IBM

@server

iSeries 270 and 8xx

Upgrading the System Unit from Operations Console to Twinaxial Console (5540)

Version 5

IBM

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Upgrade Operations Console to twinaxial console

Before you begin

This feature is customer installable. You can elect not to do this installation yourself. You may contact IBM® or an authorized dealer to make arrangements for them to perform the feature installation for a fee.

You need to allow additional time to complete your jobs, back up your system, perform an initial program load (IPL) of your system, and verify your hardware configuration.

When you use these instructions, you may do some of the following:

- Remove the system unit covers.
- Install your new hardware.
- Install covers.
- Perfrom an IPL of your operating system.
- Verify your new hardware configuration.

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. Ensure that you have a current backup of your system (including operating systems, licensed programs, and data).

__ 2. Ensure that you take a few minutes to become familiar with these instructions.

__ 3. If there are incorrect, missing, or visibly damaged parts, contact one of the following:

- Your authorized dealer
- IBM Rochester Manufacturing Automated Information Line (R-MAIL)
    - 1-800-300-8751 (United States)
    - 1-507-253-5242 (worldwide)

__ 4. If you encounter difficulties during the installation, contact your authorized service provider or your authorized dealer.

__ 5. 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/supporthome.nsf/document/10000051`

   a. Select **All Documents**.
   b. Select **Collapse**.
   c. Select **General Information**.
   d. Select **Offerings**.
   e. Select **Feature Prerequisites**.
   f. Select **Customer Install Features Prerequisites**.
   g. Locate your feature number and OS/400® release, and check the prerequisites.

Power off the system unit

__ 1. Ensure that all jobs are complete.

__ 2. When all jobs are complete, type **pwrdwnsys *immed** on a command line and press Enter.

> **Note:** Should you encounter difficulties during the installation, contact your authorized dealer or service provider.

__ 3. When the unit is completely powered down, disconnect all PCs from the system unit. Power off all devices, such as printers and displays, that are connected to the system unit.

__ 4. Unplug any power cords, such as printers and displays, from electrical outlets.

__ 5. Unplug the system-unit power cord and any attached expansion-unit power cords from the electrical outlet.

__ 6. Refer to **"Removing the covers" on page 9** to remove the system unit covers.

__ 7. **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 unit (electrical ground).

Installing the 2746 workstation adapter card

__ 1. **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)**

__ 2. If you are using local console on a network (LAN console), remove the console network cable.

__ 3. If you are using local console directly attached, disconnect the Operations Console cable connected to the card in one of the following positions:

- **270 or 810 system unit**, position C07. See "Configuration tables" on page 15 for more information.
- **820 system unit**, position C06. See "Configuration tables" on page 15 for more information.
- **825 system unit**, position C07. See "Configuration tables" on page 15 for more information.
- **830, 840, SB2, SB3 system unit**, position C02. See "Configuration tables" on page 15 for more information.
- **870 or 890 system unit**, position C02. See "Configuration tables" on page 15 for more information.

__ 4. Is there a 2746 card installed in one of the following positions?

- **270 or 810 system unit: C06**
- **820 system unit: C04 or C11**

- **825 system unit: C07**
- **830, 840, SB2, SB3 system unit: C04, C06, C07, C09, or C10**
- **870 or 890 system unit: C04, C06, C07, C08, or C09**

   __   **No**: Continue with the next step.

   __   **Yes**: Go to "Connecting the Twinaxial cable attachment and Twinaxial console cable" on page 5.

__ 5. Before you remove the card from the system unit, you need to see if you have an open position to install the card you removed in a different position.

     Look at the PCI card area. Are there any open positions?

   __   **Yes**: Go to the Install PCI Card topic in the *Information Center* for instructions on *Moving a card in your iSeries*.

   __   **No**: Use the following to help determine card placement.
- Go to the Install PCI Card topic in the *Information Center*
- Contact your authorized service provider or your authorized dealer

__ 6. **Attention:**   Adapter cards are fragile. **Use static strap when handling**, handle only by the edges, and keep fingers off printed circuit area.

__ 7. Install the new 2746 adapter card in one of the following positions:
- **270 system unit: C06**
- **810 system unit: C07**
- **820 system unit: C04 or C11**
- **825 system unit: C06**
- **830, 840, SB2, SB3 system unit: C04, C06, C07, C09, or C10**
- **870 or 890 system unit: C04, C06, C07, C08, or C09**

__ 8. Does your unit have screws to secure the cards?

RV5B001-0
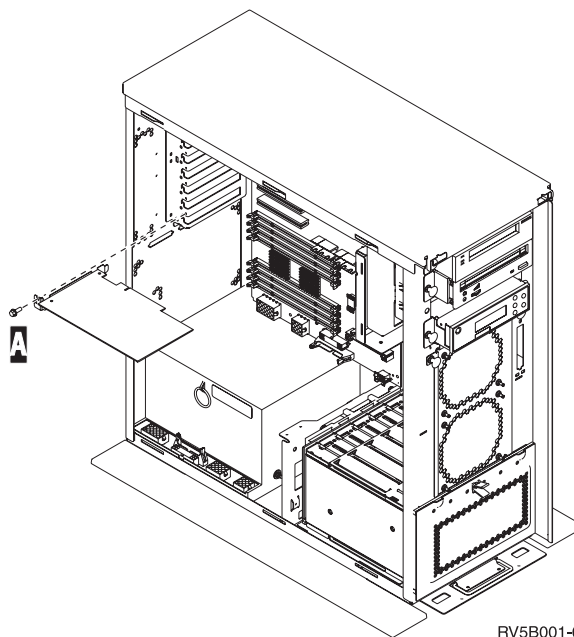
   __   **No**: Continue with the next step.

   __   **Yes**: Remove the screw from the card position where you plan to install the card.
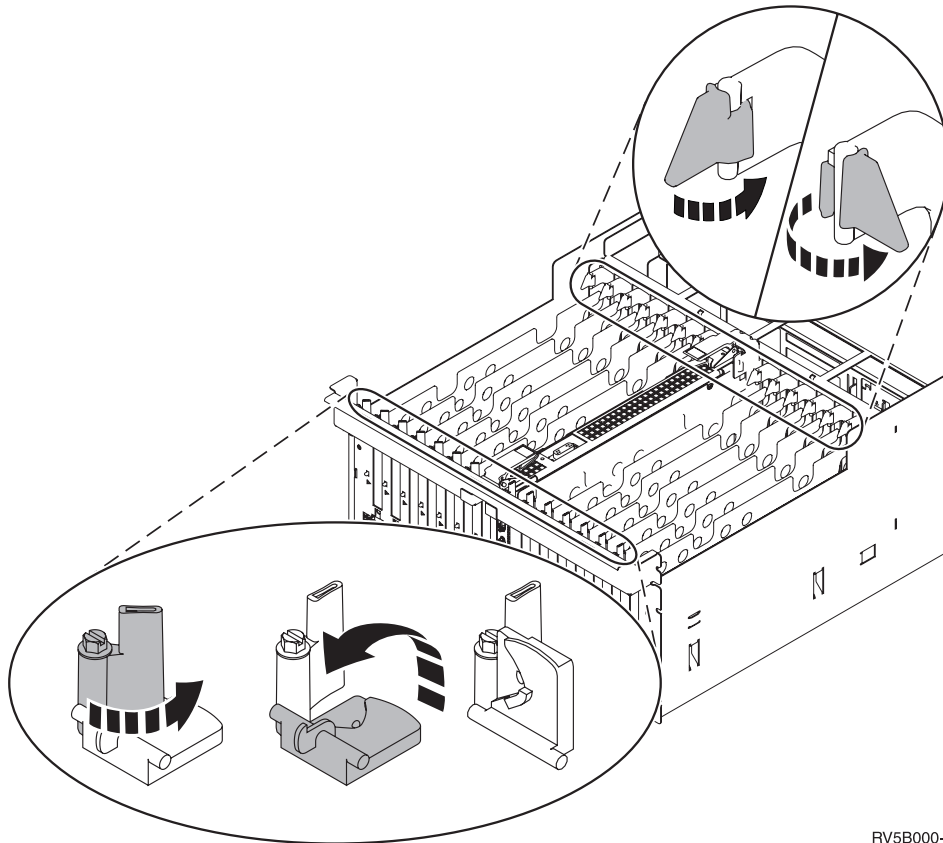
___   Go to step 11 on page 5.

___ 9. Your unit has card latches to secure the cards.

___ 10. Open the latch at the card position where you plan to install the card. Move the latch counterclockwise and then swing the black latch out.
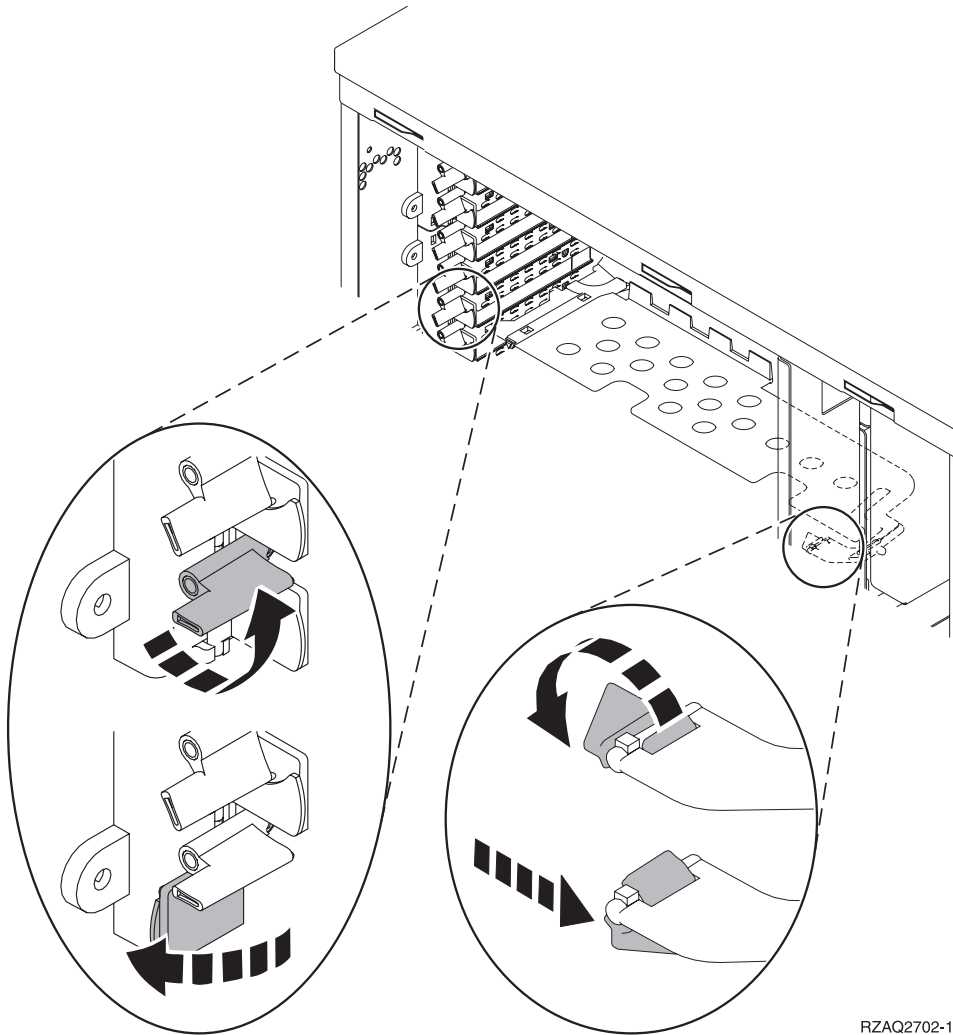
RZAQ2702-1

Figure 1. Example of 270, 810, 820, 825, 5075 Card Latch

Figure 2. Example of 830, 840, 870, 890, SB2, SB3, 5079 Card Latches

__ 11. Remove the card filler plate.

__ 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.

__ 14. Swing the black latch in and move the other latch clockwise, or install the screw to secure the card.

__ 15. Go to "Connecting the Twinaxial cable attachment and Twinaxial console cable".

Connecting the Twinaxial cable attachment and Twinaxial console cable

__ 1. Find the 8-port Twinaxial cable attachment (**part number 21F5093**) and label the cable, for example, **C06**.

__ 2. Connect the 8-port Twinaxial cable attachment to the connector on the 2746 card.

> **Note:** Each port on the 8-port attachment cable supports seven devices that allow for 56 attached devices, of which only 40 can be active.

__ 3. Set up the workstation or personal computer (PC) that will be connected to the system unit and used as the console.

   Notes:

   a. Place the workstation or PC that will be used as the system unit console not more than 6 meters (20 feet) from the system unit.

   b. Follow the instructions that came with the workstation or PC to set it up.

__ 4. Find a Twinaxial cable and label it **console cable**.

__ 5. Align the key **B** in **port 0** on the 8-port Twinaxial cable connector with the slot **A** on the Twinaxial cable (Figure 3) attachment.

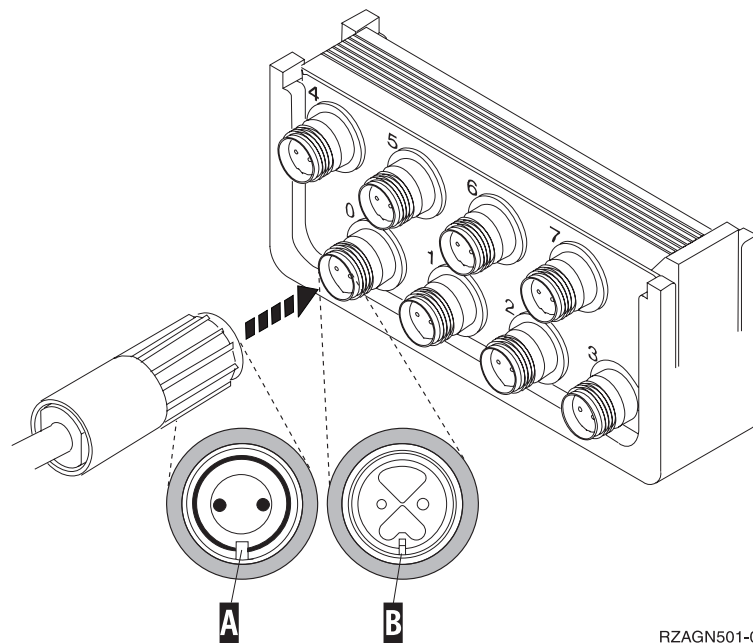   Push in, hold, and turn the outer ring until it is tight.

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Figure 3. Where to Connect the System Unit Console Cable

__ 6. Connect the other end of the Twinaxial console cable to the PC or workstation that is the system unit console.

   Note: The workstation address of your console **must be set to 0**. To set the address, refer to the book that was shipped with your device.

__ 7. Install the side and back covers.

__ 8. **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 the following power cords into an electrical outlet.

   - System unit

     Note: Do not power on your system unit at this time.

   - System unit console

Completing the Installation

 __ 1. Power on the PC or workstation that is your system unit console.

 __ 2. Is your system unit a 270/810 or 820/825?

   __ **270 or 810**: Continue with the next step.

   __ **820, 825, 830, 840, SB2, SB3, 870 or 890**: Go to step 5.

 __ 3. Look at the Function/Data display on the control panel.

 __ 4. Does **01 B M V=S** appear in the Function/Data display?

   __ **Yes**: Go to step 7 on page 8.

   __ **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 **M** 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 M S should appear in the Function/Data display. If it does not, repeat steps 4a through 4i.

    __ k. Go to step 7 on page 8.

 __ 5. Look at the Function/Data display on the control panel.

 __ 6. Does **01 B V=S** appear in the Function/Data display and is the manual mode indicator (a small hand) illuminated?

   __ **Yes**: Continue with the next step.

   __ **No**: Do the following:

    __ a. Press the Mode Select button until the Manual mode indicator (a small hand) is illuminated.

    __ 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 Increment/Decrement push button until **01** appears in the Function/Data display.

    __ i. Press the Enter push button on the control panel.

01 B S should appear in the Function/Display panel and the manual mode indicator (a small hand) is illuminated. If it does not appear, repeat steps 6a on page 7 through 6h on page 7.

    __ j. Go to step 7.

__ 7. Press the system unit power-on button. The power-on light will appear.

> **Note:** When the power on and IPL is complete, the *IPL or Install the System* display should appear on your system unit console.

__ 8. Select **Use Dedicated Service Tools (DST)** from the *IPL or Install the System* display.

Press Enter.

__ 9. Type **your service tools user ID and service tools password** on the *Dedicated Service Tools (DST) Sign On* display.

Press Enter.

__ 10. Select **Work with DST Environment** from the *Use Dedicated Service Tools (DST)* display.

Press Enter.

__ 11. Select **System devices** from the *Work with DST Environment* display.

Press Enter.

__ 12. Select **Console mode** from the *Work with System Devices* display.

Press Enter.

__ 13. Select **Twinaxial** from the *Select Console Type* display.

Press Enter.

__ 14. Press F3 (Exit) once.

__ 15. Select **Perform an IPL** from the *Use Dedicated Service Tools (DST)* display.

Press Enter.

__ 16. Sign on the system unit. Ensure you have service tools authority.

__ 17. Type **strsst** on the command line of the *Main Menu*.

Press Enter.

__ 18. Select **Start a service tool** from the *System Service Tools (SST)* display.

Press Enter.

__ 19. Select **Hardware service manager** from the *Start a Service Tool* display. Press Enter.

__ 20. Select **Packaging hardware resources (system, frames, cards...)** from the *Hardware Service Manager* display. Press Enter.

__ 21. Type **9** on the *System Unit* line.

__ 22. Press Page Down if needed and look at the *Card Pos* column.

__ 23. Verify that the cards you installed or moved appears in the position you installed them.

__ 24. Your feature upgrade is complete.

__ 25. Press F3 three times and press Enter to get back to the *Main Menu*.

Removing the covers

Locate the diagram of the unit you are working on:

__   "270, 810 or 820 system units"

__   "830, 840, 870, 890, SB2, SB3, 5074, 5079, and 5094 units" on page 10
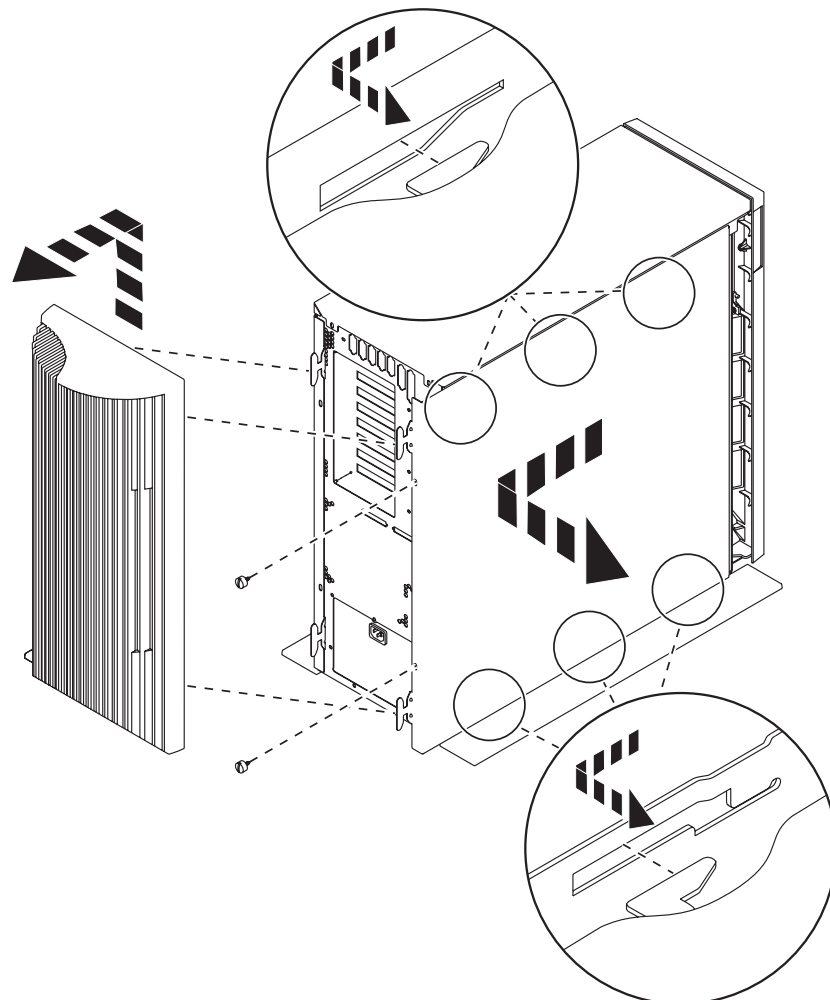
__   "Accessing units in a rack" on page 11

270, 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.

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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.
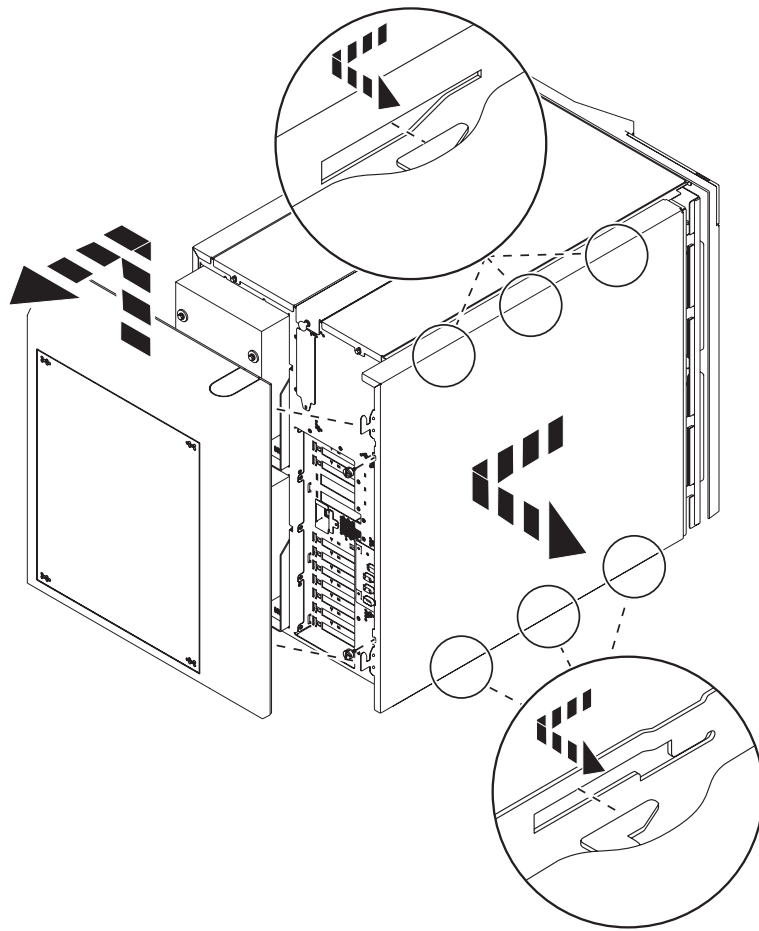
__ 3. Pull the cover out.

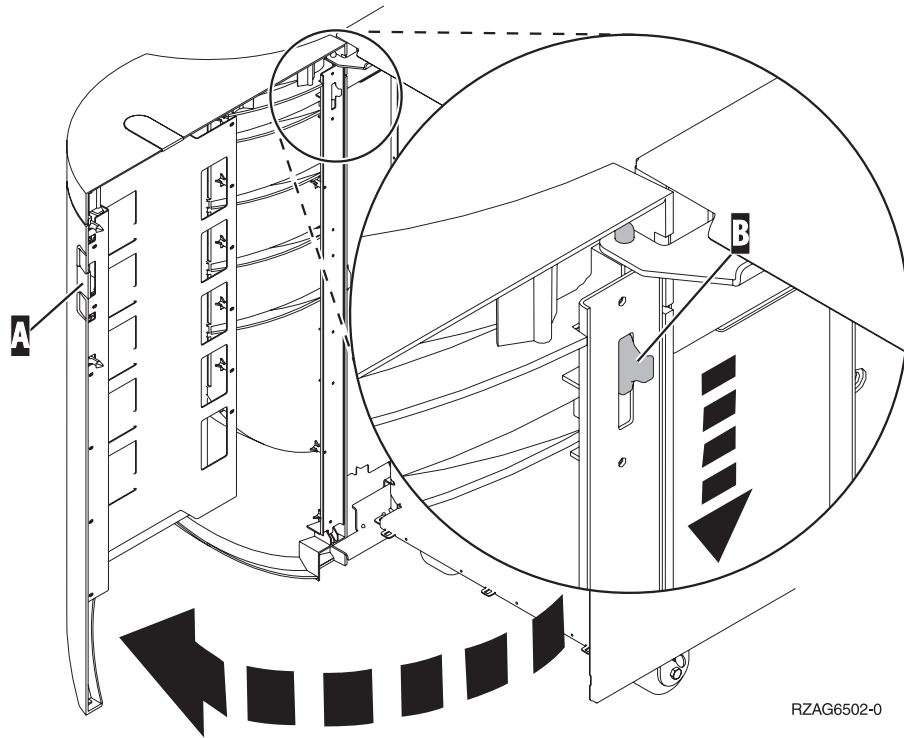RZAME601-0

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.

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Accessing units in a rack
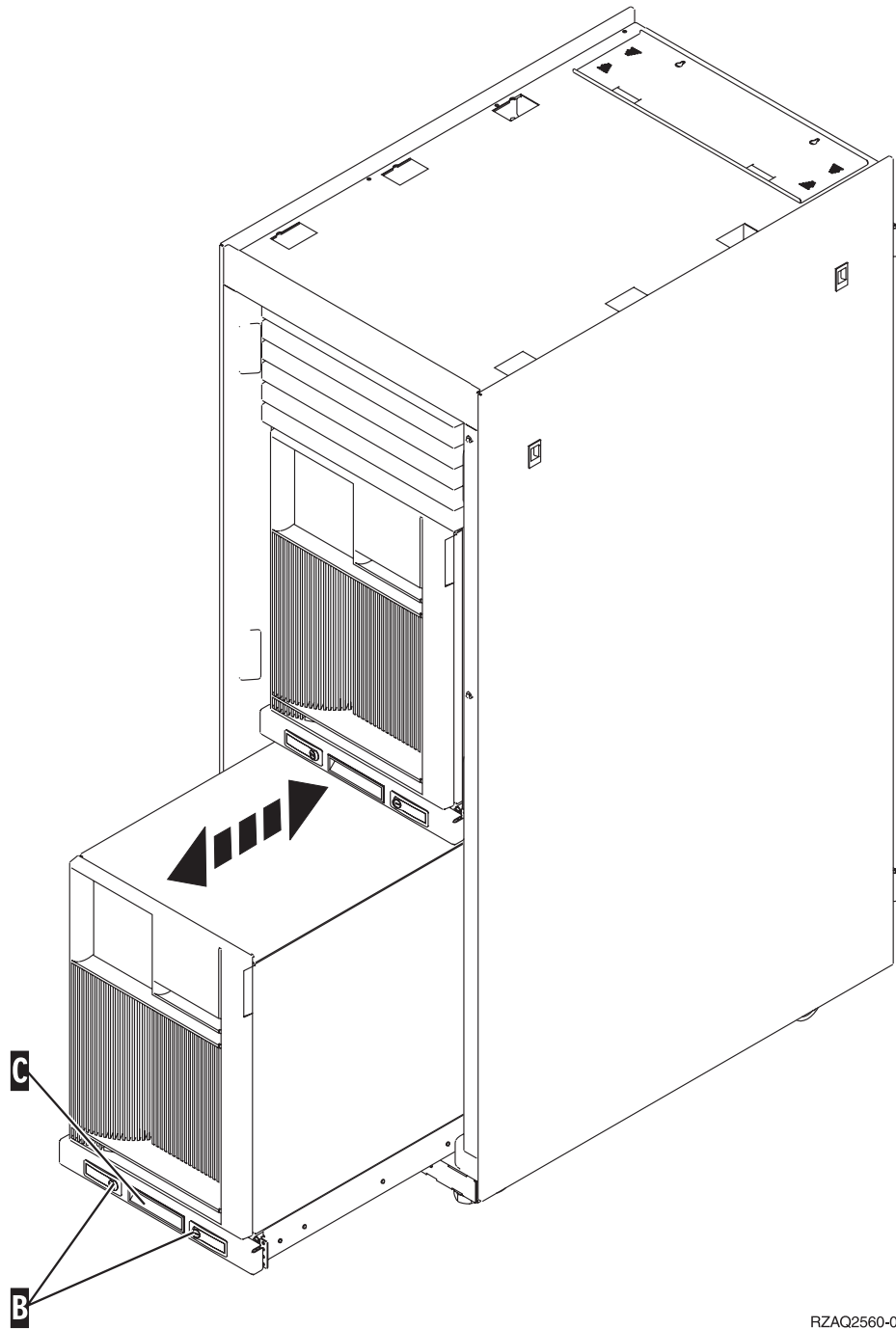
1. Move to the back of the rack, press latch **A** , and open the back door of the rack.

RZAQ2559-0
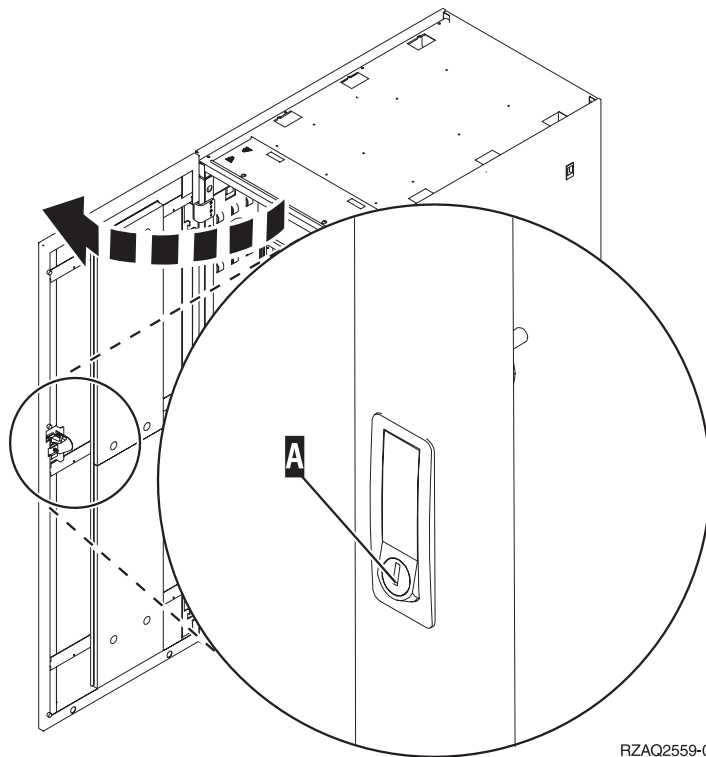
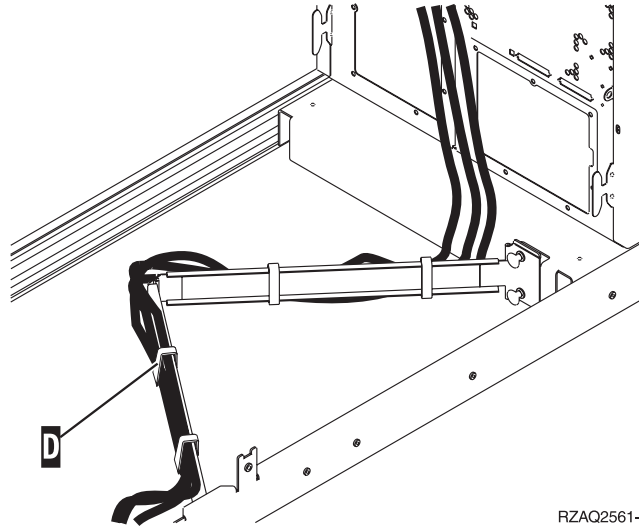2. Press latches B and pull the server out using the handle C.

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3. Refer to previous unit diagrams to remove the side cover.

4. If you are cabling the server, feed the excess cabling along the cable management arm **D** and secure the cables with the fasteners.
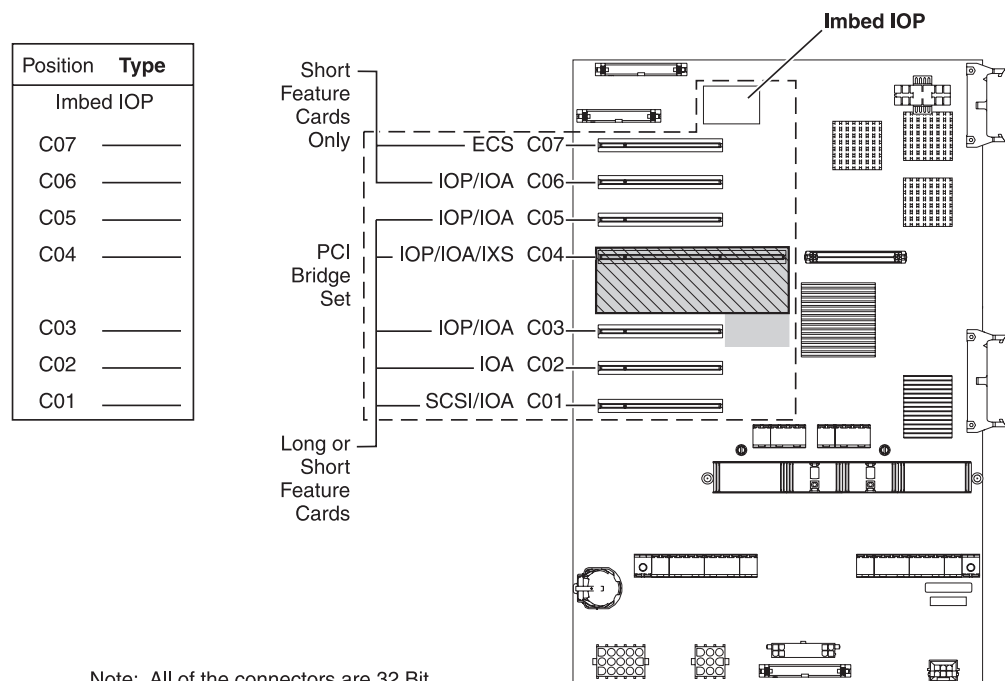
RZAQ2561-0

Configuration tables

Go to your system unit:

- "270 and 810 system unit"
- "820 system unit" on page 16
- "825 system unit" on page 17
- "830, 840, SB2, and SB3 system unit" on page 17
- "870 and 890 system unit" on page 18

270 and 810 system unit

Position	Type
Imbed IOP	
C07	———
C06	———
C05	———
C04	———
C03	———
C02	———
C01	———

Imbed IOP

Short Feature Cards Only

ECS C07
IOP/IOA C06
IOP/IOA C05
PCI Bridge Set — IOP/IOA/IXS C04
IOP/IOA C03
IOA C02
SCSI/IOA C01

Long or Short Feature Cards

Note: All of the connectors are 32 Bit

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

▧ = positions occupied if 2892 IXS is installed

RZAQ5504-4

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

820 system unit

Position	Type
C12	———
C11	———
C10	———
C09	———
C08	———
C07	———
C06	———
C05	———
C04	———
C03	———
C02	———
C01	———

Imbed IOP

Short Feature Cards Only

PCI Bridge Set 2

PCI Bridge Set 1

Long or Short Feature Cards

IOP C12
IOA C11
IOP/IOA/IXS C10
IOP/IOA C09
IOP/IOA C08
IOA C07
ECS C06
SCSI C05
IOP/IOA/IXS C04
IOP/IOA C03
IOP/IOA C02
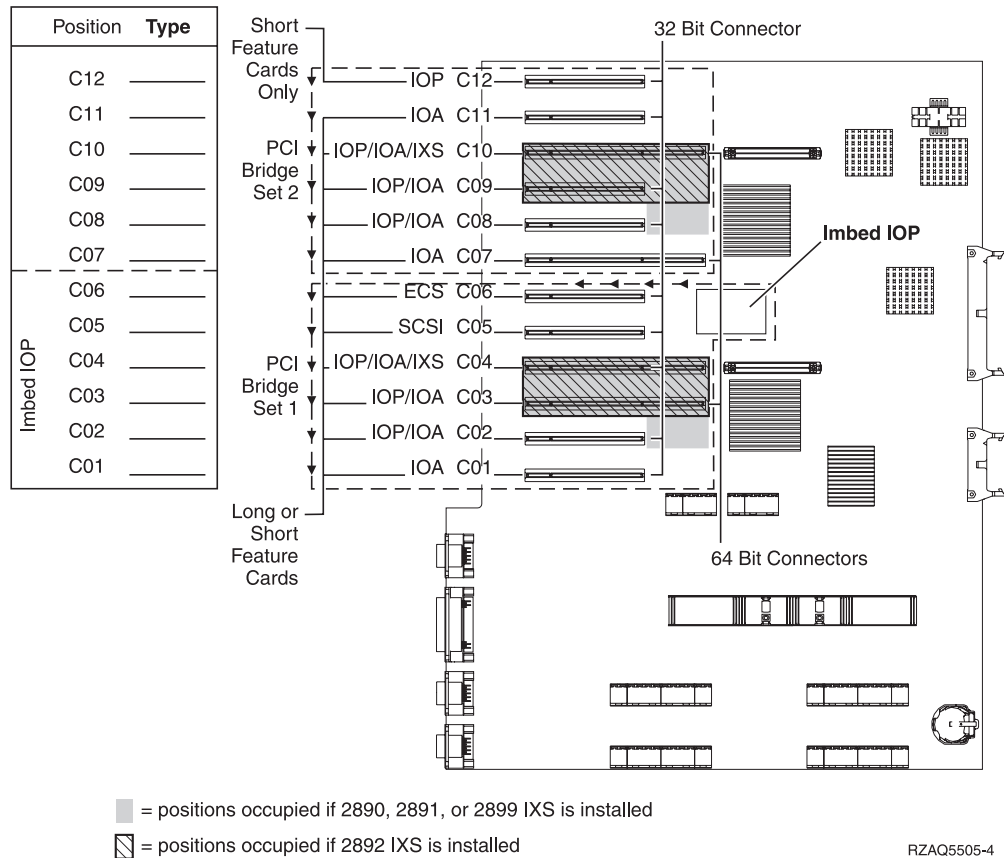IOA C01

32 Bit Connector

Imbed IOP

64 Bit Connectors

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

▨ = positions occupied if 2892 IXS is installed

RZAQ5505-4

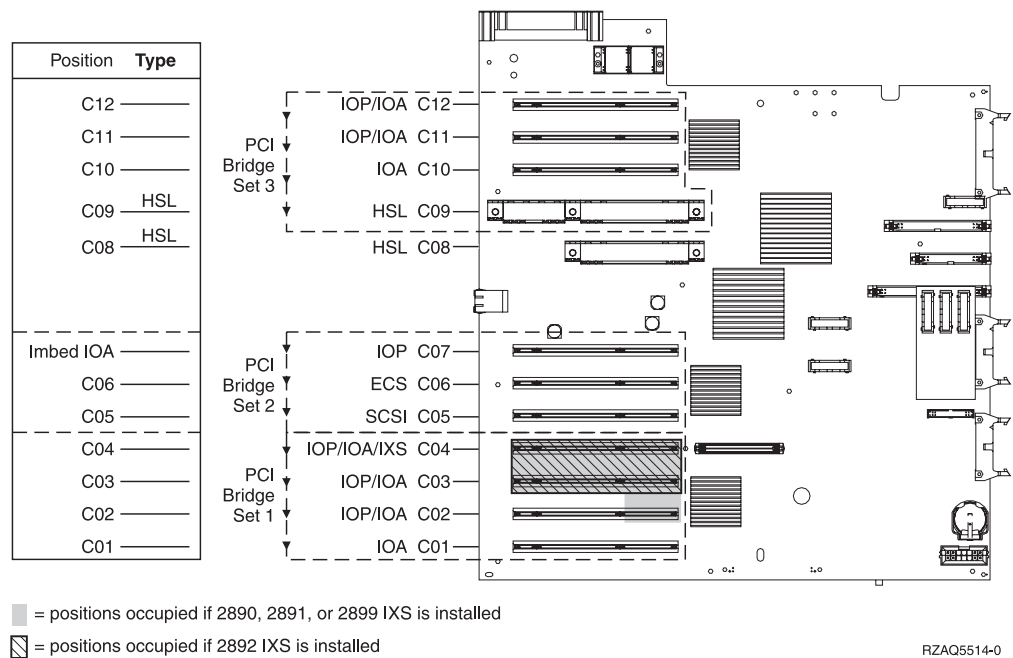- The Imbed IOP controls C06, C05, and possibly C04 and C03.
- IOPs control IOAs in the direction of the arrows in the PCI bridge set.
- SCSI in the diagram indicates the first internal disk unit controller position. Place IOA 2757, 2763, 2782, 4748, 4778 or 9767 in position C05. The first disk unit 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

Position	Type
C12	———
C11	———
C10	———
C09	HSL
C08	HSL
Imbed IOA	———
C06	———
C05	———
C04	———
C03	———
C02	———
C01	———

PCI Bridge Set 3

PCI Bridge Set 2

PCI Bridge Set 1

IOP/IOA C12
IOP/IOA C11
IOA C10
HSL C09
HSL C08

IOP C07
ECS C06
SCSI C05
IOP/IOA/IXS C04
IOP/IOA C03
IOP/IOA C02
IOA C01

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

= positions occupied if 2892 IXS is installed
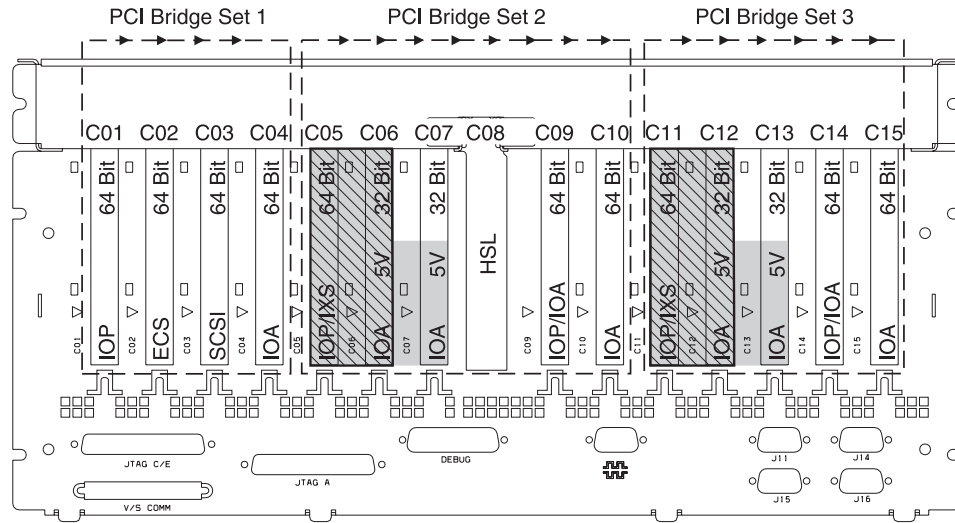
RZAQ5514-0

- 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, 2782, 4748, 4778) 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.
- 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, 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.

PCI Bridge Set 1   PCI Bridge Set 2   PCI Bridge Set 3

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

| IOP | ECS | SCSI | IOA | IOP/IXS | IOA | IOA | HSL | IOP/IOA | IOA | IOP/IXS | IOA | IOA | IOP/IOA | IOA |

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

▨ = positions occupied if 2892 IXS is installed

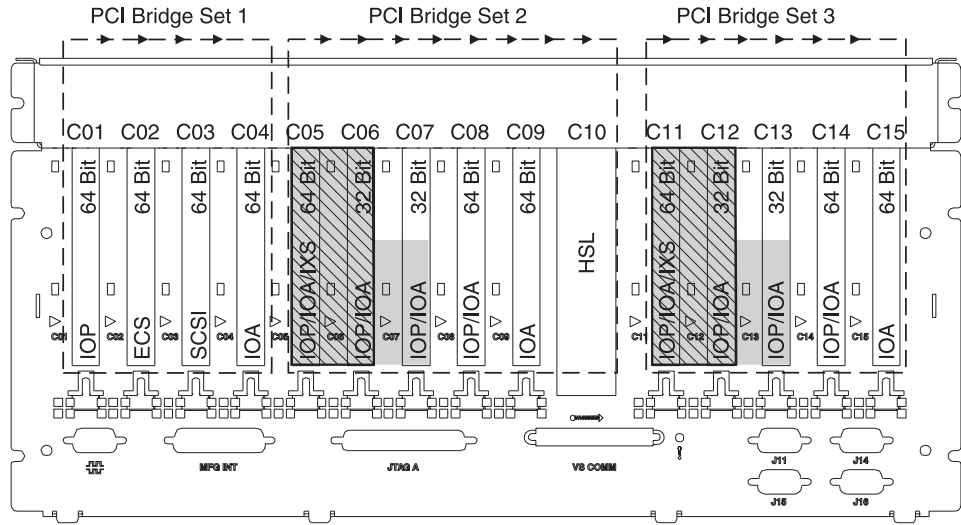Note: Long or short feature cards can go in any position.

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

RZAQ5506-5

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 (cards 2757, 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 disk unit controllers are allowed in 830 or 840 system units.

• Additional disk unit controllers are not allowed in SB2 and SB3 system units.

PCI Bridge Set 1 PCI Bridge Set 2 PCI Bridge Set 3

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

▧ = positions occupied if 2892 IXS is installed

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

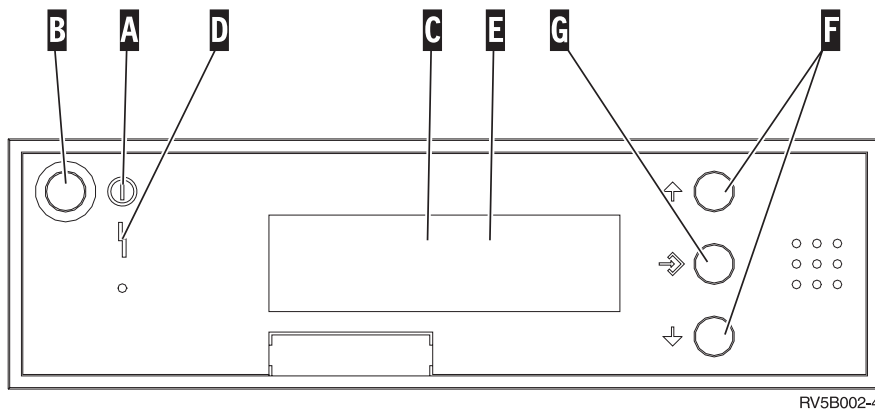| Position	Type	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10 HSL	C11	C12	C13	C14	C15

RZAQ5511-0

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 4 or Figure 5 on page 22. Refer to the control panel for your unit.

Figure 4. Control panel without Electronic Keystick

Following are the descriptions of the Figure 4 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 5 on page 22, 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.
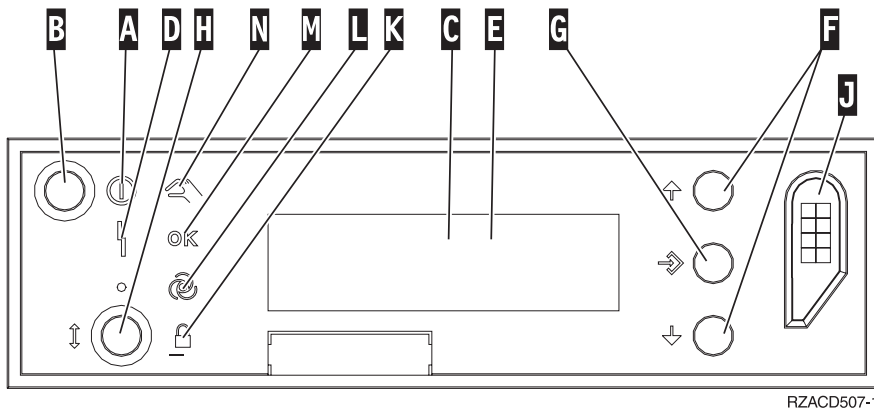
RZACD507-1

Figure 5. 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

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