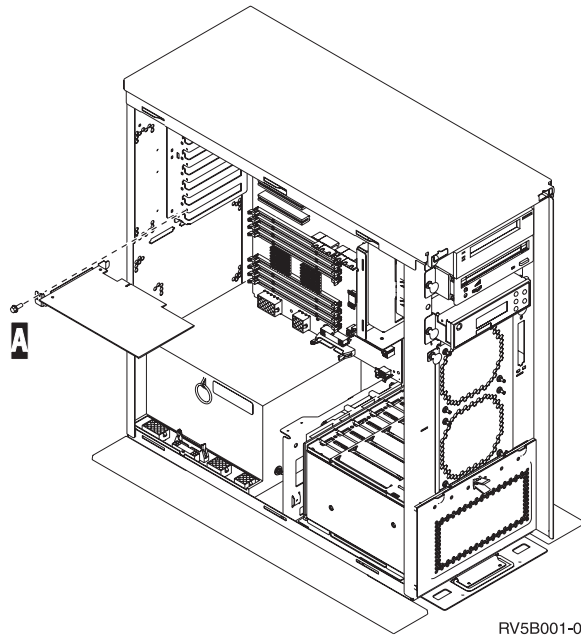
- ___ 1. Remove or open the back cover, if you have one, of the system unit, expansion unit, or rack where you will install the new feature card. Make sure you are in the correct partition if using logical partitions. Refer to "Remove the covers" on page 71 for more information.
- ___ 2. Locate the feature card area.
- ___ 3. Determine if the feature cards are secured in place with either latches or screws.

Does your unit have card latches?


- **Yes:** Your iSeries can either be powered off or powered on when you install your new card. Decide which way you want to install your card—"Your iSeries is powered on during installation" on page 27 or "Your iSeries is powered off during installation" on page 32.



- **No:** Your unit uses screws to secure the cards.
 - ___ a. To install the new feature card, you must power off your unit.
 - ___ b. Go to "Your iSeries is powered off during installation" on page 32.

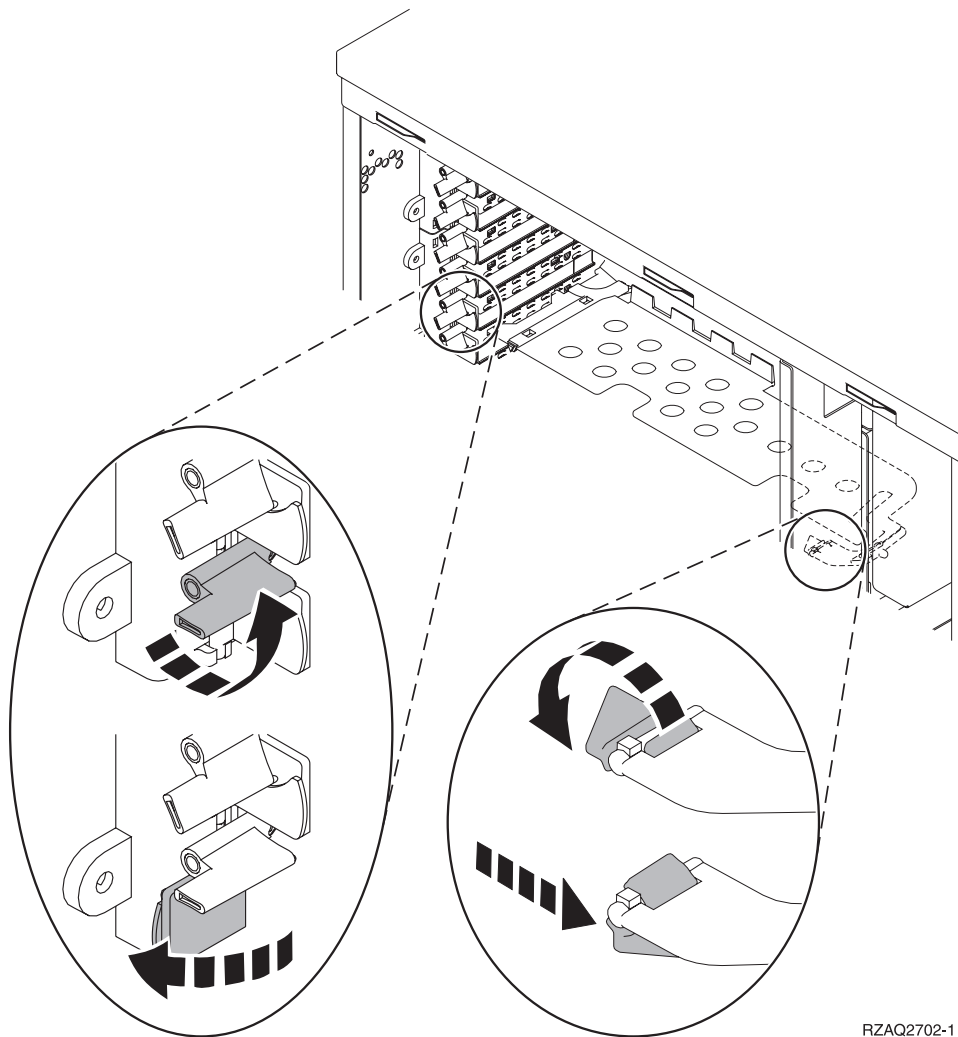


Your iSeries is powered on during installation

- ___ 1. Type **strsst** on the command line of the *Main Menu* and press Enter.
- ___ 2. Type **your service tools user ID and service tools password** on the *System Service Tools (SST) Sign On* display and 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 and press Enter.
- ___ 6. Type **9** on the *System Unit* or *Expansion Unit* line of the unit where you are installing the new card and press Enter.
- ___ 7. Select **Include empty positions**.
- ___ 8. **Attach the disposable wrist strap to prevent electrostatic discharge from damaging a device.**
Attach the adhesive part of the foil to an unpainted surface.  [View video](#).

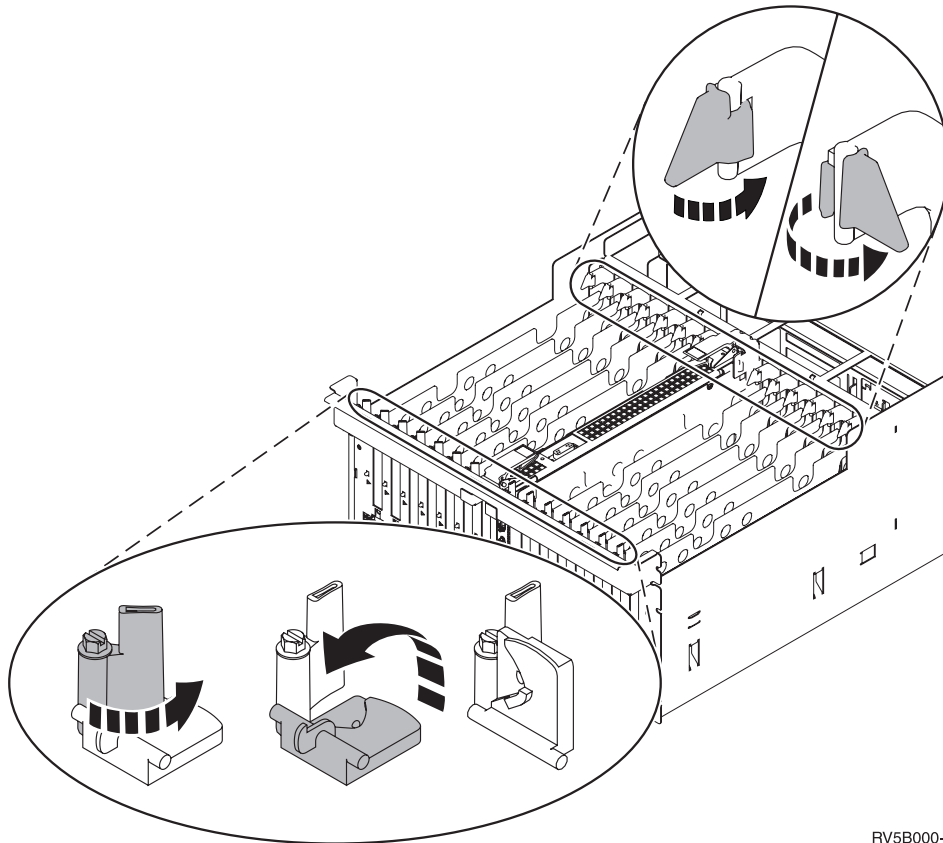
Notes:

- a. Follow the same precautions you would use without the wrist strap. The 2209 Disposable Wrist Strap is for static control. It will not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
- b. Remove the liner from the copper foil at the end when you unroll the strap.
- c. Attach the copper foil to an **exposed, unpainted** metal surface on the frame of the unit (electrical ground).
- ___ 9. Select **Concurrent Maintenance** on the empty card position where you plan to install the card. Press Enter. If using logical partitions, make sure this position is controlled by the logical partition you planned.
- ___ 10. Select **Toggle LED blink off/on**. A light-emitting diode (LED) blinks identifying the position you chose to install the new feature card.
- ___ 11. Select **Toggle LED blink off/on** to stop the blinking LED.
- ___ 12. Open the latch at the card position where you plan to install the card. Move the latch counterclockwise and then swing the latch out.



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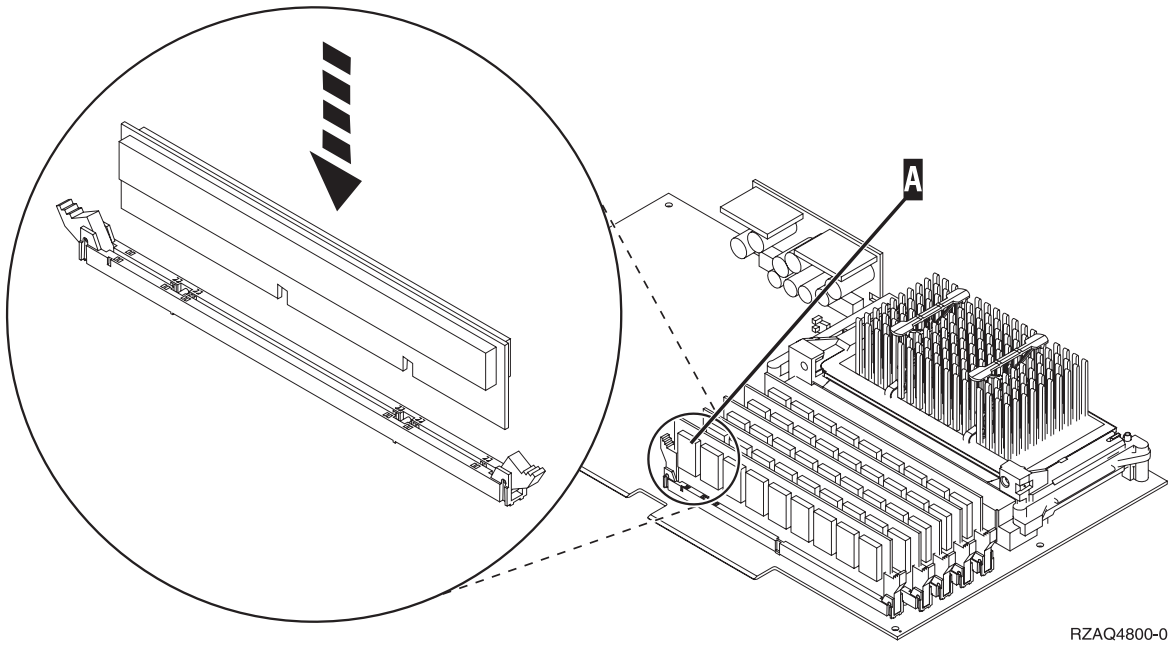
Figure 7. Example of 270, 800, 810, 820, 5075 Card Latch



RV5B000-0


Figure 8. Example of 830, 840, 870, 890, SB2, SB3, 5079 Card Latches

- __ 13. Remove the card filler plate. [View video.](#)
- __ 14. Are you installing a 289x or 4810 IXS card?
 - __ **No:** Go to step 15 on page 30.
 - __ **Yes:** Do the following:
 - __ a. If you have memory cards to install on the IXS card, follow these steps:
 - __ 1) Align the memory card with the next available connector on the IXS card.
 - __ 2) Snap the card in place by moving it downward in the connector. The memory card has a distinct click as it snaps into the connector.



RZAQ4800-0

Figure 9. Location of memory on IXS

- ___ 3) Repeat this step if you have another 289x memory card to install.
- ___ b. Remove a second card filler plate below the one you removed in step 13 on page 29.
- ___ c. Remove the plastic card dividers from the positions the card will occupy. Press down on the ends and pull away from the backplane.
- ___ 15. **Attention:** Adapter cards are fragile:
 - Handle only by the edges.
 - Keep fingers off printed circuit area.
 - Use static strap when handling.
 - Leave in protective packaging until ready to install.
- ___ 16. Align the new adapter card with the card connector inside the system unit or expansion unit and push until it is connected securely.  View video.
- ___ 17. Swing the latch in and move the latch clockwise to secure the card.
- ___ 18. **DANGER**

To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. (RSFTD004)

- Connect any cables and label the cables with the card slot position.
- ___ 19. Select **Power on domain** on the *Hardware Resource Concurrent Maintenance* display. Press Enter.
 - ___ 20. Select **Assign to** on the resource with the * (asterisk) on the *Work with Controlling Resource* display. Press Enter.
 - ___ 21. Wait for the *Hardware Resource Concurrent Maintenance* display to appear with the message indicating Power on complete.
 - ___ 22. If you have more cards to install, go to “Determine the best place to install your card” on page 16 and repeat the steps to install the next card.
 - ___ 23. If you are finished installing all the cards, remove the wrist strap.
 - ___ 24. Install the unit covers.
 - ___ 25. Did you install a 289x or 4810 IXS card?

- ___ **No:** Do the following:
 - ___ a. Sign on the system unit. Ensure that you have service tools authority.
 - ___ b. Type **strsst** on the command line of the iSeries session and press Enter.
 - ___ c. Type **your service tools user ID and service tools password** on the *Start a Service Tools (STRSST) Sign On* display and press Enter.
 - ___ d. Select **Start a service tool** from the *Start a Service Tools* display and press Enter.
 - ___ e. Select **Hardware service manager** from the display and press Enter.
 - ___ f. Select **Packaging hardware resources (system, frames, cards...)** from the display and press Enter.
 - ___ g. Type **9** on the *System Unit or Expansion Unit* line.
 - ___ h. Press Page Down if needed and look at the *Card Pos* column for the adapter card you just installed.
 - ___ i. Did you find the card you just installed?
 - ___ **Yes:** Go to step 26 on page 32.
 - ___ **No:** Return to step 1 on page 27 and verify the install procedure steps.
 - ___ **Yes:** Do the following:
 - ___ a. If you installed a 289x or 4810 IXS card, it is recommended that you perform a verification test.
 - ___ b. Sign on the system unit. Ensure that you have service tools authority.
 - ___ c. Type **strsst** on the command line and press Enter.
 - ___ d. Type **your service tools user ID and service tools password** on the *System Service Tools (SST) Sign On* display and press Enter.
 - ___ e. Select **Start a service tool** from the *Start a Service Tools* display and press Enter.
 - ___ f. Select **Hardware service manager** from the display and press Enter.
 - ___ g. Select **Packaging hardware resources (system, frames, cards...)** from the display and press Enter.
 - ___ h. Type **9** on the *System Unit or Expansion Unit* line.
 - ___ i. Press Page Down if needed and look at the *Card Pos* column to find the card you just installed.
 - ___ 1) Select **Associated Logical Resources** on the line next to the 289x or 4810 that was just installed. Press Enter.
 - ___ 2) Select **Verify** on the line next to the 289x or 4810 card (Communication IOA).
 - ___ 3) Press Enter at the *Verification Test* display.
 - ___ 4) Select **Processor Internal Test** and press Enter.
 - ___ 5) Press Enter at the *Number of Test Runs* display.
 - ___ 6) When the test is complete, the message *The test is successful* appears on the *Verification Test Results* display.
 - ___ 7) Press Enter twice.
 - ___ 8) Select **Hardware Memory Test** and press Enter.
 - ___ 9) Press Enter at the *Number of Test Runs* display.
- Note:** If the test fails, make sure that you have installed the card properly. If the test continues to fail, contact your authorized dealer or service provider.
- ___ 10) When the test is complete, the message *The test is successful* appears on the *Verification Test Results* display.
 - ___ 11) Press Enter twice.
 - ___ 12) Press F3 three times and press Enter to return to the *Main Menu*.

- __ 26. Your feature upgrade is complete.
- __ 27. Press F3 three times and press Enter to get back to the *Main Menu*.

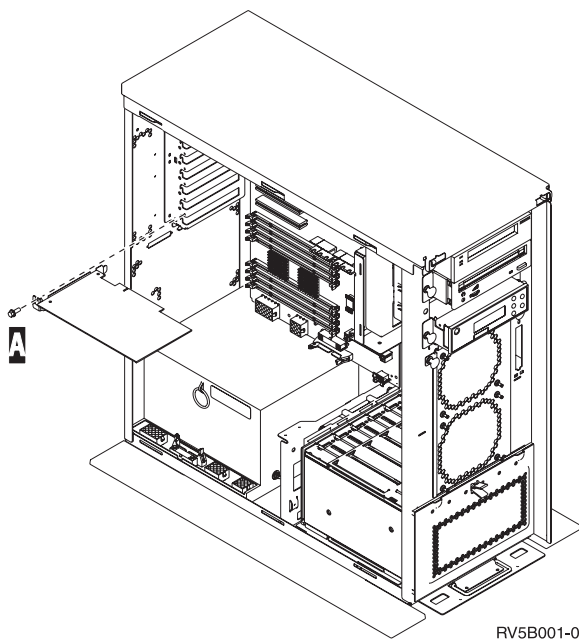
Your iSeries is powered off during installation

- __ 1. If an Integrated xSeries Adapter (IXA) is present on the system, shut it down using OS/400 options.
- __ 2. Ensure that all jobs are complete.
- __ 3. When all jobs are complete, type **pwrdownsys *immed** on an iSeries command line and press Enter.
- __ 4. When the iSeries power down is complete, unplug any power cords, such as printers and displays, from electrical outlets.
- __ 5. Unplug the system or expansion-unit power cord from the electrical outlet.
- __ 6. **Attach the disposable wrist strap to prevent electrostatic discharge from damaging a device.**

 View video. Attach the adhesive part of the foil to an unpainted surface on the frame of the

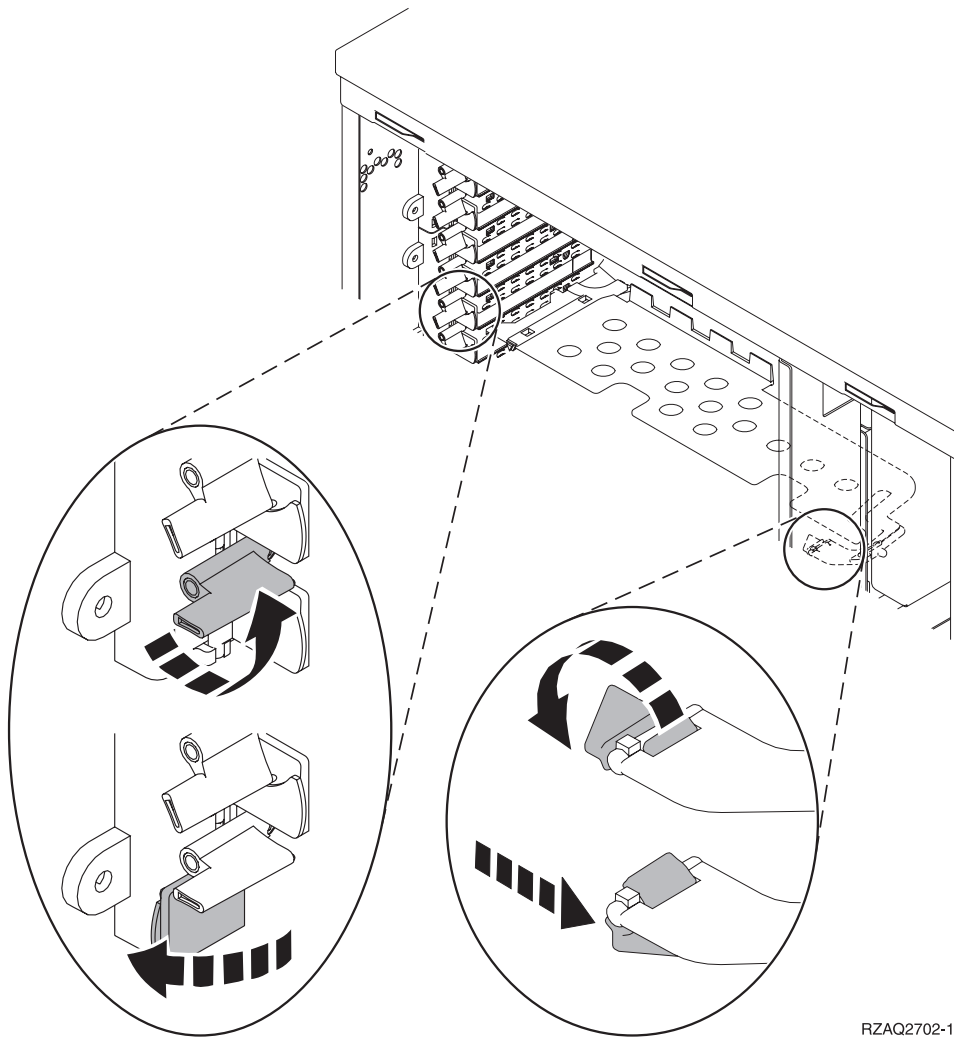
Notes:

- a. Follow the same precautions you would use without the wrist strap. The 2209 Disposable Wrist Strap is for static control. It will not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
 - b. Remove the liner from the copper foil at the end when you unroll the strap.
 - c. Attach the copper foil to an **exposed, unpainted** metal surface on the frame of the unit (electrical ground).
- __ 7. Locate the adapter card positions inside your system unit.
 - __ 8. Does your unit have screws to secure the cards?



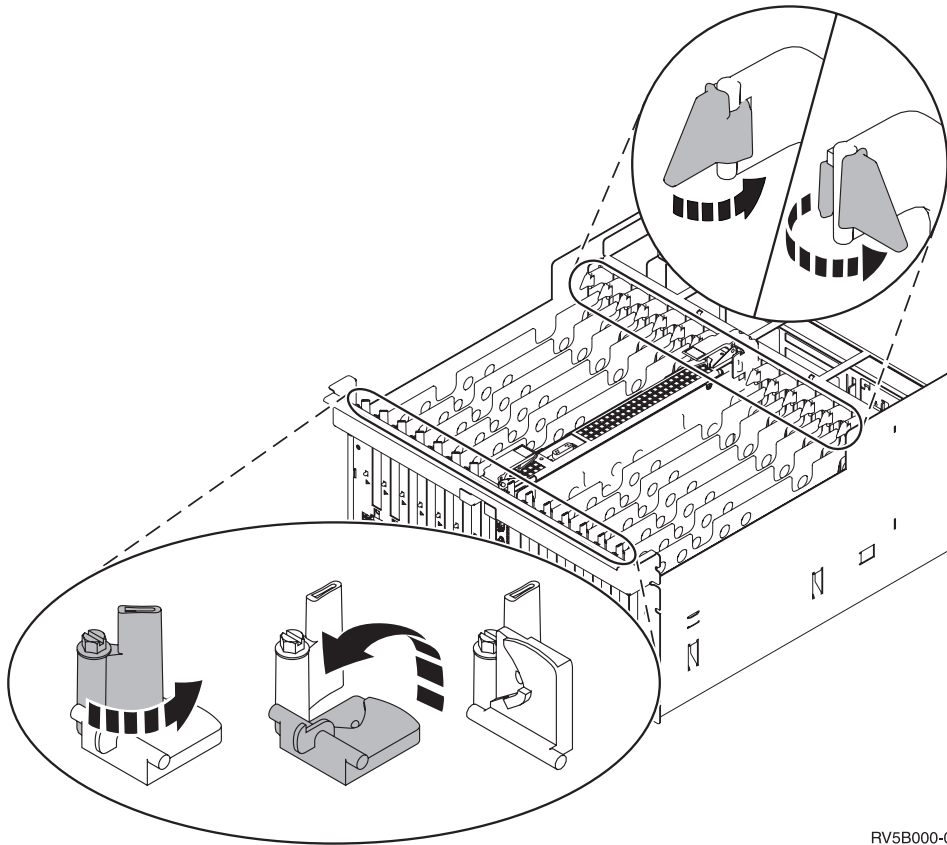
- __ **No:** Continue with the next step.
- __ **Yes:** Do the following:
 - __ a. Remove the screw from the card position where you plan to install the card.
 - __ b. Go to step 10 on page 34.

- 9. Open the latch at the card position where you plan to install the card. Move the latch counterclockwise and then swing the latch out. If using logical partitions, make sure this position is controlled by the logical partition you planned.




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Figure 10. Example of 270, 800, 810, 820, 825, 5075, 9094, 9094 Card Latch



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Figure 11. Example of 830, 840, 870, 890, SB2, SB3, 5079, 5294 Card Latches

- __ 10. Remove the card filler plate.  View video.
- __ 11. Are you installing the 289x or 4810 IXS card?
 - **No:** Go to step 12 on page 35.
 - **Yes:** Do the following:
 - __ a. If you have memory cards to install on the IXS card, follow these steps:
 - __ 1) Align the memory card with the next available connector on the IXS card.
 - __ 2) Snap the card in place by moving it downward in the connector. The memory card has a distinct click as it snaps into the connector.

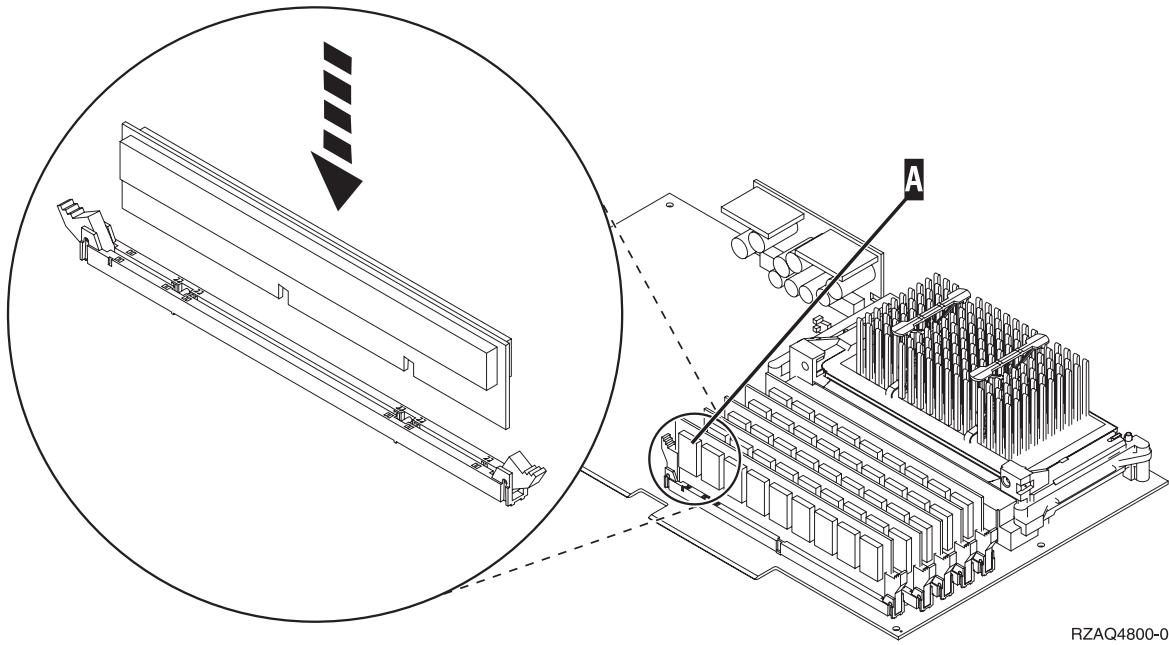



Figure 12. Location of memory on IXS

- ___ 3) Repeat this step if you have another 289x memory card to install.
 - ___ b. Remove a second card filler plate below the first one removed.
 - ___ c. Remove the plastic card dividers from the positions the IXS card will occupy. Press down on the release lever at the headstock end and pull away from the backplane.
- ___ 12. **Attention:** Adapter cards are fragile:
- Handle only by the edges.
 - Keep fingers off printed circuit area.
 - Use static strap when handling.
 - Leave in protective packaging until ready to install.
- ___ 13. Align the new adapter card with the card holders inside the system unit and push until it is connected securely.  View video.
- ___ 14. Swing the latch in and move the latch clockwise or install the screw to secure the card.
- ___ 15. **DANGER**
- To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. (RSFTD004)**
- Connect any cables and label the cables with the card position.
- ___ 16. If you have more cards to install, go to step 7 on page 32 and repeat the steps to install the next card.
- ___ 17. If you are finished installing all cards, remove the wrist strap.
- ___ 18. Install the unit covers.

__ 19. DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the products that attach to the system. It is the customer's responsibility to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.
(RSFTD201)

Plug in the system unit and system unit console into an electrical outlet. Plug in everything you previously unplugged such as printers and displays.

- __ 20. Is your system unit an iSeries 270, 800, 810 or 820, 825, 830, 840, 870, 890?
- __ 270, 800, 810: Continue with the next step.
 - __ 820, 825, 830, 840, 870, 890: Go to step 23.
- __ 21. Look at the Function/Data display on the control panel.
- __ 22. Does **01 B N V=S** appear in the Function/Data display?
- __ Yes: Go to step 25 on page 37.
 - __ No: Do the following:
 - __ a. Press the Increment/Decrement push button until **02** appears in the Function/Data display.
 - __ b. Press the Enter push button on the control panel.
 - __ c. Press the Increment/Decrement push button until **B** appears in the Function/Data display.
 - __ d. Press the Enter push button on the control panel.
 - __ e. Press the Increment/Decrement push button until **N** appears in the Function/Data display.
 - __ f. Press the Enter push button on the control panel.
 - __ g. Press the Increment/Decrement push button until **S** appears in the Function/Data display.
 - __ h. Press the Enter push button on the control panel.
 - __ i. Press the Increment/Decrement push button until **01** appears in the Function/Data display.
 - __ j. Press the Enter push button on the control panel.**01 B N S** should appear in the Function/Data display. If it does not, repeat steps 22a through 22j. If it does, go to step 25 on page 37.
- __ 23. Look at the Function/Data display on the control panel.
- __ 24. Does **01 B V=S** appear in the Function/Data display with IPL mode Normal (OK) selected?
- __ Yes: Continue with the next step.
 - __ No: Do the following:
 - __ a. Press the Mode Select button until the Manual mode indicator (a small hand) lights up.
 - __ b. Press the Increment/Decrement push button until **02** appears in the Function/Data display.
 - __ c. Press the Enter push button on the control panel.
 - __ d. Press the Increment/Decrement push button until **B** appears in the Function/Data display.
 - __ e. Press the Enter push button on the control panel.
 - __ f. Press the Increment/Decrement push button until **S** appears in the Function/Data display
 - __ g. Press the Enter push button on the control panel.
 - __ h. Press the Mode Select button until the Normal indicator (**OK**) lights up.

- ___ i. Press the Increment/Decrement push button until **01** appears in the Function/Data display.
- ___ j. Press the Enter push button on the control panel.
01 B S should appear in the Function/Display display. If it does not appear, repeat steps 24a on page 36 through 24j. If it does, continue to the next step.
- ___ 25. Press the Power push button that is located on the iSeries control panel. There is approximately a 10-second delay before the power-on light comes on, and data appears in the Function/Data display.

Note: The system takes approximately 5 to 20 minutes to power on and complete an IPL. When the IPL is complete, **01 B N S** appears in the Function/Data display.

- ___ 26. Did you install a 289x or 4810 IXS card?
 - ___ **No:** Do the following:
 - ___ a. Sign on the system unit. Ensure that you have service tools authority.
 - ___ b. Type **strsst** on the command line of the iSeries session and press Enter.
 - ___ c. Type **your service tools user ID and service tools password** on the *Start a Service Tools (STRSST) Sign On* display and press Enter.
 - ___ d. Select **Start a service tool** from the *Start a Service Tools* display and press Enter.
 - ___ e. Select **Hardware service manager** from the display and press Enter.
 - ___ f. Select **Packaging hardware resources (system, frames, cards...)** from the display and press Enter.
 - ___ g. Type **9** on the *System Unit or Expansion Unit* line.
 - ___ h. Press Page Down if needed and look at the *Card Pos* column for the adapter card you just installed.
 - ___ i. Did you find the card you just installed?
 - ___ **Yes:** Go to step 27 on page 38.
 - ___ **No:** Return to step 2 on page 32 and verify the install procedure steps.
 - ___ **Yes:** Do the following:
 - ___ a. If you installed a 289x or 4810 IXS card, it is recommended that you perform a verification test.
 - ___ b. Sign on the system unit. Ensure that you have service tools authority.
 - ___ c. Type **strsst** on the command line of the iSeries session and press Enter.
 - ___ d. Type **your service tools user ID and service tools password** on the *Start a Service Tools (STRSST) Sign On* display and press Enter.
 - ___ e. Select **Start a service tool** from the *Start a Service Tools* display and press Enter.
 - ___ f. Select **Hardware service manager** from the display and press Enter.
 - ___ g. Select **Packaging hardware resources (system, frames, cards...)** from the display and press Enter.
 - ___ h. Type **9** on the *System Unit or Expansion Unit* line.
 - ___ i. Press Page Down if needed and look at the *Card Pos* column for the card you just installed.
 - ___ 1) Select **Associated Logical Resources** on the line next to the 289x or 4810 that was just installed. Press Enter.
 - ___ 2) Select **Verify** on the line next to the 289x or 4810 card (Communication IOA).
 - ___ 3) Press Enter at the *Verification Test* display.
 - ___ 4) Select **Processor Internal Test** and press Enter.
 - ___ 5) Press Enter at the *Number of Test Runs* display.

- ___ 6) When the test is complete, the message *The test is successful* appears on the *Verification Test Results* display.
- ___ 7) Press Enter twice.
- ___ 8) Select **Hardware Memory Test** and press Enter.
- ___ 9) Press Enter at the *Number of Test Runs* display.

Note: If the test fails, make sure that you have installed the card properly. If the test continues to fail, contact your authorized dealer or service provider.

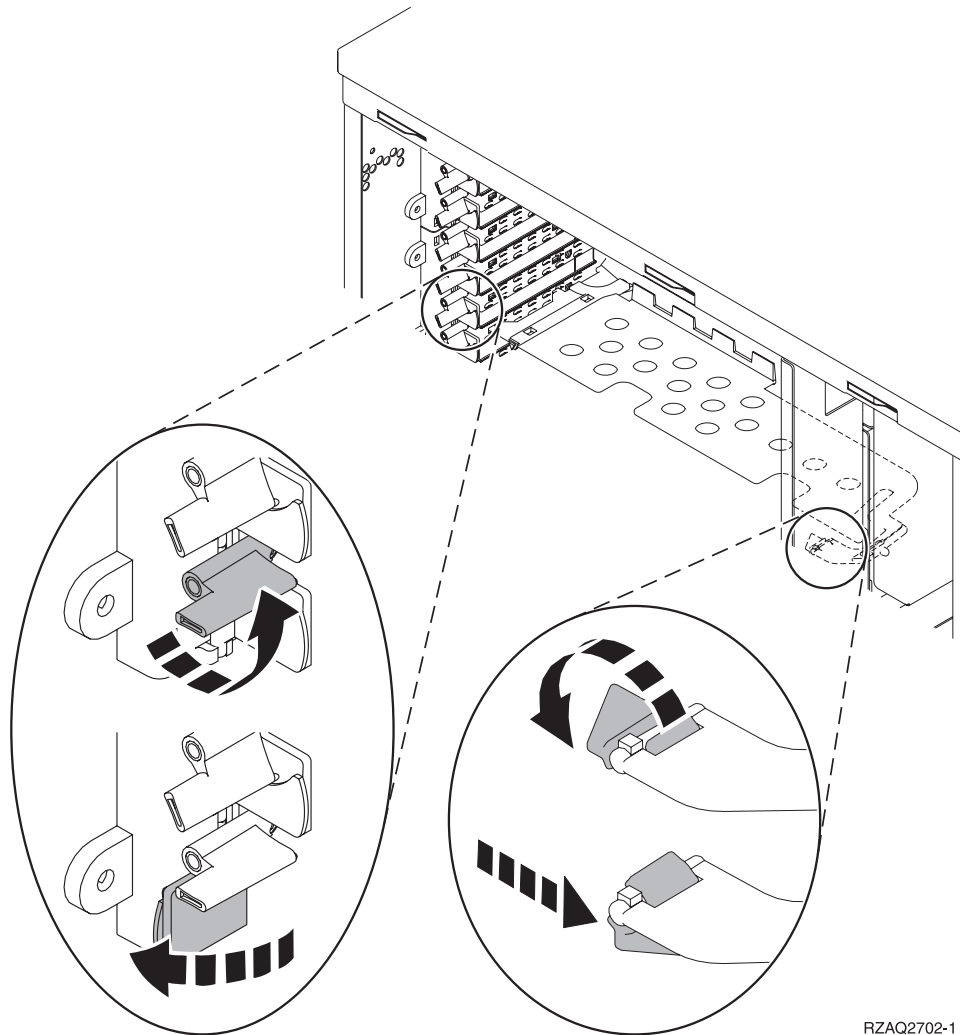
- ___ 10) When the test is complete, the message *The test is successful* appears on the *Verification Test Results* display.
 - ___ 11) Press Enter twice.
 - ___ 12) Press F3 three times and press Enter to return to the *Main Menu*.
- ___ 27. Your feature installation is complete.
- ___ 28. Press F3 three times and press Enter to get back to the *Main Menu*.

Move a card in your iSeries

- ___ 1. Remove or open the back cover of the system unit or expansion unit where you will remove the feature card. Refer to “Remove the covers” on page 71 for more information.
- ___ 2. Locate the feature card area.
- ___ 3. Either latches or screws secure the cards in place.

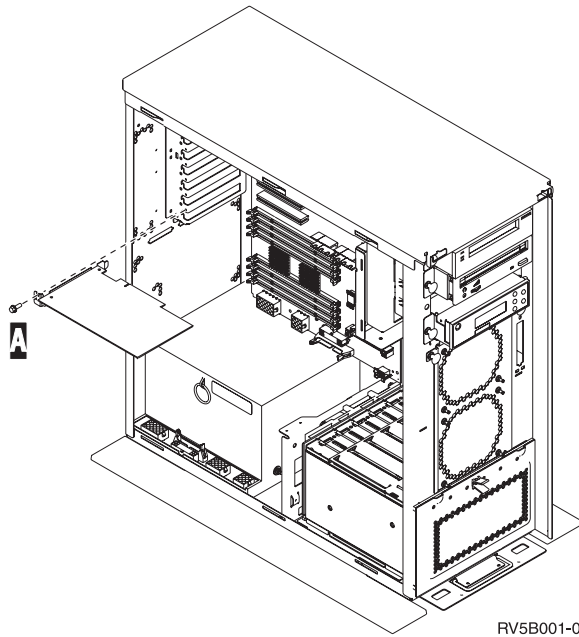
Does your unit have card latches?

- ___ **Yes:** Your iSeries can either be powered off or powered on when you install your new card. Decide which way you want to install your card—“Your iSeries is powered on while moving cards” on page 40 or “Your iSeries is powered off while moving cards” on page 44.



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- ___ **No:** Your unit has screws to secure the cards.
- ___ a. To move or install a feature card, you must power off your unit.
- ___ b. Go to “Your iSeries is powered off while moving cards” on page 44.



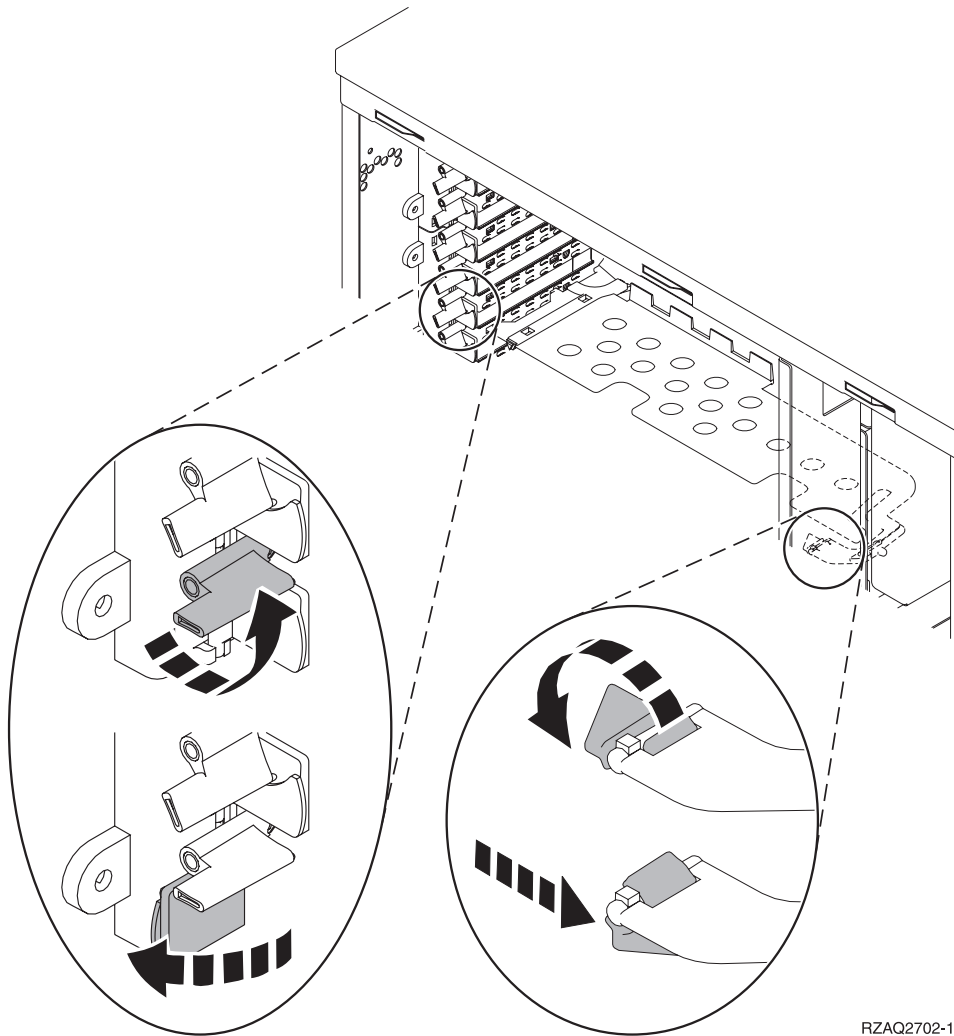
Your iSeries is powered on while moving cards

- ___ 1. Type **strsst** on the command line of the *Main Menu* and press Enter.
- ___ 2. Type **your service tools user ID and service tools password** on the *Start Service Tools (STRSST) Sign On* display and 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 and press Enter.
- ___ 6. Type **9** on the *System Unit* or *Expansion Unit* line of the unit where you are installing the new card and press Enter.
- ___ 7. Select **Include empty positions**.
- ___ 8. **Attach the disposable wrist strap to prevent electrostatic discharge from damaging a device.** Attach the adhesive part of the foil to an unpainted metal surface on the frame of the unit.

Notes:

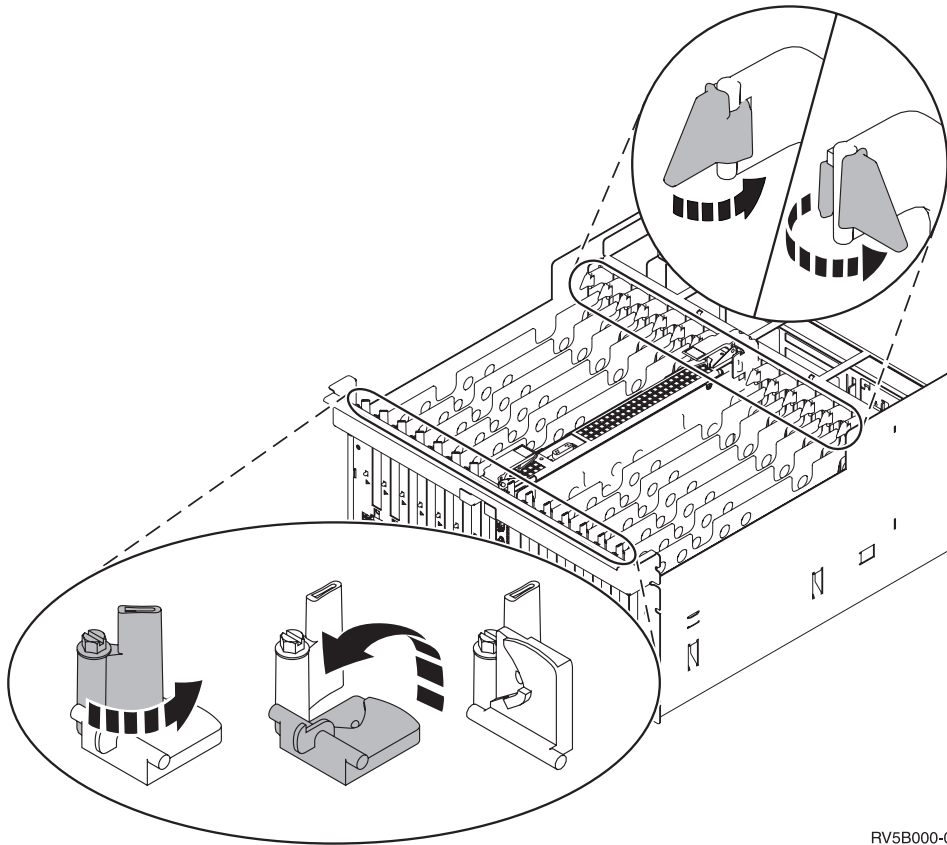
- a. Follow the same precautions you would use without the wrist strap. The 2209 Disposable Wrist Strap is for static control. It will not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
- b. Remove the liner from the copper foil at the end when you unroll the strap.
- c. Attach the copper foil to an **exposed, unpainted** metal surface on the frame of the unit (electrical ground).
- ___ 9. Select **Concurrent Maintenance** on the card position where you want to remove the card. Press Enter.
- ___ 10. Select **Toggle LED blink off/on**. A light-emitting diode (LED) blinks identifying the position you chose.
- ___ 11. Select **Toggle LED blink off/on** to stop the blinking LED.
- ___ 12. Select **Power off domain** on the *Hardware Resource Concurrent Maintenance* display. Press Enter.
- ___ 13. Wait for the *Hardware Resource Concurrent Maintenance* display to appear with the message indicating Power off complete.

- __ 14. Open the latch at the card position where you plan to remove the card. Move the latch counterclockwise and then swing the latch out.



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Figure 13. Example of 270, 800, 810, 820, 5075 Card Latch



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Figure 14. Example of 830, 840, SB2, SB3, 5079 Card Latches

- __ 15. Remove the card and place it in a protective package.
- __ 16. **Attention:** Adapter cards are fragile:
 - Handle only by the edges.
 - Keep fingers off printed circuit area.
 - Use static strap when handling.
 - Leave in protective packaging until ready to install.
- __ 17. Locate the adapter card you want to install in this position.
- __ 18. If installing the 289x or 4810 IXS card:
 - __ a. Remove a second card filler plate below the first one removed.
 - __ b. Remove the plastic card dividers from the positions the IXS card will occupy. Press down on the release lever at the headstock end and pull away from the backplane.
- __ 19. Align the adapter card with the card connector inside the system unit or expansion unit and push until it is connected securely.
- __ 20. Swing the latch in and move the latch clockwise to secure the card.
- __ 21. Connect any cables and label the cables with the card position.
- __ 22. Select **Power on domain** on the *Hardware Resource Concurrent Maintenance* display. Press Enter.
- __ 23. Press Enter.
- __ 24. Select **Assign to** on the resource with the asterisk (*) on the *Work with Controlling Resource* display. Press Enter.
- __ 25. Wait for the *Hardware Resource Concurrent Maintenance* display to appear with the message indicating Power on complete.

- __ 26. If you have more cards to move or want to install the card you removed in another position, go to "Determine the best place to install your card" on page 16.
 - __ 27. If you are finished moving and installing all the cards, remove the wrist strap.
 - __ 28. Install the unit covers.
 - __ 29. Did you install a 289x or 4810 IXS card?
 - __ **No:** Do the following:
 - __ a. Sign on the system unit. Ensure that you have service tools authority.
 - __ b. Type **strsst** on the command line and press Enter.
 - __ c. Type **your service tools user ID and service tools password** on the *Start Service Tools (STRSST) Sign On* display and press Enter.
 - __ d. Select **Start a service tool** from the *Start a Service Tools* display and press Enter.
 - __ e. Select **Hardware service manager** from the display and press Enter.
 - __ f. Select **Packaging hardware resources (system, frames, cards...)** from the display and press Enter.
 - __ g. Type **9** on the *System Unit or Expansion Unit* line.
 - __ h. Press Page Down if needed and look at the *Card Pos* column for the adapter card you just installed.
 - __ i. Did you find the card you just installed?
 - __ **Yes:** Go to step 30 on page 44.
 - __ **No:** Return to step 1 on page 40 and verify the installation procedure steps.
 - __ **Yes:** Do the following:
 - __ a. If you installed a 289x or 4810 IXS card, it is recommended that you perform a verification test.
 - __ b. Sign on the system unit. Ensure that you have service tools authority.
 - __ c. Type **strsst** on the command line and press Enter.
 - __ d. Type **your service tools user ID and service tools password** on the *Start Service Tools (STRSST) Sign On* display and press Enter.
 - __ e. Select **Start a service tool** from the *Start a Service Tools* display and press Enter.
 - __ f. Select **Hardware service manager** from the display and press Enter.
 - __ g. Select **Packaging hardware resources (system, frames, cards...)** from the display and press Enter.
 - __ h. Type **9** on the *System Unit or Expansion Unit* line.
 - __ i. Press Page Down if needed and look at the *Card Pos* column for the card you just installed.
 - __ 1) Select **Associated Logical Resources** on the line next to the 289x or 4810 that was just installed.
 - __ 2) Select **Verify** on the line next to the 289x or 4810 card.
 - __ 3) Press Enter at the *Verification Test* display.
 - __ 4) Select **Processor Internal Test** and wait for it to complete.
 - __ 5) Select **Hardware Memory Test** and wait for it to complete.
 - __ 6) Press Enter at the *Number of Test Runs* display.
- Note:** If the test fails, make sure that you have installed the card properly. If the test continues to fail, contact your authorized dealer or service provider.
- __ 7) When the test is complete, the message This test is successful appears on the *Verification Test Results* display.
 - __ 8) Press Enter twice.

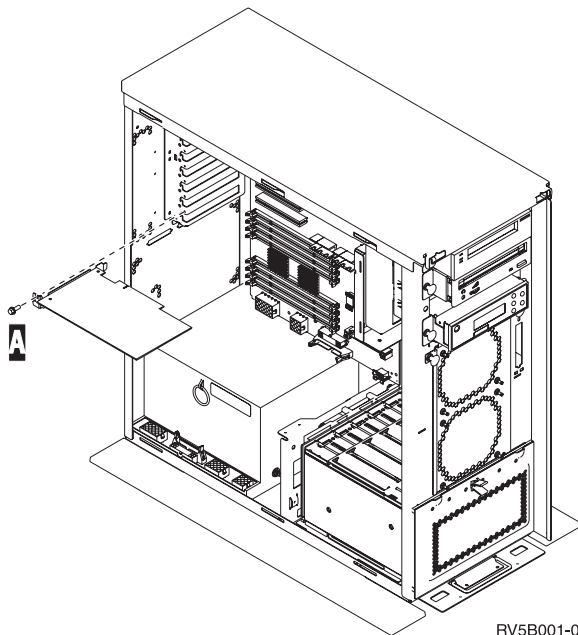
- __ 30. Your feature upgrade is complete.
- __ 31. Press F3 three times and press Enter to get back to the *Main Menu*.

Your iSeries is powered off while moving cards

- __ 1. If an Integrated xSeries Adapter (IXA) is present on the system, shut it down using OS/400 options.
- __ 2. Ensure that all jobs are complete.
- __ 3. When all jobs are complete, type **pwrdownsys *immed** on an iSeries command line and press Enter.
- __ 4. When the iSeries power down is complete, unplug any power cords, such as printers and displays, from electrical outlets.
- __ 5. Unplug the system or expansion unit power cord from the electrical outlet.
- __ 6. **Attach the disposable wrist strap to prevent electrostatic discharge from damaging a device.** Attach the adhesive part of the foil to an unpainted surface on the frame of the unit.

Notes:

- a. Follow the same precautions you would use without the wrist strap. The 2209 Disposable Wrist Strap is for static control. It will not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
- b. Remove the liner from the copper foil at the end when you unroll the strap.
- c. Attach the copper foil to an **exposed, unpainted** metal surface on the frame of the system unit (electrical ground).
- __ 7. Locate the adapter card positions inside your system unit.
- __ 8. Does your unit have screws to secure the cards?



- __ **No:** Continue with the next step.
- __ **Yes:** Do the following:
 - __ a. Remove the screw from the card position where you plan to remove the card.
 - __ b. Go to step 10 on page 46.
- __ 9. Open the latch at the card position where you plan to remove the card. Move the latch counterclockwise and then swing the latch out.

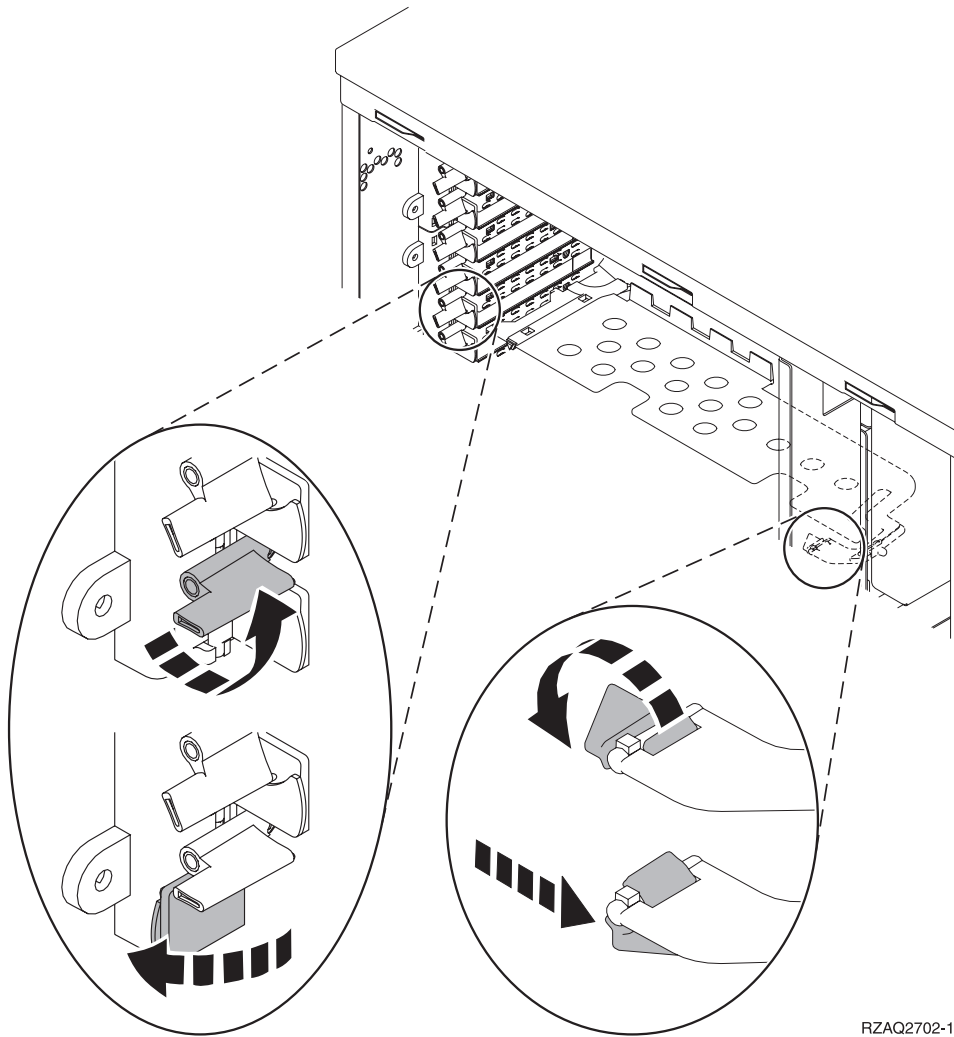
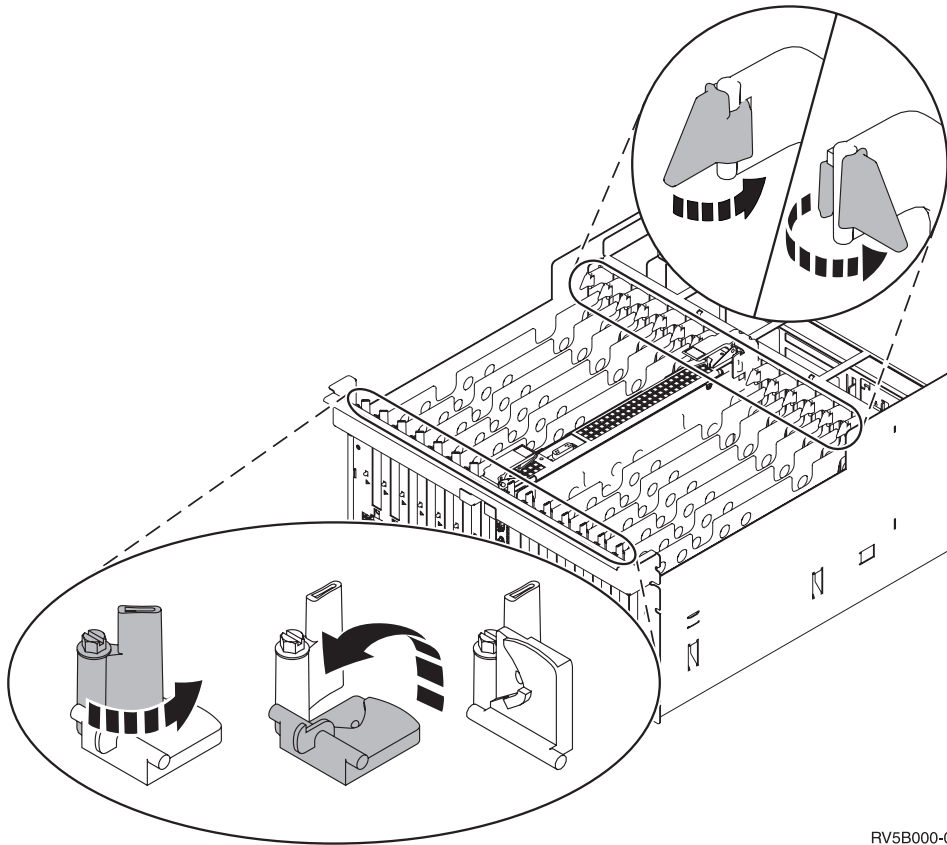


Figure 15. Example of 270, 800, 810, 820, 5075 Card Latch



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Figure 16. Example of 830, 840, 870, 890, SB2, SB3, 5079 Card Latches

- __ 10. Remove the card and place it in a protective package.
- __ 11. **Attention:** Adapter cards are fragile:
 - Handle only by the edges.
 - Keep fingers off printed circuit area.
 - Use static strap when handling.
 - Leave in protective packaging until ready to install.
- __ 12. Locate the adapter card you want to install in this position.
- __ 13. If installing the 289x or 4810 IXS card:
 - __ a. Remove a second card filler plate below the first one removed.
 - __ b. Remove the plastic card dividers from the positions the IXS card will occupy. Press down on the release lever at the headstock end and pull away from the backplane.
- __ 14. Align the adapter card with the card holders inside the system unit and push until it is connected securely.
- __ 15. Swing the latch in and move the other latch clockwise or install the screw to secure the card.
- __ 16. **DANGER**

To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. (RSFTD004)

Connect any cables and label the cables with the card position.

- __ 17. If you have more cards to move or want to install the card you removed in another position, go to “Determine the best place to install your card” on page 16.

- __ 18. Then go to “Your iSeries is powered off while moving cards” on page 44 and repeat the steps to install the next card.
- __ 19. If you are finished moving and installing all cards, remove the wrist strap.
- __ 20. Install the unit covers.
- __ 21. **DANGER**

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the products that attach to the system. It is the customer’s responsibility to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (RSFTD201)

- Plug in the system unit and system unit console into an electrical outlet. Plug in everything you previously unplugged such as printers and displays.
- __ 22. Is your system unit an iSeries 270, 800, or 810 or 820, 825, 830, 840, 870, 890?
 - __ 270, 800, or 810: Continue with the next step.
 - __ 820, 825, 830, 840, 870, 890: Go to step 25.
 - __ 23. Look at the Function/Data display on the control panel.
 - __ 24. Does **01 B N V=S** appear in the Function/Data display?
 - __ **Yes:** Go to step 28 on page 48.
 - __ **No:** Do the following:
 - __ a. Press the Increment/Decrement push button until **02** appears in the Function/Data display.
 - __ b. Press the Enter push button on the control panel.
 - __ c. Press the Increment/Decrement push button until **B** appears in the Function/Data display.
 - __ d. Press the Enter push button on the control panel.
 - __ e. Press the Increment/Decrement push button until **N** appears in the Function/Data display.
 - __ f. Press the Enter push button on the control panel.
 - __ g. Press the Increment/Decrement push button until **S** appears in the Function/Data display.
 - __ h. Press the Enter push button on the control panel.
 - __ i. Press the Increment/Decrement push button until **01** appears in the Function/Data display.
 - __ j. Press the Enter push button on the control panel.

01 B N S should appear in the Function/Data display. If it does not, repeat steps 24a through 24j. If it does, go to step 28 on page 48.
 - __ 25. Look at the Function/Data display on the control panel.
 - __ 26. Does **01 B V=S** appear in the Function/Data display?
 - __ **Yes:** Continue with the next step.
 - __ **No:** Do the following:
 - __ a. Press the Increment/Decrement push button until **02** appears in the Function/Data display.
 - __ b. Press the Enter push button on the control panel.
 - __ c. Press the Increment/Decrement push button until **B** appears in the Function/Data display.
 - __ d. Press the Enter push button on the control panel.
 - __ e. Press the Increment/Decrement push button until **S** appears in the Function/Data display.

- ___ f. Press the Enter push button on the control panel.
 - ___ g. Press the Increment/Decrement push button until **01** appears in the Function/Data display.
 - ___ h. Press the Enter push button on the control panel.
01 B S should appear in the Function/Display panel. If it does appear, not repeat steps 26a on page 47 through 26h.
 - ___ i. Go to step 27.
- ___ 27. Press the Power push button that is located on the iSeries control panel. There is approximately a 10-second delay before the power-on light comes on, and data appears in the Function/Data display.

Note: The system takes approximately 5 to 20 minutes to power on and complete an IPL. When the IPL is complete, **01 B N S** appears in the Function/Data display.

- ___ 28. Did you install a 289x or 4810 IXS card?
- ___ **No:** Do the following:
 - ___ a. Sign on the system unit. Ensure that you have service tools authority.
 - ___ b. Type **strsst** on the command line and press Enter.
 - ___ c. Type **your service tools user ID and service tools password** on the *System Service Tools (SST) Sign On* display and press Enter.
 - ___ d. Select **Start a service tool** from the *Start a Service Tools* display and press Enter.
 - ___ e. Select **Hardware service manager** from the display and press Enter.
 - ___ f. Select **Packaging hardware resources (system, frames, cards...)** from the display and press Enter.
 - ___ g. Type **9** on the *System Unit or Expansion Unit* line.
 - ___ h. Press Page Down if needed and look at the *Card Pos* column for the adapter card you just installed.
 - ___ i. Did you find the card you just installed?
 - ___ **Yes:** Go to step 29 on page 49.
 - ___ **No:** Return to step 2 on page 44 and verify the installation procedure steps.
 - ___ **Yes:** Do the following:
 - ___ a. If you installed a 289x or 4810 IXS card, it is recommended that you perform a verification test.
 - ___ b. Sign on the system unit. Ensure that you have service tools authority.
 - ___ c. Type **strsst** on the command line and press Enter.
 - ___ d. Type **your service tools user ID and service tools password** on the *System Service Tools (SST) Sign On* display and press Enter.
 - ___ e. Select **Start a service tool** from the *Start a Service Tools* display and press Enter.
 - ___ f. Select **Hardware service manager** from the display and press Enter.
 - ___ g. Select **Packaging hardware resources (system, frames, cards...)** from the display and press Enter.
 - ___ h. Type **9** on the *System Unit or Expansion Unit* line.
 - ___ i. Press Page Down if needed and look at the *Card Pos* column.
 - ___ 1) Select **Associated Logical Resources** on the line next to the 289x or 4810 that was just installed.
 - ___ 2) Select **Verify** on the line next to the 289x or 4810 card.
 - ___ 3) Press Enter at the *Verification Test* display.
 - ___ 4) Select **Processor Internal Test** and wait for it to complete.
 - ___ 5) Select **Hardware Memory Test** and wait for it to complete.

__ 6) Press Enter at the *Number of Test Runs* display.

Note: If the test fails, make sure that you have installed the card properly. If the test continues to fail, contact your authorized dealer or service provider.

__ 7) When the test is complete, the message *This test is successful* appears on the *Verification Test Results* display.

__ 8) Press Enter twice.

__ 9) Press F3 three times to return to the *Main Menu*.

__ 29. Your feature upgrade is complete.

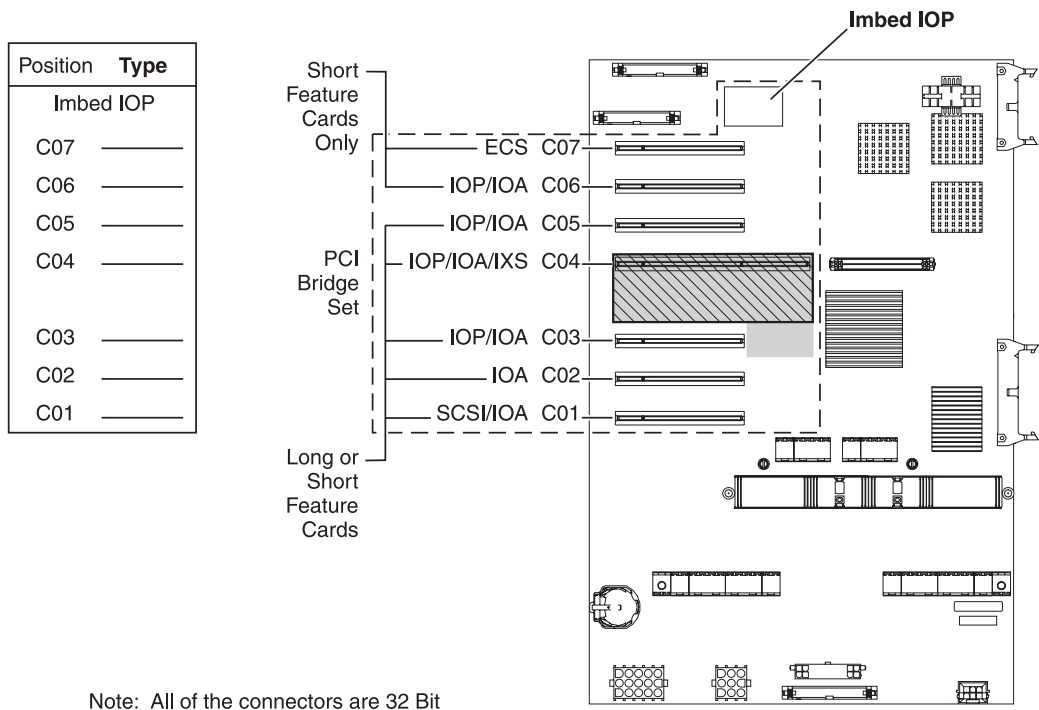
__ 30. Press F3 three times and press Enter to get back to the *Main Menu*.

Current configuration tables

Locate your unit and current configuration:

- “270, 800, and 810 system unit”
- “820 system unit” on page 53
- “825 system unit” on page 54
- “830, 840, SB2, and SB3 system unit” on page 55
- “8079 unit” on page 57
- “8094 unit” on page 57
- “5075 expansion unit” on page 57
- “5074, 0574, or 8093–002 expansion unit” on page 58
- “5078 or 0578 expansion unit” on page 60
- “5079 expansion unit” on page 60
- “5088 or 0588 expansion unit” on page 62
- “5094 or 8093–001 expansion unit” on page 62
- “5095 or 0595 expansion unit” on page 63
- “5294 expansion unit” on page 64

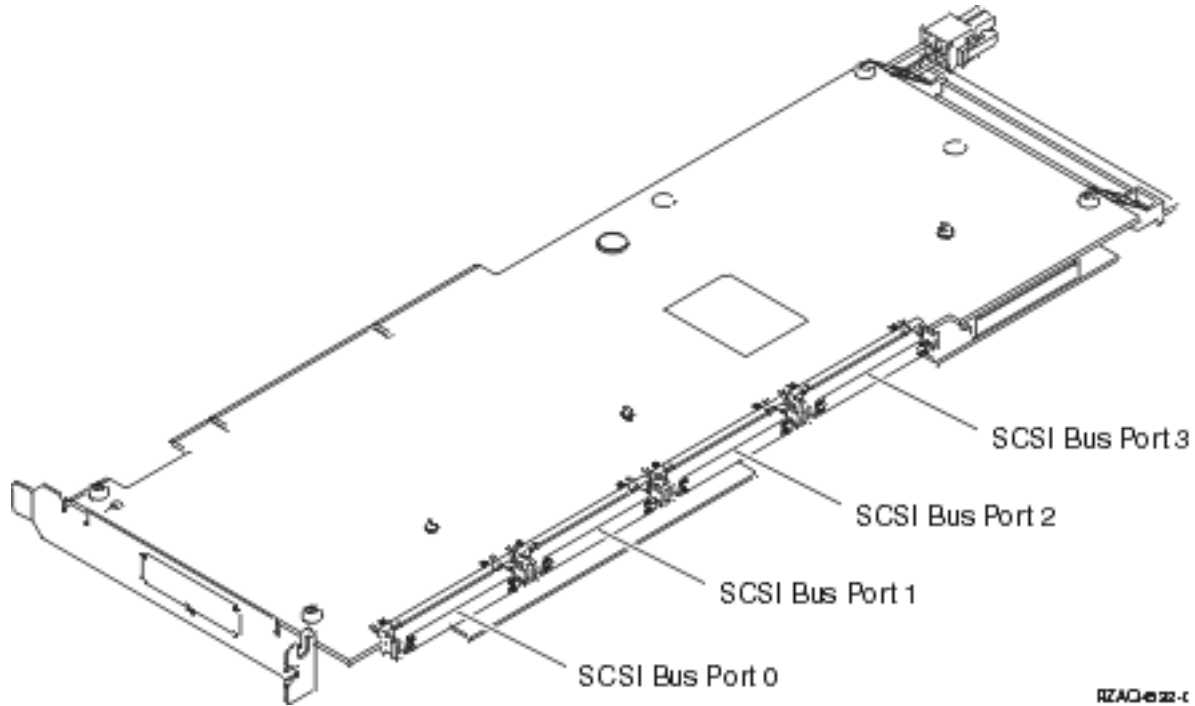
270, 800, and 810 system unit



RZAQ5504-5

- The Imbed IOP controls positions C07, C01, and possibly C06 and C05.

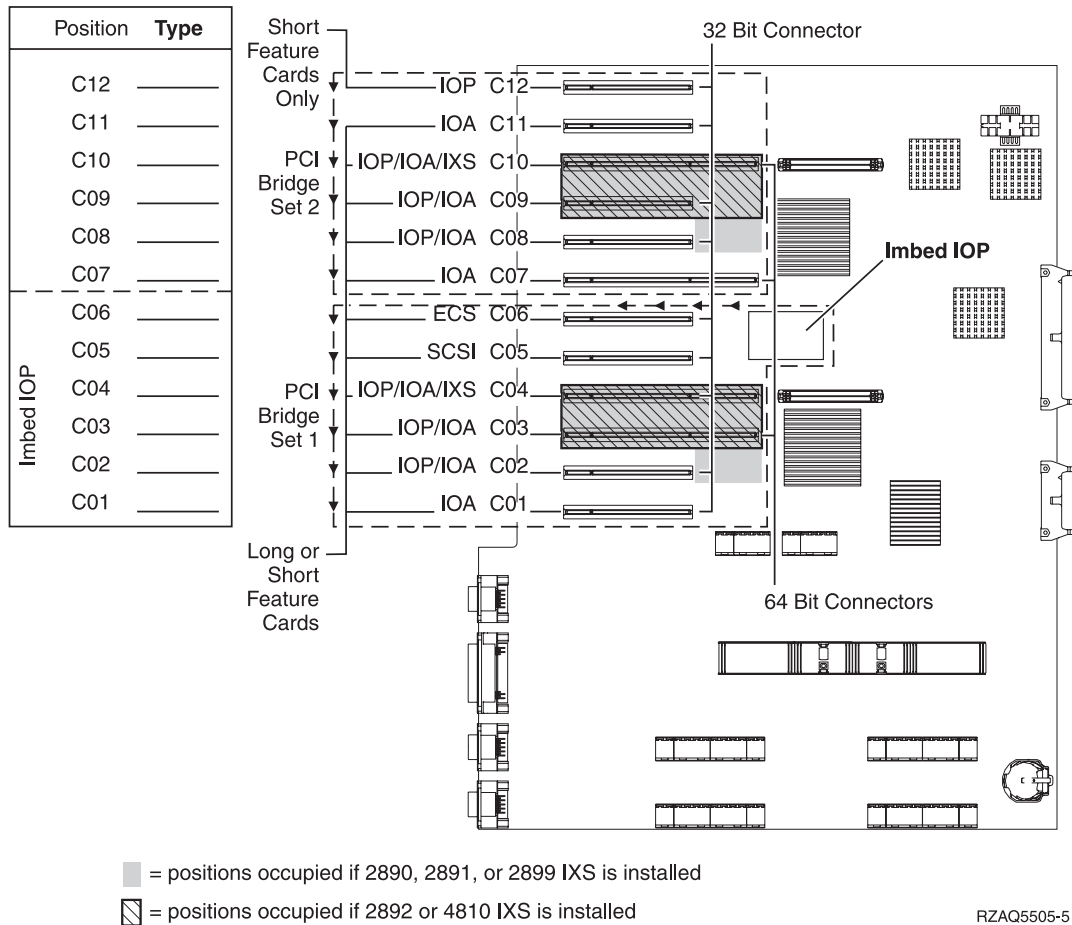
- IOPs control the IOAs in the positions below the IOP. For example, an IOP in C04 would control IOAs in C03 and C02.
- SCSI in the diagram indicates the first internal disk unit controller position (cards 2757, 2763, 2780, 2782, 4748, 4778, 5703, 5705, or 9767). (9767 is only in 270 units.) The first disk unit controller card must be in C01 and connect the load source disk unit, internal tape, and CD-ROM or DVD device to SCSI Bus Port 0.



Note: The adapter shown has 4 ports. Although other adapters may have 2 or 3 ports, the bus port numbering is the same.

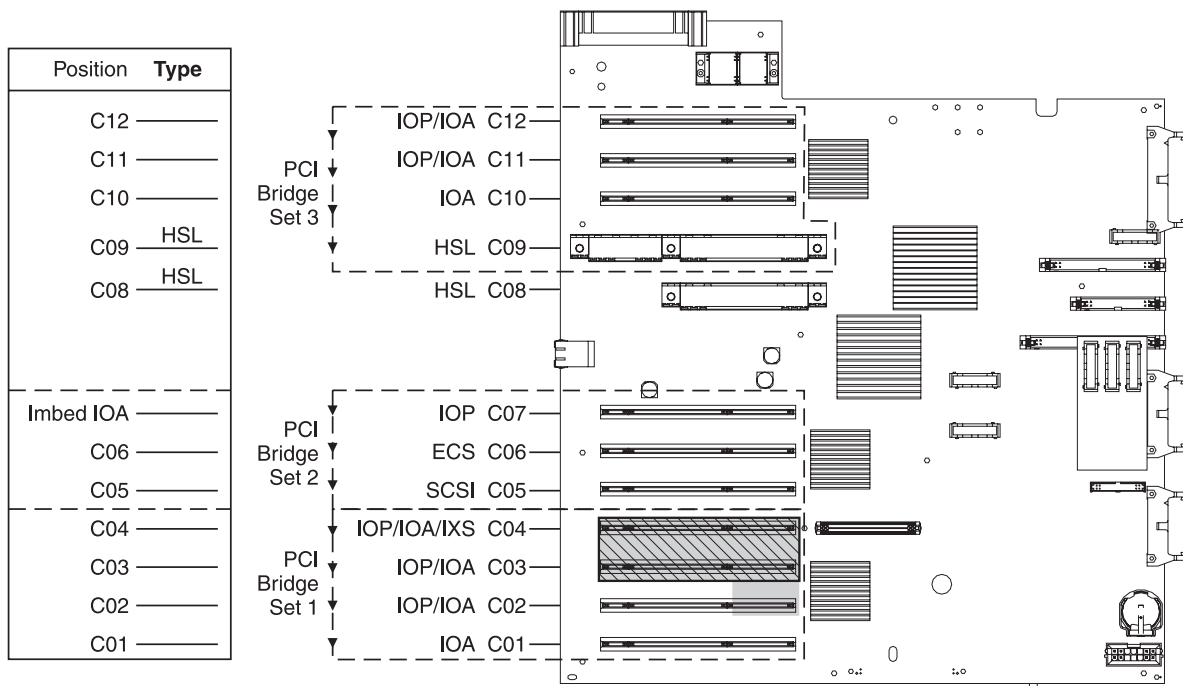
- A second 2757, 2763, 2780, 2782, 4748, 4778, or 5703 is allowed in a 270, 800, and 810 system unit with an attached 7104 or 7116 expansion unit.

820 system unit



- The Imbed IOP controls C06, C05, and possibly C04 and C03.
- IOPs control IOAs in the direction of the arrows in the PCI bridge set.
- SCSI in the diagram indicates the first internal disk unit controller position. Place IOA 2757, 2763, 2780, 2782, 4748, 4778, 5703, or 9767 in position C05. The first disk unit controller card must be in C05 and connect the load source disk unit, internal tape, and CD-ROM or DVD device.
- Two internal disk unit controllers are allowed per 820 system unit.
- A second internal disk unit controller in the system unit is only allowed when removable cable retention mechanisms are installed.
- The second internal disk unit controller cannot be in card position C07 or C08.

825 system unit

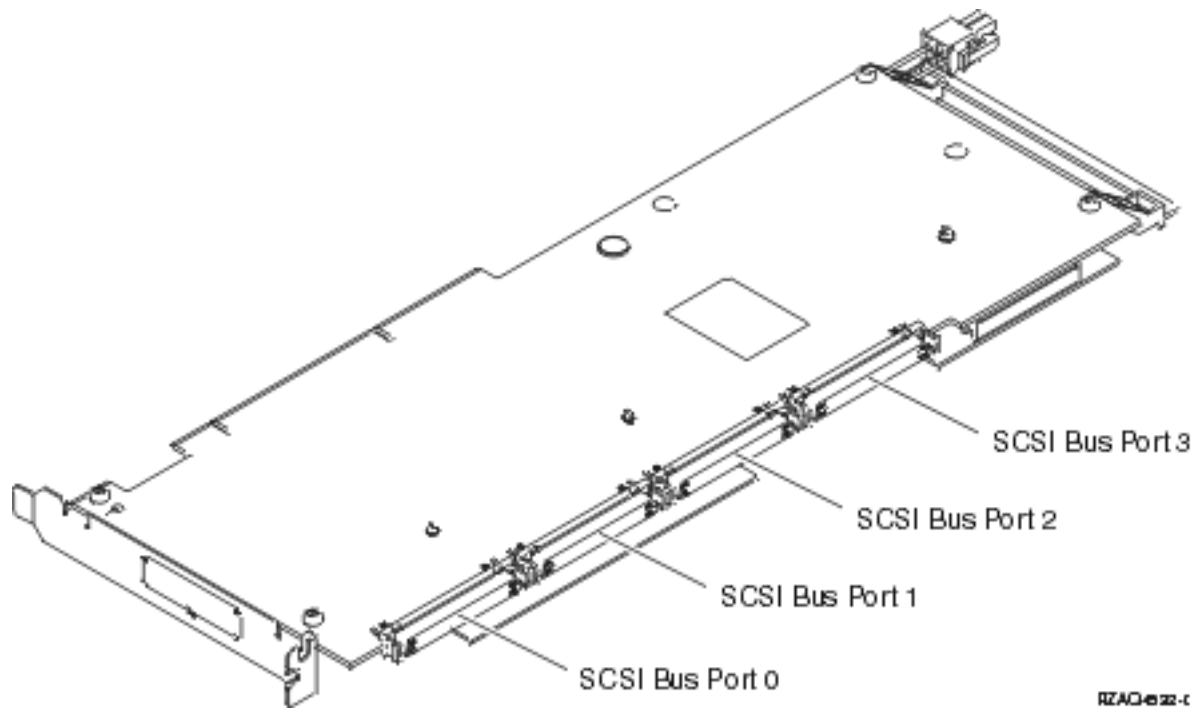


■ = positions occupied if 2890, 2891, or 2899 IXS is installed

▨ = positions occupied if 2892 or 4810 IXS is installed

RZAQ5514-1

- The IOP controls C06, C05.
- IOPs control IOAs in the direction of the arrows in the PCI bridge set.
- SCSI in the diagram indicates the first internal disk unit controller position (cards 2757, 2763, 2780, 2782, 4748, 4778, 5703) The first disk unit controller card must be in C05 and connect the load source disk unit, internal tape, and CD-ROM or DVD device. The load source disk unit (DB2[®]) connects into SCSI Bus Port 0. The removable media devices (DB1) plug into SCSI Bus Port 1.

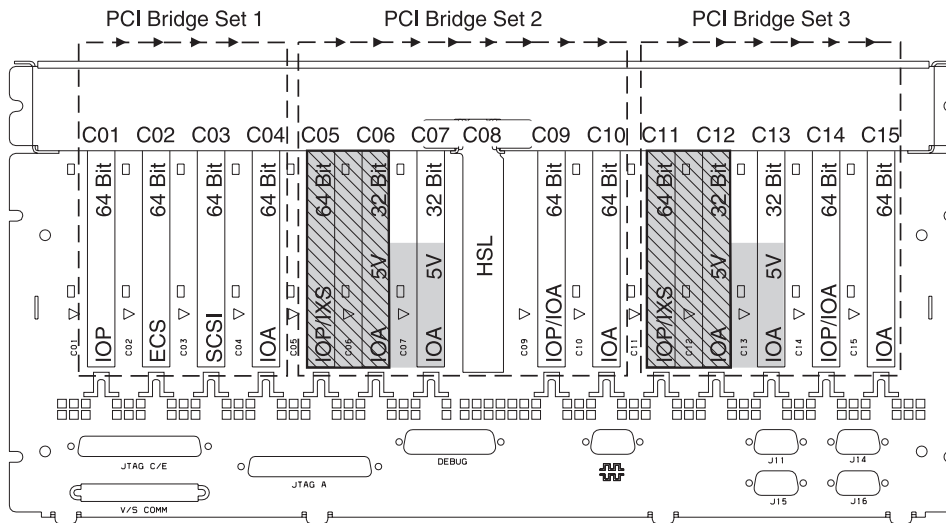


Note: The adapter shown has 4 ports. Although other adapters may have 2 or 3 ports, the bus port numbering is the same.

- Three internal disk unit controllers are allowed per 825 system unit.

830, 840, SB2, and SB3 system unit

- IOPs control IOAs in the direction of the arrows in the PCI bridge sets.
- SCSI in the diagram indicates the first internal disk unit controller position (cards 2757, 2780, 4778, 4748, 9748 or 9778). The first disk unit controller card must be in C03 and connect the load source disk unit, internal tape, and CD-ROM or DVD.
- In addition, two additional disk unit controllers are allowed in 830 or 840 system units.
- Additional disk unit controllers are not allowed in SB2 and SB3 system units.



■ = positions occupied if CCIN 289x IXS is installed

▨ = positions occupied if 2892 or 4810 IXS is installed

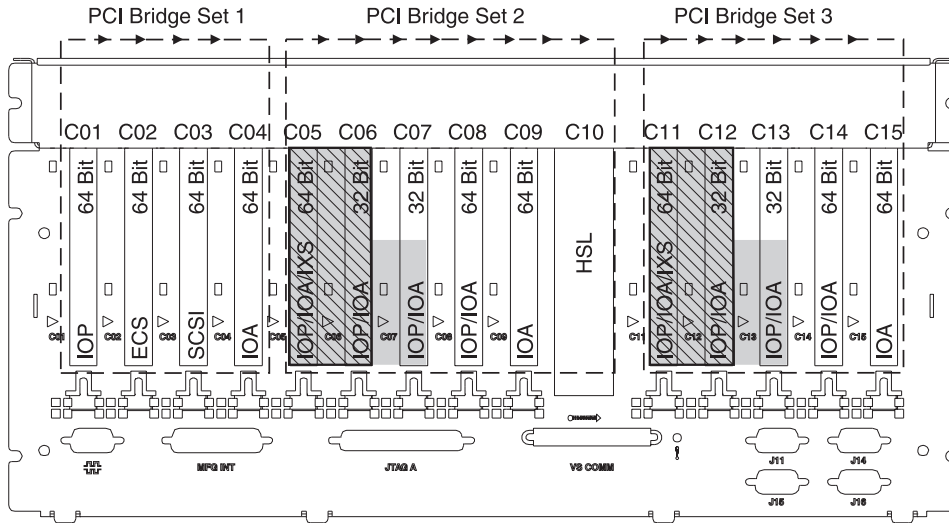
Note: Long or short feature cards can go in any position.

Position	Type
C01	IOP
C02	ECS
C03	SCSI
C04	IOA
C05	IOP/IXS
C06	IOA
C07	IOA
C08	HSL
C09	IOP/IOA
C10	IOA
C11	IOP/IXS
C12	IOA
C13	IOA
C14	IOP/IOA
C15	IOA

RZAQ5506-7

870 and 890 system unit

- IOPs control IOAs in the direction of the arrows in the PCI bridge sets.
- SCSI in the diagram indicates the first internal disk unit controller position. The first disk unit controller card must be in C03 and connect the load source disk unit, internal tape, and CD-ROM or DVD.
- In addition, four disk unit controllers are allowed in 870 or 890 system units.
- Additional disk unit controllers are not allowed in SB2 and SB3 system units.
- Maximum 3 IXS adapters per expansion unit.



■ = positions occupied if 2890, 2891, or 2899 IXS is installed

▨ = positions occupied if 2892 or 4810 IXS is installed

Note: Long or short feature cards can go in any position.

Position	Type
C01	IOP
C02	ECS
C03	SCSI
C04	IOA
C05	IOP/IOA/IXS
C06	IOP/IOA
C07	IOP/IOA
C08	IOP/IOA
C09	IOA
C10	HSL
C11	IOP/IOA/IXS
C12	IOP/IOA
C13	IOP/IOA
C14	IOP/IOA
C15	IOA

RZAQ5511-1

8079 unit

For the lower unit, refer to an 840 system unit and for the upper unit, refer to the 5074 expansion unit.

8093 unit

For the lower unit, refer to an 890 system unit and for the upper unit, refer to the 5074 expansion unit.

8094 unit

For the lower unit, refer to an 890 system unit and for the upper unit, refer to the 5094 expansion unit.

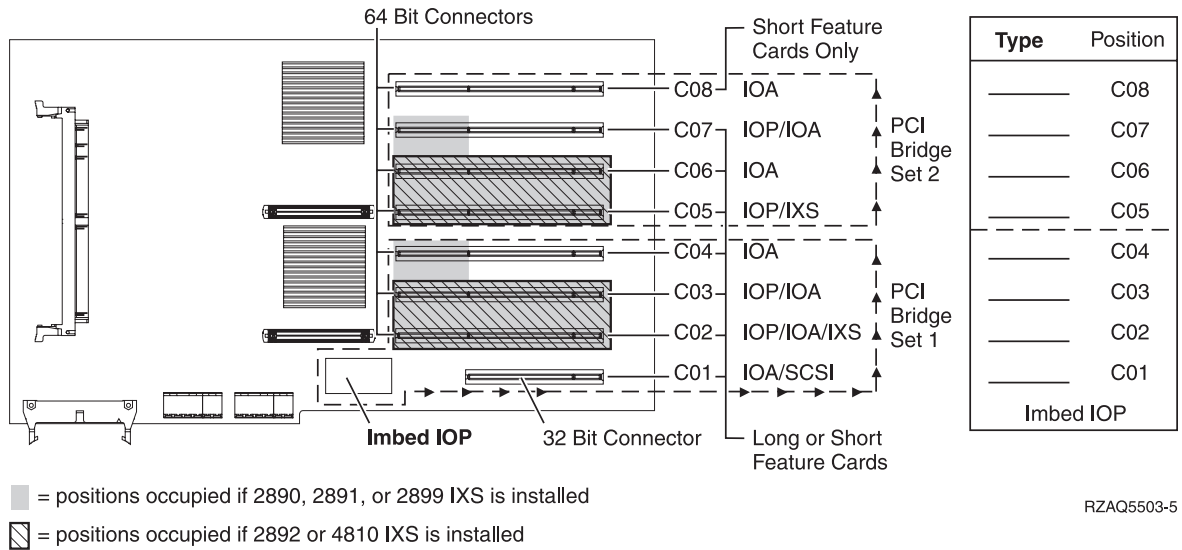
5075 expansion unit

You need one diagram for each expansion unit attached to the system unit. Copy the diagram for your use.

- The Imbed IOP controls C01 and possibly C02, C03, and C04.
- IOPs control IOAs in the direction of the arrows in the PCI bridge set.
- SCSI in the diagram indicates the disk unit controller position. The first disk unit controller card must be in position C01.

Resource Name: _____

- Maximum 3 IXS adapters per expansion unit.

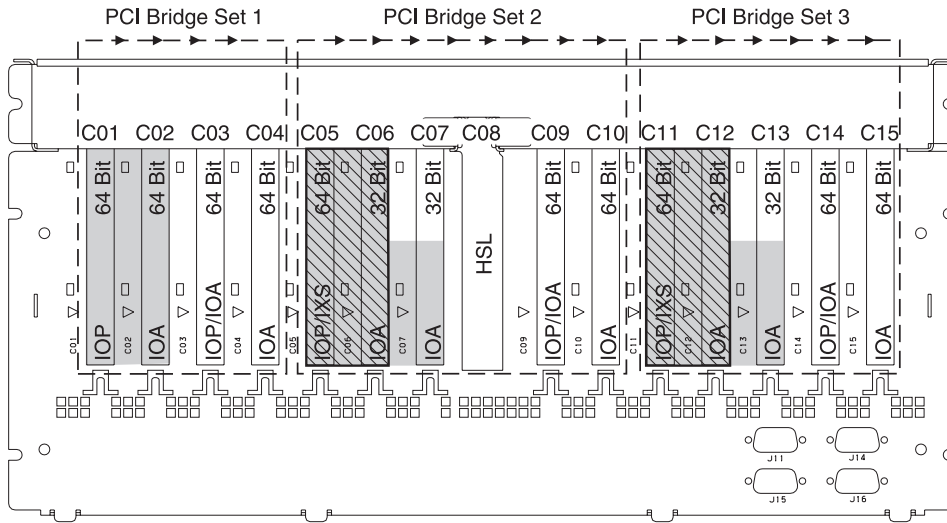


5074, 0574, or 8093-002 expansion unit

You need one diagram for each expansion unit attached to the system unit. Copy the diagram for your use.

- Place the first disk unit controller card 2757, 2780, 4748, 4778, 5703, or 9778 in position C02, C03, or C04.
- 5074, 0574, or 8093-002 expansion units have a maximum of three disk unit controllers.
- IOPs control IOAs in the direction of the arrows in the PCI bridge sets.

Resource Name: _____



■ = positions occupied if 2890, 2891, or 2899 IXS is installed

▨ = positions occupied if 2892 or 4810 IXS is installed

Note: Long or short feature cards can go in any position.

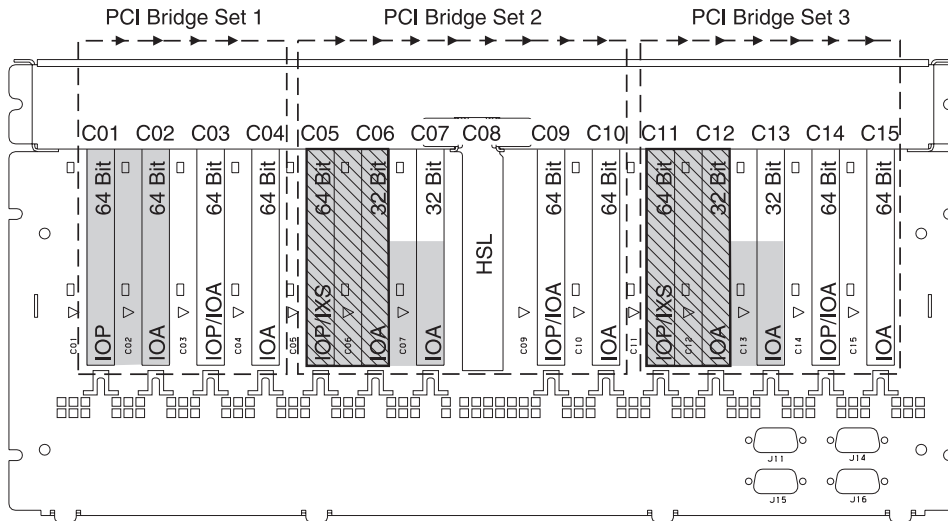
Position	Type
C01	—
C02	—
C03	—
C04	—
C05	—
C06	—
C07	—
C08	HSL
C09	—
C10	—
C11	—
C12	—
C13	—
C14	—
C15	—

RZAQ5507-9

5078 or 5078 expansion unit

IOPs control IOAs in the direction of the arrows in the PCI bridge sets.

Resource Name: _____



■ = positions occupied if 2890, 2891, or 2899 IXS is installed

▨ = positions occupied if 2892 or 4810 IXS is installed

Note: Long or short feature cards can go in any position.

Position	Type
C01	
C02	
C03	
C04	
C05	
C06	
C07	
C08	HSL
C09	
C10	
C11	
C12	
C13	
C14	
C15	

RZAQ5507-9

Maximum 3 IXS adapters per expansion unit.

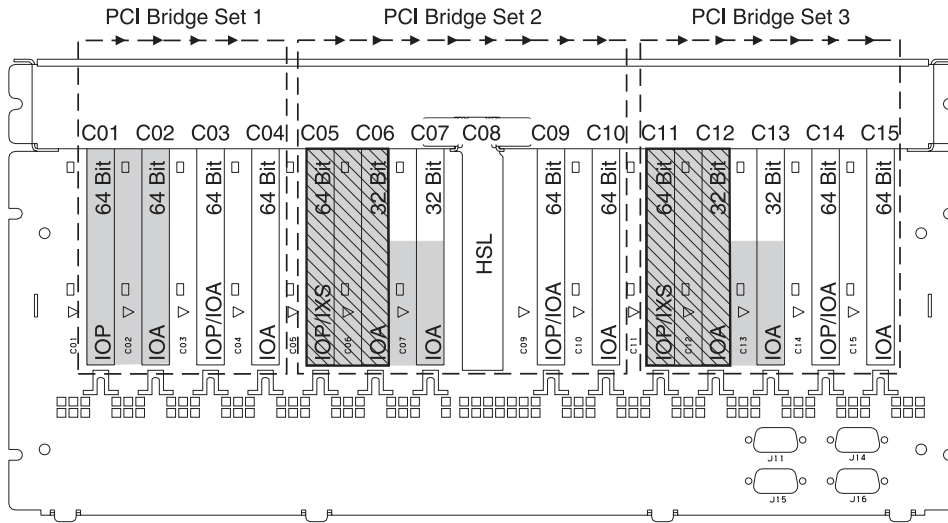
5079 expansion unit

You need one diagram for each expansion unit attached to the system unit. Copy the diagram for your use.

- Place the first disk unit controller card in position C02, C03, or C04.
- 5074 expansion units have a maximum of six disk unit controllers.
- IOPs control IOAs in the direction of the arrows in the PCI bridge sets.

Resource Name: _____

Maximum 3 IXS adapters per expansion unit.



■ = positions occupied if 2890, 2891, or 2899 IXS is installed

▨ = positions occupied if 2892 or 4810 IXS is installed

Note: Long or short feature cards can go in any position.

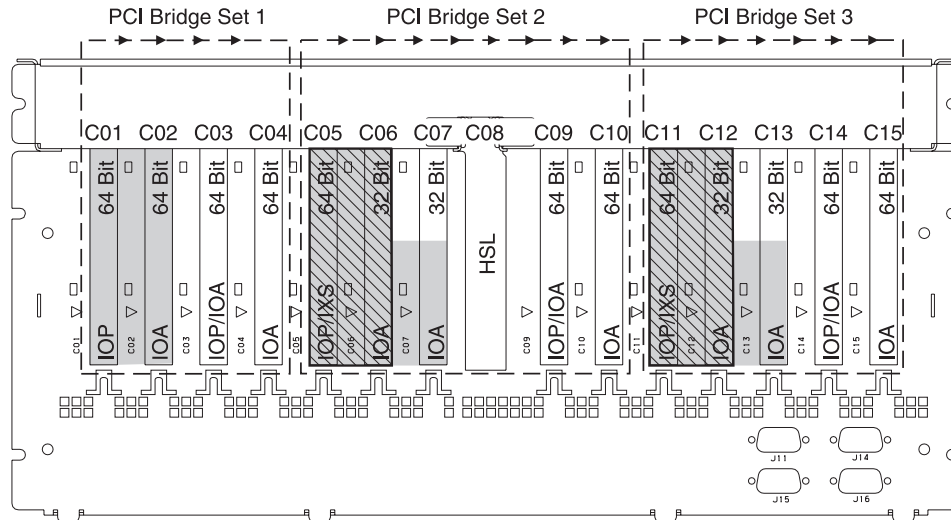
Position	Type
C01	—
C02	—
C03	—
C04	—
C05	▨
C06	▨
C07	■
C08	HSL
C09	—
C10	—
C11	▨
C12	▨
C13	■
C14	■
C15	—

RZAQ5507-9

5088 or 0588 expansion unit

- 2892 and 4810 are the only IXS cards allowed in C01.
- IOPs control IOAs in the direction of the arrows in the PCI bridge sets.

Resource Name: _____



■ = positions occupied if 2890, 2891, or 2899 IXS is installed

▨ = positions occupied if 2892 or 4810 IXS is installed

Note: Long or short feature cards can go in any position.

Position	Type
C01	64 Bit IOP/IOA
C02	64 Bit IOP/IOA
C03	64 Bit IOP/IOA
C04	64 Bit IOP/IOA
C05	64 Bit IOP/IXS
C06	32 Bit IOA
C07	32 Bit IOA
C08	HSL
C09	64 Bit IOP/IOA
C10	64 Bit IOP/IOA
C11	64 Bit IOP/IXS
C12	32 Bit IOA
C13	32 Bit IOA
C14	64 Bit IOP/IOA
C15	64 Bit IOP/IOA

RZAQ5507-9

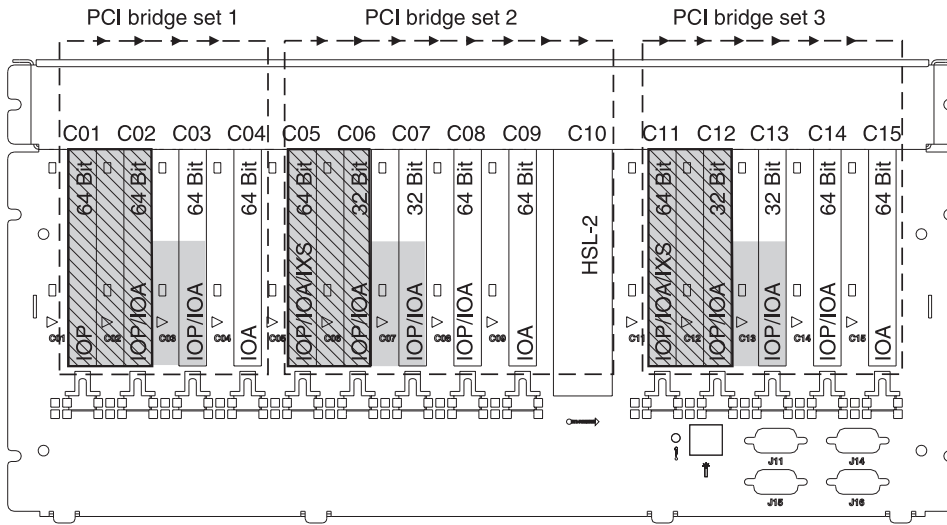
Maximum 3 IXS adapters per expansion unit.

5094 or 8093-001 expansion unit

You need one diagram for each expansion unit attached to the system unit. Copy the diagram for your use.

- Place the first disk unit controller card in position C02, C03, C04, C05, C06, C07, C08, or C09 .
- 5094 or 8093-001 expansion units have a maximum of six disk unit controllers.
- IOPs control IOAs in the direction of the arrows in the PCI bridge sets.

Resource Name: _____



■ = Positions occupied if 2890, 2891, or 2899 IXS is installed

▨ = Positions occupied if 2892 or 4810 IXS is installed

Note: Long or short feature cards can go in any position.

Position	Type
C01	▨
C02	▨
C03	▨
C04	▨
C05	▨
C06	▨
C07	▨
C08	▨
C09	▨
C10	HSL-2
C11	▨
C12	▨
C13	▨
C14	▨
C15	▨

RZAQ5512-3

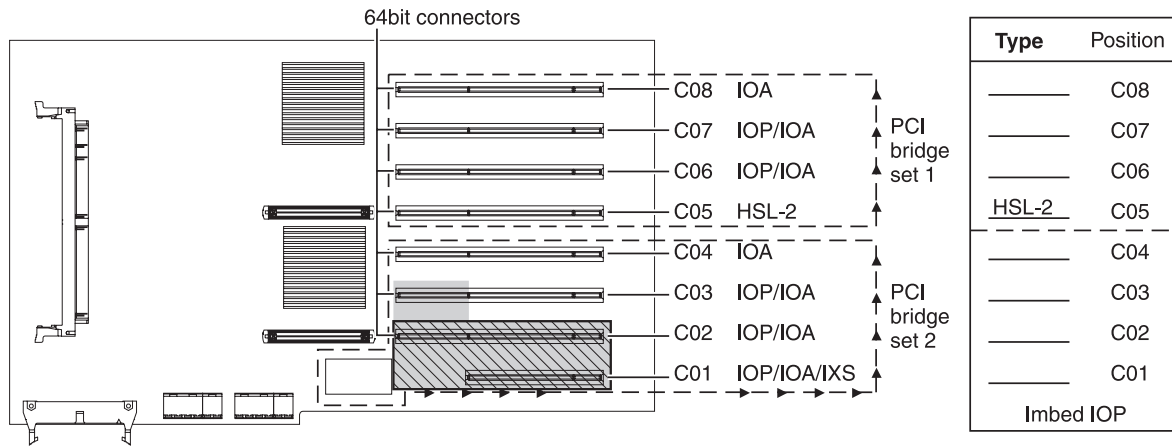
Maximum 3 IXS adapters per expansion unit.

5095 or 0595 expansion unit

You need one diagram for each expansion unit attached to the system unit. Copy the diagram for your use.

- The IOP controls C02 and possibly C03 and C04.
- IOPs control IOAs in the direction of the arrows in the PCI bridge set.
- SCSI in the diagram indicates the disk unit controller position.

Resource Name: _____



■ = Positions occupied if 2890, 2891, or 2899 IXS is installed

▨ = Positions occupied if 2892 or 4810 IXS is installed

RZAQ5513-3

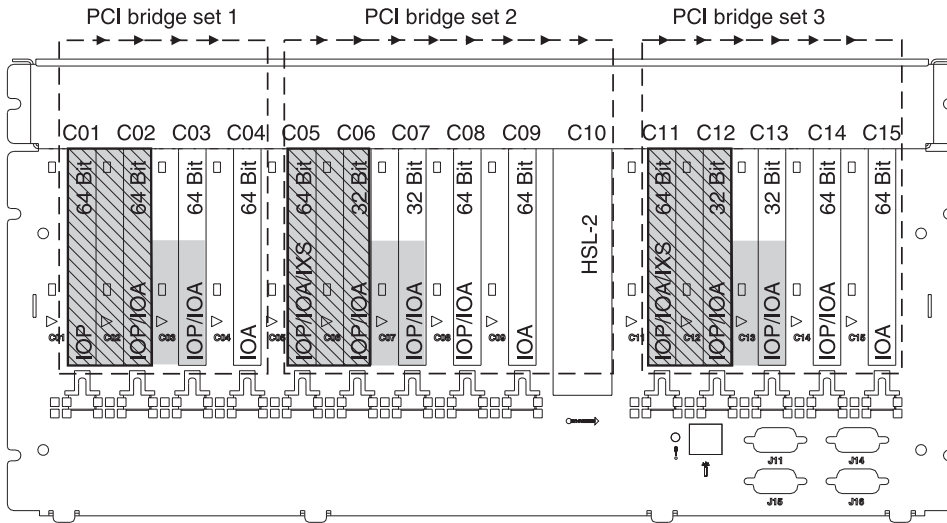
Maximum 3 IXS adapters per expansion unit.

5294 expansion unit

You need one diagram for each expansion unit attached to the system unit. Copy the diagram for your use.

- Place the first disk unit controller card in position C02, C03, or C04, C05, C06, C07, C08, or C09.
- 5094 expansion units have a maximum of twelve disk unit controllers.
- IOPs control IOAs in the direction of the arrows in the PCI bridge sets.

Resource Name: _____



■ = Positions occupied if CCIN 289x IXS is installed

▨ = Positions occupied if 2892 or 4810 IXS is installed

Note: Long or short feature cards can go in any position.

Position	Type
C01	—
C02	—
C03	—
C04	—
C05	▨
C06	■
C07	—
C08	—
C09	—
C10	HSL-2
C11	▨
C12	—
C13	■
C14	—
C15	—

RZAQ5517-0

Maximum 3 IXS adapters per expansion unit.

Placement tables

If your unit is powered off, look at the back of the unit and write down the numbers on the cards in the correct table. Refer to the “Current configuration tables” on page 51 for the location of Imbed IOPs.

Use one worksheet for each IOP in all of your units.

- “Example of a completed placement table”
- “Imbed IOP”
- “2842 IOP”
- “2843 IOP” on page 68
- “2844 IOP” on page 68
- “289x or 4810 Integrated xSeries Server IOP” on page 68

Example of a completed placement table

IOP Card Group	Card Position	Feature Number or CCIN Number from Type Column	Memory Value	Performance Value
IOP	C01	2842	100	100
IOA	C02	2748	30	21
IOA	C03	4745	15	7
IOA	C04	4746	10	6
IOA	C05	4838 (added card)	26	37
	IOA Totals		81	71

Imbed IOP

IOP Card Group	Card Position	Feature Number or CCIN Number from Type Column	Memory Value	Performance Value
IOP	C	Imbed	100	100
IOA	C			
IOA	C			
IOA	C			
IOA	C			
	IOA Totals			

2842 IOP

IOP Card Group	Card Position	Feature Number or CCIN Number from Type Column	Memory Value	Performance Value
IOP	C	2842	100	100
IOA	C			
IOA	C			
IOA	C			

IOP Card Group	Card Position	Feature Number or CCIN Number from Type Column	Memory Value	Performance Value
IOP	C	2842	100	100
IOA	C			
	IOA Totals			

2843 IOP

IOP Card Group	Card Position	Feature Number or CCIN Number from Type Column	Memory Value	Performance Value
	C	2843	211	100
	C			
	C			
	C			
	C			
	IOA Totals			

2844 IOP

IOP Card Group	Card Position	Feature Number or CCIN Number from Type Column	Memory Value	Performance Value
	C	2844	211	100
	C			
	C			
	C			
	C			
	IOA Totals			

289x or 4810 Integrated xSeries Server IOP

CCIN 2890 (feature codes 2790, 2791, 2799, 2890, 2891, 2899) restrictions:

- Add only 4838, 2744, 2743, and 2760 IOAs.
- Except for the 270 or 810 system unit, the 2890 card uses three positions (if an IOA is used).
- There are no maximum limits for memory, or performance values.

CCIN 2892 (feature codes 2792, 2892, 4710, 4810) restrictions:

- Add only 2744, 5700, and 5701 IOAs.
- Two positions are used.
- There are no maximum limits for memory, or performance values.

IOP Card Group	Card Position	Feature Number or CCIN Number from Card Position
	C	289x IXS
	C	
	C	

IOP Card Group	Card Position	Feature Number or CCIN Number from Card Position
	C	289x IXS
	C	

Remove the covers

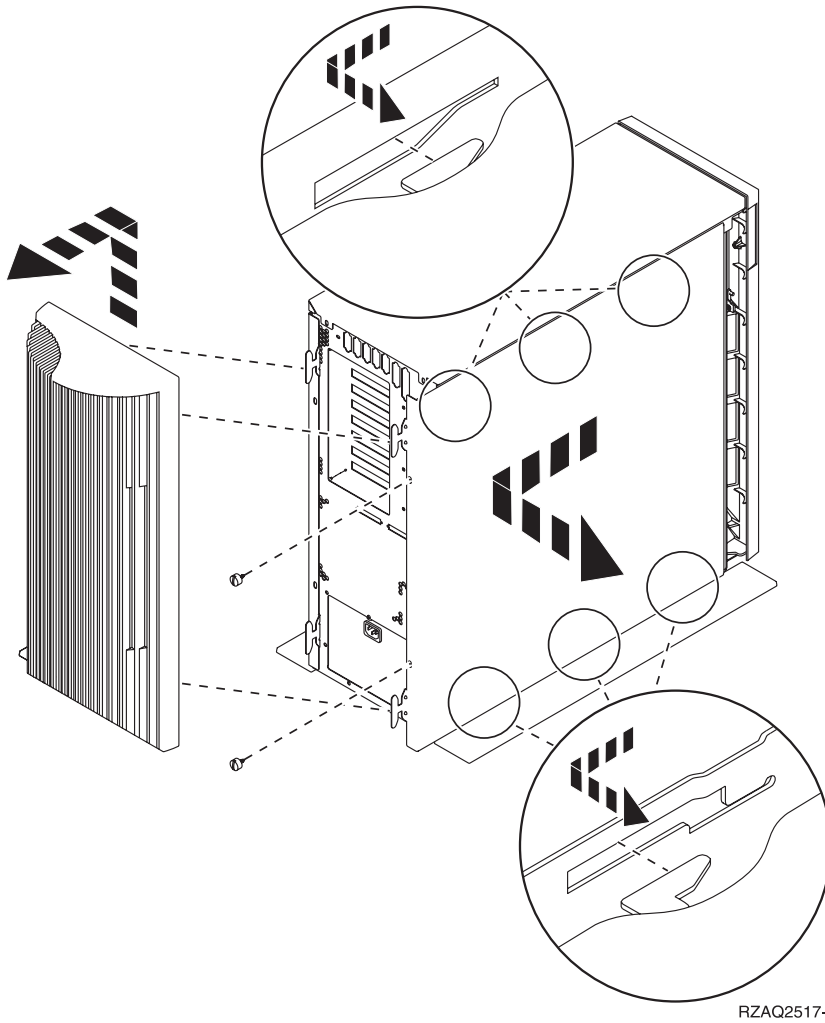
Locate the diagram of the unit you are working on:

- “270, 800, 810 or 820 system units”
- “825 system unit” on page 72
- “830, 840, 870, 890, SB2, SB3, 5074, 5079, and 5094 units” on page 73
- “5075 and 5095 expansion unit” on page 74
- “5078 and 5088 expansion unit” on page 75
- “Access units in a rack” on page 76

270, 800, 810 or 820 system units

To access the PCI card location, you need to remove the back cover, if you have one, and the side cover:

- ___ 1. Place your hand near the bottom of the back cover and lift up and out.
- ___ 2. **Attention:** If you are removing the side cover while the server is powered on, errors may occur due to electromagnetic interference.
Remove the right side cover (view from back) by loosening the thumbscrews and sliding the cover from front to back until it stops.
- ___ 3. Pull the cover out.

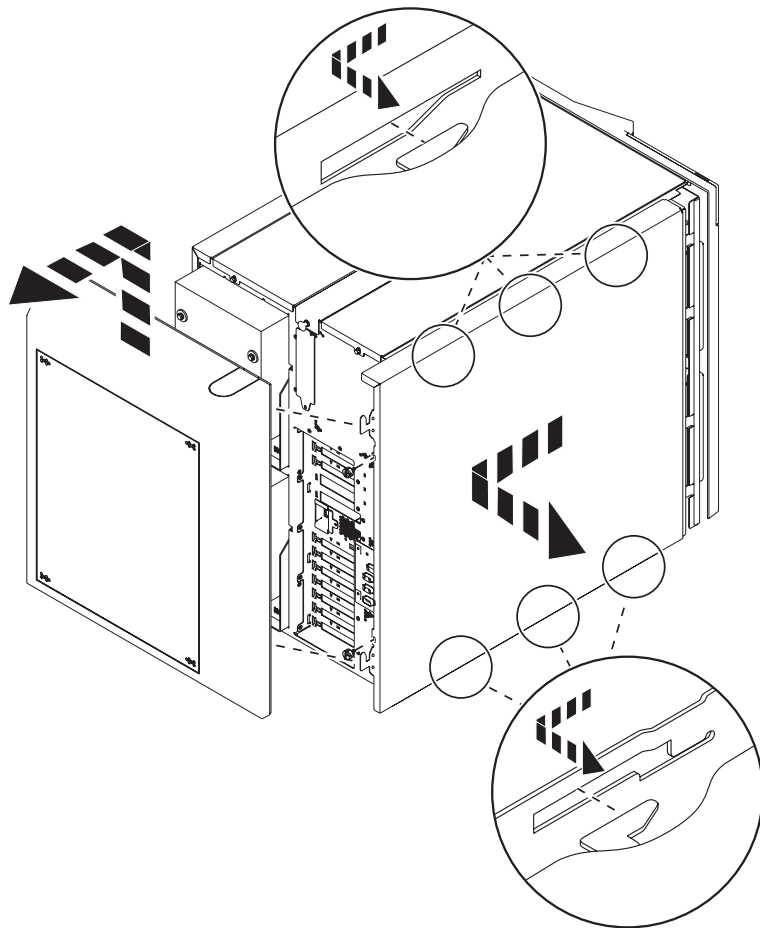


RZAQ2517-0

825 system unit

To access the PCI card location, you need to remove the back cover and the side cover:

- ___ 1. Place your hand near the bottom of the back cover and lift up and out.
- ___ 2. Remove the right side cover (view from back) by loosening the thumbscrews and sliding the cover from front to back until it stops.
- ___ 3. Pull the cover out.

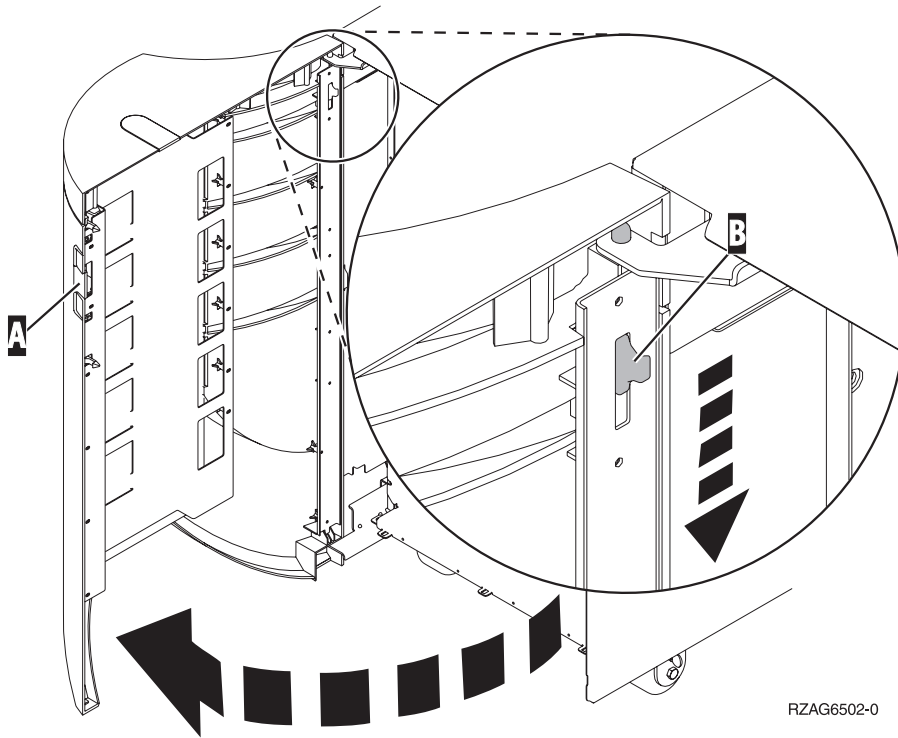


RZAME601-0

830, 840, 870, 890, SB2, SB3, 5074, 5079, and 5094 units

To access the PCI card location, you need to open the back cover:

- **A** Open the back cover.
- **B** Remove the back cover.
- Remove the PCI card access plate.



RZAG6502-0

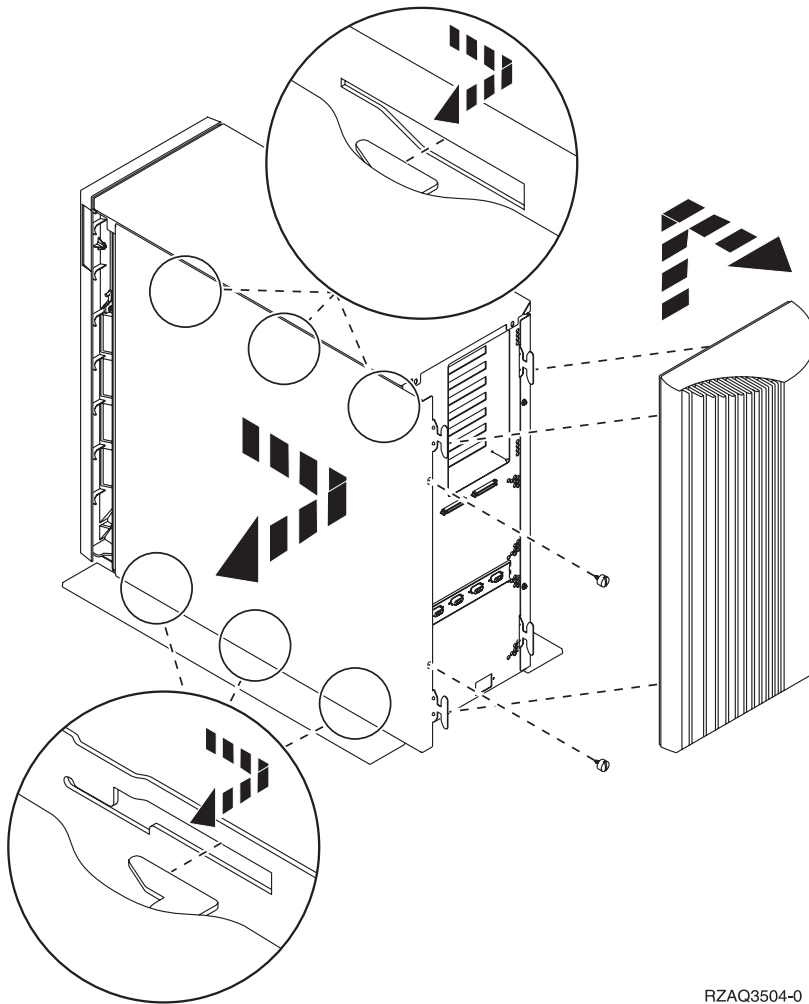
5075 and 5095 expansion unit

To access the PCI card location, you need to remove the back cover and the side cover:

- 1. Place your hand near the bottom of the back cover and lift up and out.
- 2. **Attention:** If removing the side cover while the server is powered on, errors may occur due to electromagnetic interference.

Remove the left side cover (view from back) by loosening the thumbscrews and sliding the cover from front to back until it stops.

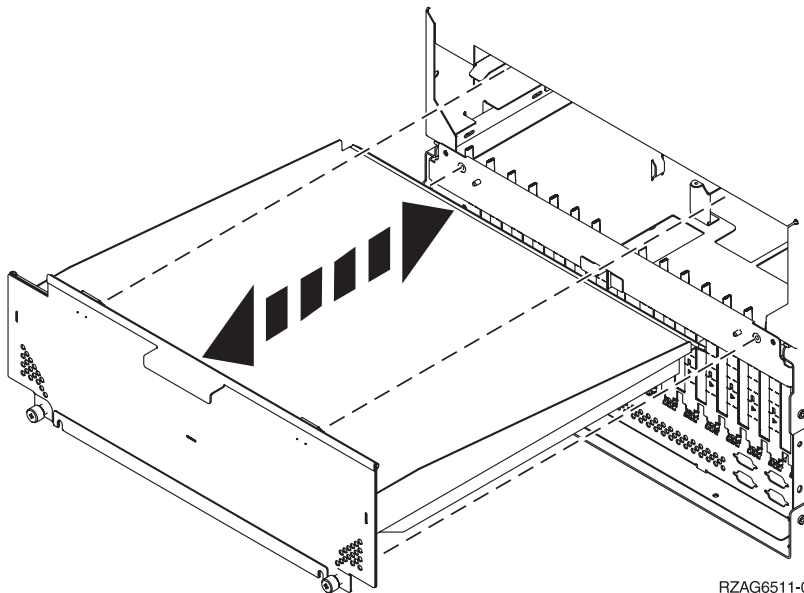
- 3. Pull the cover out.



RZAQ3504-0

5078 and 5088 expansion unit

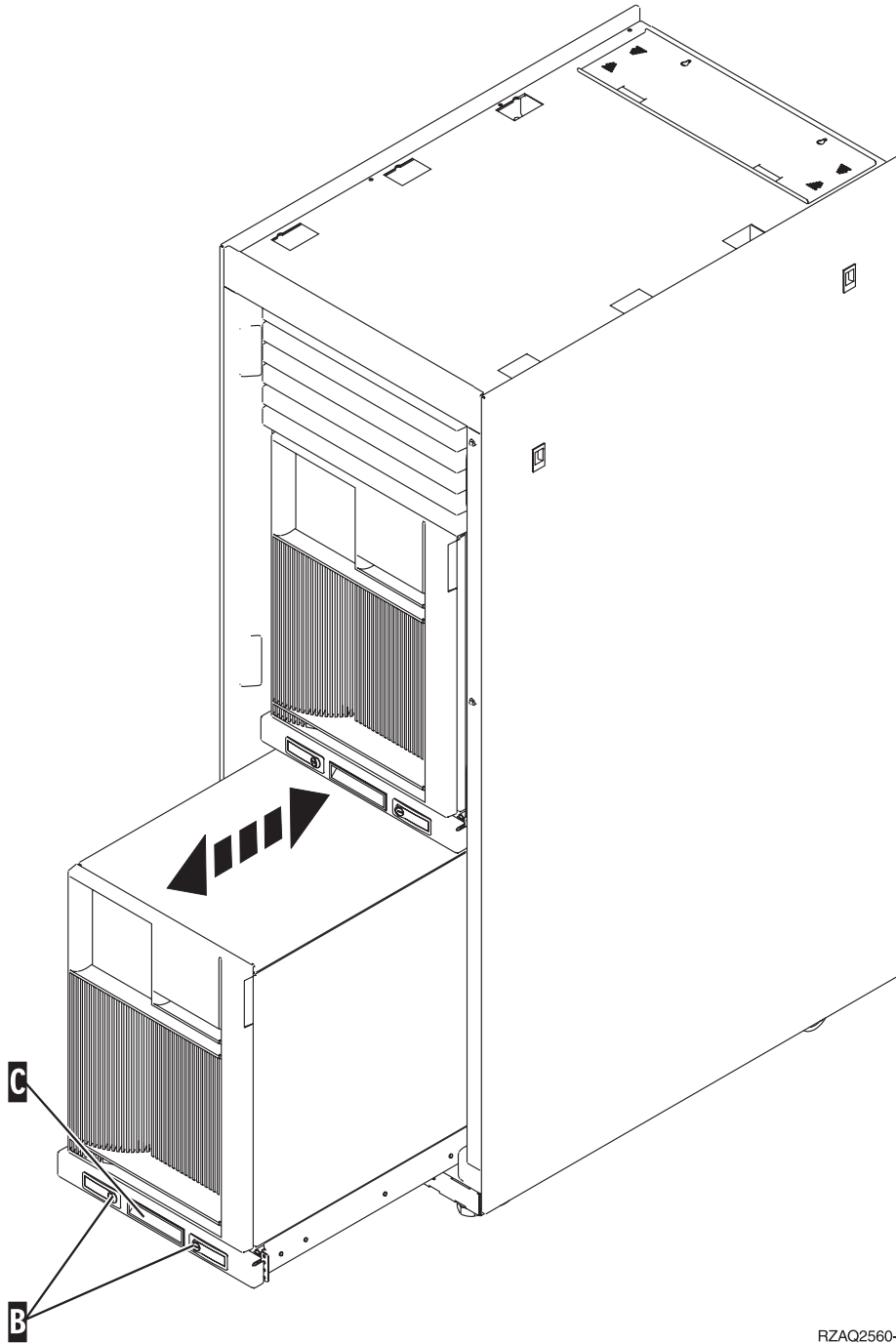
To access the PCI card location, open the back and remove the air flow shield.



RZAG6511-0

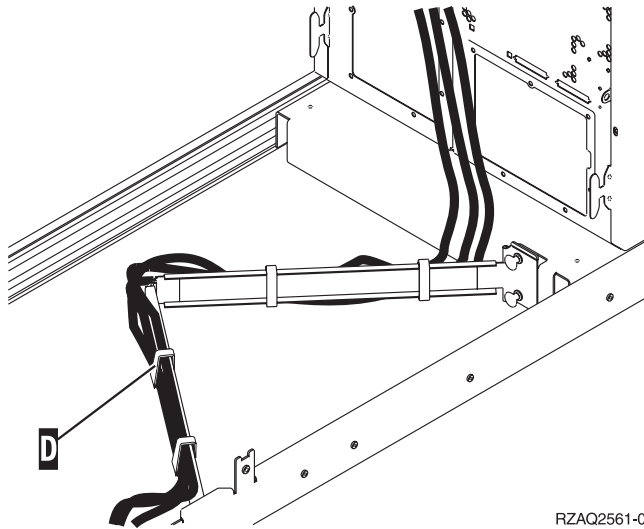
Access units in a rack

- __ 1. Press latches **B** and pull the server out using the handle **C**.



RZAQ2560-0

- __ 2. Refer to previous unit diagrams to remove the side cover.
- __ 3. If you are cabling the server, feed the excess cabling along the cable management arm **D** and secure the cables with the fasteners.



System-unit control panel

Go to the front of your iSeries system unit. Open the control panel door.

Your control panel looks like either Figure 17 or Figure 18 on page 78. Refer to the control panel for your unit.

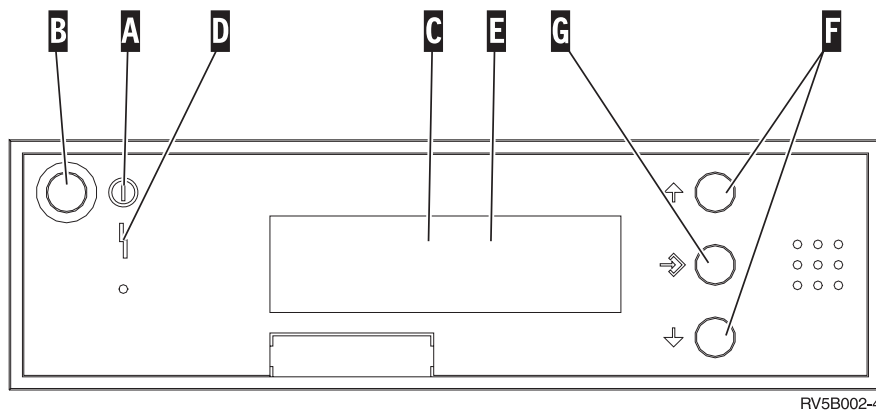


Figure 17. Control panel without Electronic Keystick

Following are the descriptions of the Figure 17 callouts:

- A** Power On Light
 - A blinking light indicates power to the unit.
 - A constant light indicates that the unit is on and working.
- B** Power Push button
- C** Processor Activity
- D** System Attention
- E** Function/Data Display
- F** Increment/Decrement buttons
- G** Enter Push button

If your control panel looks like Figure 18, before you can use **F** Increment/Decrement buttons and **G** Enter push button, you need to press **H** Mode Selects to select Manual mode **N**. To use Mode Select, the keystick needs to be inserted.

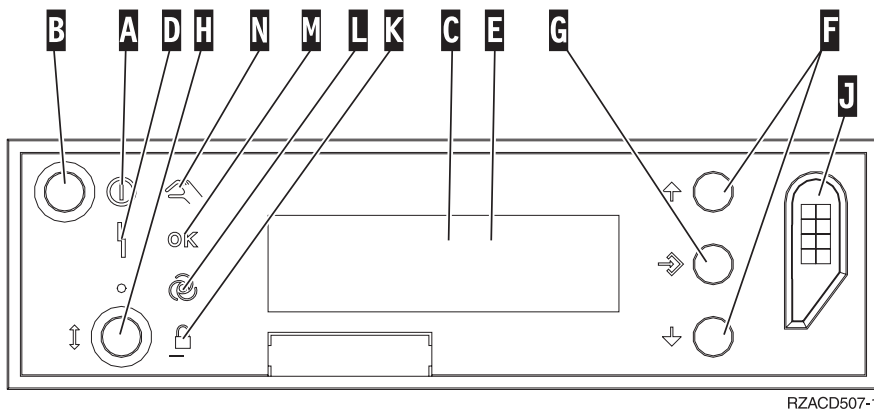


Figure 18. Control panel with Electronic Keystick

- A** Power On Light
 - A blinking light indicates power to the unit.
 - A constant light indicates that the unit is on and working.
- B** Power Push button
- C** Processor Activity
- D** System Attention
- E** Function/Data Display
- F** Increment/Decrement buttons
- G** Enter Push button
- H** Mode Selects
- J** Electronic Keystick Slot
- K** Secure
- L** Auto
- M** Normal
- N** Manual

Type 5708, auxiliary-write cache IOA (FC 5580, 5581)

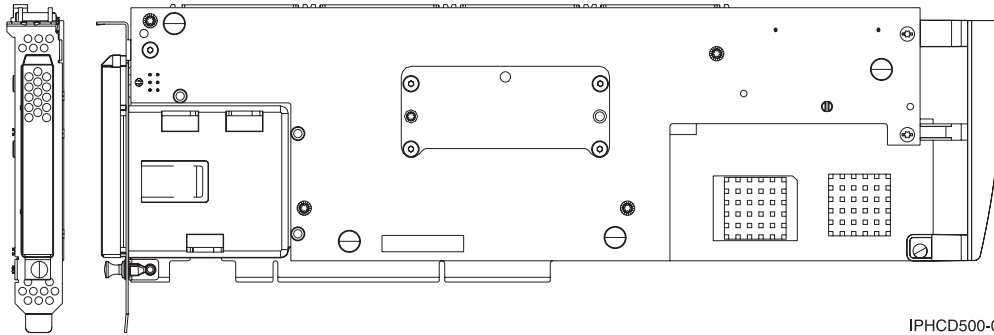
Feature 5580 includes a 2780 PCI-X Ultra4 RAID disk-controller adapter, a 5708 auxiliary-write cache IOA adapter, and the required connection cable.

Feature 5581 includes a 2757 PCI-X Ultra4 RAID disk-controller adapter, a 5708 auxiliary-write cache IOA adapter, and the required connection cable.

A physical cable connection is required between the 5708 adapter and SCSI port 4 of a 2780 or 2757 adapter. Both 5708 and the disk-controller adapter it is connected to must be installed in the same physical system unit or expansion unit, and must be installed in the same partition.

The 5708 adapter has 757MB of auxiliary maximum compressed write cache. The adapter mirrors the write cache of the disk-controller adapter its connected to. Protection of data is enhanced by having two

copies of the write cache stored on separate adapters. If a failure occurs to the write cache of the disk-controller, the 5708 adapter provides a backup copy during the recovery of the failed IOA.



Considerations for installing or converting to feature 5580 or 5581

Attention: Converting your adapters to feature 5580 or 5581 will require extensive planning. If the planning is not done correctly, the result could be an extended server outage, loss of data, or both. A system restore might be required.

Read the following considerations in relation to your system:

- Are you converting from feature 2780 to feature 5580?
- Are you converting from feature 2757 to feature 5581?
- Are you replacing any other existing storage adapters with features 5580 and 5581?
- Is your server partitioned (LPAR)?

If the answer to any of these questions is yes, or you are unsure of the answers, it is strongly recommended that you contact your authorized service provider for planning and deployment services.

For planning information and examples of deployment for features 5580 and 5581, see **Planning for Disk Storage Availability with Cache Solutions**.

5708 adapter specifications

Item	Description
Adapter FRU number	39J0686
Battery FRU number	97P4846
Cable FRU number	39J1702
Cables	Specific Storage Adapter to Auxiliary Storage Adapter SCSI cable is necessary and is provided with each feature or conversion.
I/O bus architecture	PCI 2.2 power/bus compliant
Unit description	<ul style="list-style-type: none"> • Long, 64 bit, 133 MHz, 3.3 V edge connector, single-slot • PCI-X 2.0 compliant • Compatible down to 32 bit, 33 MHz PCI adapter slots
Operating system or partition requirements	Supported in the i5/OS operating systems or partitions only, versions V5R2, V5R3, and later.
Maximum number	For system-specific adapter placement, see Determine the best place to install your card.

Item	Description
Partition information	<ul style="list-style-type: none"> • If you are placing the feature in the primary partition (legacy) or any non-partitioned system, the auxiliary cache IOA for the load source adapter must be in the same enclosure as the load source IOA. • If you are placing the feature in the secondary partition on any system, the auxiliary cache IOA for the load source adapter must be under the load source IOP.
Related information	<ul style="list-style-type: none"> • This feature must be placed in attached expansion units. • The disk controller adapter and the auxiliary-write cache adapter each require one PCI slot. • Both adapters must be installed in the same enclosure. • The adapters are connected by a SCSI cable (provided). • The operating system identifies the 5708 adapter as a storage controller with no devices attached. • The 5708 adapter is not supported in an environment without an IOP. • Types 2780 and 2757 will not appear on ordering, shipping, or inventory documentation when received as part of these features.

Installing the adapters

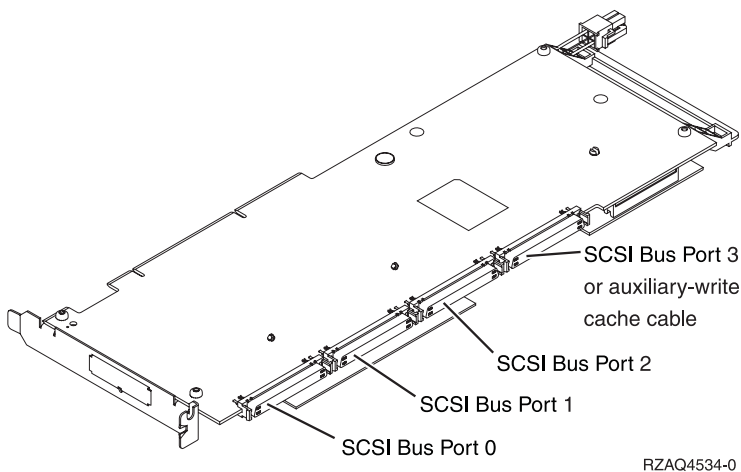
To install the adapters, see Determine the best place to install your card, then return here for instruction on installing the SCSI cable.

Installing the SCSI cable

The disk controller adapter and the auxiliary-write cache adapter are connected by a SCSI cable.

To install the SCSI cable, do the following:

1. Attach the SCSI cable to SCSI bus port 3 (fourth physical port) of the disk controller adapter.



2. Attach the cable to the SCSI port on the auxiliary-write cache adapter.

Notes:

1. Attaching the cable to the disk controller reduces the number of SCSI buses that support disk drives from four to three.

2. Reducing the number of SCSI buses might also reduce the number of disk drives supported by the disk controller, depending on the system unit or expansion drawer in which the disk controller is installed.
3. No disk drives are driven by the auxiliary-write cache adapter. This adapter protects against extended outage caused by loss of write cache, but does not protect against a disk controller failure.



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