

Hardware Information

Expansion units

ESCALA POWER5



REFERENCE
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ESCALA POWER5

Hardware Information

Expansion units

Hardware

July 2006

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REFERENCE

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Expansion units

This topic provides information on setting up your expansion unit, including connecting your expansion unit with Remote Input/Output (High-Speed Link) (RIO) cables to your models. RIO adapters enable expansion units to be attached to system units. This topic collection refers to both the remote input/output (RIO) and high-speed link (HSL) as the RIO.

The following expansion units are available:

- 50/74 or 50/79
 - 05/88 or 50/88
 - 91/94, 50/94 or 52/94
 - 05/95 or 50/95
 - 57/90, 11D/20, or 11D/10
 - 57/91, 57/94, or 406/1D
 - **Printable PDF**
Use this section to download a PDF of this information.
 - **Prepare to set up the expansion unit**
Use this information to plan the cable layout and to learn the configuration rules.
 - **Set up the expansion unit**
Follow these instructions to remove covers, to find connector locations, to connect the cables, and to find examples of the connections for an expansion unit.
 - **Verify that the new configuration is functioning**
Use the procedures in this section to verify that the new configuration for servers that are managed by an HMC is functioning.
-

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Parent topic: [Expansion units](#)

Prepare to set up the expansion unit

Use this information to plan the cable layout and to learn the configuration rules.

This topic collection provides information about connecting the expansion unit with RIO (remote I/O or high-speed link) and system power control network (SPCN) cables. This is a customer task. You can perform this task yourself or contact a service provider for this service.

You should be familiar with the system, display, and keyboards. You should also know how to shut down and restart the system. You should also know how to shut down system peripheral devices such as printers, monitors, and PCs.

To prepare to set up the expansion unit, complete the following tasks:

- **Plan where you will install the new expansion unit**
Plan where you will install the new expansion unit before you begin the installation process.
- **Identify RIO and SPCN cables**
Identify the RIO and SPCN cables for the expansion unit.
- **Plan your cable layout**
Plan the cable layout for connecting the expansion unit to the system unit.

Parent topic: [Expansion units](#)

Plan where you will install the new expansion unit

Plan where you will install the new expansion unit before you begin the installation process.

Consider several elements that include size, security, and environmental factors. Refer to the [Planning](#) information.

Parent topic: [Prepare to set up the expansion unit](#)

Identify RIO and SPCN cables

Identify the RIO and SPCN cables for the expansion unit.

The system uses RIO to send and receive customer data and auxiliary control information to and from the expansion unit and to download expansion unit firmware. The SPCN network is used to control power to the expansion units and as a backup to the RIO for auxiliary control and firmware control.

The following expansion units do not use SPCN cables:

- 57/91
- 57/94
- 406/1D

Power is controlled by the rack bulk-power assembly (BPA) through UPIC cables.

Table 1. RIO cables

Cable feature	CCIN	Cable type	Length	Part number
1307 (copper)	1307	HSL-2	1.75 meters	00P5238
1308 (copper)	1308	HSL-2	2.5 meters	00P5239
1460 (copper)	0343	HSL	3 meters	44L0005
1461 (copper)	0361	HSL	6 meters	97H7490
1462 (copper)	0368	HSL	15 meters	97H7491
1470 (fiber optic)	1470	Fiber optic	6 meters	21P5014
1471 (fiber optic)	1471	Fiber optic	30 meters	21P5015
1472 (fiber optic)	1472	Fiber optic	100 meters	21P5016
1473 (fiber optic)	1473	Fiber optic	250 meters	21P6326
1474 (copper)	1474	HSL to HSL-2	6 meters	21P5477
1475 (copper)	1475	HSL to HSL-2	10 meters	21P5458
1481 (copper)	1481	HSL-2	1 meters	21P5454
1482 (copper)	1482	HSL-2	3.5 meters	53P2676
1483 (copper)	1483	HSL-2	10 meters	21P5456
1485 (copper)	1485	HSL-2	15 meters	21P5457
1487 (copper)	1487	HSL to HSL-2	3 meter	53P5243
3146 (copper)	3146	HSL-2	1 meter	21P5454
3147 (copper)	3147	HSL-2	3.5 meters	53P2676
3148 (copper)	3148	HSL-2	10 meters	21P5456
3156 (copper)	3156	HSL-2/RIO-g	1.75 meters	00P5238
3168 (copper)	3168	HSL-2/RIO-g	2.5 meters	00P5239
3170 (copper)	3170	HSL-2/RIO-g	8 meters	
7924 (copper)	7924	HSL-2/RIO-g	0.6 meters	

Table 2. SPCN cables

Cable feature	CCIN	Length	Part number
0369 (fiber optic)	0369	100 meters	21F9415
1463	9206	2 meters	87G6235
1464	9219	6 meters	21F9469
1465	9213	15 meters	21F9358
1466	9214	30 meters	21F9359
1468 (fiber optic)	1468	250 meters	21P6325
1827 (serial to SPCN)	1827	0.14 meter	97P4299
6001	6001	2 meters	87G6235
6006	6006	3 meters	09P1251
6007	6007	15 meters	21F9358
6008	6008	6 meters	21F9469
6029	6029	30 meters	21F9359

Parent topic: [Prepare to set up the expansion unit](#)

Plan your cable layout

Plan the cable layout for connecting the expansion unit to the system unit.

When you decide where to place the cables, follow your site plan and keep the following items in mind:

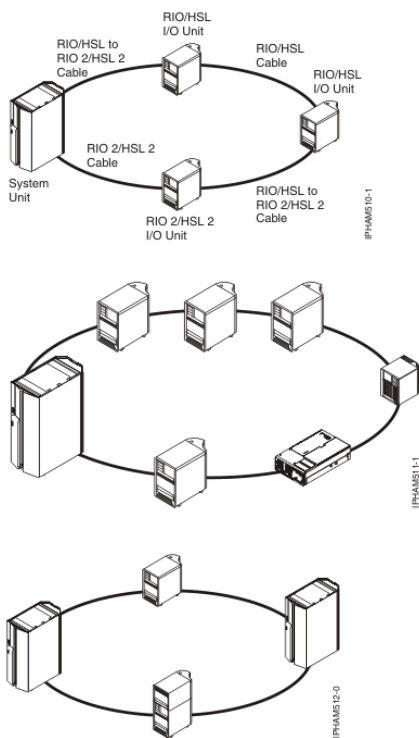
- Avoid creating a safety hazard.
- Avoid damaging the cables.
- Avoid placing cables parallel to high-voltage lines.
- **Example: Topologies of RIO loops**
Link redundancy is achieved by cabling the RIO in a loop.
- **System unit cable options**
Identify the RIO cables for the model numbers and machine types identified.
- **Expansion unit cable options**
Identify the RIO cables for the expansion units identified.
- **Expansion unit configuration rules for RIO**
When you set up the expansion unit, observe the configuration rules for RIO.

Parent topic: [Prepare to set up the expansion unit](#)

Example: Topologies of RIO loops

Link redundancy is achieved by cabling the RIO in a loop.

The following figures show different examples of RIO loops.



Parent topic: [Plan your cable layout](#)

System unit cable options

Identify the RIO cables for the model numbers and machine types identified.

Use the following table to identify the RIO cables for the model numbers and machine types identified.

Table 1. System unit RIO cable options

Cable feature	ESCALA PL 250T/R	9405-520 9406-520	ESCALA PL 450T/R	9406-550	ESCALA PL 850R/PL 1650R/R+	9406-570	185/75	ESCALA PL 3250R or ESCALA PL 6450R	111/00 ²
1307 (copper)									X
1308 (copper)									X
1460 (copper)									X
1461 (copper)									X
1462 (copper)									X
1470 (fiber optic)									X
1471 (fiber optic)									X
1472 (fiber optic)									X
1473 (fiber optic)									X
1474 (copper)									X
1475 (copper)									X
1481 (copper)									X
1482 (copper)									X
1483 (copper)									X
1485 (copper)	X								X
1487 (copper)		X		X		X			X
3146 (copper)	X ¹		X ¹		X		X		
3147 (copper)	X		X		X			X	
3148 (copper)	X		X		X				
3156 (copper)	X ¹		X ¹		X ¹				
3168 (copper)	X				X		X		

Expansion units

3170 (copper)								X	
7924 (copper)							X	X	X

Notes:

1. This cable can be used only for stand-alone system units due to its length.
2. For more information about 111/00, go to [Model 111/00 features and parts](#).

Parent topic: [Plan your cable layout](#)

Expansion unit cable options

Identify the RIO cables for the expansion units identified.

Use the following table to identify the RIO cables for the expansion units identified.

Table 1. Expansion unit RIO cable options

Cable feature	IXA card	HCA card	50/74, 50/79	05/88, 50/88	50/94, 52/94, 0694, 91/94	50/95, 05/95	11D/11	11D/20	57/90
1307 (copper)				X	X	X			X
1308 (copper)				X	X	X			X
1460 (copper)	X		X	X	X	X			X
1461 (copper)	X		X	X	X	X			X
1462 (copper)	X		X	X	X	X			X
1470 (fiber optic)			X	X	X	X			X
1471 (fiber optic)			X	X	X	X			X
1472 (fiber optic)			X	X	X	X			X
1473 (fiber optic)			X	X	X	X			X
1474 (copper)	X		X	X	X	X			X
1475 (copper)	X		X	X	X	X			X
1481 (copper)				X	X	X			X
1482 (copper)				X	X	X			X
1483 (copper)				X	X	X			X
1485 (copper)				X	X	X			X
1832						X			
1833						X			
1834						X			

Expansion units

1835		X							
1836		X							
1837						X			
1838						X			
1839		X							
3146 (copper)						X	X		
3147 (copper)						X	X		
3148 (copper)						X	X		
3156 (copper)									
3168 (copper)									

Parent topic: [Plan your cable layout](#)

Expansion unit configuration rules for RIO

When you set up the expansion unit, observe the configuration rules for RIO.

When you set up the expansion unit, observe the configuration rules as shown in the following table.

Table 1. RIO configuration rules for expansion units

Configuration	Maximum number of ports	Maximum number of loops	Maximum number of expansion units per loop	Maximum number of supported expansion units
ESCALA PL 250T/R	2	1	4	4
ESCALA PL 450T/R	4	2	4	8
server,	4	2	6	12
ESCALA PL 850R/PL 1650R/R+	16	8	4 (7 with a 111/00 attachment ¹)	14 (20 with a 111/00 attachment)
185/75	2 per node	1 per node	1	1
ESCALA PL 3250R	24	12	1 (7 with a 111/00 attachment ²)	8 (14 with a 111/00 attachment)
ESCALA PL 6450R	48	24	1 (7 with a 111/00 attachment ²)	12 (18 with a 111/00 attachment)
9406-595	62	31	6	96

Notes:

- 1. A model ESCALA PL 850R/PL 1650R/R+ with a 111/00 attachment cannot be mixed on the same loop as a 406/1D, 11D/10, 11D/11, or 11D/20 expansion unit.**
- 2. A model ESCALA PL 3250R or ESCALA PL 6450R with a 111/00 attachment cannot be mixed on the same loop as a 57/91, 57/94, or 406/1D expansion unit.**

Parent topic: [Plan your cable layout](#)

Set up the expansion unit

Follow these instructions to remove covers, to find connector locations, to connect the cables, and to find examples of the connections for an expansion unit.

You can install the expansion unit with the system unit power on or off. If your server is not managed by an HMC, and either AIX or Linux is installed on your server, you must turn off all power before adding an expansion unit.

- If you are installing a new system unit and expansion unit, go to step 2.
- If you are installing the expansion unit with the system unit power off, go to step 1.
- If you are installing the expansion unit in a new RIO loop with the system unit power on, go to step 2.
- If you are installing the expansion unit in an existing RIO loop with the power on, go to [Add an expansion unit using an existing RIO loop with the system unit power on](#).
-

1. If you are connecting a powered-off expansion unit to an existing system unit, shut down your system unit. Go to [Stop the system or logical partition](#). After you have powered off your system unit, continue with to next step.
2. Remove or open the back cover if you have one on the system.
3. Find the connector locations. If you need help finding the connectors on your expansion units or system unit, see [Connector locations](#).
4. See [Connect the expansion unit with RIO cables](#) to connect the expansion unit with RIO cables.
5. If you have a 19-inch system or expansion unit, see [Connect the expansion unit with SPCN cables](#).
6. If you are installing a new server with this expansion unit, return to [Powering off an expansion unit](#). If not, go to [Verify that the new configuration is functioning](#).

- **Connect the expansion unit with RIO cables**
Connect the expansion unit with RIO cables in a new loop, or connect the expansion unit with RIO cables in an existing loop.
- **Add an expansion unit using an existing RIO loop with the system unit power on**
This section describes ways to add an expansion unit to an existing RIO loop with the system unit power on.
- **Connect the expansion unit with SPCN cables**
This section describes how to connect expansion units to system units with SPCN cables. System units use SPCN cables to control the power to expansion units.
- **Connector locations**
See the applicable model or expansion unit for the connector locations.

Parent topic: [Expansion units](#)

Connect the expansion unit with RIO cables

Connect the expansion unit with RIO cables in a new loop, or connect the expansion unit with RIO cables in an existing loop.

Review the [Examples: RIO expansion unit connections](#) and then return here.

- **Add expansion units to a new RIO loop**
Follow these instructions to add expansion units to a new RIO loop.

- **Add expansion units to an existing RIO loop**
Follow these steps to add expansion units to an existing RIO loop.
- **Examples: RIO expansion unit connections**
The following figures are examples that show possible RIO connections.

Parent topic: [Set up the expansion unit](#)

Add expansion units to a new RIO loop

Follow these instructions to add expansion units to a new RIO loop.

1. Write down the names of the RIO connectors on the system unit that are available: _____, _____. (For example, RIO P1 - T3 or RIO P1 - C7 - T1).
2. Label and connect the cables to the expansion unit using the following steps.

Important: Unused RIO connectors might be covered with metal clips. Remove the clips before you install the RIO cables.

- a. To connect the first (or only) expansion unit, do the following:
 - i. Find the RIO/HSL cables and the SPCN cables that were included with the expansion unit.
 - ii. Label one RIO/HSL cable 0 at both ends.
 - iii. Connect the RIO/HSL cable that is labeled 0 to the RIO/HSL connector that is labeled 0 on the expansion unit.
- b. If you are connecting more than one expansion unit, continue with steps b1 through b5 for each additional expansion unit:
 - i. Find the RIO/HSL cables and the SPCN cables that were included with the expansion unit.
 - ii. Label the RIO/HSL cable for the expansion unit 0 at one end and 1 at the other end.
 - iii. Connect the RIO/HSL cable end that is labeled 0 to the RIO/HSL connector that is labeled 0 on the expansion unit.
 - iv. Connect the RIO/HSL cable end that is labeled 1 to the RIO/HSL connector that is labeled 1 on the previously cabled expansion unit.
 - v. Repeat step 2b for each additional expansion unit to be connected.
- c. To connect only one expansion unit, do the following:
 - i. Connect the RIO cable that is labeled 0 to the RIO connector that is labeled 0 on the expansion unit.
 - ii. Connect the RIO cable that is labeled 1 to the RIO connector that is labeled 1 on the expansion unit.
3. Using the connector labels from step 1, connect the cables to the available connectors on the system unit.
 - a. Connect the cable end that is labeled 0 to the RIO/HSL connector that is labeled 0.
 - b. Connect the cable end that is labeled 1 to the RIO/HSL connector that is labeled 1.
4. Connect the cable that is labeled 0 to the RIO connector that is labeled 0, and the cable that is labeled 1 to the RIO connector that is labeled 1.

Parent topic: [Connect the expansion unit with RIO cables](#)

Add expansion units to an existing RIO loop

Follow these steps to add expansion units to an existing RIO loop.

1. Label and connect the cables to the unit.
 - a. Find the RIO cables and the SPCN cables that were included with the expansion unit, and attach a label to each end of the RIO cables.
 - b. Label the new RIO cable 0 at one end and 1 at the other end.

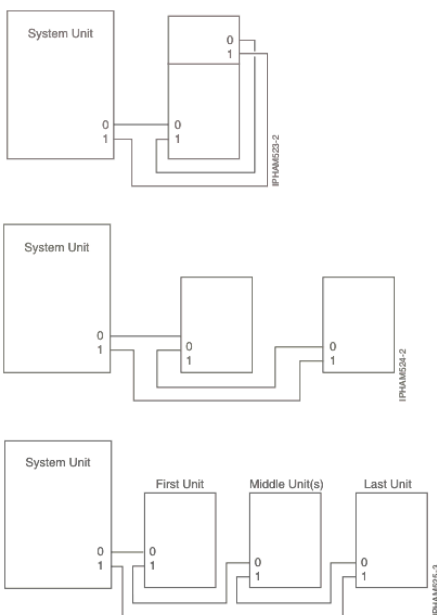
2. To connect one additional expansion unit, complete one of the following procedures:

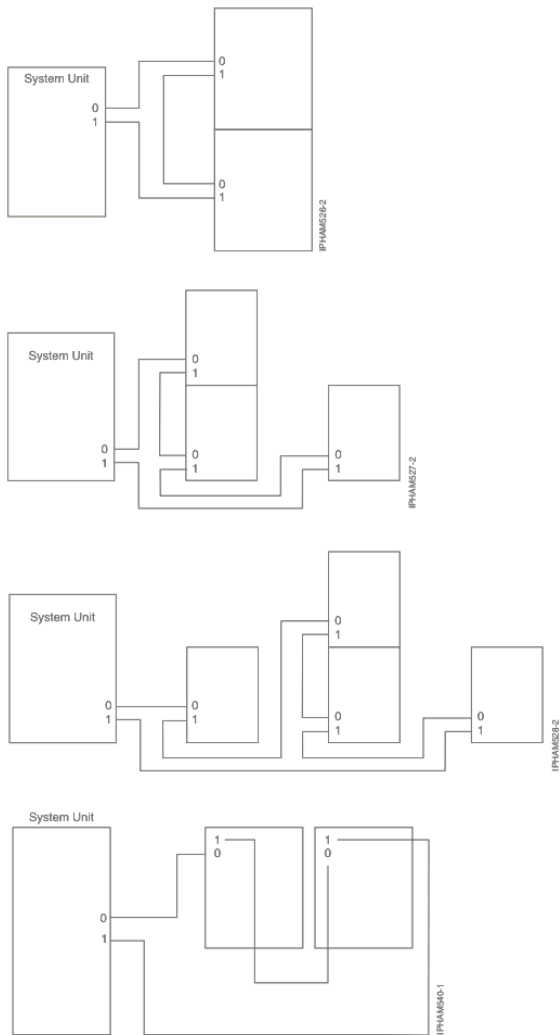
- ◆ To add the expansion unit as the first unit on the loop, complete the following steps:
 - a. Move the RIO cable that is labeled 0 from the connector that is labeled 0 on the existing expansion unit to the RIO connector that is labeled 0 on the new expansion unit.
 - b. Connect the new RIO cable end that is labeled 0 to the RIO connector that is labeled 0 on the existing expansion unit.
 - c. Connect the new RIO cable end that is labeled 1 to the RIO connector that is labeled 1 on the new expansion unit.
- ◆ To add the expansion unit as an additional unit on the loop, complete the following steps:
 - a. Move the RIO cable that is labeled 0 from the connector that is labeled 0 on the existing expansion unit, that follows the location of the new expansion unit. Move the RIO cable to the RIO connector that is labeled 0 on the new expansion unit.
 - b. Connect the new RIO cable end that is labeled 0 to the RIO connector that is labeled 0 on the existing expansion unit.
 - c. Connect the new RIO cable end that is labeled 1 to the RIO connector that is labeled 1 on the new expansion unit.
- ◆ To add the expansion unit as the last unit on the loop, complete the following steps:
 - a. Move the RIO cable that is labeled 1 from the connector that is labeled 1 on the existing expansion unit to the RIO connector that is labeled 1 on the new expansion unit.
 - b. Connect the new RIO cable end that is labeled 0 to the RIO connector that is labeled 0 on the new expansion unit.
 - c. Connect the new RIO cable end that is labeled 1 to the RIO connector that is labeled 1 on the existing expansion unit.
- ◆ To connect more than one expansion unit, repeat step 2 for each additional expansion unit until all expansion units are connected.

Parent topic: [Connect the expansion unit with RIO cables](#)

Examples: RIO expansion unit connections

The following figures are examples that show possible RIO connections.





Parent topic: [Connect the expansion unit with RIO cables](#)

Add an expansion unit using an existing RIO loop with the system unit power on

This section describes ways to add an expansion unit to an existing RIO loop with the system unit power on.

Note: If your server is not managed by an HMC, and either AIX or Linux is installed on your server, you must turn off all power before adding an expansion unit.

To add an expansion unit with the system unit power on, complete the following procedure.

- **Add an expansion unit using an existing RIO loop with an HMC and the system unit power on**
Complete these steps to add an expansion unit in an existing RIO loop with an HMC and the system unit power on.

Parent topic: [Set up the expansion unit](#)

Add an expansion unit using an existing RIO loop with an HMC and the system unit power on

Complete these steps to add an expansion unit in an existing RIO loop with an HMC and the system unit power on.

Return to [Set up the expansion unit](#) and continue with step 2. **Parent topic:** [Add an expansion unit using an existing RIO loop with the system unit power on](#)

Connect the expansion unit with SPCN cables

This section describes how to connect expansion units to system units with SPCN cables. System units use SPCN cables to control the power to expansion units.

Review the [Examples: RIO SPCN connections](#) and then return here and continue with the instructions.

If you are installing an expansion unit in an existing SPCN loop with the system-unit power on, errors are logged when you disconnect and reconnect cables. You can ignore these error messages.

Expansion units 57/91, 57/94, and 406/1D do not use SPCN cables. Power is controlled by the rack bulk power assembly (BPA) through UPIC cables.

Do the following to connect SPCN cables:

1. Label and connect the cables to the expansion unit.
 - a. Find the SPCN cable and the power cable that were included with the expansion unit.
 - b. Connect the SPCN cable to connector 0 on the system unit.
 - c. Connect the other end of the SPCN cable to connector J15 on the first expansion unit.
 - d. Connect another SPCN cable to connector J16 on the first expansion unit.
 - e. Connect the other end of the SPCN cable to connector J15 on the next expansion unit.
 - f. Repeat the previous steps until all expansion units are connected.
 - g. Connect the last cable to connector 1 back to the system unit.
 - h. Connect the power cable. Do not plug the power cable into the wall outlet at this time.
2. If you are installing a new server with this expansion unit, return to [Cabling your server](#).

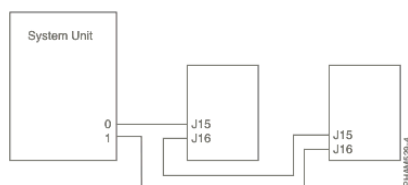
- **Examples: RIO SPCN connections**

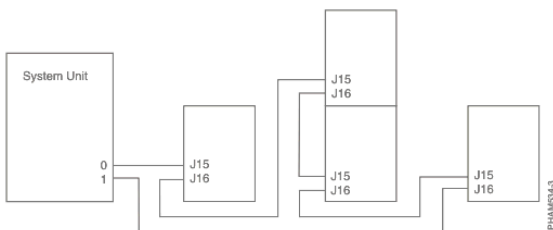
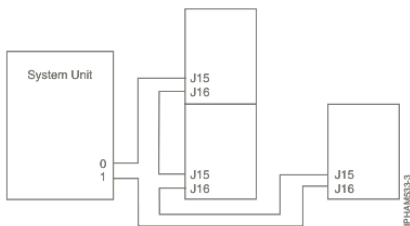
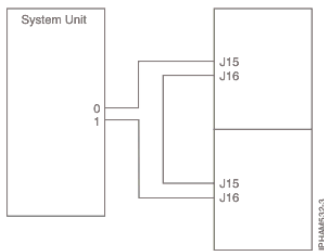
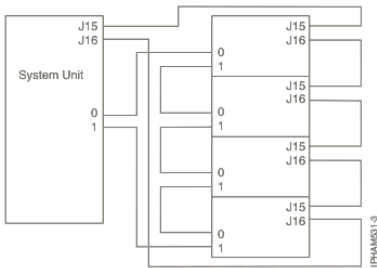
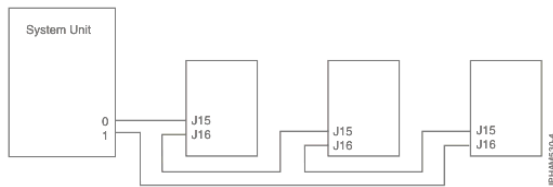
The following figures are examples that show possible RIO SPCN connections.

Parent topic: [Set up the expansion unit](#)

Examples: RIO SPCN connections

The following figures are examples that show possible RIO SPCN connections.





Parent topic: [Connect the expansion unit with SPCN cables](#)

Connector locations

See the applicable model or expansion unit for the connector locations.

- **[Model ESCALA PL 250T/R connector locations](#)**
Learn about connector locations for the model ESCALA PL 250T/R.
- **[Model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+ connector locations](#)**
Learn about connector locations for the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+.
- **[Model ESCALA PL 450T/R or model 7/20 connector locations](#)**
Learn about connector locations for the model ESCALA PL 450T/R or model 7/20.
- **[Model ESCALA PL 450T/R+ or ESCALA PL 850T/R-L+ connector locations](#)**
Learn about connector locations for the model ESCALA PL 450T/R+ or ESCALA PL 850T/R-L+.
- **[Model ESCALA PL 850R/PL 1650R/R+ connector locations](#)**
Learn about connector locations for the model ESCALA PL 850R/PL 1650R/R+.

- **Model 5/75 connector locations**
Learn about connector locations for the model 5/75.
- **Model ESCALA PL 3250R or model ESCALA PL 6450R connector locations**
Learn about connector locations for the model ESCALA PL 3250R or model ESCALA PL 6450R.
- **Model 50/74 or model 50/79 connector locations**
Learn about connector locations for the model 50/74 or model 50/79 expansion units.
- **Model 05/88 or model 50/88 connector locations**
Learn about connector locations for the model 05/88 or model 50/88 expansion units.
- **Model 91/94, 50/94, or 52/94 connector locations**
Learn about connector locations for the model 91/94, 50/94 or 52/94 expansion units.
- **Model 05/95 or 50/95 connector locations**
Learn about connector locations for the model 05/95 or 50/95 expansion units.
- **Model 57/90, 11D/11, or 11D/10 connector locations**
Learn about connector locations for the model 57/90, 11D/11, or 11D/10 systems.
- **Model 05/95 or 11D/20 connector locations**
Learn about connector locations for the model 05/95 or 11D/20 expansion units.
- **Model 57/91, 57/94, or 406/1D connector locations**
Learn about connector locations for the model 57/91, 57/94, or 406/1D expansion units.

Parent topic: [Set up the expansion unit](#)

Model ESCALA PL 250T/R connector locations

Learn about connector locations for the model ESCALA PL 250T/R.

The following figures identify connector locations for the model ESCALA PL 250T/R.

Figure 1. Rack-mounted model ESCALA PL 250T/R connector locations

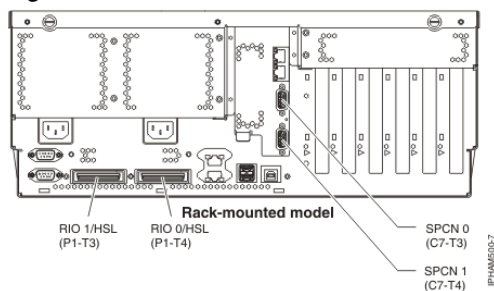
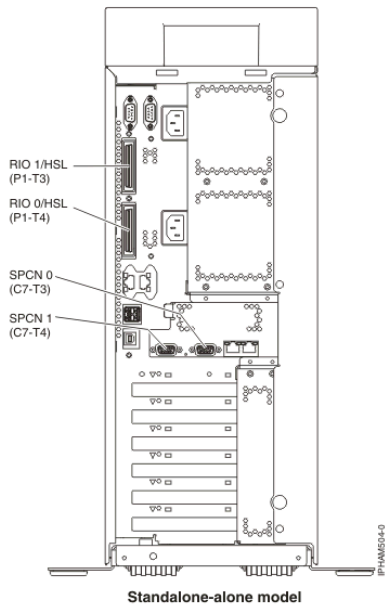


Figure 2. Stand-alone model ESCALA PL 250T/R connector locations



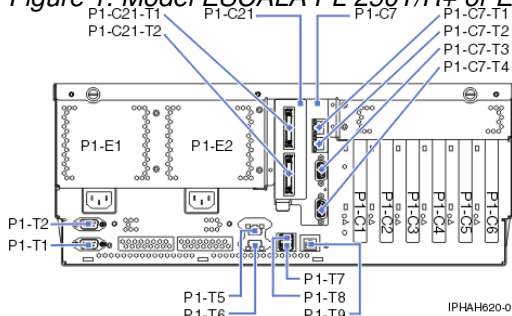
Parent topic: [Connector locations](#)

Model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+ connector locations

Learn about connector locations for the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+.

The following figure identifies connector locations for the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+.

Figure 1. Model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+ connector locations



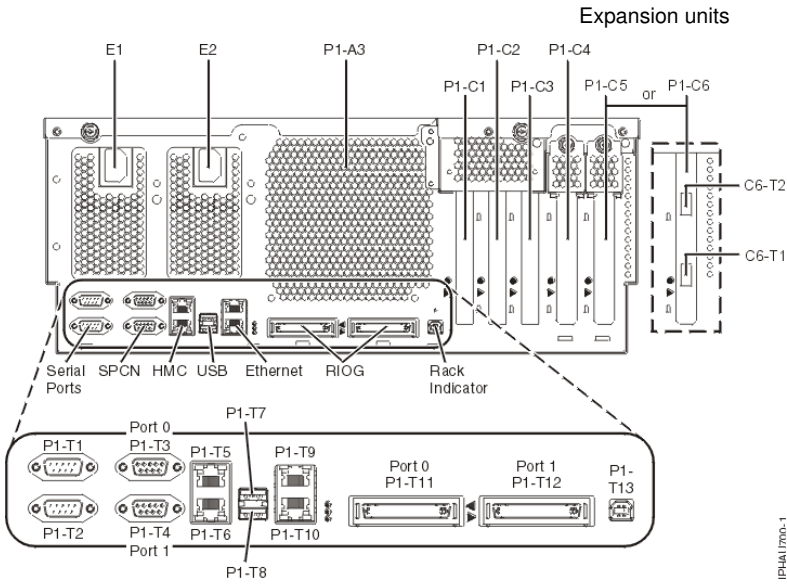
Parent topic: [Connector locations](#)

Model ESCALA PL 450T/R or model 7/20 connector locations

Learn about connector locations for the model ESCALA PL 450T/R or model 7/20.

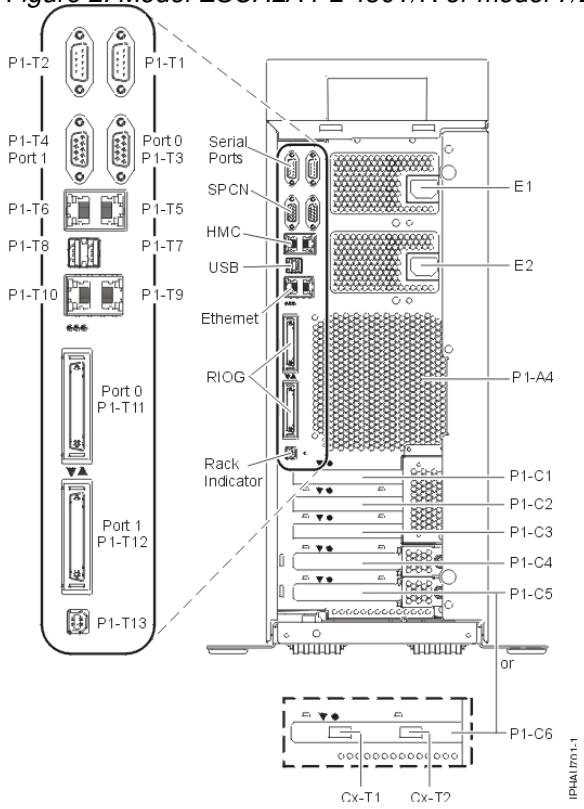
The following figures identify connector locations for the model ESCALA PL 450T/R or model 7/20.

Figure 1. Model ESCALA PL 450T/R or model 7/20 connector locations on rack-mounted model



IPHA1770-1

Figure 2. Model ESCALA PL 450T/R or model 7/20 connector locations on stand-alone model



IPHA1770-1

Parent topic: [Connector locations](#)

Model ESCALA PL 450T/R+ or ESCALA PL 850T/R-L+ connector locations

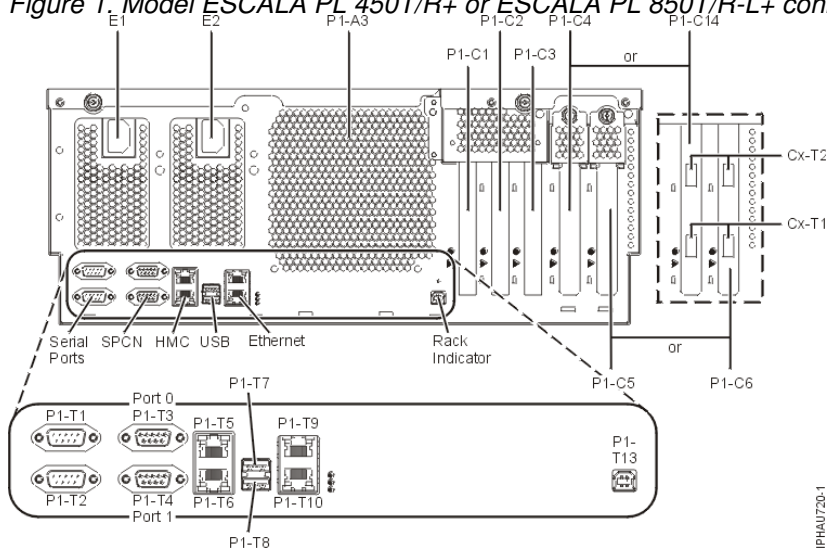
Learn about connector locations for the model ESCALA PL 450T/R+ or ESCALA PL 850T/R-L+.

The following figures identify connector locations for the model ESCALA PL 450T/R+ or ESCALA PL 850T/R-L+.

Note: If your model ESCALA PL 450T/R+ or ESCALA PL 850T/R-L+ has a GX adapter installed, the connectors will be available in the fifth PCI slot (P1-C5 in the diagram) location for both rack-mounted and

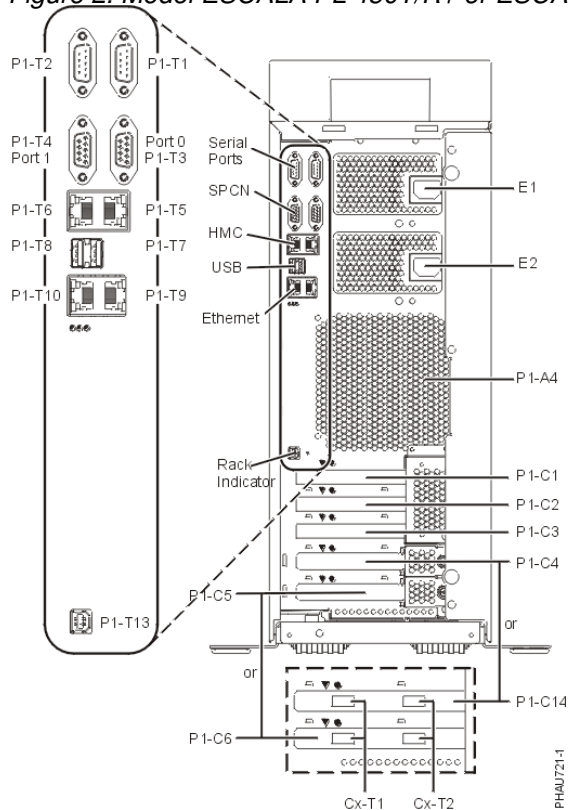
stand-alone models. P1-C6-T1 (the bottom connector of the GX adapter) is port 0 and P1-C6-T2 (the top connector of the GX adapter) is port 1.

Figure 1. Model ESCALA PL 450T/R+ or ESCALA PL 850T/R-L+ connector locations on rack-mounted model



IPHAU720-1

Figure 2. Model ESCALA PL 450T/R+ or ESCALA PL 850T/R-L+ connector locations on standalone model



PHAU721-4

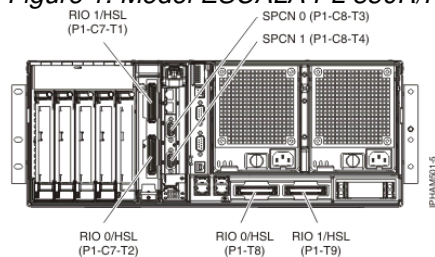
Parent topic: [Connector locations](#)

Model ESCALA PL 850R/PL 1650R/R+ connector locations

Learn about connector locations for the model ESCALA PL 850R/PL 1650R/R+.

The following figure identifies connector locations for the model ESCALA PL 850R/PL 1650R/R+.

Figure 1. Model ESCALA PL 850R/PL 1650R/R+ connector locations



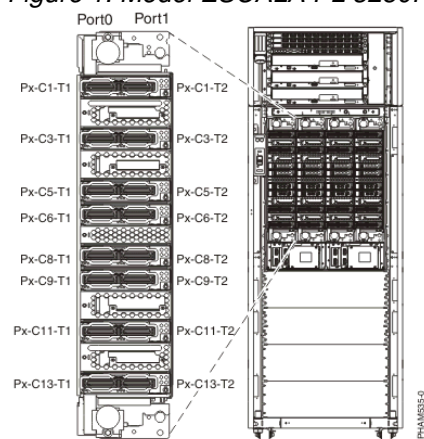
Parent topic: [Connector locations](#)

Model ESCALA PL 3250R or model ESCALA PL 6450R connector locations

Learn about connector locations for the model ESCALA PL 3250R or model ESCALA PL 6450R.

The following figure identifies connector locations for the model ESCALA PL 3250R or model ESCALA PL 6450R.

Figure 1. Model ESCALA PL 3250R or model ESCALA PL 6450R connector locations



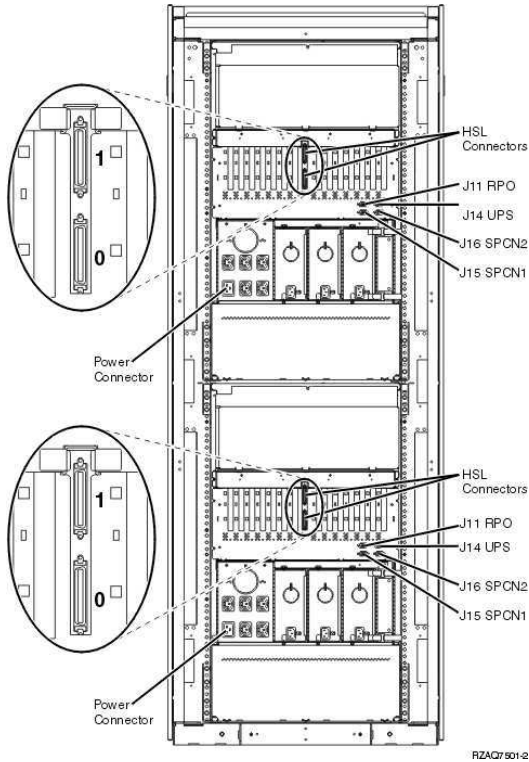
Parent topic: [Connector locations](#)

Model 50/74 or model 50/79 connector locations

Learn about connector locations for the model 50/74 or model 50/79 expansion units.

The following figure identifies connector locations for the model 50/74 or model 50/79 expansion units.

Figure 1. Model 50/74 or model 50/79 connector locations



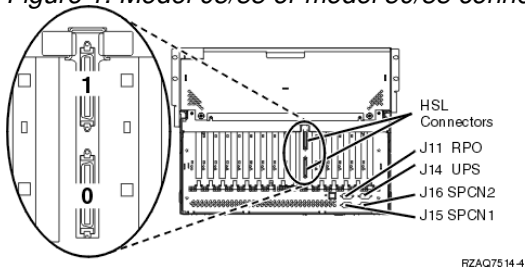
Parent topic: [Connector locations](#)

Model 05/88 or model 50/88 connector locations

Learn about connector locations for the model 05/88 or model 50/88 expansion units.

The following figure identifies connector locations for the model 05/88 or model 50/88 expansion units.

Figure 1. Model 05/88 or model 50/88 connector locations



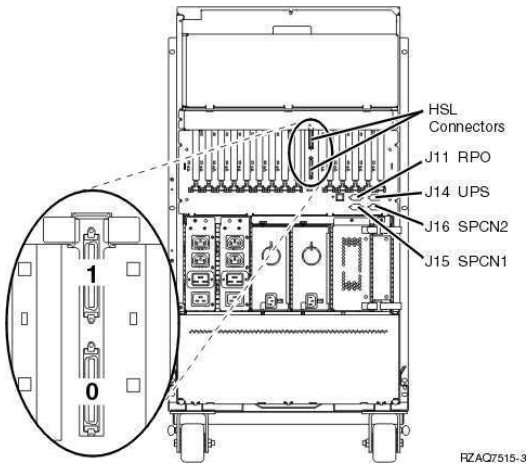
Parent topic: [Connector locations](#)

Model 91/94, 50/94, or 52/94 connector locations

Learn about connector locations for the model 91/94, 50/94 or 52/94 expansion units.

The following figure identifies connector locations for the model 91/94, 50/94 or 52/94 expansion units.

Figure 1. Model 91/94, 50/94 or 52/94 connector locations



Parent topic: [Connector locations](#)

Model 05/95 or 50/95 connector locations

Learn about connector locations for the model 05/95 or 50/95 expansion units.

The following figures identify connector locations for the model 05/95 or 50/95 expansion units.

Figure 1. Model 05/95 or 50/95 connector locations on stand-alone unit

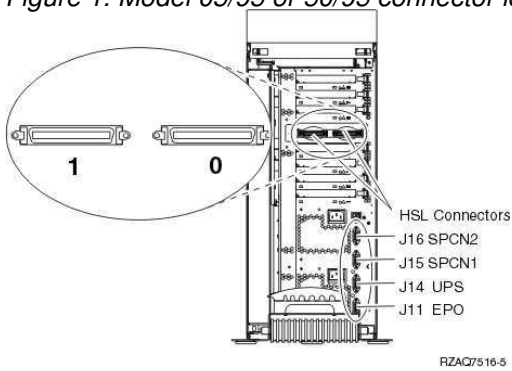
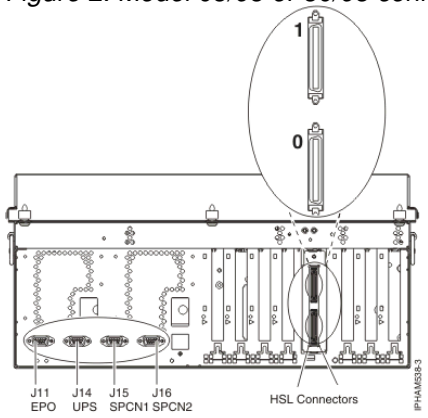


Figure 2. Model 05/95 or 50/95 connector locations on rack-mounted unit



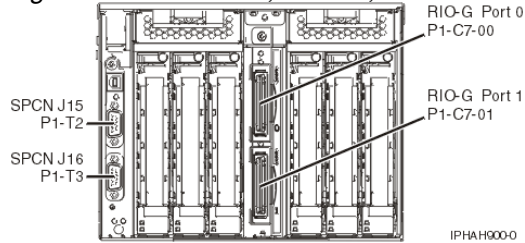
Parent topic: [Connector locations](#)

Model 57/90, 11D/11, or 11D/10 connector locations

Learn about connector locations for the model 57/90, 11D/11, or 11D/10 systems.

The following figure identifies connector locations for the model 57/90, 11D/11, or 11D/10 systems.

Figure 1. Model 57/90, 11D/11, or 11D/10 connector locations



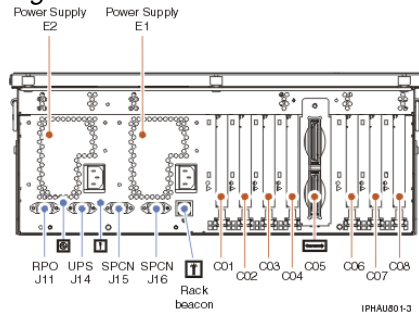
Parent topic: [Connector locations](#)

Model 05/95 or 11D/20 connector locations

Learn about connector locations for the model 05/95 or 11D/20 expansion units.

The following figure identifies connector locations for the model 05/95 or 11D/20 expansion units.

Figure 1. Model 05/95 or 11D/20 connector locations



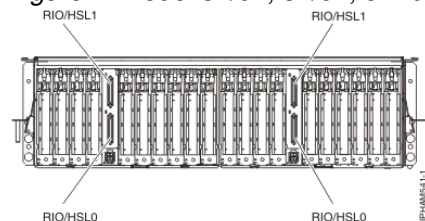
Parent topic: [Connector locations](#)

Model 57/91, 57/94, or 406/1D connector locations

Learn about connector locations for the model 57/91, 57/94, or 406/1D expansion units.

The following figure identifies connector locations for the model 57/91, 57/94, or 406/1D expansion units.

Figure 1. Model 57/91, 57/94, or 406/1D connector locations



Parent topic: [Connector locations](#)

Verify that the new configuration is functioning

Use the procedures in this section to verify that the new configuration for servers that are managed by an HMC is functioning.

If you are installing a new server with this expansion unit, return to [Cabling your server](#).

To verify the new configuration is functioning for servers that are not managed by an HMC, see [Verify the installed part](#).

To verify the new configuration is functioning for servers that are managed by an HMC, do the following:

1. If you installed the expansion unit with the system unit power off, go to step 2. If you installed the expansion unit with the power on, verify that the expansion unit is powered on. If it is not powered on, plug it in, and, if it has a power switch, verify that it is in the on position. After the expansion unit is powered on, go to step 3.
2. [Start the system or logical partition](#).
3. [View information about the managed system using the HMC](#). To view more information about the managed system, complete the following steps:
 - a. From the navigation area of the HMC, expand Server and Partition.
 - b. Click the Server Management icon.
 - c. Expand the managed system with which you want to work. The contents area expands to show the frame, which you can then expand to show information about the managed system, including its name, its state, and the operator panel value.
4. View the properties of the managed system and verify the I/O unit by doing the following:
 - a. In the contents area, right-click on the managed system with which you want to work.
 - b. Click Properties.
 - c. Select the I/O tab.
 - d. Verify that the new expansion unit appears in the list and that the unit ID information displayed on the panel for the I/O unit matches the label on the I/O unit.

It might take several minutes for the new expansion unit to be displayed in the list. If the system downloads code to the new expansion unit, it might take several hours. You can safely interrupt the process so that the new expansion unit appears more quickly using the Advanced System Management Interface (ASMI). See [Using the ASMI to set the configuration ID and MTMS value](#). The system automatically resumes the download at a later time.

Tip: If you check for the expansion unit and it is not displayed in the list, you must completely exit the function and then re-enter to refresh the list.

- i. If the expansion unit is not displayed on the I/O panel, verify the installation by performing the following steps:
 1. Make sure that you powered on the expansion unit.
 2. Make sure that you installed the cables correctly. See [Set up the expansion unit](#) for cabling information.
 3. If the expansion unit still is not displayed, and you have already interrupted the code download as described in step 4.d, disconnect and reconnect the power cable from the power supply on the expansion unit.
 4. If the expansion unit still is not displayed, contact your service provider for assistance.
- ii. If the unit ID does not match the label on the I/O unit, update the configuration information [Setting expansion unit configuration ID and MTMS value](#).
 1. Set up the ASMI. Refer to [Managing the Advanced System Management Interface](#).
 2. Access the ASMI. Refer to [Managing your server using the Advanced System Management Interface](#) for information about using the ASMI.

3. Check the System Configuration settings. Refer to [Changing system configuration](#).
 5. If the system is partitioned, you can now assign the new hardware to a partition. For more information about AIX partitions, refer to [Dynamically managing physical I/O devices and slots](#). For more information about Linux partitions, refer to [Dynamically managing physical I/O devices and slots on Linux](#).
- **Verify the RIO loops using an HMC**
Complete the steps in this section to verify the RIO loops using an HMC and the system unit power on.

Parent topic: [Expansion units](#)

Verify the RIO loops using an HMC

Complete the steps in this section to verify the RIO loops using an HMC and the system unit power on.

Complete the following steps to verify the RIO loops using an HMC and the system unit power on:

1. If you were sent here from [Powering off an expansion unit](#) as part of a repair procedure, skip to step 3.
2. Use the HMC to verify that there are no B700 69xx errors by completing the following steps:
 - a. In the navigation area of the HMC, expand Management Environment.
 - b. Expand the management environment you are working with.
 - c. Expand Service Applications.
 - d. Select Service Focal Point.
 - e. In the contents area, select Manage Serviceable Events.
 - f. In the Manage Serviceable Events Select Serviceable Events window, select Open for the Serviceable Event Status, select the MTMS of the server you are working with for Reporting MTMS, and select ALL for all other fields.
 - g. Click OK.
 - h. Scan for any B700 69xx errors.
 - ◇ If there are no errors, click Cancel to exit. Go to step 3
 - ◇ If there are errors, they must be corrected before continuing. If you need assistance, contact your service provider.
3. Use the HMC to verify the existing RIO loops by completing the following steps:
 - a. In the navigation area of the HMC, expand Management Environment.
 - b. Expand the management environment you are working with.
 - c. Expand Service Applications.
 - d. Select Service Focal Point.
 - e. Select Service Utilities.
 - f. Select the server you are working with.
 - g. Click Selected from the toolbar at the top of the window and select View RIO Topology from the drop down menu.
 - h. Verify that all of the entries of type External (ignore Internal links) have a LinkStatus of Operational. If the LinkStatus for all of the external entries is operational, continue. If the LinkStatus is not operational for any of the external entries, the links must be repaired before continuing. If you need assistance, contact your service provider.

Note: If you were sent here from [Powering off an expansion unit](#) during a repair procedure, it is possible that the LinkStatus values will not be Operational for the ports on the expansion unit being powered off and repaired. It is not necessary to correct those failures before proceeding.

4. Return to the procedure that sent you here.

Parent topic: [Verify that the new configuration is functioning](#)

Related procedures

The following sections are procedures related to expansion units.

- **Before you begin**
Understand prerequisites for installing, removing, or replacing features and parts.
 - **Start or stop the system or logical partition**
Learn how to start or stop a system or logical partition.
 - **Gain access to the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ control panels**
 - **Model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, door**
Learn how to remove and replace the front door of the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .
 - **Front cover**
The following procedures describe how to remove and install the front cover of the system or expansion unit.
 - **Remove the front cover from the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+**
 - **Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+**
 - **Place the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ __ in the service position**
Learn how to place the unit into the service position.
 - **Place the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ __ in the operating position**
Learn how to place the unit into the operating position.
 - **Install a feature using the Hardware Management Console**
 - **Remove a part using the Hardware Management Console**
 - **Replace a part using the Hardware Management Console**
 - **Identify a failing part**
The following procedures describe how to locate and identify a failing part on your system or expansion unit.
 - **Verify the installed part**
-

Before you begin

Understand prerequisites for installing, removing, or replacing features and parts.

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

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

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

3. Remove the signal cables from the connectors.
4. Remove all cables from the devices

To Connect:

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

(D005)

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

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



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

CAUTION

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

(R001)

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

1. If you are installing a new feature, ensure that you have the software required to support the new feature and determine if there are any existing PTF prerequisites.
2. If you are performing an installation or replacement procedure that might put your data at risk, ensure, wherever possible, that you have a current backup of your system or logical partition (including

operating systems, licensed programs, and data).

For information on backing up your system or logical partition, select from the following:

- ◆ [AIX backup](#)
 - ◆ [Linux backup](#)
3. Review the installation or replacement procedure for the feature or part.
 4. Note the significance of color on your system.

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

5. Ensure that you have access to a medium, flat-blade screwdriver.
6. If parts are incorrect, missing, or visibly damaged, do the following:
 - ◆ If you are replacing a part, contact your service provider or next level of support.
 - ◆ If you are installing a feature, contact one of the following:
 - ◇ Your service provider or next level of support.
7. If you encounter difficulties during the installation, contact your service provider, or your next level of support.
8. If you are installing new hardware in a logical partition, you need to understand and plan for the implications of partitioning your system. For information, see [Partitioning the server](#), and then return to these instructions.

Parent topic: [Related procedures](#)

Start or stop the system or logical partition

Learn how to start or stop a system or logical partition.

- [Start the system or logical partition](#)
Use these instructions to start a system or logical partition.
- [Stop the system or logical partition](#)
Learn how to stop a system or logical partition.

Parent topic: [Related procedures](#)

Start the system or logical partition

Use these instructions to start a system or logical partition.

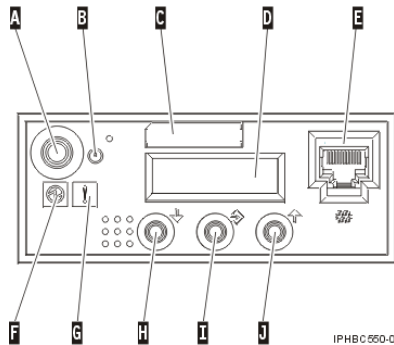
- [Start a system that is not managed by a Hardware Management Console](#)
- [Start the system or logical partition using the Hardware Management Console](#)

Parent topic: [Start or stop the system or logical partition](#)

Start a system that is not managed by a Hardware Management Console

To start a system that is not managed by a Hardware Management Console (HMC), follow these steps:

1. On a rack-mounted system unit, open the front rack door, if necessary. On a stand-alone system unit, open the front door.
2. Before you press the power button on the control panel, ensure that power is connected to the system unit as follows:
 - ◆ All system power cables are connected to a power source.
 - ◆ The power-on light F, as shown in the following figure, is slowly blinking.
 - ◆ The top of the display D, as shown in the following figure, contains 01 V=F.



Tip: The system attention light G, as shown in the previous figure, does not appear on the control panel on the model ESCALA PL 850R/PL 1650R/R+.

3. Press the power button A, as shown in the following figure, on the control panel.

Note: On the 7/10 or model ESCALA PL 250R-L, the power button is on the operations panel.

4. Observe the following after pressing the power button:
 - ◆ The power-on light begins to blink visibly faster.
 - ◆ The system cooling fans are activated after approximately 30 seconds and begin to accelerate to operating speed.
 - ◆ Progress indicators, also referred to as checkpoints, appear on the control panel display while the system is being started. The power-on light on the control panel stops blinking and remains on, indicating that system power is on.

Tip: If pressing the power button does not start the system, use the following instructions to start the system using the Advanced System Management Interface (ASMI).

- Set up access to the ASMI. For instructions, see [Accessing the ASMI](#).
- Start the system using the ASMI. For instructions, see [Powering the system on and off](#).

Parent topic: [Start the system or logical partition](#)

Start the system or logical partition using the Hardware Management Console

After the required cables are installed and the power cables are connected to a power source, you can use the Hardware Management Console (HMC) user interface to start the system or logical partition.

For instructions on working with the HMC, see [Managing the Hardware Management Console](#). For instructions on starting a logical partition, see [Activating a partition profile](#). For instructions on starting the system, see [Powering on the managed system](#).

Progress indicators, also referred to as checkpoints, appear on the control panel display while the system is being started. The power-on light on the control panel stops blinking and remains on, indicating that system power is on.

Parent topic: [Start the system or logical partition](#)

Stop the system or logical partition

Learn how to stop a system or logical partition.

Attention: Using either the power-on button on the control panel or entering commands at the Hardware Management Console (HMC) to stop the system can cause unpredictable results in the data files. Also, the next time you start the system, it might take longer if all applications are not ended before stopping the system.

To stop the system or logical partition, select the appropriate procedure:

- [Stop the system that is not managed by a Hardware Management Console](#)
- [Stop the system or logical partition using the Hardware Management Console](#)

Parent topic: [Start or stop the system or logical partition](#)

Stop the system that is not managed by a Hardware Management Console

The following procedure describes how to stop a system that is not managed by a Hardware Management Console (HMC).

Prepare to stop the system

Before you stop the system, do the following:

1. Ensure that all jobs are completed and end all applications.
2. Ensure that the operating system is stopped. Failure to do so can result in the loss of data.
3. Write down the information displayed on the control panel if you are stopping your system due to an error or to make a repair. For more information, see [Collecting reference codes and system information](#).

Stop the system

To stop a system, follow these steps:

1. Log in to the system as a user with the authority to run the `shutdown` or `pwrdownsys` (Power Down System) command.
2. At the command line, enter one of the following commands:
 - ◆ If your system is running AIX, type `shutdown`.
 - ◆ If your system is running Linux, type `shutdown -h now`.
 The command stops the operating system. The system power turns off, the power-on light begins to slowly blink, and the system goes into a standby state.
3. Set the power switches of any devices connected to the system to off.
4. Unplug any power cables that are attached to the unit from electrical outlets. Ensure that you unplug power cables from peripheral devices, such as printers and expansion units.

Important: The system might be equipped with a second power supply. Before continuing with this procedure, ensure that all power sources to the system have been completely disconnected.

(L003)



or



Parent topic: [Stop the system or logical partition](#)

Stop the system or logical partition using the Hardware Management Console

You can use the Hardware Management Console (HMC) user interface to stop the system or a logical partition. For instructions on stopping the system, see [Powering off the managed system](#).

Parent topic: [Stop the system or logical partition](#)

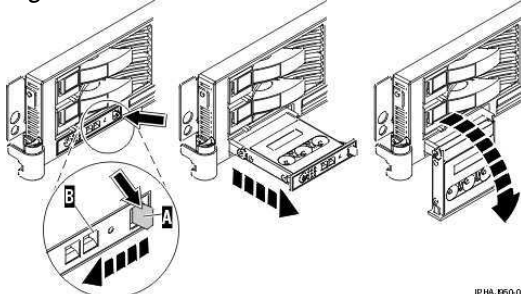
Gain access to the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ control panels

Because only part of the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ control panels control panel is visible from the front of the server, the following procedure describes how to gain access to all of the control panel's features, including the display.

To access all of the control panel's features, complete the following steps:

1. Press inward on the spring-loaded tab A located on the right side of the control panel B so that it pops out slightly, as shown in the following figure.

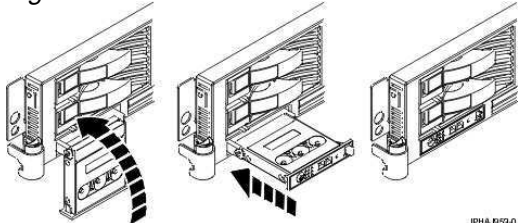
Figure 1. Gain access to the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ control panels



IPHA,B50-0

2. Pull the control panel out, toward the front of the system, until it can be pivoted downward on its hinge.
3. To move the control panel back into the device enclosure, lift the control panel up to align it with the opening and push it into place until you feel the tab lock, as shown in the following figure.

Figure 2. Close the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ control panels



IPHA,B50-0

Parent topic: [Related procedures](#)

Model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, door

Learn how to remove and replace the front door of the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .

- [Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)
- [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)

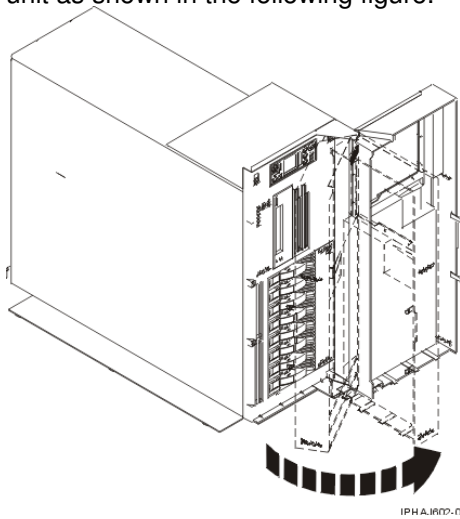
Parent topic: [Related procedures](#)

Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,

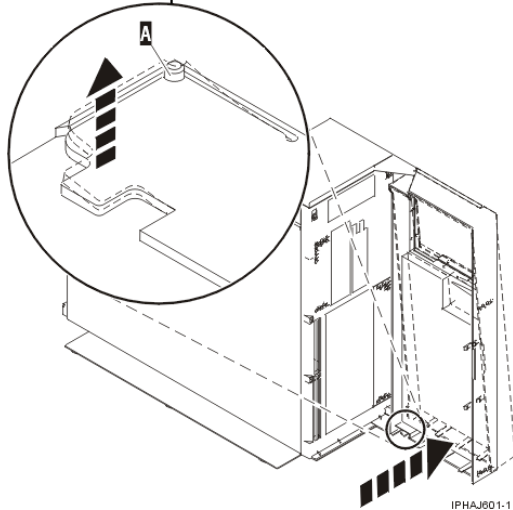
To remove the door from the model 112/85 or ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+ see, [Remove the door from the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+.](#)

To remove the ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, door, do the following:

1. Open the front door by grasping the door handle and pulling the door out and away from the system unit as shown in the following figure.



2. To remove the door, press down on the top back edge of the door.
3. Gently swivel the top back edge of the door forward and out past the top of the system unit.
4. Lift the door up to release it from the lower retaining post.



Parent topic: [Model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, door](#)

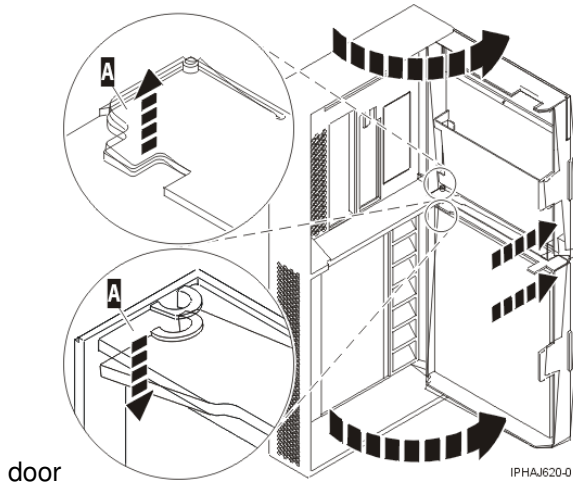
Remove the door from the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+

The model 112/85 or ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+ has two doors. The top door allows access to the media and the bottom allows access to the DASD. Use the following procedure for removing both doors.

1. Open the door that you want to remove and release the tab at the center hinge point as shown in the following figure.
 - a. Lift up the bottom tab at hinge A to release the top door.
 - b. Press down on the top tab at the hinge A to release the bottom door
2. Gently swivel the top back edge of the door forward until it releases from the system unit.

Figure 1. Removing the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+

Expansion units

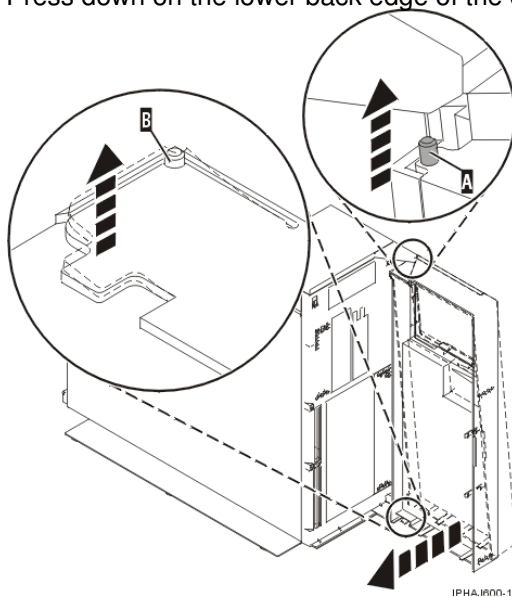


Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,

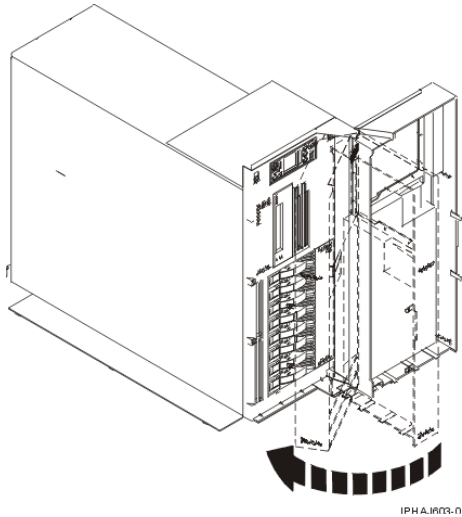
To install the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+ with acoustic feature front door see, [Install the door on the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+](#)

To install the model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, front door, do the following:

1. Set the door on the lower retaining post B, as shown in the following figure.
2. Rotate the door toward the top of the system unit.
3. Press down on the lower back edge of the door, and seat the top post A into its matching slot.



4. Close the door.



Parent topic: [Model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, door](#)

Install the door on the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+

The model 112/85 or ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+ has two doors. The top door covers the media bays, and the bottom door covers the DASD bays.

1. Set the door into the retaining post A.

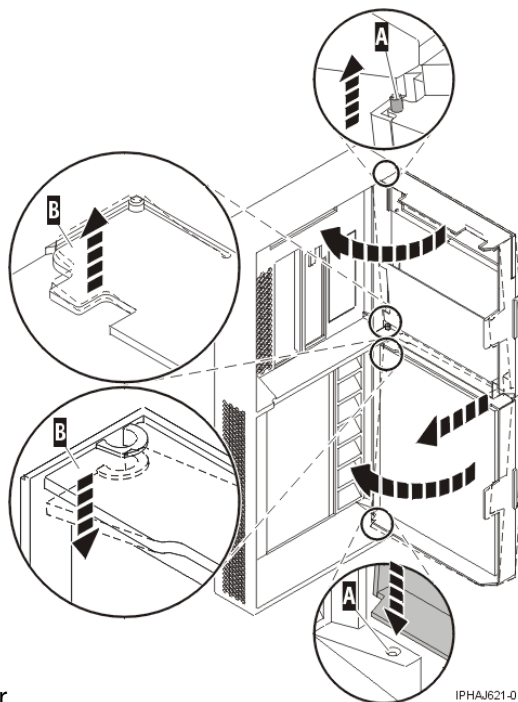


Figure 1. Installing the model 112/85 door

2. Rotate the door toward the system unit.
3. Press down on the back edge of the door, and seat the post B into its matching slot.
4. Close the door.

Front cover

The following procedures describe how to remove and install the front cover of the system or expansion unit.

- **Front cover for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, and the 05/95 expansion unit**
The following procedures describe how to remove and install the front cover of the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, , or the 05/95 expansion unit.
- **Front cover for the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+**
The following procedures describe how to remove and install the front cover for rack-mounted ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ system units.

Parent topic: [Related procedures](#)

Front cover for models 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, and the 05/95 expansion unit

The following procedures describe how to remove and install the front cover of the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, , or the 05/95 expansion unit.

- **Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit**
The following procedures describe how to remove the front cover of the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit.
- **Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit**
The following procedures describe how to install the front cover for the rack-mounted and stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit.

Parent topic: [Front cover](#)

Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit

The following procedures describe how to remove the front cover of the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit.

- **Remove the front cover from the rack-mounted model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, and the 05/95 expansion unit**
- **Remove the front cover from the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,**

Parent topic: [Front cover for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, and the 05/95 expansion unit](#)

Remove the front cover from the rack-mounted model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, and the 05/95 expansion unit

To remove the rack-mounted system or expansion unit front cover, follow these steps:

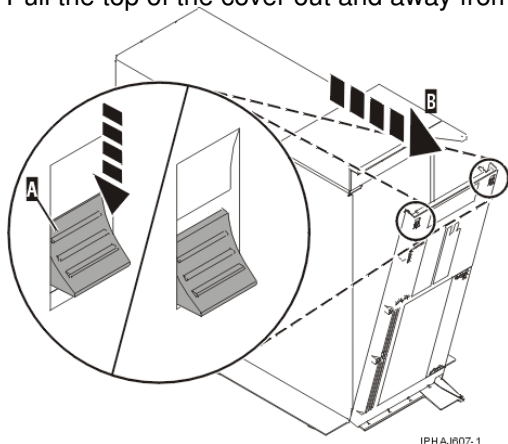
1. Open the front rack door.
2. Remove the two thumbscrews A that secure the system or expansion unit B to the rack as shown in the following figure.
3. Push both cover-release latches C in the direction of the arrows to release the cover from the system or expansion unit.
4. Pull the cover out and away from the system or expansion unit.

Parent topic: [Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)

Remove the front cover from the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,

To remove the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, front cover, follow these steps:

1. [Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
2. Press down on the two cover-release levers.
3. Pull the top of the cover out and away from the system as shown in the following figure.



4. Gently pull the cover up and off the base, releasing the lower cover-locking tabs.

Parent topic: [Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)

Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit

The following procedures describe how to install the front cover for the rack-mounted and stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit.

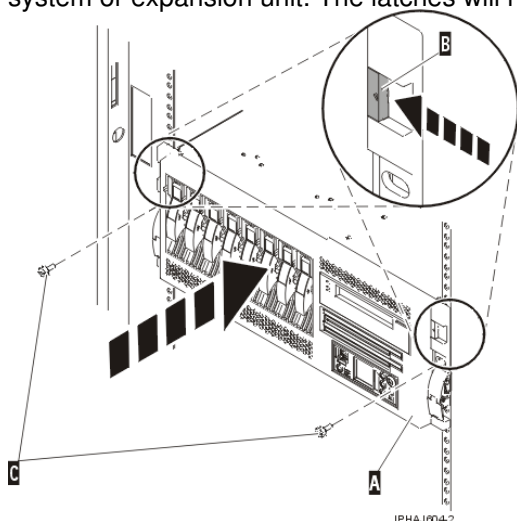
- **Install the front cover on the rack-mounted model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, , or the 05/95 expansion unit**
- **Install the front cover on the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,**

Parent topic: [Front cover for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, and the 05/95 expansion unit](#)

Install the front cover on the rack-mounted model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, , or the 05/95 expansion unit

To install the front cover on a rack-mounted model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95, follow these steps:

1. Position the cover on the front of the system or expansion unit so that the two thumbscrews C align with the screw holes on the front of the system or expansion unit A, as shown in the following figure.
2. Push the cover-release latches B in the direction of the arrows to attach the cover to the front of the system or expansion unit. The latches will hold the cover in place.



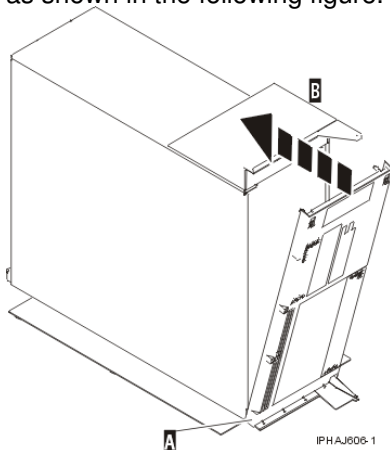
3. Tighten the thumbscrews.
4. Close the front rack door.

Parent topic: [Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)

Install the front cover on the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,

To install the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, front cover, follow these steps:

1. Place the two lower cover-locking tabs into the retaining slots located on the base of the system unit as shown in the following figure.



2. Rotate the cover up toward the top of the system, ensuring that the aligning pins are aligned with their matching slots located on the system.
3. Gently push the cover in until the two cover-release levers are seated in their respective slots.
4. [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)

Parent topic: [Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)

Front cover for the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+

The following procedures describe how to remove and install the front cover for rack-mounted ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ system units.

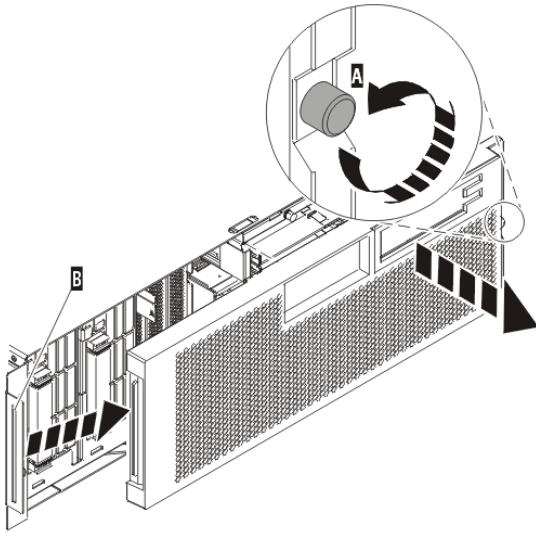
- [Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
- [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)

Parent topic: [Front cover](#)

Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+

To remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+, follow these steps:

1. If necessary, open the front rack door.
2. Loosen the thumbscrew on the right side of the cover as shown in the following figure.



IPH A1901.1

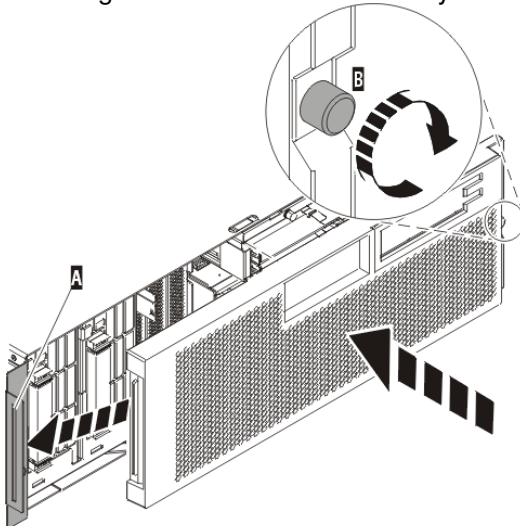
3. Slide the cover to the right and remove it from the system unit.

Parent topic: [Front cover for the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)

Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+

To install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+, follow these steps:

1. Position the cover on the front of the system unit so that the tab on the left side of the cover is in the matching slot on the left side of the system unit as shown in the following figure.



IPH A1900.1

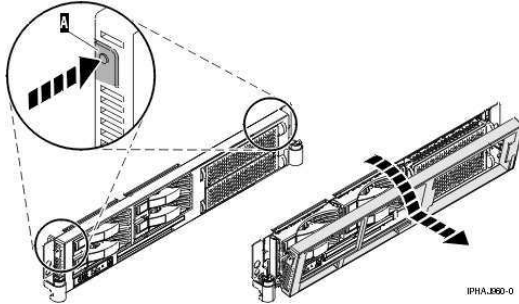
2. Tighten the thumbscrew on the right side of the cover.
3. Close the front rack door.

Parent topic: [Front cover for the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)

Remove the front cover from the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10

To remove the front cover, follow these steps:

1. If necessary, open the front rack door.
2. Push both cover-release latches A down to release the cover as shown in the following figure.



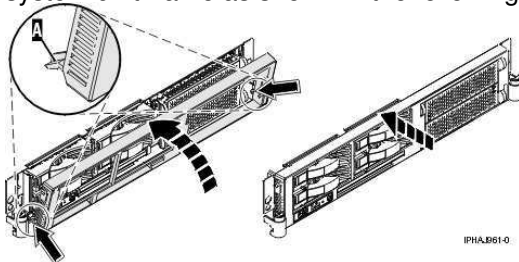
3. Pivot the cover from the bottom and swing the top of the cover out.
4. Pull the bottom of the cover up and then away from the system unit. This releases the two tabs located on the bottom of the cover.
5. Put the cover in a safe place.

Parent topic: [Related procedures](#)

Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10

To install the front cover, follow these steps:

1. If necessary, open the front rack door.
2. Insert the two tabs A located on the bottom edge of the cover into their locking slots, located on the system unit frame as shown in the following figure.



3. Pivot the front cover up toward the top of the system unit frame.
4. Align the tabs to the matching slots located on the front of the system unit frame.
5. Gently push the tabs into the slots until the cover seats against the front of the system unit.
6. Close the front rack door.

Parent topic: [Related procedures](#)

Place the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10 in the service position

Learn how to place the unit into the service position.

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

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

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

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

To Connect:

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

(D005)

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

- Heavy equipment personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.

- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.
- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices.



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

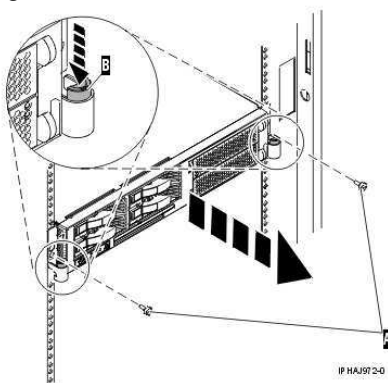
CAUTION

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

(R001)

To place the rack-mounted system unit into the service position, follow these steps:

1. If necessary, open the front rack door.
2. Remove the two thumbscrews A that secure the system unit to the rack as shown in the following figure.



3. Release the rack latches B on both the left and right sides as shown in the previous figure.
4. Review the following note, and then slowly pull the system unit out from the rack until the rails are fully extended and locked.

Note:

- ◆ If the procedure you are performing requires you to unplug cables from the back of the system unit, do so before you pull the unit out from the rack.
- ◆ Ensure that the cables at the rear of the system unit do not catch or bind as you pull the unit out from the rack.

- ◆ Ensure the rails are fully extended. When the rails are fully extended, the rail safety latches lock into place. This action prevents the system unit from being pulled out too far.

Parent topic: [Related procedures](#)

Place the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10 in the operating position

Learn how to place the unit into the operating position.

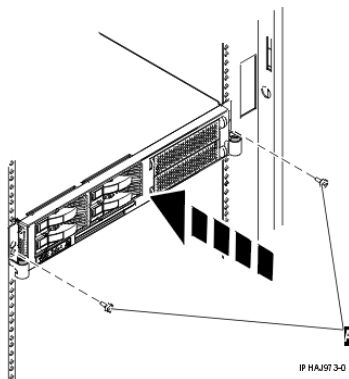
Tip: Some of the figures in these procedures might not look exactly like the system unit that you have. However, the steps to perform the task are the same.

To place the system unit into the operating position, follow these steps:

1. Simultaneously release the blue rail safety latches, located near the middle of each rail, and push the system unit into the rack. Both rack latches should lock into position.

Important: Ensure that the cables at the rear of the system unit do not catch or bind as you push the unit back into the rack.

2. Replace and tighten the two thumbscrews A that secure the system unit to the rack as shown in the following figure.



3. Close the front rack door.

Parent topic: [Related procedures](#)

Install a feature using the Hardware Management Console

To use the Hardware Management Console user interface to install a feature in a system or expansion unit that is managed by a Hardware Management Console (HMC), follow these steps:

1. In the navigation area, expand **Management Environment**.
2. Expand the managed system into which you are installing a feature.
3. Expand **Service Applications**.
4. Select **Service Focal Point**.
5. In the contents area, select **Install/Add/Remove Hardware**.
6. In the **Install/Add/Remove Hardware** window, highlight system or unit into which you are installing a feature.
7. Click **Selected**.
8. From the Selected menu, select **Add FRU**.
9. In the **Enclosure type** field, select the system or expansion unit into which you are installing a feature.
10. In the FRU types for selected enclosure, select the feature you are installing.
11. Click **Next**.
12. Follow the instructions to install the feature.

Note: The HMC might open the ESCALA Power5 Hardware Information instructions for installing the feature. If so, follow these instructions to install the feature.

Parent topic: [Related procedures](#)

Remove a part using the Hardware Management Console

To use the Hardware Management Console user interface to remove a part in a system or expansion unit that is managed by a Hardware Management Console (HMC), follow these steps:

1. In the navigation area, expand the **Management Environment**.
2. Expand the managed system in which you are replacing a part.
3. Expand **Service Applications**.
4. Select **Service Focal Point**.
5. In the contents area, select **Install/Add/Remove Hardware**.
6. In the **Install/Add/Remove Hardware** window, click System Processor.
7. From the Selected menu, select **Remove FRU**.
8. In the **Installed enclosure types** field, select the system or expansion unit from which you are removing a part.
9. In the Available FRU types for selected enclosure, select the part you are removing.
10. Click **Next**.
11. Follow the instructions to remove the part.

Note: The HMC might open the ESCALA Power5 Hardware Information instructions for removing the part. If so, follow these instructions to remove the part.

Parent topic: [Related procedures](#)

Replace a part using the Hardware Management Console

To use the Hardware Management Console user interface to replace a part in a system or expansion unit that is managed by a Hardware Management Console (HMC), follow these steps:

1. In the navigation area, expand the **Management Environment**.
2. Expand the managed system in which you are replacing a part.
3. Expand **Service Applications**.
4. Select **Service Focal Point**.
5. In the contents area, select **Repair Serviceable Event**.
6. Select the system and click **OK**.
7. In the window, click the problem number for the part you want to replace.
8. Follow the instructions to replace the part.

Note: The HMC might open the ESCALA Power5 Hardware Information instructions for replacing the part. If so, follow these instructions to replace the part.

Parent topic: [Related procedures](#)

Identify a failing part

The following procedures describe how to locate and identify a failing part on your system or expansion unit.

- [Identify a failing part on a model ESCALA PL 245T/R](#)
- [Identify a failing part on an AIX system or logical partition](#)
- [Identify a failing part on a Linux system or logical partition](#)
- [Identify a failing part using the Advanced System Management Interface](#)

Use this task to identify a failing part if the Linux operating system is running on the system or logical partition.

Parent topic: [Related procedures](#)

Identify a failing part on a model ESCALA PL 245T/R

Light path diagnostics provide a path that you can follow to help you identify the source of an error. The server must be connected to a power source for the light-emitting diodes (LED) inside the server to be lit; the server does not have to be turned on for the LEDs to be lit.

The server is designed so that LEDs remain lit when the server is connected to an ac power source but is not turned on, provided that the power supply is operating correctly. This feature helps you to isolate the problem when the operating system is shut down.

Many errors are first indicated by a lit information LED or system-error LED on the operator information panel on the front of the server. If one or both of these LEDs are lit, one or more LEDs elsewhere in the server might also be lit and can direct you to the source of the error.

To identify a failing part on a model ESCALA PL 245T/R follow these steps:

1. If this is a rack mounted server, Place the rack-mounted model ESCALA PL 245T/R in the service position or operating position.
2. Remove and replace the model ESCALA PL 245T/R side cover.
3. Find the light-path diagnostic card on top of the fan attached to the disk drive cage. Use the following figure and table to identify each light on the card.

Figure 1. Light path diagnostic card indicator LED layout

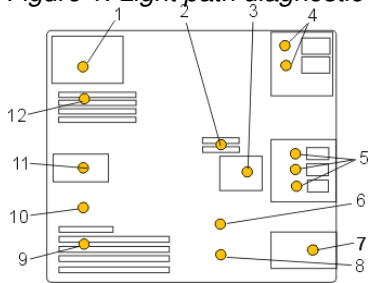
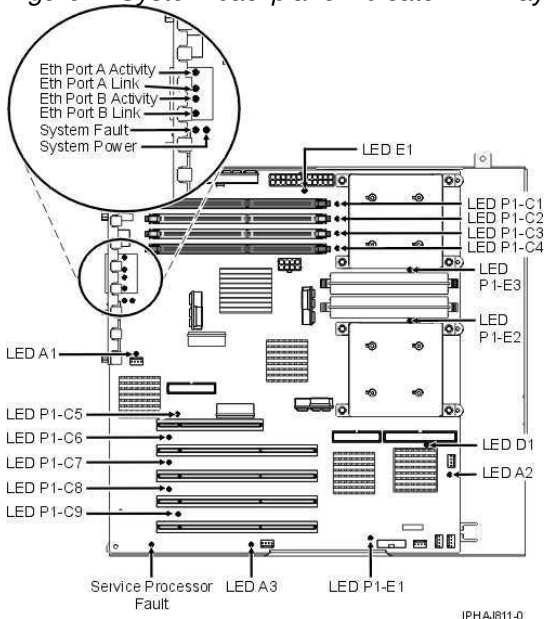


Table 1. ESCALA PL 245T/R Fault-indicator LEDs

1 Power supply fault-indicator LED	7 Front fan fault-indicator LED
2 Voltage-regulator module fault-indicator LED	8 Battery fault-indicator LED
3 Disk-drive bay fan fault-indicator LED	9 PCI adapter fault-indicator LED
4 Optical-media bay fault-indicator LEDs	10 Thermal fault-indicator LED
5 Disk-drive bay fault-indicator LEDs	11 Rear fan fault-indicator LED
6 System backplane fault-indicator LED	12 Memory fault-indicator LED

4. Refer to the service label on your system or the following figure to locate an LED on the system backplane for replaceable parts.

Figure 2. System backplane indicator LED layout



- [Place the rack-mounted model ESCALA PL 245T/R in the service position or operating position](#)
- [Remove and replace the model ESCALA PL 245T/R side cover](#)

Parent topic: [Identify a failing part](#)

Place the rack-mounted model ESCALA PL 245T/R in the service position or operating position

Learn how to place a rack-mounted model ESCALA PL 245T/R into the service position or the operating position.

- [Place the rack-mounted model ESCALA PL 245T/R in the operating position](#)
By placing the rack-mounted system unit in the operating position, you make the unit available for use.
- [Place the rack-mounted model ESCALA PL 245T/R in the service position](#)
By placing the rack-mounted system unit in the service position, you can access the inside of the unit.

Parent topic: [Identify a failing part on a model ESCALA PL 245T/R](#)

Place the rack-mounted model ESCALA PL 245T/R in the operating position

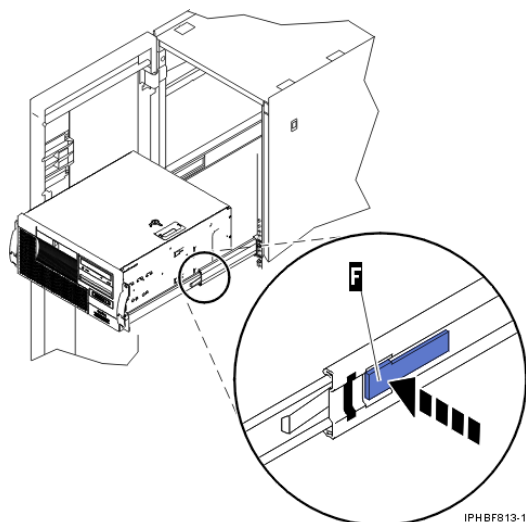
By placing the rack-mounted system unit in the operating position, you make the unit available for use.

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

To place the rack-mounted system unit into the operating position, follow these steps:

1. Simultaneously release the blue rail safety latches F located near the front of each rail, and push the system or expansion unit into the rack as shown in the following figure.

Note: Ensure that the cables at the rear of the unit do not catch or bind as you push the unit back into the rack.



- a. Both rack latches should lock into position.
2. Replace and tighten the two thumbscrews that secure the system unit to the rack.
3. Close the front rack door.

Parent topic: [Place the rack-mounted model ESCALA PL 245T/R in the service position or operating position](#)

Place the rack-mounted model ESCALA PL 245T/R in the service position

By placing the rack-mounted system unit in the service position, you can access the inside of the unit.

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

To place the rack-mounted system unit into the service position, follow these steps.

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

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

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

- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To Disconnect:

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

To Connect:

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

(D005)

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

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



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

CAUTION

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

(R001)

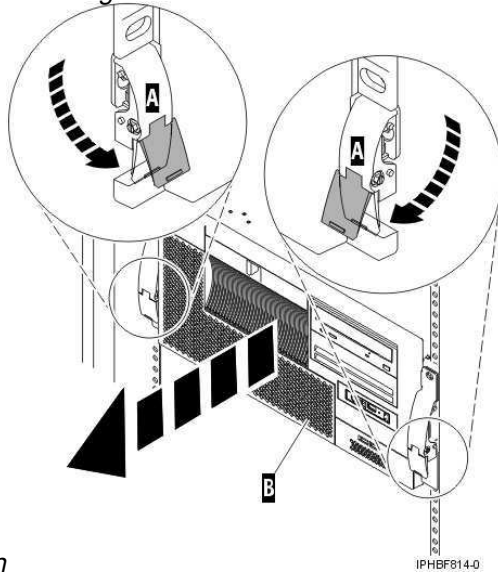
1. If necessary, open the front rack door.

2. Release the rack latches A on both the left and right sides as shown in the following figure.
3. Review the following note, and then slowly pull the system unit B out from the rack until the rails are fully extended and locked.

Note:

- ◆ If the procedure you are performing requires you to unplug cables from the back of the system unit, do so before you pull the unit out from the rack.
- ◆ Ensure that the cables at the rear of the system unit do not catch or bind as you pull the unit out from the rack.
- ◆ Ensure the rails are fully extended. When the rails are fully extended, the rail safety latches lock into place. This action prevents the system unit from being pulled out too far.

Figure 1. Placing the model ESCALA PL 245T/R in the service



Parent topic: [Place the rack-mounted model ESCALA PL 245T/R in the service position or operating position](#)

Remove and replace the model ESCALA PL 245T/R side cover

To remove the side cover from the model ESCALA PL 245T/R, follow these steps:

1. Unlock the security lock A if it is locked, as shown in the following figure.
2. Press down on the latch B to open the cover and pull it away from the system unit.
3. Lift the panel out of the ledge on the bottom of the system unit.

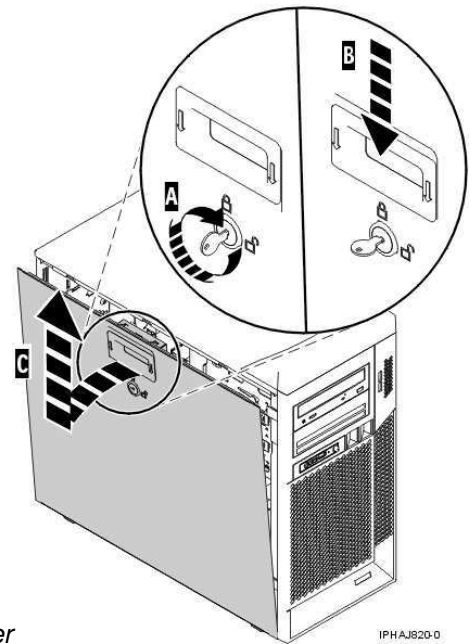


Figure 1. Removing the model ESCALA PL 245T/R side cover

Parent topic: [Identify a failing part on a model ESCALA PL 245T/R](#)

Replace the side cover in a model ESCALA PL 245T/R

To replace the side cover on the model ESCALA PL 245T/R, follow these steps:

1. Insert the bottom lip of the cover into the ledge on the bottom of the system unit.
2. Rotate the panel up A until the latch snaps into place B, as shown in the following figure.

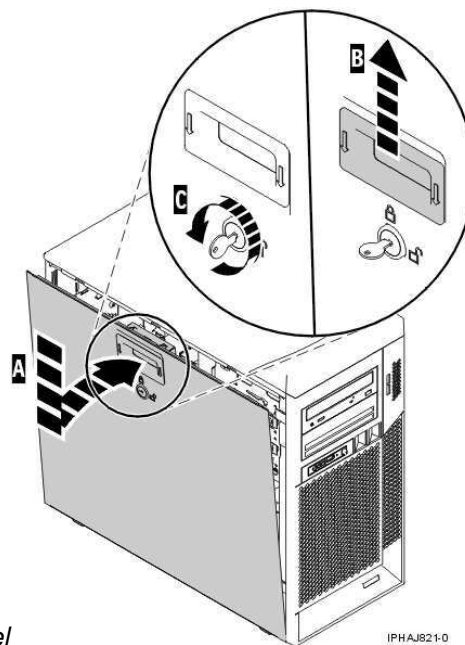


Figure 2. Replacing the service panel

3. Lock the security lock C if needed.

Identify a failing part on an AIX system or logical partition

To identify a failing part on a system or logical partition running AIX, you must locate the failing part, and then activate the indicator light for that part.

- [Locate a failing part in an AIX system or logical partition](#)
- [Activate the indicator light for the failing part](#)

Parent topic: [Identify a failing part](#)

Locate a failing part in an AIX system or logical partition

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

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

Use the location information for the failing part to activate the indicator light that identifies the failing part. For instructions, see [Activate the indicator light for the failing part](#).

Parent topic: [Identify a failing part on an AIX system or logical partition](#)

Activate the indicator light for the failing part

The indicator light helps you locate which part to replace. To activate the indicator light, follow these steps:

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

Parent topic: [Identify a failing part on an AIX system or logical partition](#)

Identify a failing part on a Linux system or logical partition

There are a number of methods to identify a failing part on a system or logical partition running Linux.

- **Locate a failing part and activate the indicator light**
Use this task to locate a failing part if the service aids have been installed.
- **Activate the indicator light for the failing part**
Use these instructions to activate the indicator light. The indicator light helps you locate which part to replace.
- **Deactivate the failing-part indicator light**
After replacing a failing part, use this task to deactivate the failing-part indicator light.
- **Identify a failing part using stand-alone diagnostics**
Use this task if the operating system is stopped or if you need to stop the system or logical partition to replace the failing part.

Parent topic: [Identify a failing part](#)

Locate a failing part and activate the indicator light

Use this task to locate a failing part if the service aids have been installed.

To identify a failing part on a system or logical partition running Linux, you must locate the failing part, and then activate the indicator light for that part.

- **Locate a failing part in a Linux system or logical partition**
Use these instructions if you do not know the location code of the failing part. If you know the location code proceed to the next task to activate the indicator light.

Parent topic: [Identify a failing part on a Linux system or logical partition](#)

Locate a failing part in a Linux system or logical partition

Use these instructions if you do not know the location code of the failing part. If you know the location code proceed to the next task to activate the indicator light.

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

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

Parent topic: [Locate a failing part and activate the indicator light](#)

Activate the indicator light for the failing part

Use these instructions to activate the indicator light. The indicator light helps you locate which part to replace.

To activate the indicator light, follow these steps:

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

Parent topic: [Identify a failing part on a Linux system or logical partition](#)

Deactivate the failing-part indicator light

After replacing a failing part, use this task to deactivate the failing-part indicator light.

After replacing a failing part, follow these steps to deactivate the failing-part indicator light:

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

Parent topic: [Identify a failing part on a Linux system or logical partition](#)

Identify a failing part using stand-alone diagnostics

Use this task if the operating system is stopped or if you need to stop the system or logical partition to replace the failing part.

You can use stand-alone diagnostics to identify a failing part in a Linux system, expansion unit, or logical partition. You access these diagnostics from a CD-ROM or from the Network Installation Management (NIM) server. This procedure describes how to use the diagnostics from a CD-ROM. For information on running diagnostics from the Network Installation Management (NIM) Server, see [Running the stand-alone diagnostics from a Network Installation Management server](#).

Prerequisites:

- If this server is directly attached to another server or attached to a network, be sure communications with the other servers are stopped.
- Ensure that no other activity is running on the logical partition. Stand-alone diagnostics require use of all of the logical partition resources. No other activity can be running on the logical partition.
- You must have access to the system console to use stand-alone diagnostics.

To use stand-alone diagnostics from a CD-ROM, follow these steps:

1. Stop all jobs and applications, and then stop the operating system on the system or logical partition.
2. Remove all tapes, diskettes, and CD-ROM.
3. Turn off the system unit power.

Note: The next step starts the server or logical partition from the stand-alone diagnostic CD-ROM. If the CD-ROM or DVD-ROM drive is not available as the startup device on the server or logical partition on which you are working, follow these steps:

- a. Access the Advanced System Management Interface (ASMI). See [Managing your server using the Advanced System Management Interface](#) for information on using the ASMI.
 - b. On the ASMI main menu, click **Power/Restart Control**.
 - c. Click **Power On/Off System**.
 - d. Select the **Service mode boot** from **default boot list** option in the AIX or Linux logical partition mode boot list.
 - e. Click **Save settings** and power on the system. As soon as the optical drive has power, insert the AIX diagnostic diskette.
 - f. Go to step 5.
4. Turn on the system unit power and insert the diagnostics CD-ROM into the CD-ROM drive.
 5. After the keyboard POST indicator displays on the firmware console and before the last POST indicator (speaker) displays, press the 5 key on either the directly attached keyboard or the ASCII terminal. This indicates that a service mode boot should be initiated using the default service mode boot list.
 6. Enter any requested password.
 7. At the Diagnostic Operating Instructions display, press Enter.

Tip: If the Diagnostic Operating Instructions display does not appear, contact your support center for assistance.

8. If the terminal type is requested, use the **Initialize Terminal** option on the **Function Selection** menu to initialize the operating system.

Parent topic: [Identify a failing part on a Linux system or logical partition](#)

Identify a failing part using the Advanced System Management Interface

Use this task to identify a failing part if the Linux operating system is running on the system or logical partition.

To activate the indicator light for a failing part, follow these steps:

1. If the unit ID does not match the label on the system or expansion unit, update the configuration information.
 - ◆ For information on setting up the ASMI refer to [Accessing the Advanced System Management Interface](#).
 - ◆ For information on using the ASMI, refer to [Managing your server using the Advanced System Management Interface](#)
2. Turn on the failing part indicator light. For instructions, see [Changing service indicators](#).

Parent topic: [Identify a failing part](#)

Expansion units

Verify the installed part

This topic describes how to verify a newly installed or replaced part on your system, logical partition, or expansion unit. Verify an installed feature or replaced part by selecting the appropriate procedure for the operating system or for the console as follows.

- [Verify an installed feature or replaced part on an AIX system or logical partition](#)
- [Verify the installed part on a Linux system or logical partition \(run AIX diagnostics\)](#)
- [Verify the presence of an installed part using Hardware Management Console \(HMC\)](#)
Use these instructions to verify an installed part using the Hardware Management Console (HMC). If you have reference codes, symptoms, or location codes that you used during the service action, locate the records to use during this procedure.
- [Verify the presence of an installed part using the Advanced System Management Interface \(ASMI\)](#)
Use these instructions to verify a newly installed part or replaced part using the Advanced System Management Interface (ASMI).

Parent topic: [Related procedures](#)

Verify an installed feature or replaced part on an AIX system or logical partition

To verify the operation of a newly installed feature or replacement part, select the appropriate procedure:

- [Verify the installed feature using AIX](#)
- [Verifying the replaced part using AIX](#)

Verify the installed feature using AIX:

1. Log in as root user.
2. At the command line, type `diag` and press Enter.
3. Select **Advanced Diagnostics Routines**. Press Enter.
4. From the **Diagnostic Mode Selection** menu, select **System Verification**. Press Enter.
5. When the **Advanced Diagnostic Selection** menu appears, do one of the following:
 - ◆ To test a single resource, select the resource that you just installed from the list of resources and press Enter.
 - ◆ To test all the resources available to the operating system, select **All Resources** and press Enter.
6. Select **Commit**, and wait until the diagnostic programs run to completion, responding to any prompts that appear.
7. Did the diagnostics run to completion and display the message `No trouble was found`?
 - ◆ **No:** If a service request number (SRN) or other reference code is displayed, suspect a loose adapter or cable connection. You can learn more about these codes in [Reference codes](#). Review the installation procedures to ensure that the new feature is installed correctly. If you cannot correct the problem, collect all SRNs or any other reference code information that you see. If the system is running in LPAR mode, note the logical partition in which you installed the feature. Contact your service provider for assistance.
 - ◆ **Yes:** The new device is installed correctly. Exit the diagnostic programs and return the system to normal operations.

Verify the replacement part using AIX

To verify the operation of a newly installed feature or replacement part, follow these steps:

1. Did you replace the part using either AIX or the online diagnostics service aid's concurrent (hot-swap) service operation?
 - ◆ **No:** Go to step 2.

- ◆ **Yes:** Go to step 5.
- 2. Is the system powered off?
 - ◆ **Yes:** If the system supports slow boot, set the system to perform a slow boot. For information, see [Performing a slow boot](#).
 - ◆ **No:** Go to step 4.
- 3. Start the system and wait until the AIX operating system login prompt displays or until apparent system activity on the operator panel or display has stopped. Did the AIX login prompt display?
 - ◆ **Yes:** Go to step 4
 - ◆ **No:** If an SRN or other reference code is displayed, suspect a loose adapter or cable connection. You can learn more about these codes in the [Reference codes](#). Review the procedures for the part that you replaced to ensure that the new part is installed correctly. If you cannot correct the problem, collect all SRNs or any other reference code information that you see. If the system does not start or you have no login prompt, see: [Problems with loading and starting the operating system](#).

If the system is partitioned, note the logical partition in which you replaced the part. Contact your service provider for assistance.

- 4. At the command prompt, type `diag a` and press Enter to check for missing resources. If you see a command prompt, go to step 5.

If the **Diagnostic selection** menu is shown with **M** appearing next to any resource, follow these steps:

- a. Select the resource and press Enter.
- b. Select **Commit**.
- c. Follow any instructions that are shown.
- d. If a *Do you want to review the previously displayed error?* message is shown, select **Yes** and press Enter.
- e. If an SRN is shown, suspect a loose card or connection. If no obvious problem is shown, record the SRN .
- f. If no SRN is shown, go to 5.
- 5. Test the part by doing the following:
 - a. At the command line, type `diag` and press Enter.
 - b. From the **Function Selection** menu, select **Advanced Diagnostics Routines**. Press Enter.
 - c. From the **Diagnostic Mode Selection** menu, select **System Verification**. Press Enter.
 - d. Select **All Resources**, or select the diagnostics for the individual part to test only the part you replaced, and any devices that are attached to the part you replaced. Press Enter.

Did the **Resource Repair Action** menu appear?

 - ◆ **No:** Go to step 6.
 - ◆ **Yes:** Go to step 7.
- 6. Did the *Testing Complete, No trouble was found* message appear?
 - ◆ **No:** There is still a problem. Contact your service provider. **This ends the procedure.**
 - ◆ **Yes:** Select **Log Repair Action**, if not previously logged, from the **Task Selection** menu to update the AIX error log. If the repair action was reseating a cable or adapter, select the resource associated with that repair action. If the resource associated with your action is not displayed on the Resource List, select **sysplanar0**. Press Enter.

Tip: This action changes the indicator light for the part from the fault state to the normal state.

Go to step 9

- 7. When a test is run on a resource in system verification mode, and that resource has an entry in the AIX error log, if the test on the resource was successful, the *Resource Repair Action* menu appears. After replacing a part, you must select the resource for that part from the *Resource Repair Action* menu. This updates the AIX error log to indicate that a system-detectable part has been replaced.

Note: On systems with a indicator light for the failing part, this changes the indicator light to the normal state.

Follow these steps:

- a. Select the resource that has been replaced from the *Resource Repair Action* menu. If the repair action was reseating a cable or adapter, select the resource associated with that repair action. If the resource associated with your action does not appear on the Resource List, select **sysplanar0**. Press Enter.
- b. Select **Commit** after you make your selections. Did another *Resource Repair Action* display appear?
 - ◆ **No:** If the *No Trouble Found* display appears, go to step 9
 - ◆ **Yes:** Go to step 8.
8. The parent or child of the resource you just replaced may also require that you run the Resource Repair Action option on it. When a test is run on a resource in system verification mode, and that resource has an entry in the AIX error log, if the test on the resource was successful, the *Resource Repair Action* menu appears. After replacing that part, you must select the resource for that part from the *Resource Repair Action* menu. This updates the AIX error log to indicate that a system-detectable part has been replaced.

Note: This changes the indicator light for the part from the fault state to the normal state.

Follow these steps:

- a. From the *Resource Repair Action* menu, select the parent or child of the resource that has been replaced. If the repair action was to reseat a cable or adapter, select the resource associated with that repair action. If the resource associated with your action does not appear on the Resource List, select **sysplanar0**. Press Enter.
- b. Select **Commit** after you make your selections.
- c. If the *No Trouble Found* display appears, go to step 9.
9. If you changed the service processor or network settings, as instructed in previous procedures, restore the settings to the value they had prior to servicing the system.
10. Did you do any hot-plug procedures before doing this procedure?
 - ◆ **No:** Go to step 11.
 - ◆ **Yes:** Go to step 12.
11. Start the operating system, with the system or logical partition in normal mode. Were you able to start the operating system?
 - ◆ **No:** Contact your service provider. **This ends the procedure.**
 - ◆ **Yes:** Go to step 12.
12. Are the indicator lights still on?
 - ◆ **No. This ends the procedure.**
 - ◆ **Yes.** Turn off the lights. See one of the following for instructions:
 - ◇ [Identify a failing part using stand-alone diagnostics](#)
 - ◇ [Running the stand-alone diagnostics from a Network Installation Management server](#)
 - ◇ [Changing service indicators with the ASMI menus](#)

Parent topic: [Verify the installed part](#)

Verify the installed part on a Linux system or logical partition (run AIX diagnostics)

To verify the newly installed or replaced part, choose one of the following:

- [Verify the presence of an installed part using the Advanced System Management Interface \(ASMI\)](#)
- [Verify an installed part using the stand-alone diagnostics](#)
Use these instructions to verify an installed part in a Linux system, expansion unit, or logical partition.

Verify an installed part using the stand-alone diagnostics

Use these instructions to verify an installed part in a Linux system, expansion unit, or logical partition.

You can use stand-alone diagnostics to verify an installed part in a Linux system, expansion unit, or logical partition. You access these diagnostics from a CD-ROM or from the Network Installation Management (NIM) server. This procedure describes how to use the diagnostics from a CD-ROM. For information on running diagnostics from the Network Installation Management (NIM) server, see [Running the stand-alone diagnostics from a Network Installation Management server](#).

Prerequisites

- If this server is directly attached to another server or attached to a network, be sure communication with the other servers is stopped.
- stand-alone diagnostics require use of all of the logical partition resources. No other activity can be running on the logical partition.
- stand-alone diagnostics require access to the system console.

To use stand-alone diagnostics, follow these steps:

1. Stop all jobs and applications and then stop the operating system on the system or logical partition.
2. Remove all tapes, diskettes, and CD-ROM.
3. Turn off the system unit power. The next step boots the server or logical partition from the stand-alone diagnostics CD-ROM. If the optical drive is not available as the boot device on the server or logical partition on which you are working, follow these steps:
 - a. Access the ASMI. See [Managing your server using the Advanced System Management Interface](#) for information on using the ASMI.
 - b. On the ASMI main menu, click on **Power/Restart Control**.
 - c. Click on Power On/Off System.
 - d. Select the **Service mode boot from default boot list** option in the AIX/Linux logical partition mode boot drop-down menu.
 - e. Click on **Save settings and power on**. As soon as the optical drive has power, insert the standalone diagnostic CD-ROM.
 - f. Go to step 5.
4. Turn on the system unit power and immediately insert the diagnostics CD-ROM into the optical drive.
5. After the **keyboard** POST indicator displays on the system console and before the last POST indicator (**speaker**) displays, press the numeric 5 key on the system console to indicate that a service mode boot should be initiated using the default service mode boot list.
6. Enter any requested password.
7. At the *Diagnostic Operating Instructions* display, press Enter.

Note: If an SRN or other reference code is displayed, suspect a loose adapter or cable connection. Review the procedures for the part that you replaced to ensure that the new part is installed correctly. If you cannot correct the problem, collect all SRNs or any other reference code information that you see. If the system will not boot or you have no login prompt go to [Problems with loading and starting the operating system](#).

Note: If you received an SRN or any other reference code when you attempted to start the system, you can learn more about these codes in [Reference codes](#).

8. If the terminal type is requested, you must use the **Initialize Terminal** option on the *Function Selection* menu to initialize the operating system before you can continue.
9. From the Function Selection menu, select **Advanced Diagnostics Routines**. Press Enter.
10. From the Diagnostic Mode Selection menu, select **System Verification**. Press Enter.
11. When the Advanced Diagnostic Selection menu appears, select **All Resources**, or test only the part you replaced, and any devices that are attached to the part you replaced, by selecting the diagnostics for the individual part. Press Enter.
12. Did the *Testing Complete, No trouble was found* message appear?
 - ◆ **No:** There is still a problem. Contact your service provider.
 - ◆ **Yes:** Go to step 13.
13. If you changed the service processor or network settings, as instructed in previous procedures, restore the settings to the value they had prior to servicing the system.
14. If the indicator lights are still on, follow these steps:
 - a. Select **Identify and Attention Indicators** from the *Task Selection* menu to turn off the system attention and indicator lights. Press Enter.
 - b. Select **Set System Attention Indicator to NORMAL** and press Enter.
 - c. Select **Set All Identify Indicators to NORMAL** and press Enter.
 - d. Choose **Commit**.

Note: This changes the system attention and identify indicators from the *Fault* state to the *Normal* state.

- e. Exit to the command line.

Parent topic: [Verify the installed part on a Linux system or logical partition \(run AIX diagnostics\)](#)

Verify the presence of an installed part using Hardware Management Console (HMC)

Use these instructions to verify an installed part using the Hardware Management Console (HMC). If you have reference codes, symptoms, or location codes that you used during the service action, locate the records to use during this procedure.

Use this procedure to update your HMC records after you have completed a service action on your server. If you have reference codes, symptoms, or location codes that you used during the service action, locate the records to use during this procedure.

1. At the HMC, examine the service action event log for any open service action events. See [Viewing serviceable events](#) for details.
2. Are there any service action events that are open?
 - ◆ **No:** If the system attention LED is still on, use the HMC to turn off the LED. See [Activating and Deactivating LEDs](#). **This ends the procedure.**
 - ◆ **Yes:** Continue with the next step.
3. Record the list of open service action events.
4. Examine the details of the open service action event. Is the error code associated with this service action event the same as you gathered earlier.
 - ◆ **Yes:** Continue with the next step.
 - ◆ **No:** Choose from the following options:
 - ◇ Review the other serviceable events and find one that does match and continue with the next step.
 - ◇ If the log does not match what you had gathered earlier, contact your service provider.
5. Select and highlight the service action event from the Error Associated With This Serviceable Event window.
6. Click **Close Event**.
7. Add comments for the serviceable event. Include any unique additional information. Click **OK**.
8. Did you replace, add, or modify a FRU of the open service action event?

- ◆ **No:** Select the **No FRU Replaced for this Serviceable Event** option and click **OK** to close the service action event.
 - ◆ **Yes:** Perform the following steps:
 - a. From the FRU list, select a FRU that you need to update.
 - b. Double-click the FRU and update the FRU information.
 - c. Click **OK** to close the service action event.
9. If you continue to have problems, contact your service provider.

Parent topic: [Verify the installed part](#)

Verify the presence of an installed part using the Advanced System Management Interface (ASMI)

Use these instructions to verify a newly installed part or replaced part using the Advanced System Management Interface (ASMI).

To verify the newly installed or replaced part, follow these steps:

1. If the unit ID does not match the label on the system or expansion unit, update the configuration information.
 - ◆ For information on accessing up the ASMI, refer to [Accessing the Advanced System Management Interface](#)
 - ◆ For information on using the ASMI [Managing your server using the Advanced System Management Interface](#).
2. Turn off the failing part indicator light. For instructions, see [Changing service indicators](#).

Parent topic: [Verify the installed part](#)

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