Power Systems

Servicing the IBM Power System S822LC (8335-GCA or 8335-GTA)

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Note

Before using this information and the product it supports, read the information in "Safety notices" on page v, "Notices" on page 135, the *IBM Systems Safety Notices* manual, G229-9054, and the *IBM Environmental Notices and User Guide*, Z125–5823.

This edition applies to IBM Power Systems™ servers that contain the POWER8® processor and to all associated models.

Contents

Safety notices

Safety notices may be printed throughout this guide:

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

World Trade safety information

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

Replacement or additional copies of safety information documentation can be obtained by calling the IBM Hotline at 1-800-300-8751.

German safety information

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

Laser safety information

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

Laser compliance

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

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

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

- If IBM supplied the power cord(s), connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
  - For AC power, disconnect all power cords from their AC power source.
  - For racks with a DC power distribution panel (PDP), disconnect the customer's DC power source to the PDP.
- When connecting power to the product ensure all power cables are properly connected.

  - For racks with AC power, 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.
  - For racks with a DC power distribution panel (PDP), connect the customer's DC power source to the PDP. Ensure that the proper polarity is used when attaching the DC power and DC power return wiring.
- 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.
- Do not attempt to switch on power to the machine until all possible unsafe conditions are corrected.
- Assume that an electrical safety hazard is present. Perform all continuity, grounding, and power checks specified during the subsystem installation procedures to ensure that the machine meets safety requirements.
- Do not continue with the inspection if any unsafe conditions are present.
- Before you open the device covers, unless instructed otherwise in the installation and configuration procedures: Disconnect the attached AC power cords, turn off the applicable circuit breakers located in the rack power distribution panel (PDP), and disconnect any telecommunications systems, networks, and modems.

DANGER:
- 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. For AC power, remove the power cords from the outlets.
  3. For racks with a DC power distribution panel (PDP), turn off the circuit breakers located in the PDP and remove the power from the Customer's DC power source.
  4. Remove the signal cables from the connectors.
  5. 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. For AC power, attach the power cords to the outlets.
  5. For racks with a DC power distribution panel (PDP), restore the power from the Customer's DC power source and turn on the circuit breakers located in the PDP.
  6. Turn on the devices.

  Sharp edges, corners and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes and pinching. (D005)

(R001 part 1 of 2):

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. In addition, do not lean on rack mounted devices and do not use them to stabilize your body position (for example, when working from a ladder).

- Each rack cabinet might have more than one power cord.
  - For AC powered racks, be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
  - For racks with a DC power distribution panel (PDP), turn off the circuit breaker that controls the power to the system unit(s), or disconnect the customer's DC power source, 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.

(R001 part 2 of 2):

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.

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

- **Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must observe the following precautions:**
  - **Remove all devices in the 32U position (compliance ID RACK-001 or 22U (compliance ID RR001) and above.**
  - **Ensure that the heaviest devices are installed in the bottom of the rack cabinet.**
  - **Ensure that there are little-to-no empty U-levels between devices installed in the rack cabinet below the 32U (compliance ID RACK-001 or 22U (compliance ID RR001) level, unless the received configuration specifically allowed it.**
- **If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.**
- **If the rack cabinet you are relocating was supplied with removable outriggers they must be reinstalled before the cabinet is relocated.**
- **Inspect the route that you plan to take to eliminate potential hazards.**
- **Verify that the route that you choose can support the weight of the loaded rack cabinet. Refer to the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.**
- **Verify that all door openings are at least 760 x 230 mm (30 x 80 in.).**
- **Ensure that all devices, shelves, drawers, doors, and cables are secure.**
- **Ensure that the four leveling pads are raised to their highest position.**
- **Ensure that there is no stabilizer bracket installed on the rack cabinet during movement.**
- **Do not use a ramp inclined at more than 10 degrees.**
- **When the rack cabinet is in the new location, complete the following steps:**
  - **Lower the four leveling pads.**
  - **Install stabilizer brackets on the rack cabinet.**
  - **If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.**
- **If a long-distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also lower the leveling pads to raise the casters off of the pallet and bolt the rack cabinet to the pallet.**

(R002)

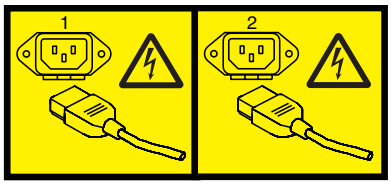
(L001)

DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

(L002)

DANGER: Rack-mounted devices are not to be used as shelves or work spaces. (L002)

(L003)



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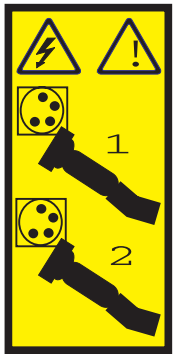

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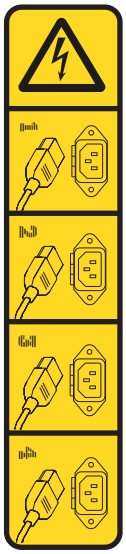

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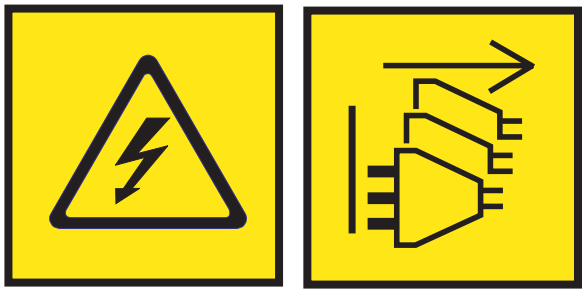

DANGER: Multiple power cords. The product might be equipped with multiple AC power cords or multiple DC power cables. To remove all hazardous voltages, disconnect all power cords and power cables. (L003)

(L007)

CAUTION: A hot surface nearby. (L007)

(L008)

CAUTION: Hazardous moving parts nearby. (L008)

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

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

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

(C026)

CAUTION:
Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. Although shining light into one end and looking into the other end of a disconnected optical fiber to verify the continuity of optic fibers many not injure the eye, this procedure is potentially dangerous. Therefore, verifying the continuity of optical fibers by shining light into one end and looking at the other end is not recommended. To verify continuity of a fiber optic cable, use an optical light source and power meter. (C027)

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

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

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

Do Not:

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

Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C003)

CAUTION:
Regarding IBM provided VENDOR LIFT TOOL:

- **Operation of LIFT TOOL by authorized personnel only.**
- **LIFT TOOL intended for use to assist, lift, install, remove units (load) up into rack elevations. It is not to be used loaded transporting over major ramps nor as a replacement for such designated tools like pallet jacks, walkies, fork trucks and such related relocation practices. When this is not practicable, specially trained persons or services must be used (for instance, riggers or movers).**
- **Read and completely understand the contents of LIFT TOOL operator's manual before using. Failure to read, understand, obey safety rules, and follow instructions may result in property damage and/or personal injury. If there are questions, contact the vendor's service and support. Local paper manual must remain with machine in provided storage sleeve area. Latest revision manual available on vendor's web site.**
- **Test verify stabilizer brake function before each use. Do not over-force moving or rolling the LIFT TOOL with stabilizer brake engaged.**
- **Do not move LIFT TOOL while platform is raised, except for minor positioning.**
- **Do not exceed rated load capacity. See LOAD CAPACITY CHART regarding maximum loads at center versus edge of extended platform.**
- **Only raise load if properly centered on platform. Do not place more than 200 lb (91 kg) on edge of sliding platform shelf also considering the load's center of mass/gravity (CoG).**
- **Do not corner load the platform tilt riser accessory option. Secure platform riser tilt option to main shelf in all four (4x) locations with provided hardware only, prior to use. Load objects are designed to slide on/off smooth platforms without appreciable force, so take care not to push or lean. Keep riser tilt option flat at all times except for final minor adjustment when needed.**
- **Do not stand under overhanging load.**
- **Do not use on uneven surface, incline or decline (major ramps).**
- **Do not stack loads.**
- **Do not operate while under the influence of drugs or alcohol.**
- **Do not support ladder against LIFT TOOL.**
- **Tipping hazard. Do not push or lean against load with raised platform.**
- **Do not use as a personnel lifting platform or step. No riders.**
- **Do not stand on any part of lift. Not a step.**
- **Do not climb on mast.**
- **Do not operate a damaged or malfunctioning LIFT TOOL machine.**
- **Crush and pinch point hazard below platform. Only lower load in areas clear of personnel and obstructions. Keep hands and feet clear during operation.**
- **No Forks. Never lift or move bare LIFT TOOL MACHINE with pallet truck, jack or fork lift.**
- **Mast extends higher than platform. Be aware of ceiling height, cable trays, sprinklers, lights, and other overhead objects.**
- **Do not leave LIFT TOOL machine unattended with an elevated load.**
- **Watch and keep hands, fingers, and clothing clear when equipment is in motion.**
- **Turn Winch with hand power only. If winch handle cannot be cranked easily with one hand, it is probably over-loaded. Do not continue to turn winch past top or bottom of platform travel. Excessive unwinding will detach handle and damage cable. Always hold handle when lowering, unwinding. Always assure self that winch is holding load before releasing winch handle.**
- **A winch accident could cause serious injury. Not for moving humans. Make certain clicking sound is heard as the equipment is being raised. Be sure winch is locked in position before releasing handle. Read instruction page before operating this winch. Never allow winch to unwind freely. Freewheeling will cause uneven cable wrapping around winch drum, damage cable, and may cause serious injury. (C048)**

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

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

The equipment is suitable for installation in the following:

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

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

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

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

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

The dc-powered system is intended to be installed in a common bonding network (CBN) as described in GR-1089-CORE.

Removing and replacing parts

Use these procedures to remove and replace failing parts. These parts are referred to as field replaceable units (FRUs).

Note: See the International Information Bulletin for Customers - Installation of IBM Machines (http://www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss). This bulletin (Publication number: SC27-6601-00) provides a list of the key IBM system installation activities and those activities that might be billable activities.

Before you begin a replacement, complete these tasks:

1. If you are completing a replacement procedure that might put your data at risk, ensure, if possible, that you have a current backup of your system or logical partition (including operating systems, licensed programs, and data).
2. Review the installation or replacement procedure for the feature or part.
3. Note the significance of color on your system.
   - The color **terracotta** on the part indicates you might not need to power off the system to complete service. This determination depends on your system configuration, and you might need to complete steps to prepare the system before a service action can be completed on the system with the system power turned on.
   - The color **blue** on the part indicates that the procedure might require the system to be shut down before servicing. Check your service procedure before you attempt the repair.
4. Ensure that you have access to a medium, flat-blade screwdriver, and a Phillips screwdriver.
5. If parts are incorrect, missing, or visibly damaged, contact the provider of the part or your next level of support.

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

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

- If IBM supplied the power cord(s), connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
  - For AC power, disconnect all power cords from their AC power source.
  - For racks with a DC power distribution panel (PDP), disconnect the customer's DC power source to the PDP.
- When connecting power to the product ensure all power cables are properly connected.
  - For racks with AC power, 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.
  - For racks with a DC power distribution panel (PDP), connect the customer's DC power source to the PDP. Ensure that the proper polarity is used when attaching the DC power and DC power return wiring.
- 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.
- Do not attempt to switch on power to the machine until all possible unsafe conditions are corrected.

- Assume that an electrical safety hazard is present. Perform all continuity, grounding, and power checks specified during the subsystem installation procedures to ensure that the machine meets safety requirements.
- Do not continue with the inspection if any unsafe conditions are present.
- Before you open the device covers, unless instructed otherwise in the installation and configuration procedures: Disconnect the attached AC power cords, turn off the applicable circuit breakers located in the rack power distribution panel (PDP), and disconnect any telecommunications systems, networks, and modems.

DANGER:
- 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. For AC power, remove the power cords from the outlets.
  3. For racks with a DC power distribution panel (PDP), turn off the circuit breakers located in the PDP and remove the power from the Customer's DC power source.
  4. Remove the signal cables from the connectors.
  5. 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. For AC power, attach the power cords to the outlets.
  5. For racks with a DC power distribution panel (PDP), restore the power from the Customer's DC power source and turn on the circuit breakers located in the PDP.
  6. Turn on the devices.

  Sharp edges, corners and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes and pinching. (D005)

Attention:

Failure to follow the step-by-step sequence for FRU removal or installation might result in FRU or system damage.

For safety, airflow purposes and thermal performance, the service access cover must be installed and fully seated prior to powering the system on.

For safety and airflow purposes and thermal performance, if you remove parts from the system, you must ensure that:

- PCIe tailstock fillers are present
- GPU or PCIe carriers are present and that either GPU or PCIe fillers are installed in the carriers.

Use the following precautions whenever you handle electronic components or cables.

- The electrostatic discharge (ESD) kit and the ESD wrist strap must be used when you handle logic cards, single chip modules (SCM), multichip modules (MCM), electronic boards, and disk drives.
- Keep all electronic components in the shipping container or envelope until you are ready to install them.
- If you remove, and then reinstall an electronic component, temporarily place the component on an ESD pad or blanket.

Servicing system parts

Use this information to service your system.

To diagnose problems that might occur with your system, see Troubleshooting, service, and support for POWER8 processor-based systems.

Removing and replacing parts

Use these procedures to remove and replace failing parts. These parts are referred to as field replaceable units (FRUs).

Note: See the International Information Bulletin for Customers - Installation of IBM Machines (http://www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss). This bulletin (Publication number: SC27-6601-00) provides a list of the key IBM system installation activities and those activities that might be billable activities.

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1. If you are completing a replacement procedure that might put your data at risk, ensure, if possible, that you have a current backup of your system or logical partition (including operating systems, licensed programs, and data).
2. Review the installation or replacement procedure for the feature or part.
3. Note the significance of color on your system.
   - The color **terracotta** on the part indicates you might not need to power off the system to complete service. This determination depends on your system configuration, and you might need to complete steps to prepare the system before a service action can be completed on the system with the system power turned on.
   - The color **blue** on the part indicates that the procedure might require the system to be shut down before servicing. Check your service procedure before you attempt the repair.
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- 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.
  - For AC power, disconnect all power cords from their AC power source.
  - For racks with a DC power distribution panel (PDP), disconnect the customer's DC power source to the PDP.
- When connecting power to the product ensure all power cables are properly connected.
  - For racks with AC power, 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.
  - For racks with a DC power distribution panel (PDP), connect the customer's DC power source to the PDP. Ensure that the proper polarity is used when attaching the DC power and DC power return wiring.
- 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.
- Do not attempt to switch on power to the machine until all possible unsafe conditions are corrected.
- Assume that an electrical safety hazard is present. Perform all continuity, grounding, and power checks specified during the subsystem installation procedures to ensure that the machine meets safety requirements.
- Do not continue with the inspection if any unsafe conditions are present.
- Before you open the device covers, unless instructed otherwise in the installation and configuration procedures: Disconnect the attached AC power cords, turn off the applicable circuit breakers located in the rack power distribution panel (PDP), and disconnect any telecommunications systems, networks, and modems.

DANGER:

- 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. For AC power, remove the power cords from the outlets.
  3. For racks with a DC power distribution panel (PDP), turn off the circuit breakers located in the PDP and remove the power from the Customer's DC power source.
  4. Remove the signal cables from the connectors.
  5. 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. For AC power, attach the power cords to the outlets.
  5. For racks with a DC power distribution panel (PDP), restore the power from the Customer's DC power source and turn on the circuit breakers located in the PDP.
  6. Turn on the devices.

  Sharp edges, corners and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes and pinching. (D005)

Attention:

Failure to follow the step-by-step sequence for FRU removal or installation might result in FRU or system damage.

For safety, airflow purposes and thermal performance, the service access cover must be installed and fully seated prior to powering the system on.

For safety and airflow purposes and thermal performance, if you remove parts from the system, you must ensure that:

- PCIe tailstock fillers are present
- GPU or PCIe carriers are present and that either GPU or PCIe fillers are installed in the carriers.

Use the following precautions whenever you handle electronic components or cables.

- The electrostatic discharge (ESD) kit and the ESD wrist strap must be used when you handle logic cards, single chip modules (SCM), multichip modules (MCM), electronic boards, and disk drives.
- Keep all electronic components in the shipping container or envelope until you are ready to install them.
- If you remove, and then reinstall an electronic component, temporarily place the component on an ESD pad or blanket.

Removing and replacing a disk drive in the 8335-GCA or 8335-GTA

Learn how to remove and replace a disk drive in the IBM Power® System S822LC (8335-GCA and 8335-GTA) system.

The drive might be a hard disk drive (HDD) or a solid-state drive (SSD).

Preparing the 8335-GCA or 8335-GTA system to remove and replace a disk drive with the power turned on

Follow these steps to prepare the IBM Power System S822LC (8335-GCA and 8335-GTA) system to replace a disk drive.

Procedure

1. Complete the prerequisite tasks. For instructions, see “Before you begin” on page 110.
2. Identify the part and the system that you will be working on. For instructions, see “Identifying the system that contains the part to replace” on page 113.
3. If applicable, open the rack front door.
4. Attach the electrostatic discharge (ESD) wrist strap.

   Attention:

   - Attach an electrostatic discharge (ESD) wrist strap to the front ESD jack, to the rear ESD jack, or to an unpainted metal surface of your hardware to prevent the electrostatic discharge from damaging your hardware.
   - When you use an ESD wrist strap, follow all electrical safety procedures. An ESD wrist strap is used for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
   - If you do not have an ESD wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.
5. Remove the front cover. For instructions, see “Removing the front cover from an 8335-GCA or 8335-GTA system” on page 123.

(L007)

CAUTION: A hot surface nearby. (L007)

6. Find the package that contains the replacement drive.

   Attention: Drives are fragile. Handle with care.

7. Remove the drive from the static-protective package and place it on an ESD mat.

Removing and replacing a disk drive in the 8335-GCA or 8335-GTA system

Follow these steps to remove a disk drive in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Locate the faulty drive.
   a. Determine which drive to replace as determined by the operating system. For example, the drive might be referenced as `sda` or `sdb`.

      Attention: The operating system is typically on `sda`. Do not continue with removing the drive with the power on unless `sda` is part of a RAID configuration. If the drive contains the operating system, needs to be removed, and is not part of a RAID array, you need to first power down the system.

   b. Disable the drive to prepare for removal with the following command, where `sdX` is the drive to replace.

      ```
      sh –c "echo 0 >/sys/block/sdX/device/delete"
      ```

   c. Verify the drive has been disabled from writing using the `lsscsi` command. The drive should no longer appear in the output.

      ```
      lsscsi
      ```

   d. Gather the physical serial number of the identified drive with the following command, where `sdX` is the drive to replace:

      ```
      hdparm –i /dev/sdX | grep –i serial
      ```

   e. Run the following command to identify the physical drive, where `sdX` is the drive to replace:

      ```
      dd if=/dev/sdX of =/dev/null
      ```

      The green LED on the drive flashes.

      You can also use the optional `ledmon` package turn the identify LED on or off. Run this command to turn on the LED, where `sdX` is the drive to replace:

      ```
      ledctl locate=/dev/rssdX
      ```

      Run this command to turn off the LED:

      ```
      ledctl locate_off=/dev/rssdX
      ```

Remove:

3. Unlock the drive bay handle **(B)** by pushing the handle release **(A)** up. The handle **(B)** snaps out towards you. If the handle does not snap all the way out, the drive does not slide out of the system.

See Figure 1.

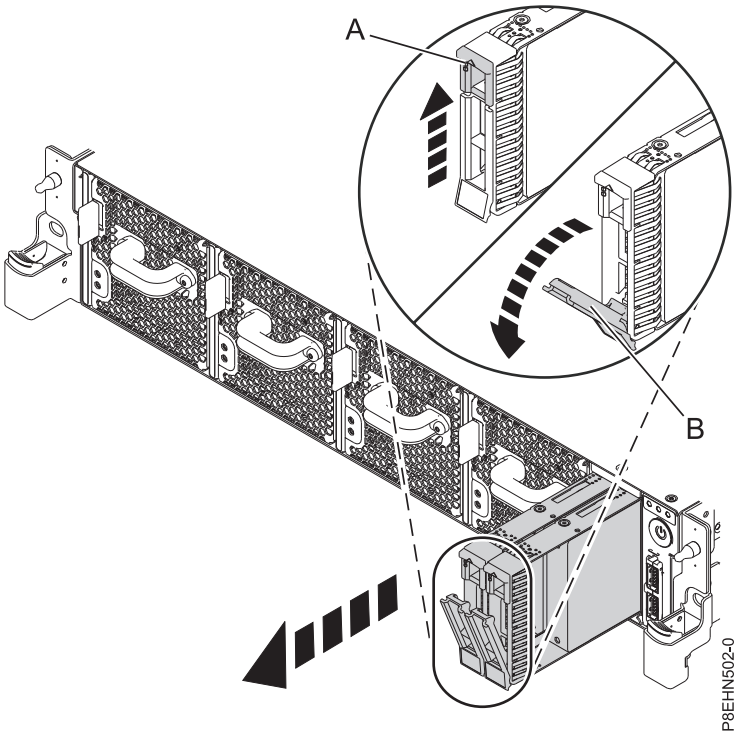


Figure 1. Disk drive lock detail

4. Support the bottom of the drive as you slide it out of the system. Do not hold the drive by the handle.
5. If you are removing more than one drive, repeat the steps in this procedure until all drives are removed.

Replace:

6. Hold the drive by the top and bottom edges as you position the drive, and insert it into the drive slot.
7. Lock the drive bay handle **(A)** by pushing in the handle release. See Figure 2 on page 8.

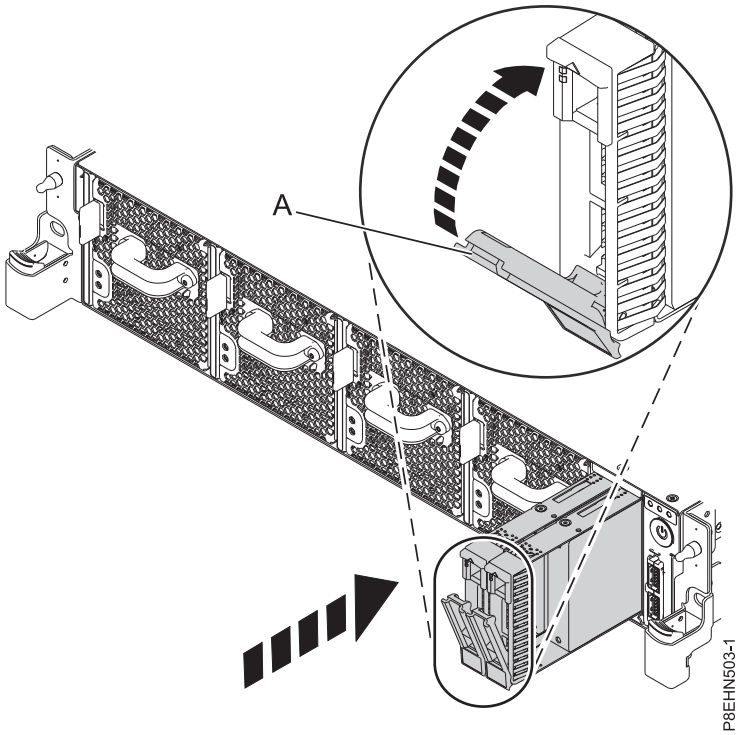


Figure 2. Locking the drive bay handle

8. Configure the installed or replaced disk drive for your environment.

   When adding a new disk, after inserting the new disk, you need to for a rescan for the device.

   - **Ubuntu Linux operating system**: To run the **rescan-scsi-bus** command in the Ubuntu Linux operating system, log in to the system as the root user, and run the following command:

     ```
     rescan-scsi-bus
     ```

     The **rescan-scsi-bus** tool is available in the *scsitools* package; install the package by using the following command:

     ```
     sudo apt-get install scsitools
     ```

   - **Red Hat Enterprise Linux (RHEL) version 7.2**: To run the rescan command in the REHL version 7.2 operating system, log in to the system as the root user, and run the command:

     ```
     rescan-scsi-bus.sh -a
     ```

     The **rescan-scsi-bus** tool is available in the *sg3_utils* package; install the package by using the following command:

     ```
     yum install sg3_utils
     ```

     You may also want to refer to: Adding a Storage Device or Path (https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/7/html/Storage_Administration_Guide/adding_storage-device-or-path.html)

   Verify that the new drive is active with the following command:

   ```
   lsscsi
   ```

9. Load or restore data from your backup media.

Preparing the 8335-GCA or 8335-GTA system for operation after removing and replacing a drive with the power turned on

Follow these steps to prepare the IBM Power System S822LC (8335-GCA and 8335-GTA) system for operation.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. On the front of the system, verify that the power LED is **ON** (green) for the installed or replaced drive.
3. Replace the front cover. For instructions, see "Installing the front cover on an 8335-GCA or 8335-GTA system" on page 123.
4. If applicable, close the rack front door.
5. Verify the installed part. See Verifying a repair in the 8335-GCA or 8335-GTA (http://www.ibm.com/support/knowledgecenter/POWER8/p8ei3/p8ei3_verifyrepair.htm).
6. Configure the installed or replaced disk drive for your environment.

   When adding a new disk, after inserting the new disk, you need to for a rescan for the device.

   - **Ubuntu Linux operating system**: To run the **rescan-scsi-bus** command in the Ubuntu Linux operating system, log in to the system as the root user, and run the following command:

     ```
     rescan-scsi-bus
     ```

     The **rescan-scsi-bus** tool is available in the *scsitools* package; install the package by using the following command:

     ```
     sudo apt-get install scsitools
     ```

   - **Red Hat Enterprise Linux (RHEL) version 7.2**: To run the rescan command in the REHL version 7.2 operating system, log in to the system as the root user, and run the command:

     ```
     rescan-scsi-bus.sh -a
     ```

     The **rescan-scsi-bus** tool is available in the *sg3_utils* package; install the package by using the following command:

     ```
     yum install sg3_utils
     ```

     You may also want to refer to: Adding a Storage Device or Path (https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/7/html/Storage_Administration_Guide/adding_storage-device-or-path.html)

   Verify that the new drive is active with the following command:

   ```
   lsscsi
   ```

7. Load or restore data from your backup media.

Removing and replacing the disk drive and fan card in the 8335-GCA or 8335-GTA

Learn how to remove and replace the disk drive and fan card in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Removing the disk drive and fan card from the 8335-GCA or 8335-GTA

To remove the disk drive and fan card from the IBM Power System S822LC (8335-GCA and 8335-GTA) system, complete the steps in this procedure.

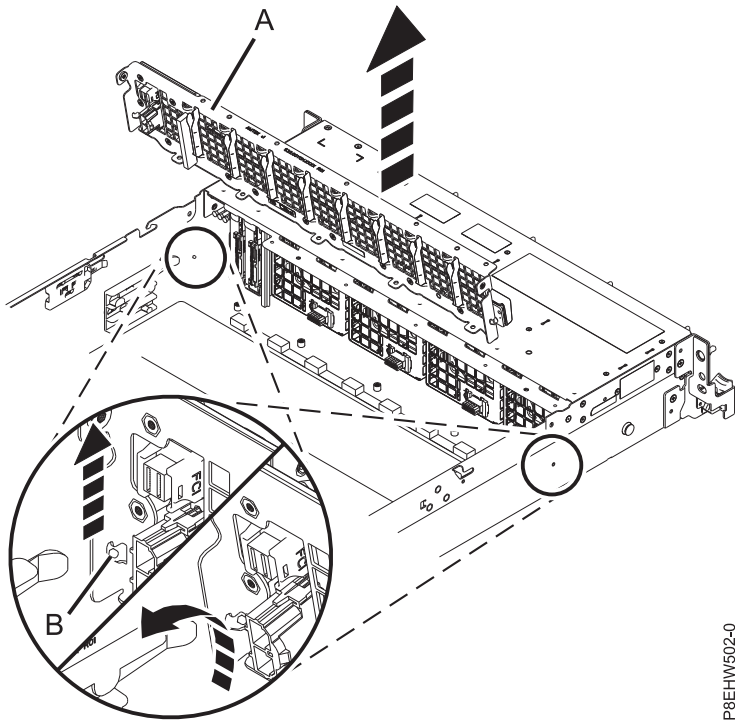
Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Label and remove each memory riser and any filler. Record their location to ensure they are replaced in the same position during the replacement steps. For instructions, see "Removing memory risers from the 8335-GCA or 8335-GTA" on page 37.
3. Label and remove the power cable from the disk drive and fan card. For instructions, see "Removing the fan power cable from the 8335-GCA or 8335-GTA" on page 21.
4. Label and remove the disk drive fan signal cable from the disk drive and fan card. For instructions, see "Removing the disk and fan signal cable from the 8335-GCA or 8335-GTA system" on page 13.

5. Remove the fans. For instructions, see “Removing a system fan from the 8335-GCA or 8335-GTA” on page 18.
6. Label and remove the disk drives and any fillers. For instructions, see “Removing and replacing a disk drive in the 8335-GCA or 8335-GTA” on page 5.
7. Remove five screws from the top of the disk drive and fan card. Figure 3 shows all 12 screw locations.

Figure 3. Screw locations for the disk drive and fan card

8. Remove five screws from the bottom of the disk drive and fan card.
9. Remove one screw from each side of the disk drive and fan card.
10. The disk drive and fan card **(A)** is aligned in the system using two pins **(B)**. Pivot the disk drive and fan card away from the fan housing around the pins; then lift out the card.



11. Place the disk drive and fan card on the table.

Replacing the disk drive and fan card in the 8335-GCA or 8335-GTA

To replace the disk drive and fan card in the IBM Power System S822LC (8335-GCA and 8335-GTA) system, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Remove the replacement disk drive and fan card from the protective plastic envelope.
3. Using the alignment pins (one on each side) **(A)** for the disk drive and fan card **(B)**, lower and pivot the card into place. See Figure 4 on page 12.

   Note: Both the front USB cable and the power switch cable **(A)** need to be located in the recessed area **(B)** of the disk drive and fan card. If they are not located in that recessed area, they can be pinched and damaged. See Figure 5 on page 12.

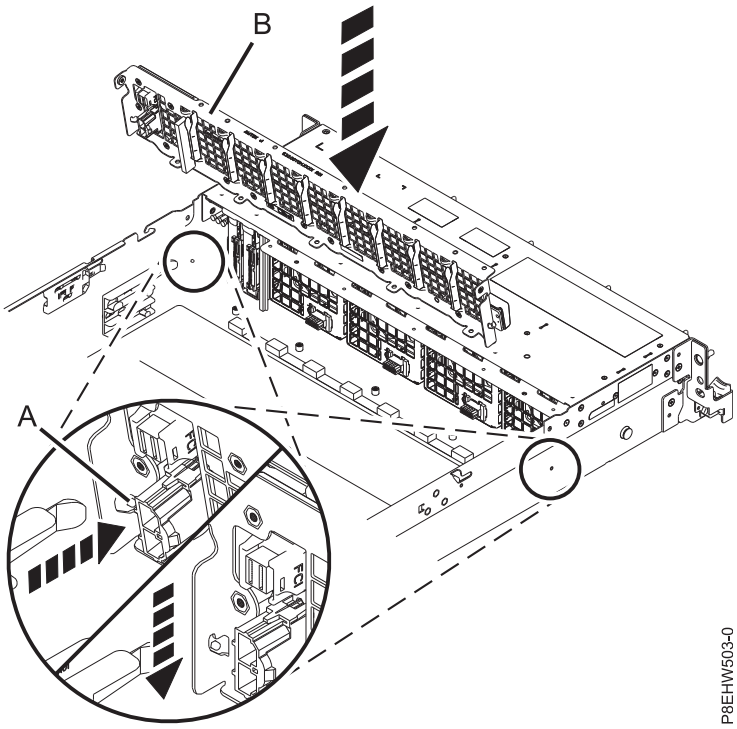


Figure 4. Inserting the disk drive fan card

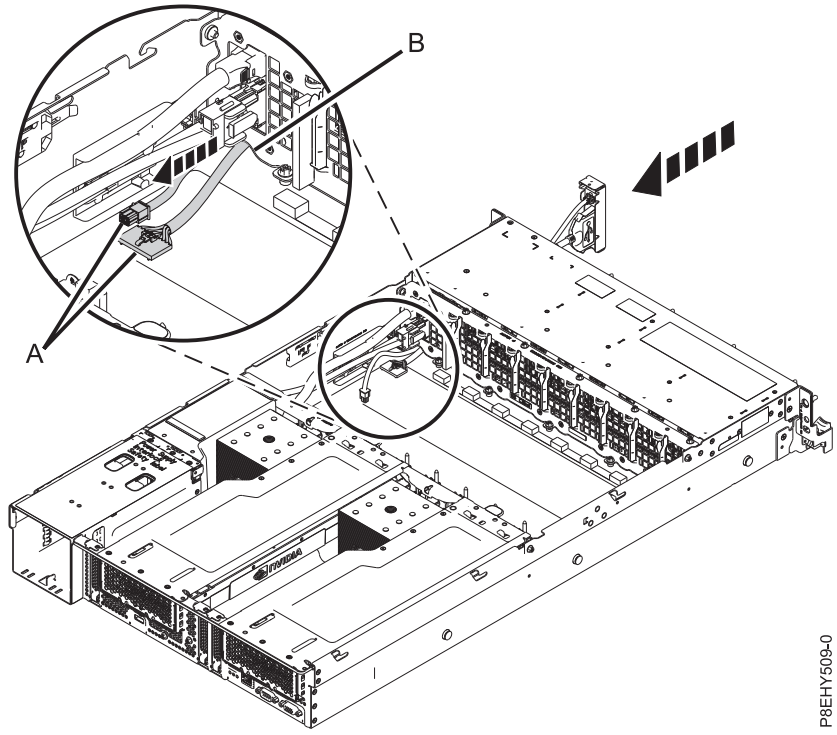


Figure 5. Routing the cables under the disk drive and fan card

4. Replace five screws for the bottom of the disk drive and fan card. Figure 6 on page 13 shows all 12 screw locations.

Figure 6. Screw locations for the disk drive and fan card

5. Replace five screws for the top of the disk drive and fan card.
6. Replace one screw in each side of the disk drive and fan card.
7. Using your labels, replace the disk drives and any fillers. For instructions, see "Removing and replacing a disk drive in the 8335-GCA or 8335-GTA" on page 5.
8. Replace the fans. For instructions, see "Replacing a system fan in the 8335-GCA or 8335-GTA" on page 19.
9. Using your label, plug the disk drive fan signal cable into the disk drive and fan card. For instructions, see "Replacing the disk and fan signal cable in the 8335-GCA or 8335-GTA system" on page 15.
10. Using your label, plug the power cable into the disk drive and fan card. For instructions, see "Replacing the 8335-GCA or 8335-GTA fan power cable" on page 23.
11. Using your labels, replace the memory risers and fillers. For instructions, see "Replacing memory risers in the 8335-GCA or 8335-GTA" on page 39.

Removing and replacing the disk and fan signal cable in the 8335-GCA or 8335-GTA

Learn how to remove and replace a disk and fan signal cable in the 8335-GCA or 8335-GTA system.

Removing the disk and fan signal cable from the 8335-GCA or 8335-GTA system

Follow these steps to remove a disk and fan signal cable from the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Locate the disk and fan signal cable **(A)**. It connects from the system backplane to the disk drive fan card, along the inside of the system.

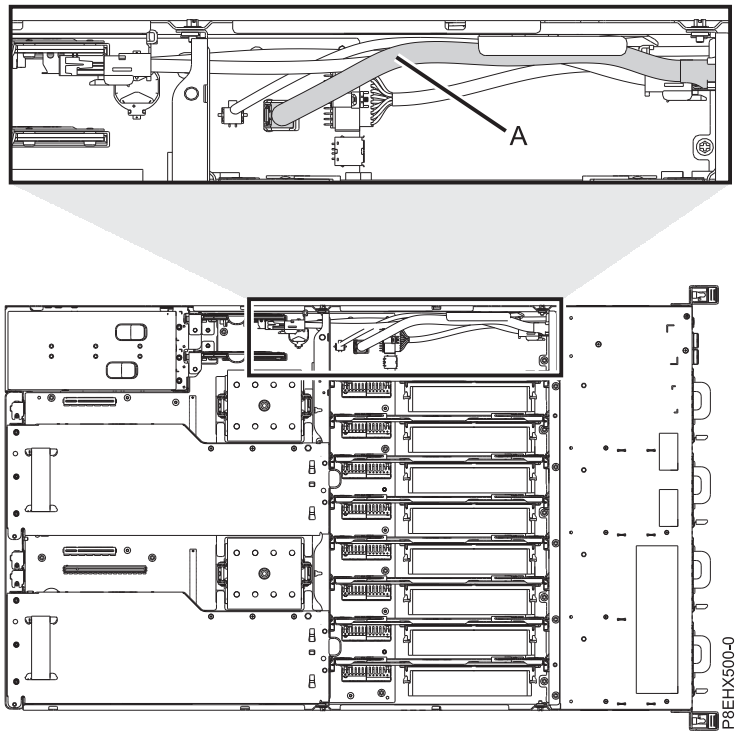


Figure 7. Location of the disk and fan signal cable and connectors

3. Release the cable from the retaining clip on the inside wall of the system.
4. Label and disconnect the disk and fan signal cable **(A)** from the disk drive and fan card **(B)** and from the system backplane **(C)**. Using your thumb, press the release latch on the connector to remove a cable.

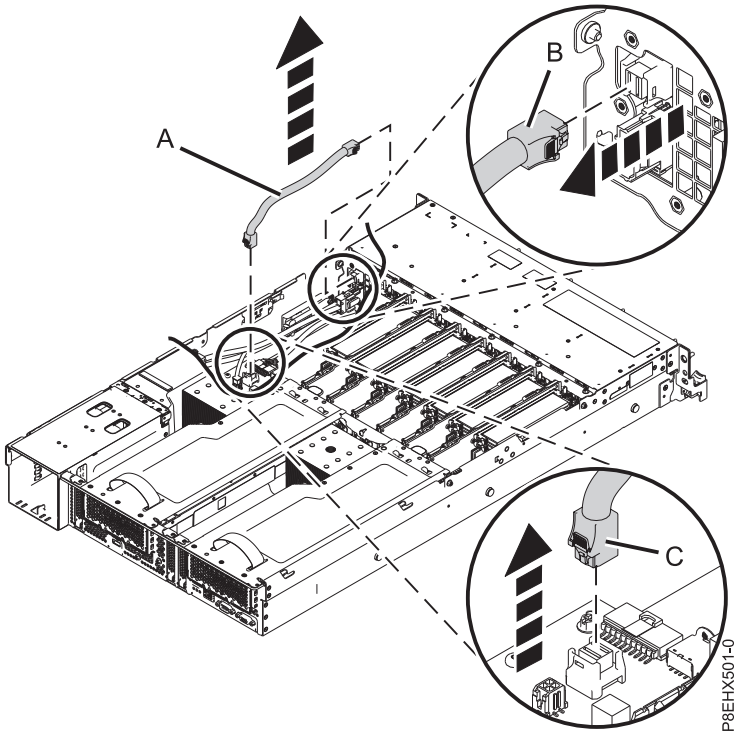


Figure 8. Removing the disk and fan signal cable from the system backplane and the disk drive and fan card

5. Place the cable on the table.

Replacing the disk and fan signal cable in the 8335-GCA or 8335-GTA system

Follow these steps to replace a disk and fan signal cable in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Using the labels, connect the disk and fan signal cable **(A)** to the disk drive fan card **(B)** and to the system backplane **(C)**. Ensure that the cable latch clip snaps into place on the connectors.

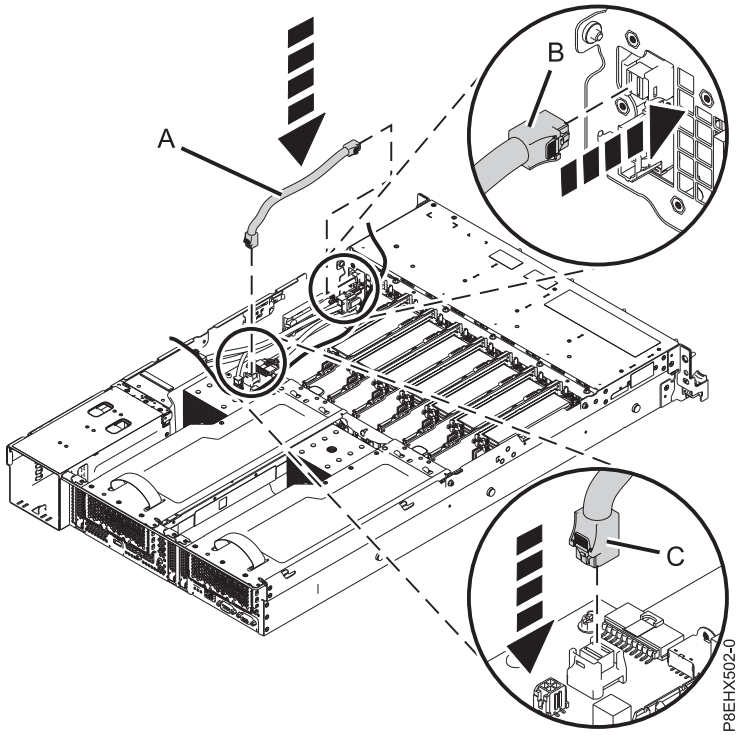


Figure 9. Replacing the disk and fan signal cable in the system backplane and the disk drive and fan card

3. Secure the cable in the retaining clip on the inside wall of the system.

Removing and replacing a fan in the 8335-GCA or 8335-GTA

Find information about removing and replacing fans in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Preparing the system to remove and replace a system fan

To prepare the system to remove and replace a system fan, complete the steps in this procedure.

About this task

Procedure

1. Complete the prerequisite tasks. For instructions, see “Before you begin” on page 110.
2. Identify the part and the system that you will be working on. For instructions, see “Identifying the system that contains the part to replace” on page 113.
3. If applicable, open the rack front door.
4. Attach the electrostatic discharge (ESD) wrist strap.

Attention:

- Attach an electrostatic discharge (ESD) wrist strap to the front ESD jack, to the rear ESD jack, or to an unpainted metal surface of your hardware to prevent the electrostatic discharge from damaging your hardware.
- When you use an ESD wrist strap, follow all electrical safety procedures. An ESD wrist strap is used for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
- If you do not have an ESD wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.

5. Remove the front cover. For instructions, see "Removing the front cover from an 8335-GCA or 8335-GTA system" on page 123.

   (L007)

   CAUTION: A hot surface nearby. (L007)

6. Determine whether the repair can continue concurrently.

   To continue the repair concurrently, the following conditions must be true:

   - Fans must be installed in all four slots.

     Each of the four fans has a green LED and an amber LED, as shown in Figure 10 on page 18. The green LED is lit solid for all four fans, but the fan with the failure has the amber fault LED lit.
   - If only one amber fault LED is **On**, the repair can be completed concurrently.

   Attention:

   - Removing and replacing the failed fan is a time sensitive task when serviced with the system power turned on (concurrent).
   - You must replace the failed fan within five minutes after removing the fan from the system to avoid a system shutdown.
   - Ensure that you have read the complete procedure to remove and replace a system fan and that you are prepared to remove and replace the fan within this time.

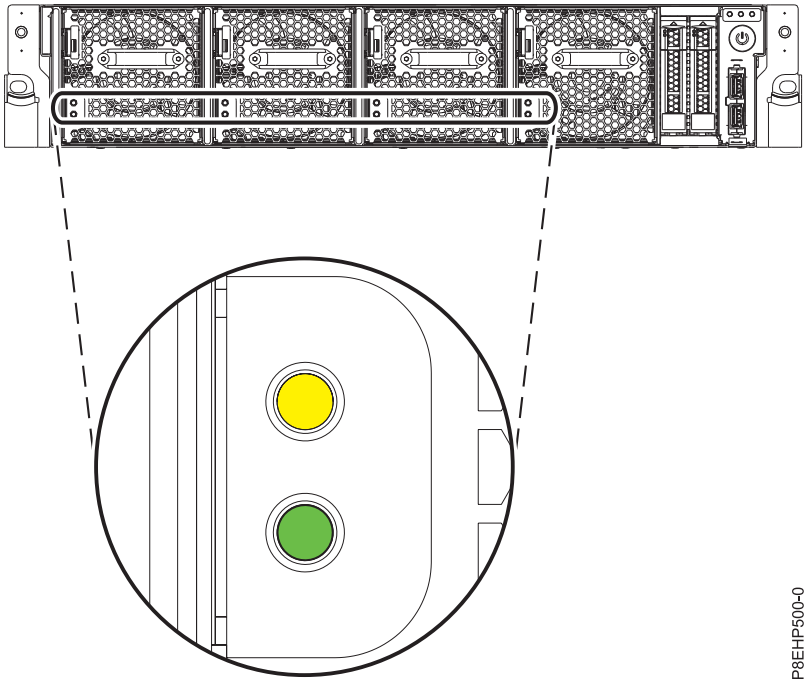


Figure 10. Location of the fans and LEDs

7. Select an action:
   - To do a concurrent repair with the system running:
     a. Continue the procedure with the system power turned on.
     b. Remove the failed fan indicated by the amber fault LED. For instructions, see "Removing a system fan from the 8335-GCA or 8335-GTA."

        Remember: Failure to replace the fan after removing the fan from the system within five minutes can cause the system to automatically power off.
   - To do a nonconcurrent repair with the system power turned off:
     a. Label the failed fan indicated by the amber fault LED.
     b. Stop the system. For instructions, see "Stopping the system" on page 119.
     c. Disconnect the power source from the system by unplugging the system. For instructions, see "Disconnecting the power cords from an 8335-GCA or 8335-GTA system" on page 127.
     d. Using the label for the failed fan, remove that fan. For instructions, see "Removing a system fan from the 8335-GCA or 8335-GTA."

Removing a system fan from the 8335-GCA or 8335-GTA

To remove a system fan, complete the steps in this procedure.

About this task

Attention: If you are replacing a fan with the system power turned on, you must replace the failed fan within five minutes to avoid a system shutdown.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. To remove the fan, complete the following steps:

a. To unseat the fan from its position in the system, press in the terracotta locking-tab **(A)** as shown in Figure 11.
b. Hold on to the fan handle and by using your hand to support the bottom of the fan, pull out the fan from its slot.

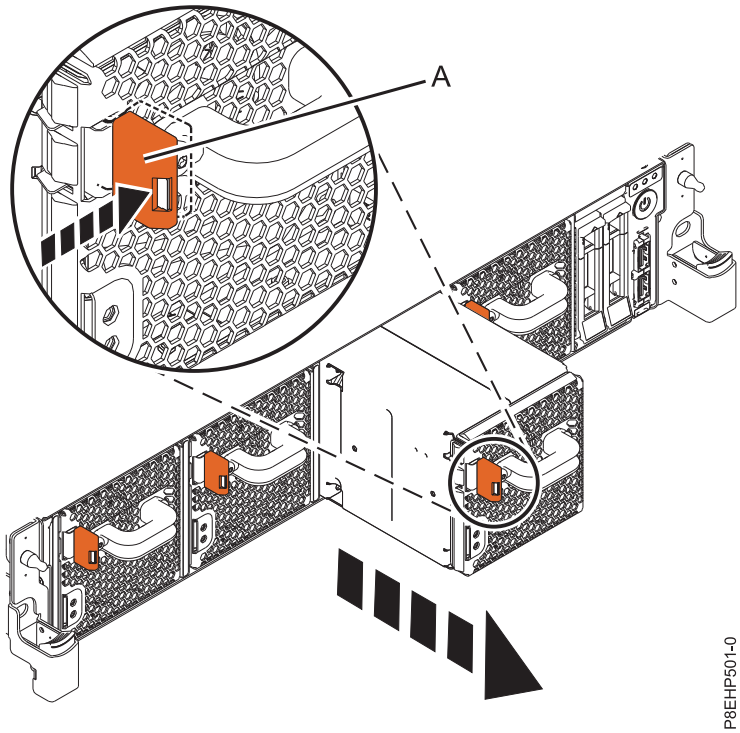


Figure 11. Removing a fan from the system

Replacing a system fan in the 8335-GCA or 8335-GTA

To replace a system fan, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Using your hand to support the bottom of the fan, align the fan **(A)** with the fan slot and slide it into the system until the terracotta tab **(A)** locks in place, as shown in Figure 12 on page 20.

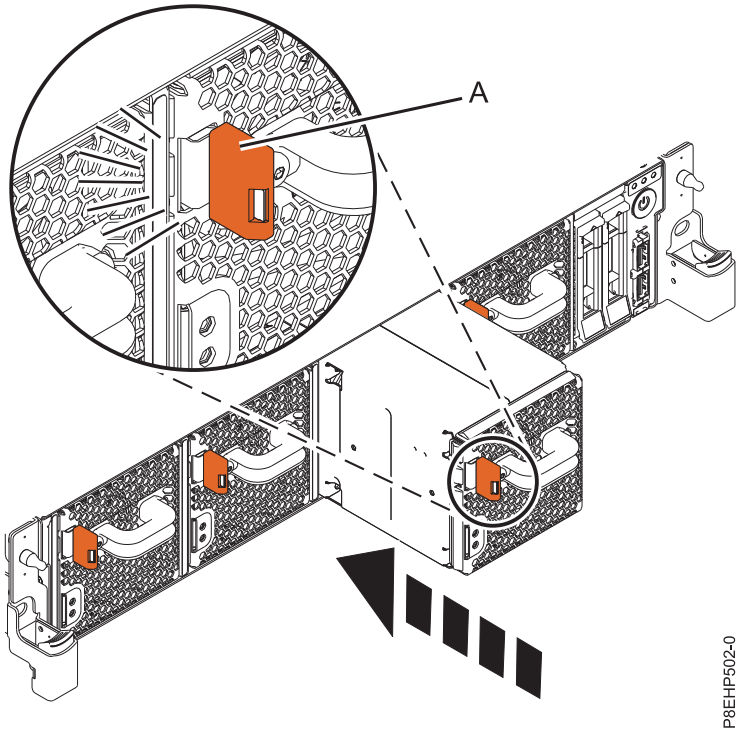


Figure 12. Replacing a fan in the system

Preparing the system for operation after removing and replacing a system fan

To prepare the system for operation after removing and replacing a system fan, complete the steps in this procedure.

About this task

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. If you performed a nonconcurrent repair, start the system. For instuctions, see "Starting the system" on page 118.
3. Verify that the amber fault LED on the replaced fan is not lit.
4. Replace the front cover. For instructions, see "Installing the front cover on an 8335-GCA or 8335-GTA system" on page 123.
5. If applicable, close the rack front door.
6. Verify the installed part. See Verifying a repair in the 8335-GCA or 8335-GTA (http://www.ibm.com/support/knowledgecenter/POWER8/p8ei3/p8ei3_verifyrepair.htm).

Removing and replacing the fan power cable in the 8335-GCA or 8335-GTA

Find information about removing and replacing the fan power cable in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Removing the fan power cable from the 8335-GCA or 8335-GTA

To remove the fan power cable, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Remove the power riser air baffle. See Figure 13.

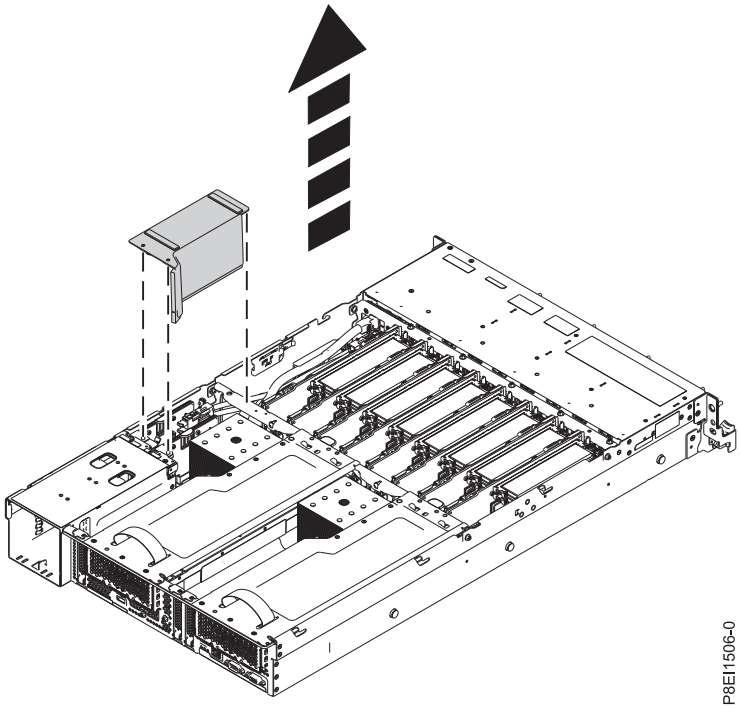


Figure 13. Removing the power riser air baffle

3. Locate where the fan power cable is connected. See **(A)** in Figure 14 on page 22.

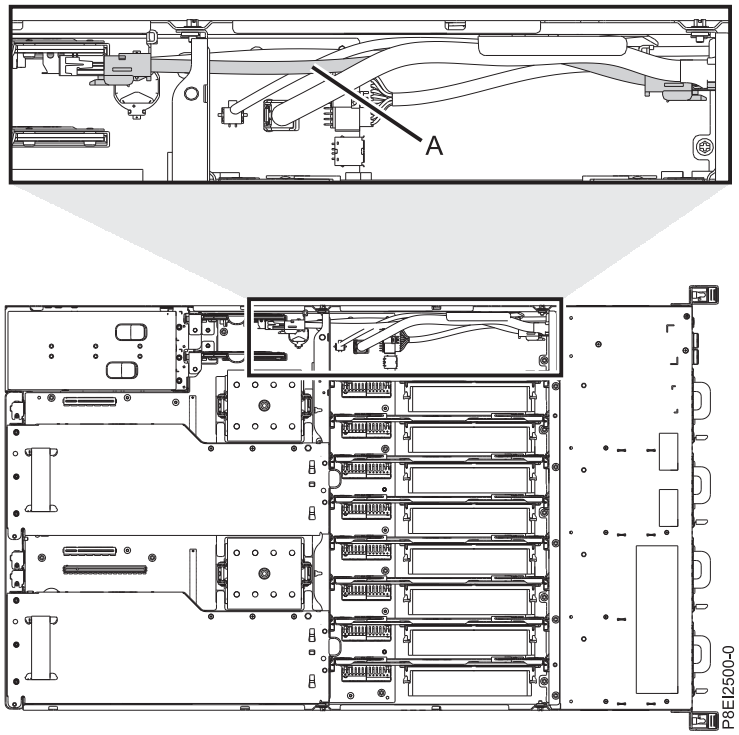
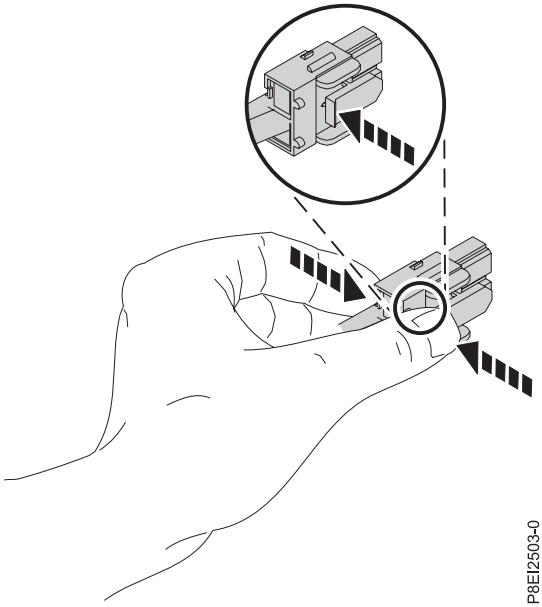


Figure 14. Location of the fan power cable and connectors

4. Grasp the connector end of the fan power cable that is connected to the power riser. See **(A)** in Figure 15 on page 23.
5. While you press the latch release lever with your thumb, disconnect the cable from the connector.



Note: The latch release on the connector must be depressed before you unplug the cable. Failure to do so might damage the cable and the connector.

6. Guide the cable end out through the opening towards the rear of the power riser.
7. Disconnect the fan power cable connector end from the disk drive and fan card.

8. Lift up to remove the fan power cable. Be careful to ensure that the ends of the cable does not catch on any components as you remove it.

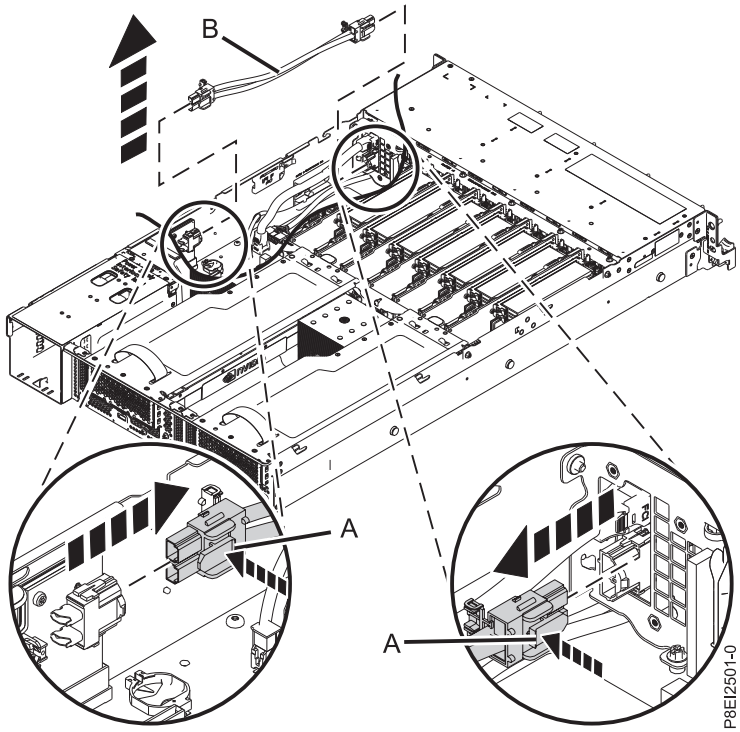


Figure 15. Removing the fan power cable from the system

Replacing the 8335-GCA or 8335-GTA fan power cable

To replace the fan power cable, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Route the fan power cable **(A)** connector end through the opening and connect it to the power riser as shown in Figure 16 on page 24. Ensure that the cable latch clip snaps into place on the connectors.
3. Connect the other end of the fan power cable into the disk drive and fan card as shown in Figure 16 on page 24.

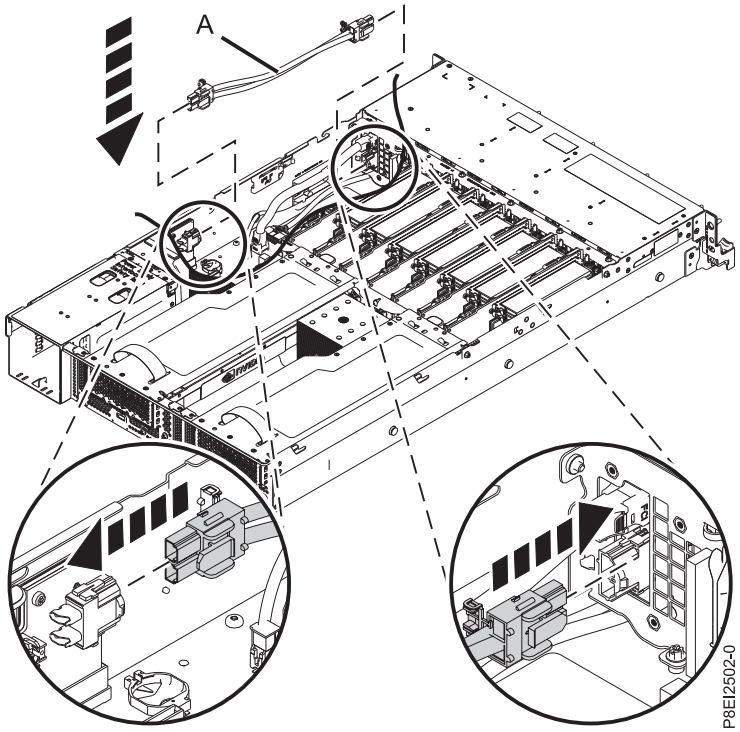


Figure 16. Installing the fan power cable

4. Install the power riser air baffle. See Figure 17. Ensure that the holes in the baffle align with the pins on the system.

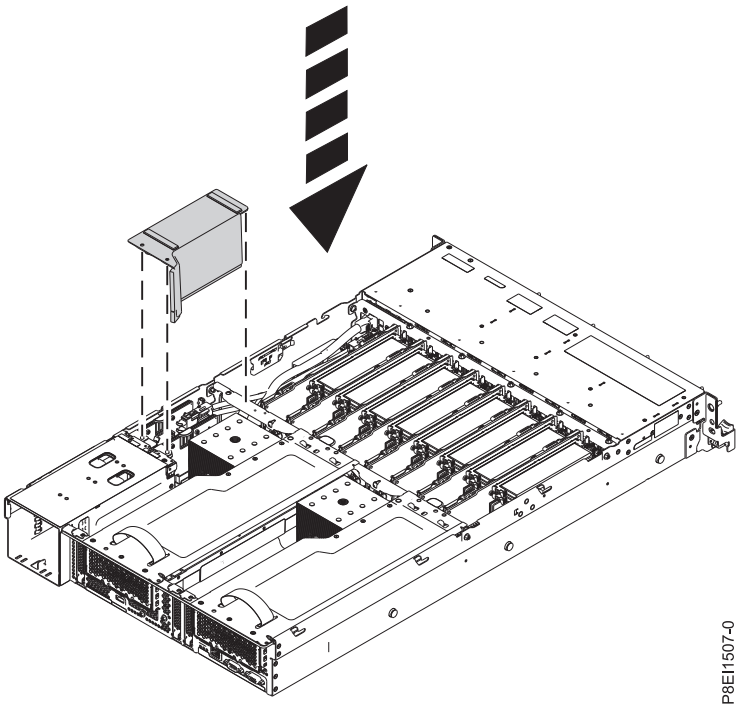


Figure 17. Installing the power riser air baffle

Removing and replacing the front USB cable and connector in the 8335-GCA or 8335-GTA

Learn how to remove and replace the front USB cable and connector in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Removing the front USB cable and connector from the 8335-GCA or 8335-GTA system

Follow these steps to remove the front USB cable and connector from the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Remove the disk drive fan card. For instructions, see ."Removing the disk drive and fan card from the 8335-GCA or 8335-GTA" on page 9
3. Locate the front USB cable **(A)** and the power switch cable **(B)**. They connect between the system backplane and the power switch along the inside of the system. Label each cable.

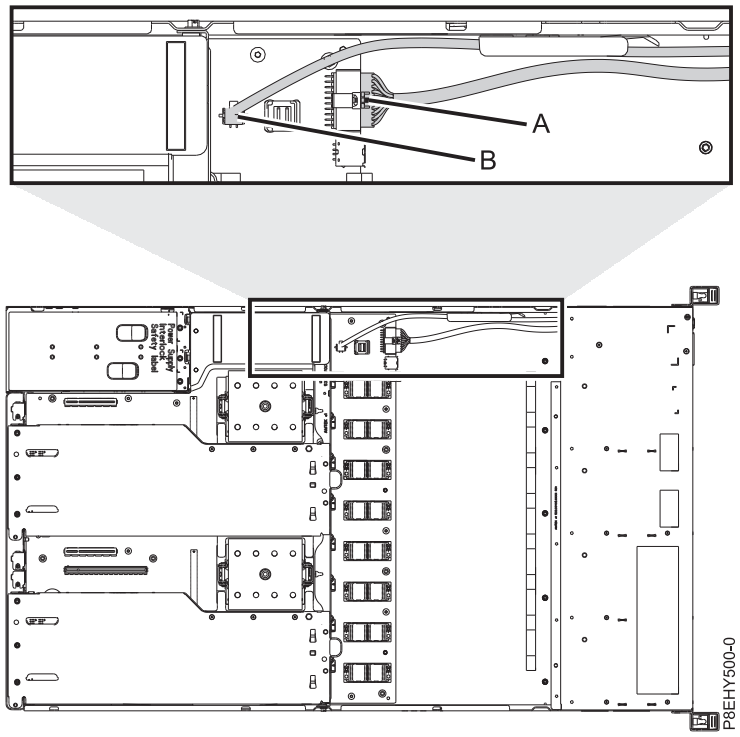


Figure 18. Location of the connectors for the front USB cable and connector and the power switch cable

4. Release each cable from the retaining clip on the inside wall of the system.
5. Pressing the latch release on the connector, disconnect the front USB cable **(A)**. See Figure 19 on page 26.

   Note: The latch release on the connector must be depressed before unplugging the cable. Failure to do so could damage the cable and the connector.

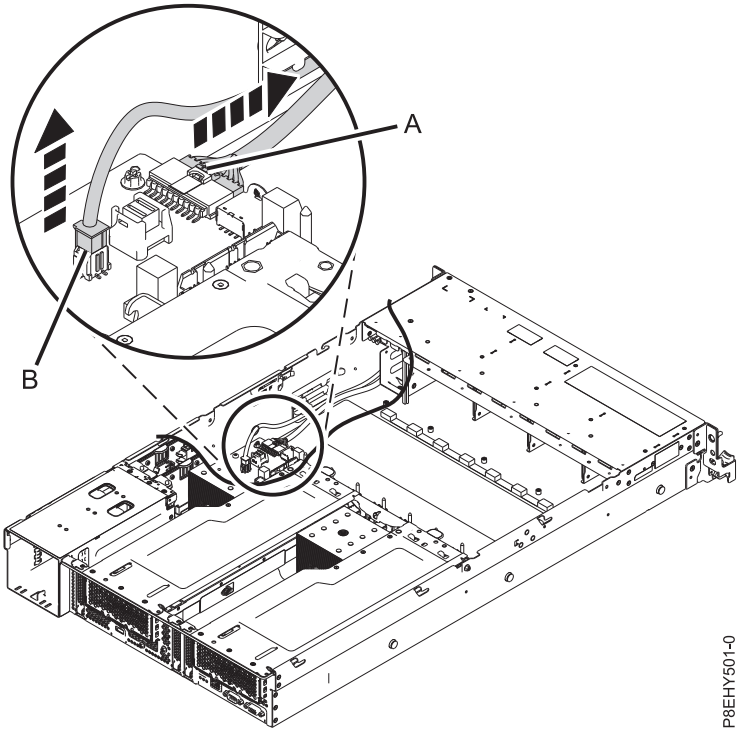


Figure 19. Removing the front USB cable and the power switch cable from the system backplane and the disk drive and fan card

6. Pressing the latch release on the connector, disconnect the power switch cable **(B)** from the system backplane. See Figure 19.
7. Remove the rack installation support from the side of the system. See Figure 20

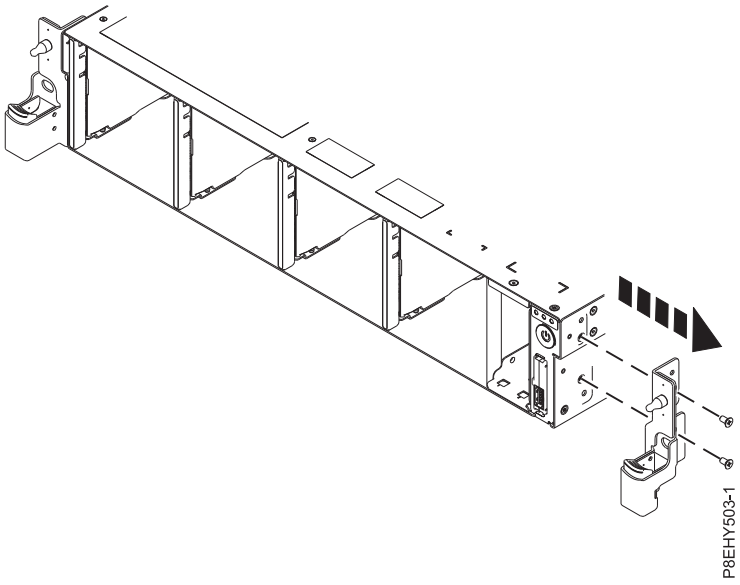


Figure 20. Removing the rack installation support

8. Remove the top and side screws from the power switch. See Figure 21 on page 27.

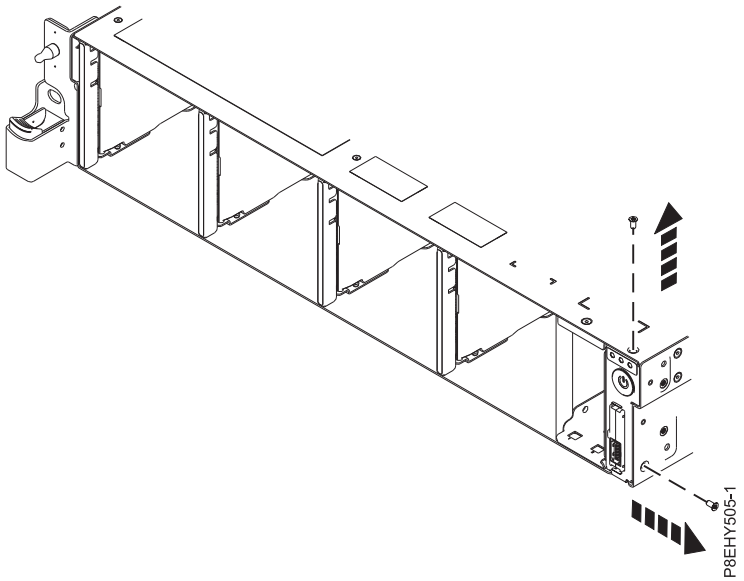


Figure 21. Remove the top and side screws

9. Pull the power switch from the system. See Figure 22.

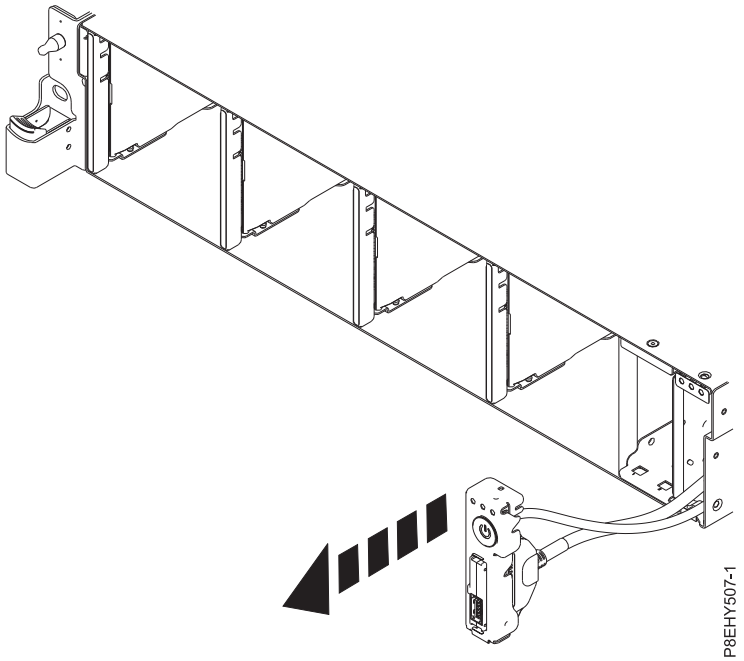


Figure 22. Pull out the switch and cable

10. Pressing the latch releases **(A)** on the connector, disconnect the front USB cable and connector from the power switch. See Figure 23 on page 28.

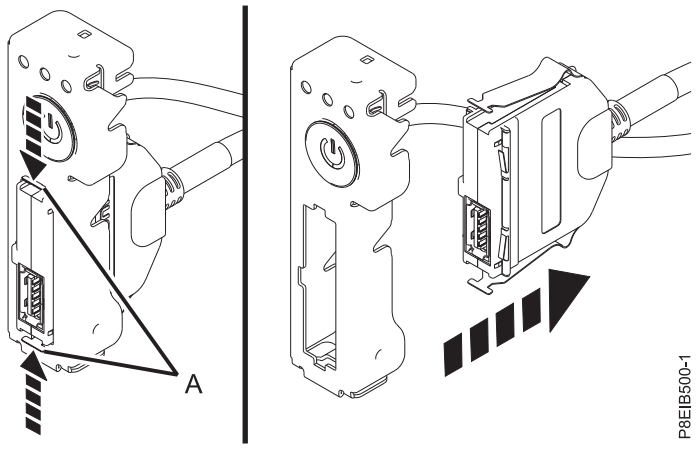


Figure 23. Removing front USB cable and connector from power switch

11. Place the front USB cable and connector and the power switch and cable on the table.

Replacing the front USB cable and connector in the 8335-GCA or 8335-GTA system

Follow these steps to replace the front USB cable and connector in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Find the replacement front USB cable and connector and remove it from the protective plastic envelope.
3. While pressing in the latches **(A)**, connect the front USB cable and connector to the power switch. See Figure 24.

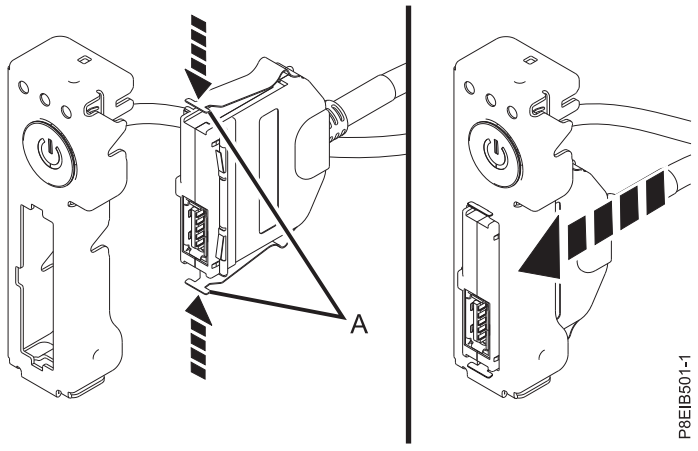


Figure 24. Attaching the front USB cable and connector to the power switch

4. Insert the power switch and cables into the system. Be careful to route the cables through to the system backplane. See Figure 25 on page 29.

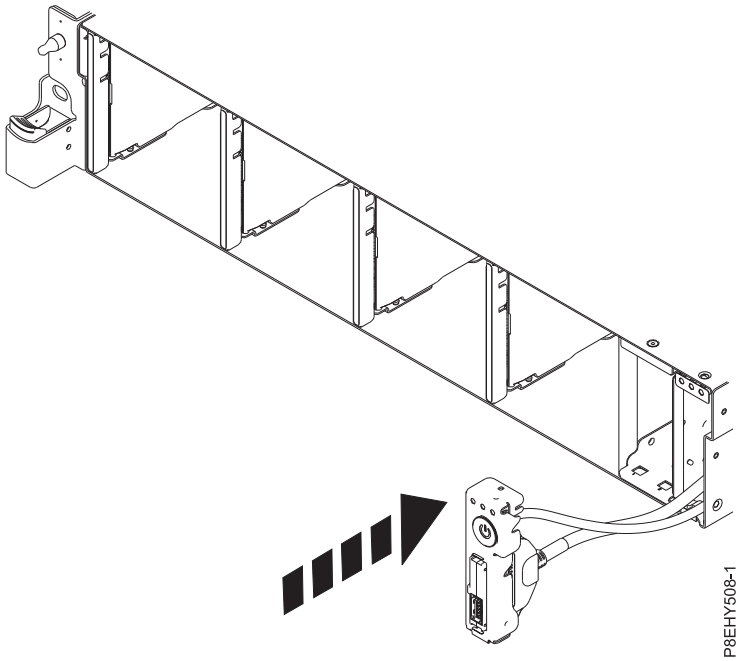


Figure 25. Replacing the front USB cable into the system backplane

5. Replace the top and side screws for the power switch See Figure 26.

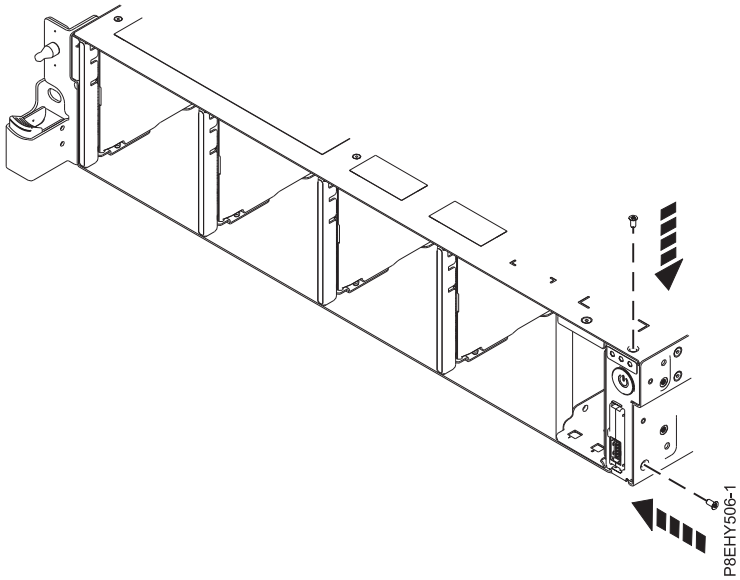


Figure 26. Replace the top and side screws

6. Using the labels, plug the front USB cable **(A)** and the power switch cable **(B)** to the system backplane. See Figure 27 on page 30. Ensure that the cable latch clip snaps into place on the connectors.

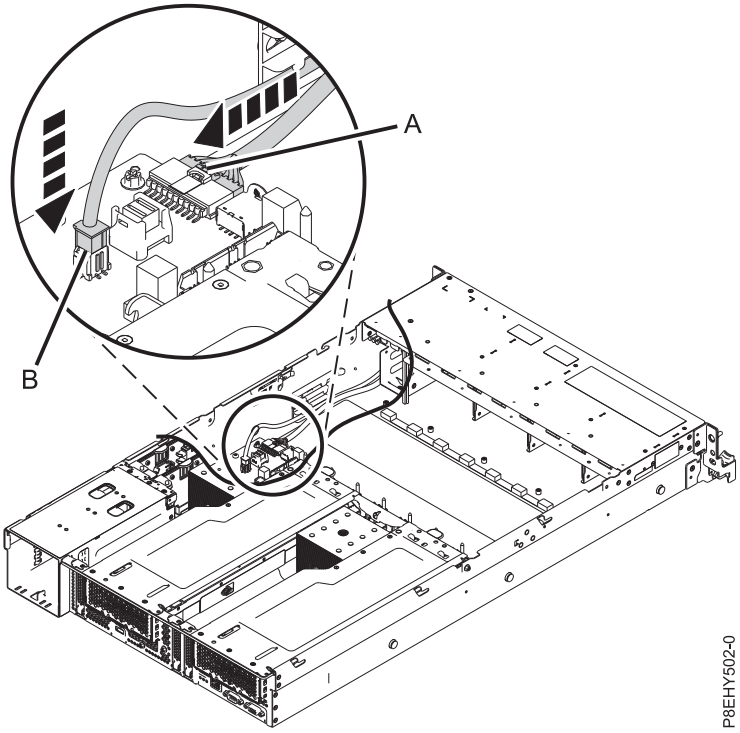


Figure 27. Plugging in the cables

7. Replace the rack installation support on the side of the system. See Figure 28.

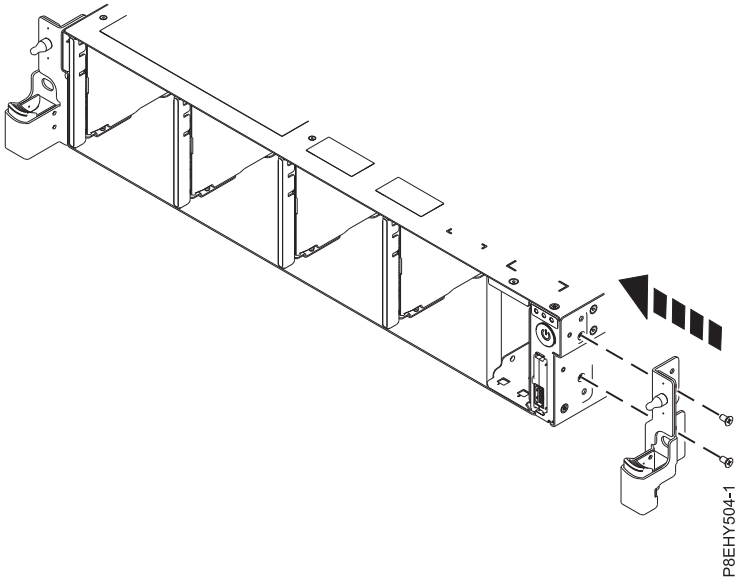


Figure 28. Replacing the rack installation support

8. Secure each cable in the retaining clip on the inside wall of the system.
9. Replace the disk fan card. For instructions, see "Replacing the disk drive and fan card in the 8335-GCA or 8335-GTA" on page 11.

Removing and replacing a graphics processing unit in the 8335-GCA or 8335-GTA

Learn how to remove and replace a graphics processing unit in the 8335-GCA or 8335-GTA system.

Removing the graphics processing unit from the 8335-GCA or 8335-GTA system

Follow these steps to remove the graphics processing unit from the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

About this task

Attention: For safety and airflow purposes, if you remove parts from the system, you must ensure that:
- PCIe tailstock fillers are present
- Graphic processor unit (GPU) or PCIe carriers are present and that either GPU or PCIe fillers are installed in the carriers.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Using the blue strap **(A)** and the blue touchpoint **(B)**, remove the PCIe riser from the system. See Figure 29.

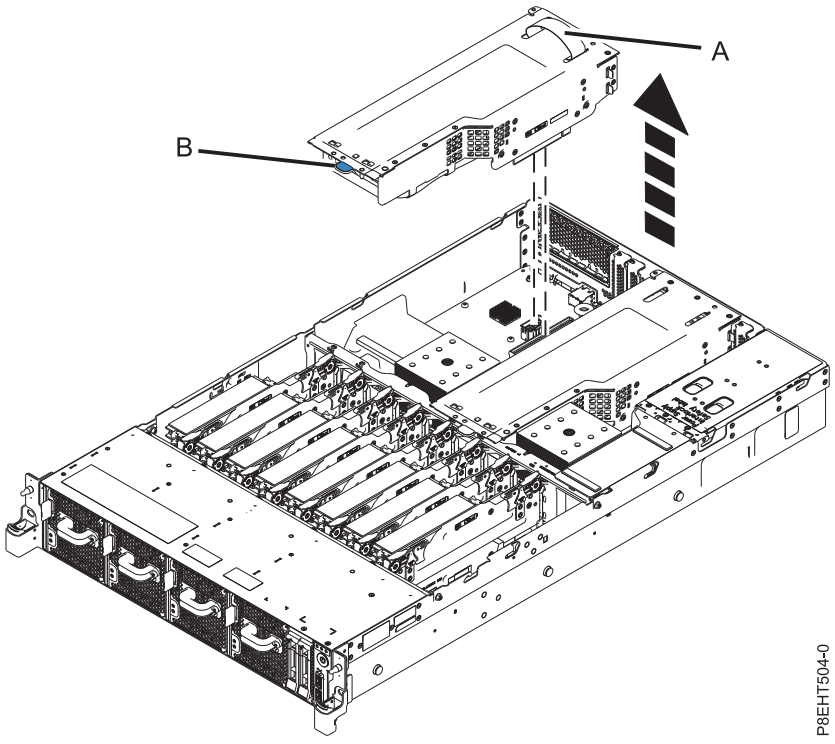


Figure 29. Removing the PCIe riser

Replacing the graphics processing unit in the 8335-GCA or 8335-GTA system

Follow these steps to replace a graphics processing unit in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Using the 3 alignment pins, place the replacement GPU PCIe riser into the system. Push it down into place until it is firmly seated in the system. See Figure 30.

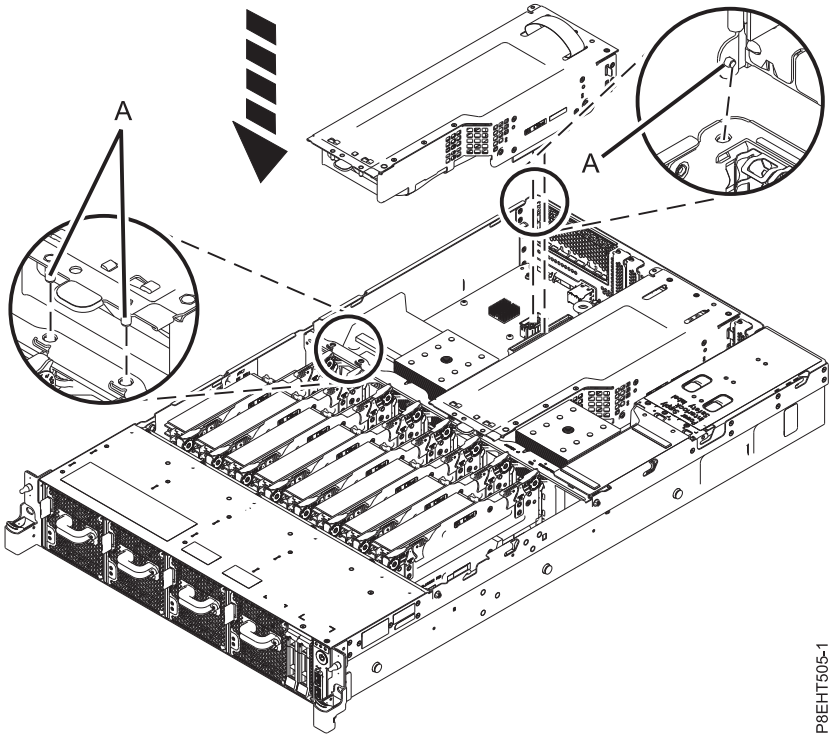


Figure 30. Inserting the PCIe riser

Removing and replacing memory in the 8335-GCA or 8335-GTA

Learn how to remove and replace memory in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Removing and replacing memory DIMM from the 8335-GCA or 8335-GTA

Learn how to remove and replace memory DIMM from the 8335-GCA or 8335-GTA system.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Prepare to remove and replace memory. See "Preparing the system to remove and replace memory risers in the 8335-GCA or 8335-GTA" on page 131.

Remove:

3. Locate the memory riser that contains the failed memory DIMM. Figure 31 on page 33 shows the location of the memory risers in the 8335-GCA or 8335-GTA system and Figure 32 on page 33 shows the DIMM slot locations on the riser.

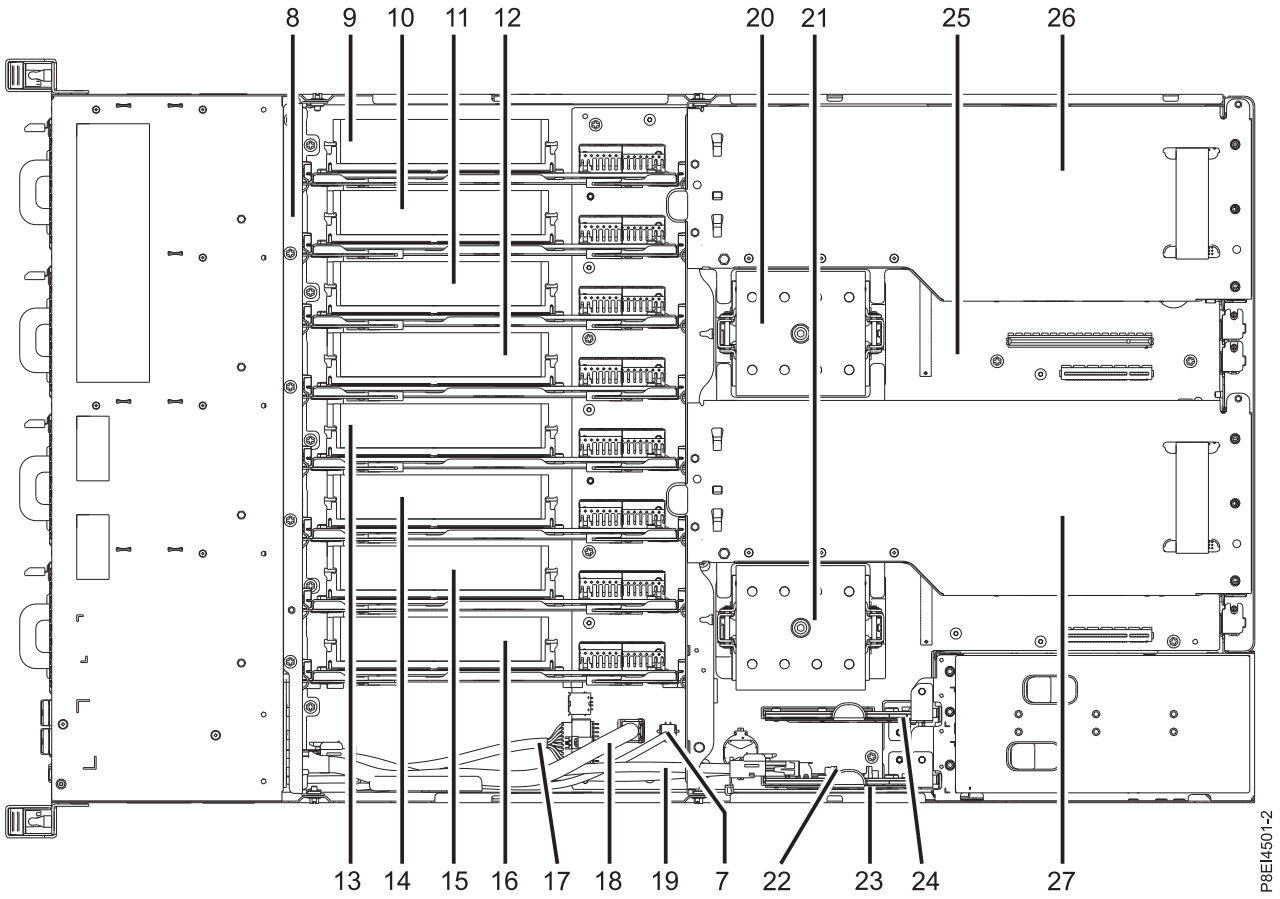


Figure 31. Location of the memory risers: positions 9 through 16

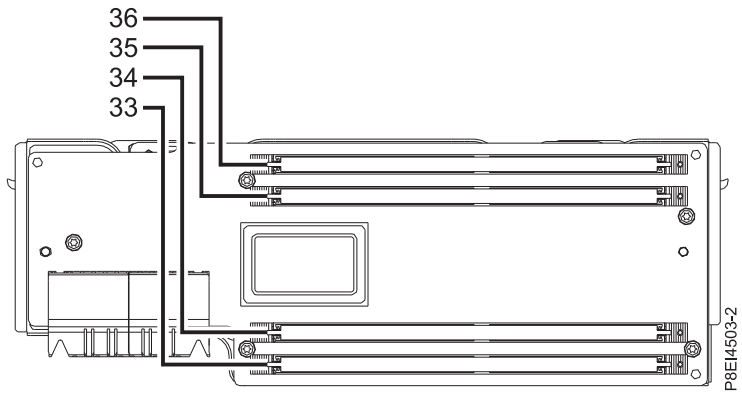


Figure 32. Location of the memory DIMM slots on the riser; positions 33 through 36

4. Remove the memory riser that contains the failed memory DIMM.
   a. Open the release latches on the memory riser. See **(A)** in Figure 33 on page 34.

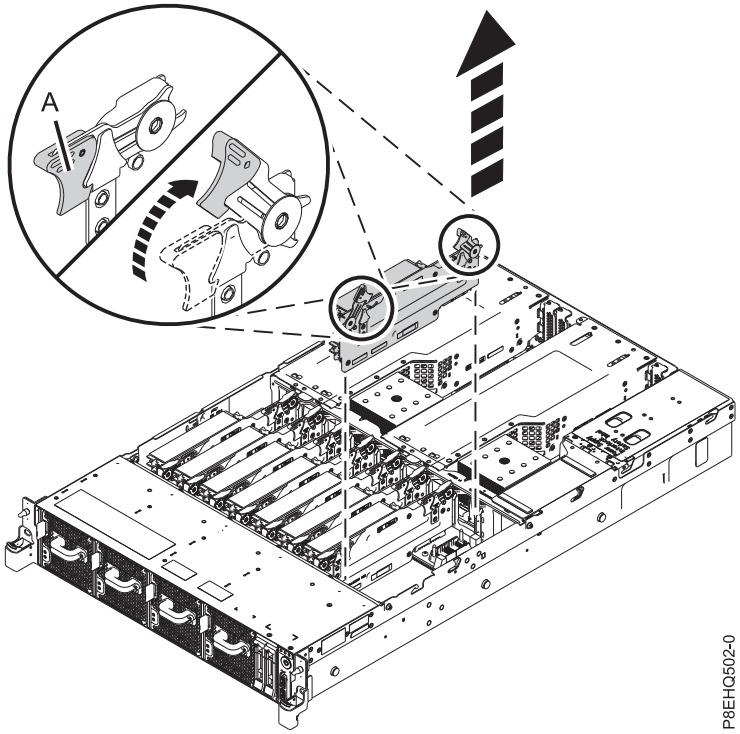


Figure 33. Removing a memory riser from the system

b. Pull out the memory riser from the slot by holding onto the latches.
c. Place the memory riser on an ESD mat.

5. Remove the failed memory DIMM from the slot on the memory riser.
   a. Unlock the DIMM by pushing the locking tabs away from the DIMM, in the direction shown in Figure 34 on page 35. The lever action of opening the tabs pushes the memory DIMM out of the slot.

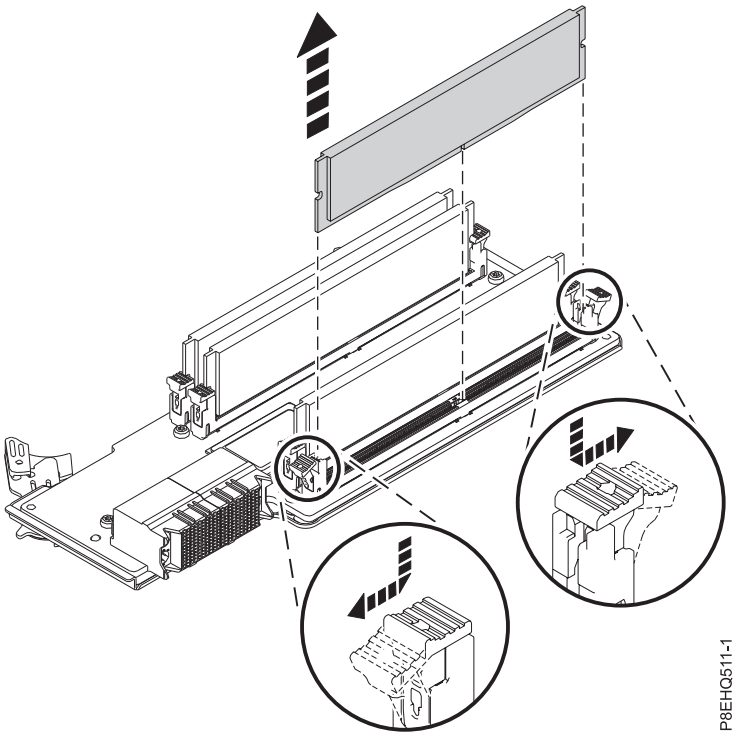


Figure 34. Removing memory DIMM from a slot on the riser

b. Hold the memory DIMM by the edges and pull it out of the slot on the riser.

6. Place the memory on an ESD mat.

Replace:

7. To replace memory DIMM, complete the following steps:
   a. Push the locking tabs to the open position, away from the slot, in the direction shown in Figure 35 on page 36.

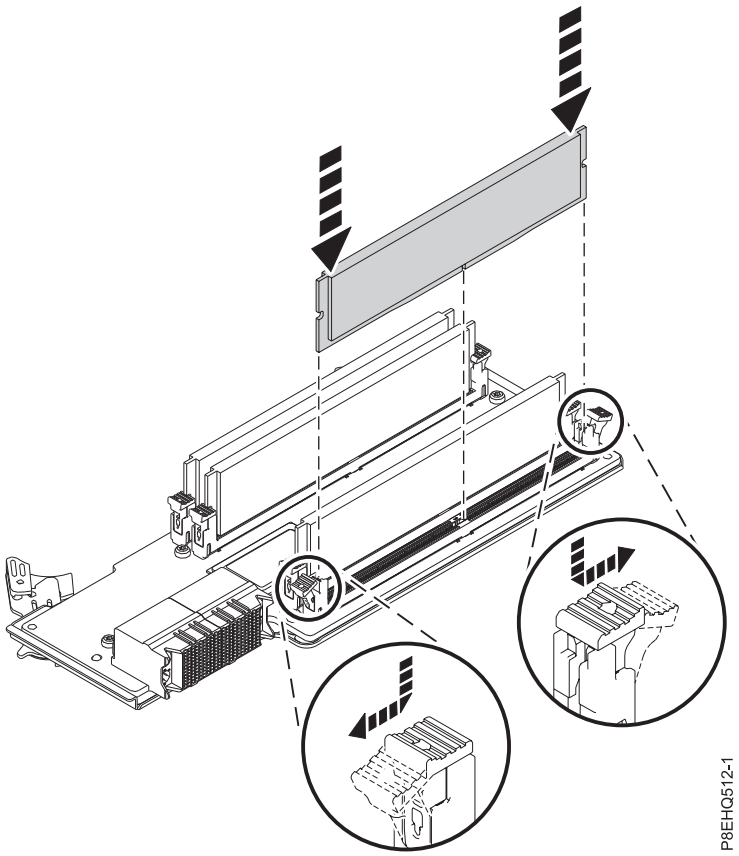


Figure 35. Replacing memory DIMM in a slot on the riser

b. Grasp the memory DIMM along its edges and align it with the slot on the riser.

   Attention: Memory is keyed to prevent it from being installed incorrectly. Note the location of the key tab within the memory connector before you attempt to install it.

c. Press firmly on each side of the memory DIMM until the locking tab locks in place with an audible click.

8. To replace the memory riser, complete the following steps:
   a. Ensure the release latches are open to about a 60 degree angle, as shown in Figure 36 on page 37.
   b. Align the memory riser with the connector.
   c. Press the memory riser firmly into the connector.
   d. Press the release latches into the closed position. See **(A)** in Figure 36 on page 37.

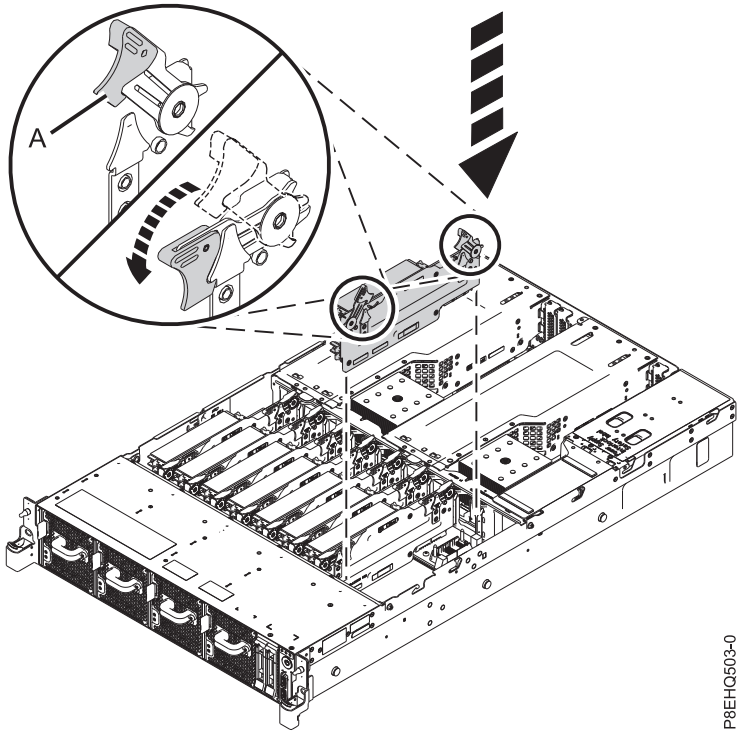


Figure 36. Replacing a memory riser in the system

9. Place the system into the operating position. See "Preparing the system for operation after removing and replacing memory risers" on page 134.
10. Verify the installed part. See Verifying a repair in the 8335-GCA or 8335-GTA (http://www.ibm.com/support/knowledgecenter/POWER8/p8ei3/p8ei3_verifyrepair.htm).

Removing and replacing memory risers in the 8335-GCA or 8335-GTA

Learn how to remove and replace a memory riser in the 8335-GCA or 8335-GTA system.

Removing memory risers from the 8335-GCA or 8335-GTA

Learn how to remove a memory riser from the 8335-GCA or 8335-GTA system.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Locate the memory riser. Figure 37 on page 38 shows the location of the memory risers in the 8335-GCA or 8335-GTA system.

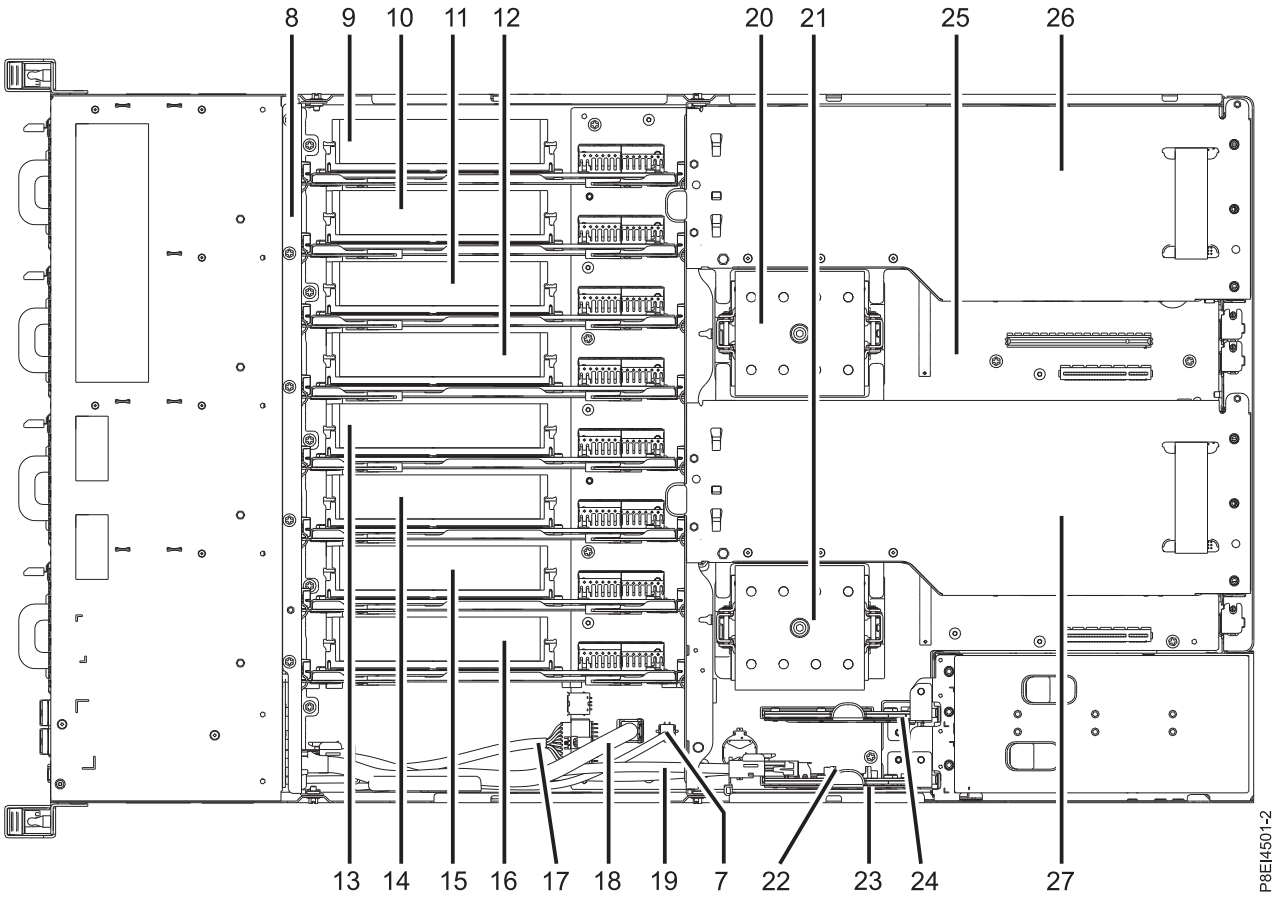


Figure 37. Location of the memory risers: positions 9 through 16

3. Remove the memory riser.
   a. Open the release latches on the memory riser. See **(A)** in Figure 38 on page 39.

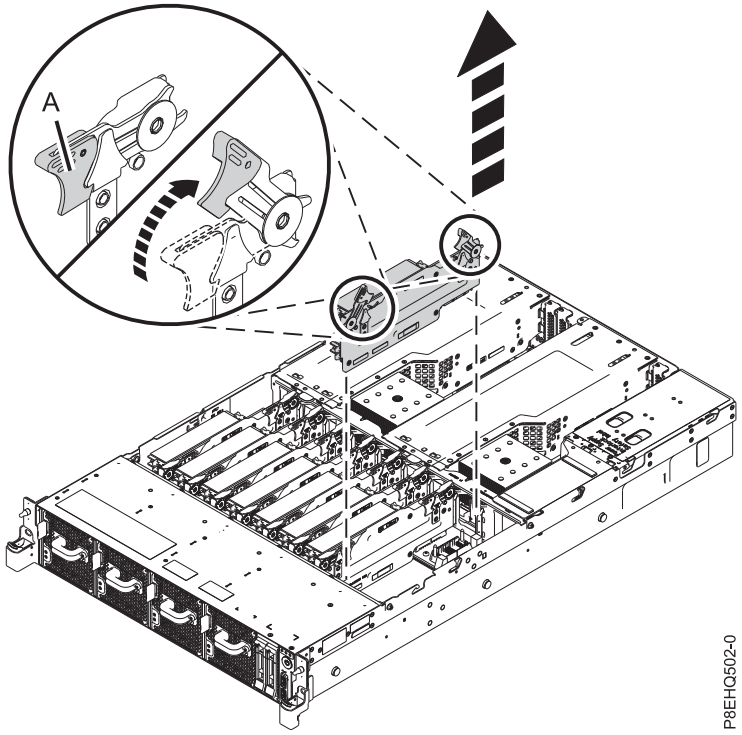


Figure 38. Removing a memory riser from the system

b. Pull out the memory riser from the slot by holding onto the latches.
c. Place the memory riser on an ESD mat.

4. If applicable, move the memory DIMM from the removed riser onto the replacement memory riser. For instructions, see "Removing and replacing memory DIMM from the 8335-GCA or 8335-GTA" on page 32.

Replacing memory risers in the 8335-GCA or 8335-GTA

Learn how to replace a memory riser in the 8335-GCA or 8335-GTA system.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. To replace the memory riser, complete the following steps:
   a. Ensure the release latches are open to about a 60 degree angle, as shown in Figure 39 on page 40.
   b. Align the memory riser with the connector.
   c. Press the memory riser firmly into the connector.
   d. Press the release latches into the closed position. See **(A)** in Figure 39 on page 40.

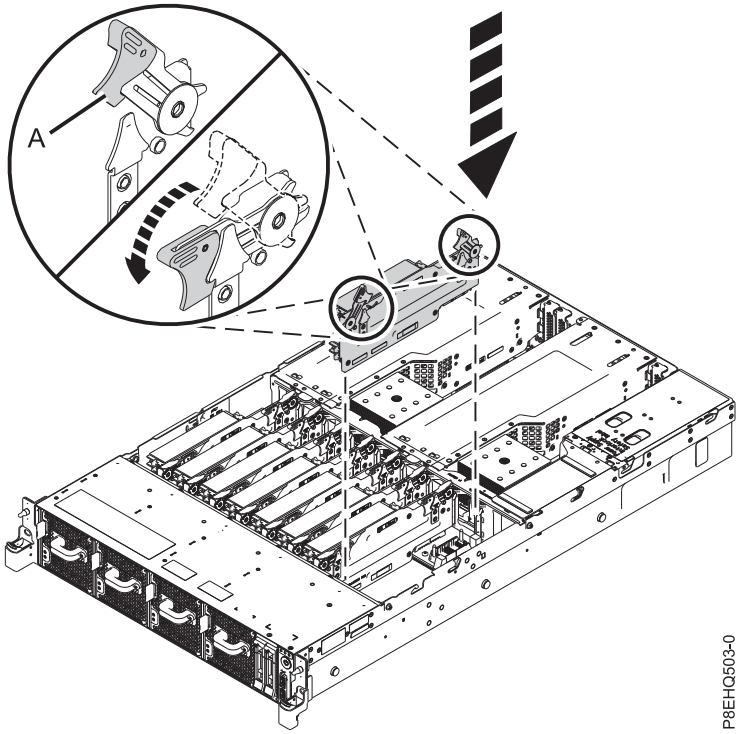


Figure 39. Replacing a memory riser in the system

Removing and replacing PCIe adapters in the 8335-GCA or 8335-GTA

Learn about removing and replacing Peripheral Component Interconnect (PCI) Express (PCIe) adapters in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Attention: For safety and airflow purposes, if you remove parts from the system, you must ensure that:
- PCIe tailstock fillers are present
- Graphic processor unit (GPU) or PCIe carriers are present and that either GPU or PCIe fillers are installed in the carriers.

Removing and replacing a PCIe adapter in a PCIe riser of the 8335-GCA or 8335-GTA

Follow these steps to remove and replace Peripheral Component Interconnect (PCI) Express (PCIe) adapters in the PCIe riser of the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Removing a PCIe adapter from a PCIe riser in the 8335-GCA or 8335-GTA

To remove a PCIe adapter in a PCIe riser, complete the steps in this procedure.

About this task

Attention: For safety and airflow purposes, if you remove parts from the system, you must ensure that:
- PCIe tailstock fillers are present
- Graphic processor unit (GPU) or PCIe carriers are present and that either GPU or PCIe fillers are installed in the carriers.

Procedure

1. If needed, label and remove the cables from the PCIe adapter. Also if needed, label and remove any plugs that extend out of the PCIe adapter.
2. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
3. Using the blue strap and the blue touchpoint, remove the PCIe riser from the system. See Figure 40.

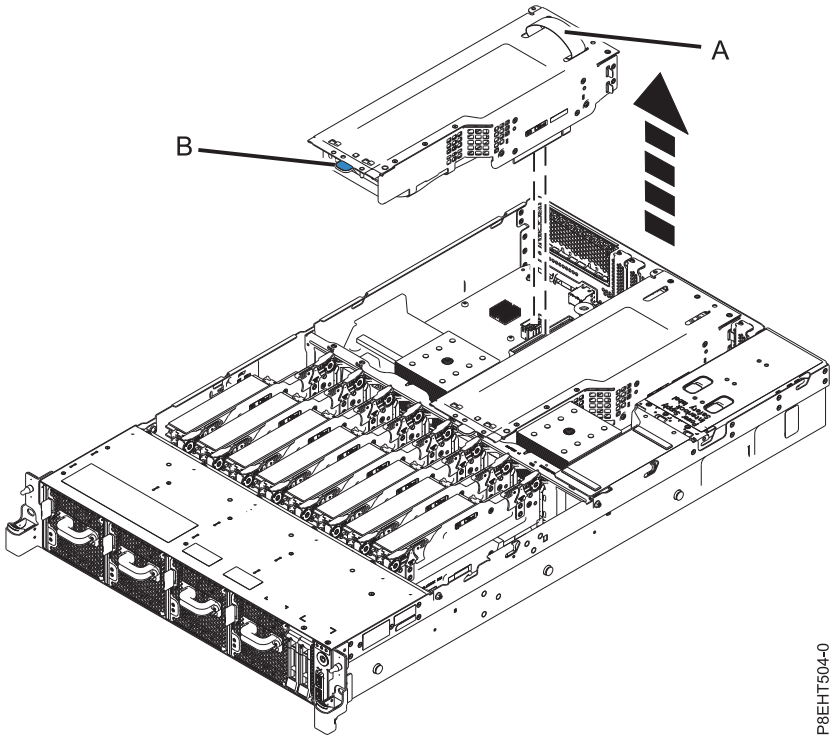


Figure 40. Removing the PCIe riser

4. Place the PCIe riser on an ESD mat on the table.
5. Remove the PCIe adapter from the PCIe riser.

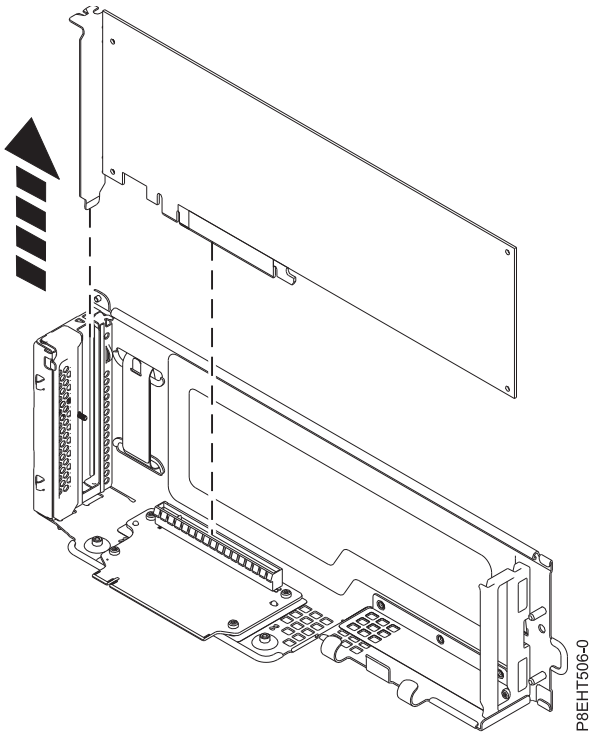


Figure 41. Removing PCIe card from PCIe riser

6. Place the PCIe adapter on the table.

Replacing a PCIe adapter in a PCIe riser in the 8335-GCA or 8335-GTA

To replace a PCIe adapter in a PCIe riser, complete the steps in this procedure.

About this task

Attention: For safety and airflow purposes, if you remove parts from the system, you must ensure that:
- PCIe tailstock fillers are present
- Graphic processor unit (GPU) or PCIe carriers are present and that either GPU or PCIe fillers are installed in the carriers.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Insert the replacement PCIe adapter into the PCIe riser, aligning it properly and inserting it fully into the slot. See Figure 42 on page 43.

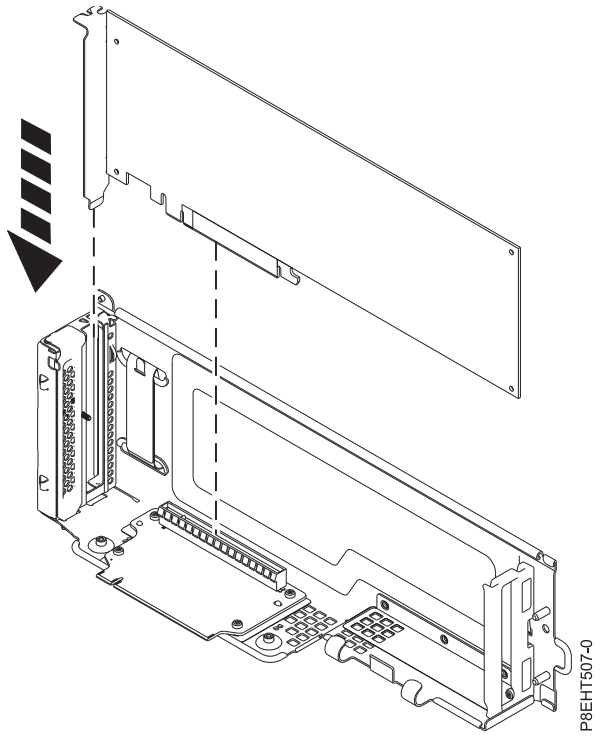


Figure 42. Inserting PCIe card into PCIe riser

3. If the PCIe adapter does not fill the riser, insert a filler into the riser. Figure 43 shows the filler **(B)**.

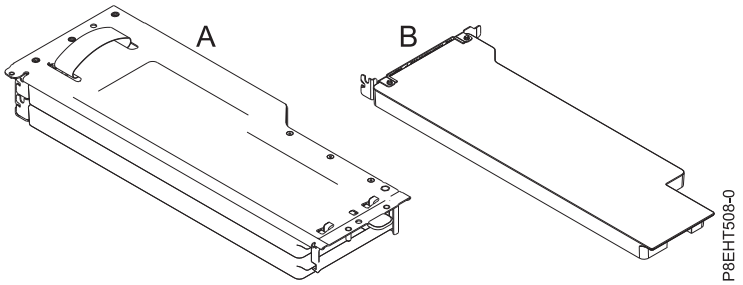


Figure 43. PCIe riser and filler

4. Using the 3 alignment pins **(A)**, place the PCIe riser into the system. Push it down into place until it is firmly seated in the system. See Figure 44 on page 44.

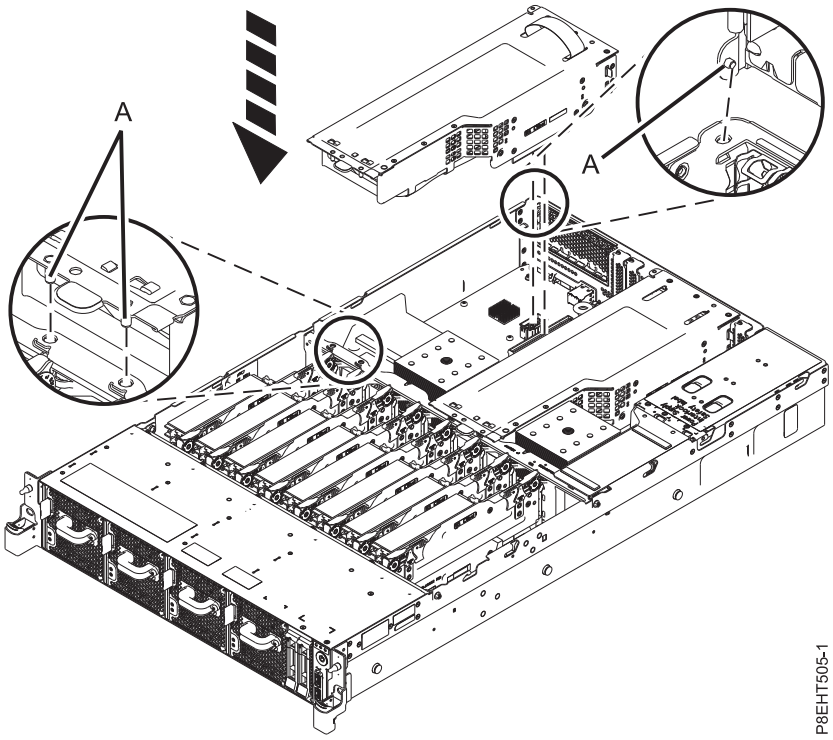


Figure 44. Installing the PCIe riser

5. Using your labels, replace any plugs that you removed from the PCIe adapter. Using your labels, insert the cables into the PCIe adapter.

Removing and replacing a PCIe adapter on the system backplane of the 8335-GCA or 8335-GTA

Follow these steps to remove and replace Peripheral Component Interconnect (PCI) Express (PCIe) adapters in the system backplane of the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Before you begin

Important: Before you remove a PCIe3 1.6 TB NVMe Flash adapter (FC EC54; CCIN 58CB) or a PCIe3 3.2 TB NVMe Flash adapter (FC EC56; CCIN 58CC), ensure that you back up all data on the adapter or the array that contains the adapter. After you replace the adapter, restore the data.

Removing a PCIe adapter from the system backplane in the 8335-GCA or 8335-GTA

To remove a PCIe adapter from the system backplane, complete the steps in this procedure.

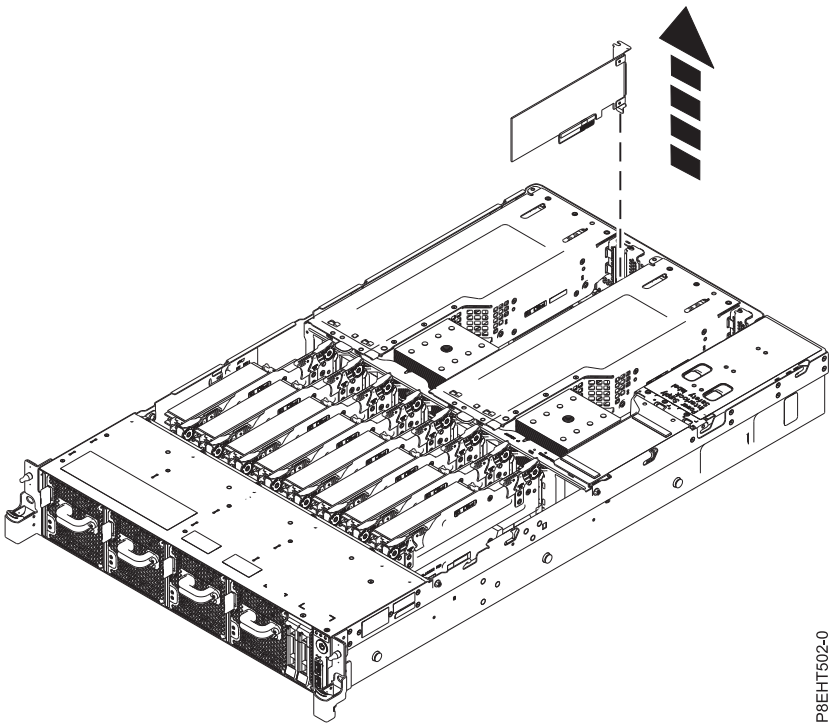
About this task

Attention: For safety and airflow purposes, if you remove parts from the system, you must ensure that:
- PCIe tailstock fillers are present
- Graphic processor unit (GPU) or PCIe carriers are present and that either GPU or PCIe fillers are installed in the carriers.

Procedure

1. If needed, label and remove the cables from the PCIe adapter. Also if needed, label and remove any plugs that extend out of the PCIe adapter.
2. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.

3. Remove the PCIe adapter from the system backplane



4. Place the PCIe adapter on the table.

Replacing a PCIe adapter in the system backplane in the 8335-GCA or 8335-GTA

To replace a PCIe adapter in the system backplane, complete the steps in this procedure.

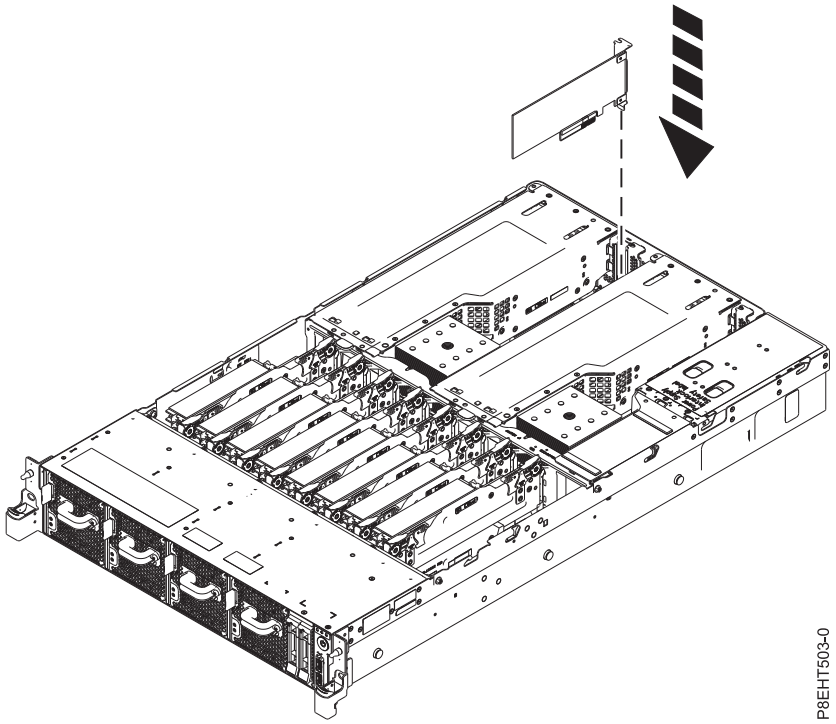
About this task

Attention: For safety and airflow purposes, if you remove parts from the system, you must ensure that:

- PCIe tailstock fillers are present
- Graphic processor unit (GPU) or PCIe carriers are present and that either GPU or PCIe fillers are installed in the carriers.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Insert the replacement PCIe adapter into the system backplane, aligning it properly and inserting it fully into the slot.



3. Using your labels, replace any plugs that you removed from the PCIe adapter. Using your labels, insert the cables into the PCIe adapter.

Removing and replacing power risers in the 8335-GCA or 8335-GTA

Find information about removing and replacing power risers in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Removing a power riser from the 8335-GCA or 8335-GTA

To remove a power riser from the 8335-GCA or 8335-GTA system, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Remove the power riser air baffle. See Figure 45 on page 47.

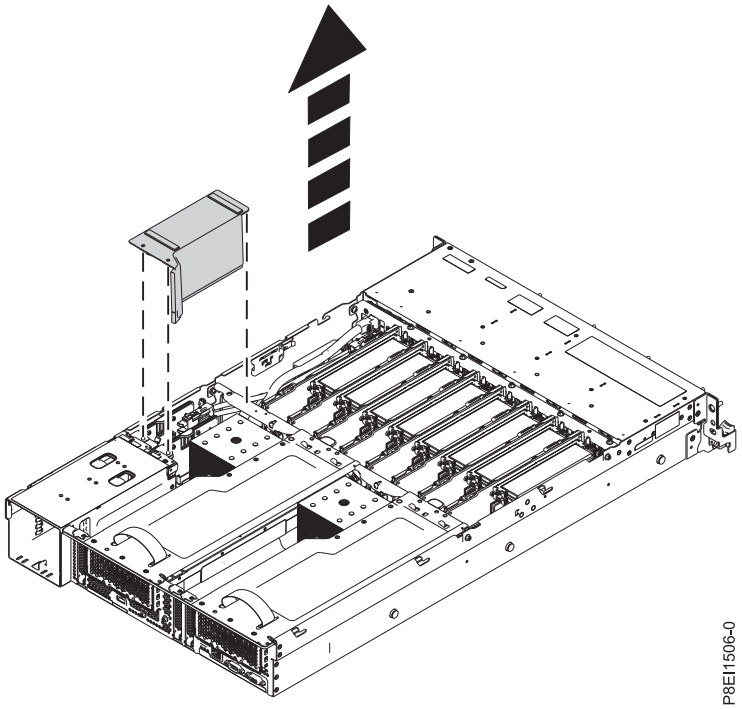


Figure 45. Removing the power riser air baffle

3. Locate the power risers. Figure 46 on page 48 shows the location of the power risers in the 8335-GCA or 8335-GTA system. The **(B)** power riser contains the time-of-day battery and the connector for the fan power cable.

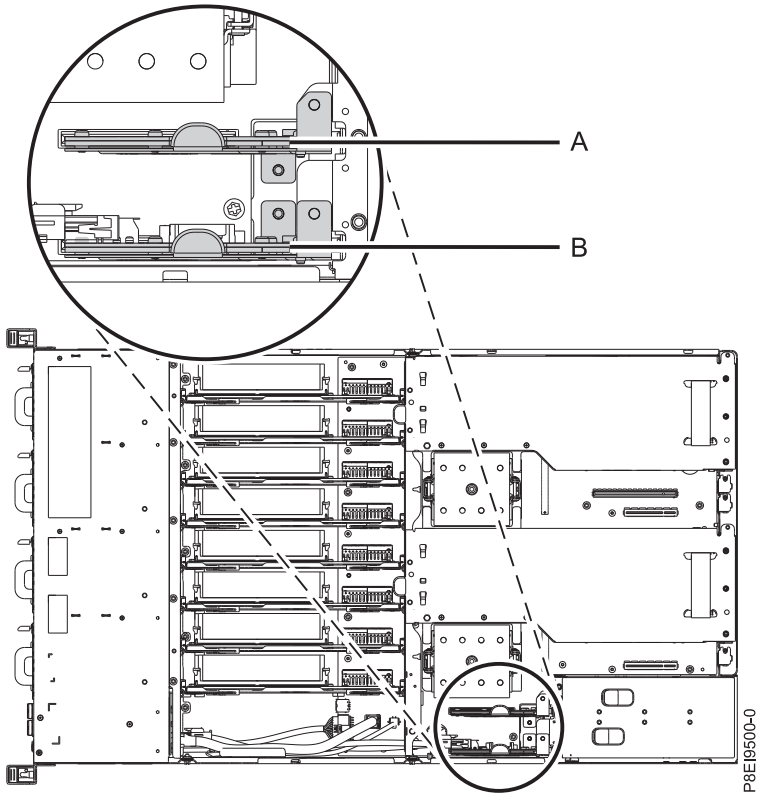


Figure 46. Location of the power risers

4. Remove the faulty or failed power riser.
   a. If applicable, disconnect the fan power cable from the power riser **(A)** in Figure 47 on page 49, by pressing the latch release lever with your thumb.

      Note: The latch release on the connector must be depressed before you unplug the cable. Failure to do so might damage the cable and the connector.
   b. Pull out the power riser from the slot by holding the blue tab. See **(B)** in Figure 47 on page 49.

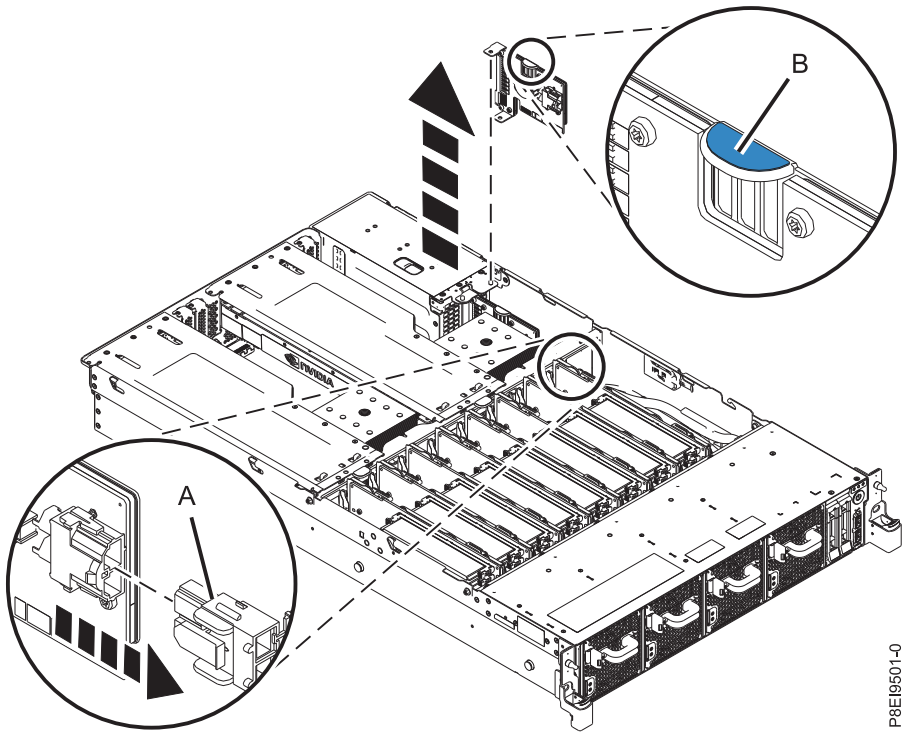


Figure 47. Removing a power riser from the system

c. Place the power riser on an ESD mat.

Replacing a power riser in the 8335-GCA or 8335-GTA

To replace a power riser in the 8335-GCA or 8335-GTA system, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. If applicable, replace the time-of-day battery in the slot on the power riser. For instructions, see "Removing and replacing the time-of-day battery in the 8335-GCA or 8335-GTA" on page 105. The existing time-of-day battery can be reused, but IBM recommends installing a new time-of-day battery when replacing the power riser.
3. To replace a power riser, complete the following steps:
   a. Hold the power riser by the blue tab as you position the notch on the riser over the pin on the system's chassis. See **(B)** in Figure 48 on page 50.
   b. Insert the power riser into the slot. Use the alignment pins to properly insert the riser. See **(A)** in Figure 48 on page 50.
   c. If applicable, reconnect the fan power cable to the power riser. See **(C)** in Figure 48 on page 50.

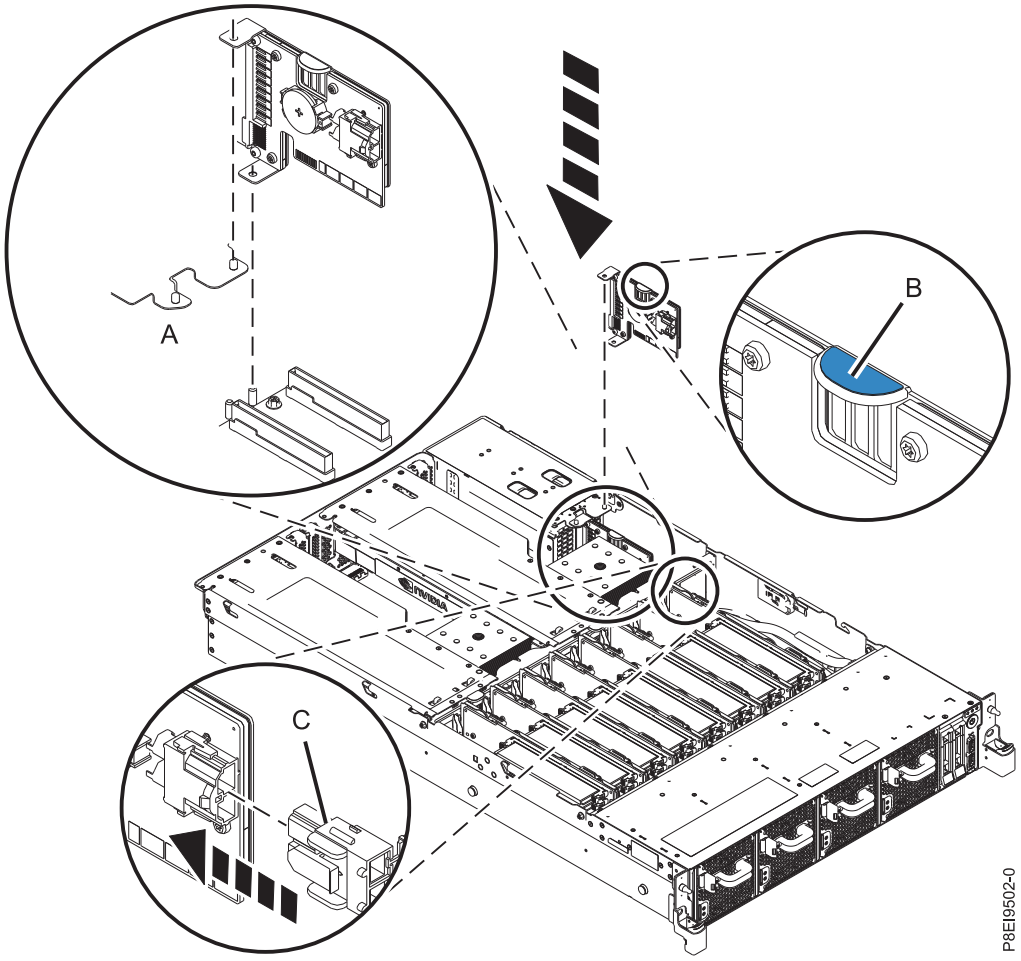


Figure 48. Replacing a power riser in the system

4. Install the power riser air baffle. See Figure 49 on page 51. Ensure that the holes in the baffle align with the pins on the system.

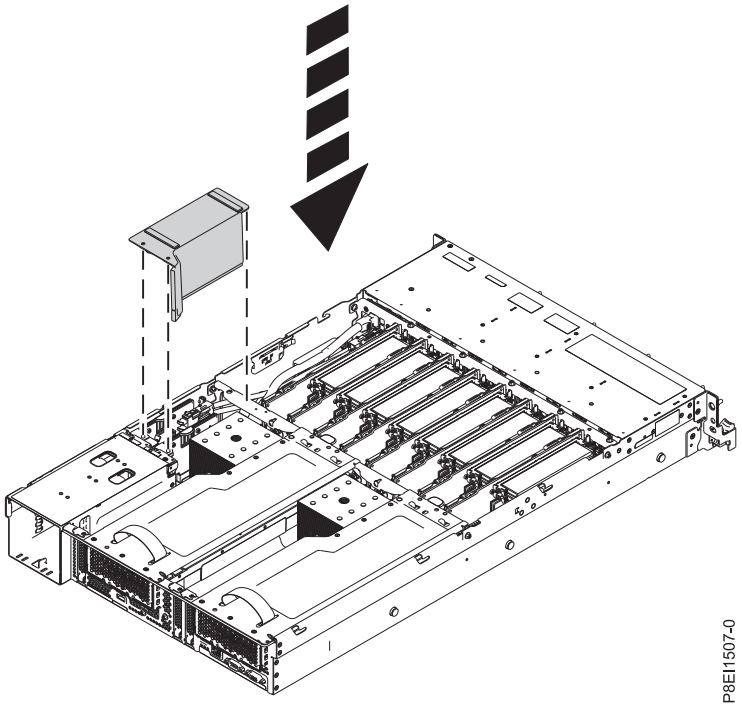


Figure 49. Installing the power riser air baffle

Removing and replacing a power supply in the 8335-GCA or 8335-GTA

Find information about removing and replacing power supplies in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Preparing the system to remove and replace a power supply

To prepare the system to remove and replace a power supply, complete the steps in this procedure.

Procedure

1. Complete the prerequisite tasks. For instructions, see "Before you begin" on page 110.
2. Identify the part and the system that you will be working on. For instructions, see "Identifying the system that contains the part to replace" on page 113.
3. If applicable, open the rack door at the rear of the system.
4. Attach the electrostatic discharge (ESD) wrist strap.

Attention:

- Attach an electrostatic discharge (ESD) wrist strap to the front ESD jack, to the rear ESD jack, or to an unpainted metal surface of your hardware to prevent the electrostatic discharge from damaging your hardware.
- When you use an ESD wrist strap, follow all electrical safety procedures. An ESD wrist strap is used for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
- If you do not have an ESD wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.

5. Locate the light-emitting diodes (LEDs) on the power supplies. Two power supplies are installed in the rear of the system. Figure 50 shows the LED locations.

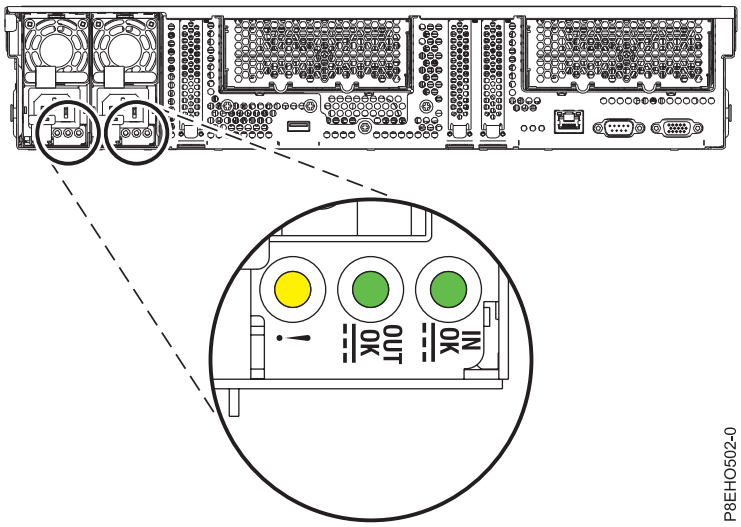


Figure 50. Location of the power supplies and LEDs

The power supply has three LEDs that indicate the status of the power supply:

- An ac power-on LED (green)
- A dc power-on LED (green)
- An error LED (amber)

Table 1 provides the descriptions for the states of the power supply LEDs and helps to identify whether the power supplies are working or have a failure.

Table 1. Description of the power supply LED states

ac power LED (Green)	dc power LED (Green)	Error and identify LED (Amber)	Power supply status
On (Solid)	On (Solid)	Off	The power supply is operating correctly.
On (Solid)	Flashing	Off	The system is turned off, but the power supply is still connected to the power source.
On (Solid)	Off	On	The power supply is not operating correctly or has failed.

6. Determine whether the repair can continue concurrently with the system power turned on. To continue the repair concurrently, the following conditions must be true:
   - If you are servicing an 8335-GCA system:
     - Power supplies must be installed in both slots.
     - If only one amber fault LED is **On**, the repair can be completed concurrently.

Attention:

- Removing and replacing the power supply is a time sensitive task when you are servicing with the system power turned on (concurrent).
- To avoid a system shutdown, you must replace the failed power supply within **five** minutes after you remove the power supply from the system.
- Ensure that you have read the complete procedure to remove and replace a power supply and that you are prepared to remove and replace the power supply within the time limit.

- If you are servicing an 8335-GTA system, concurrent repair of the power supply is not supported; the system must be turned off. Continue with step 7 and follow the instructions for a noncurrent repair.

7. Select an action:
   - To do a concurrent repair with the system running:
     a. Continue the procedure with the system power turned on.
     b. Remove the failed power supply that is indicated by the amber fault LED. For instructions, see "Removing a power supply from the 8335-GCA or 8335-GTA."

        Remember: Failure to replace the power supply after removing the power supply from the system within five minutes can cause the system to automatically power off.
   - To do a non-concurrent repair with the system power turned off:
     a. Label the failed power supply that is indicated by the amber fault LED.
     b. Stop the system. For instructions, see "Stopping the system" on page 119.
     c. Disconnect the power source from the system by unplugging the system. For instructions, see "Disconnecting the power cords from an 8335-GCA or 8335-GTA system" on page 127.
     d. Using your label, remove the failed power supply. For instructions, see "Removing a power supply from the 8335-GCA or 8335-GTA."

Removing a power supply from the 8335-GCA or 8335-GTA

To remove a power supply from the system, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Label and disconnect the power cord from the failed power supply.

   Attention: Do not remove the power cord from the cable-management arm, if applicable.

   a. Label the power cord, and then unstrap the hook-and-loop fastener to release the power cord from the power supply handle. Refer to Figure 51 on page 54.
   b. Pull the end of the power cord out of the power supply.
   c. Retain the hook-and-loop fastener for future use.

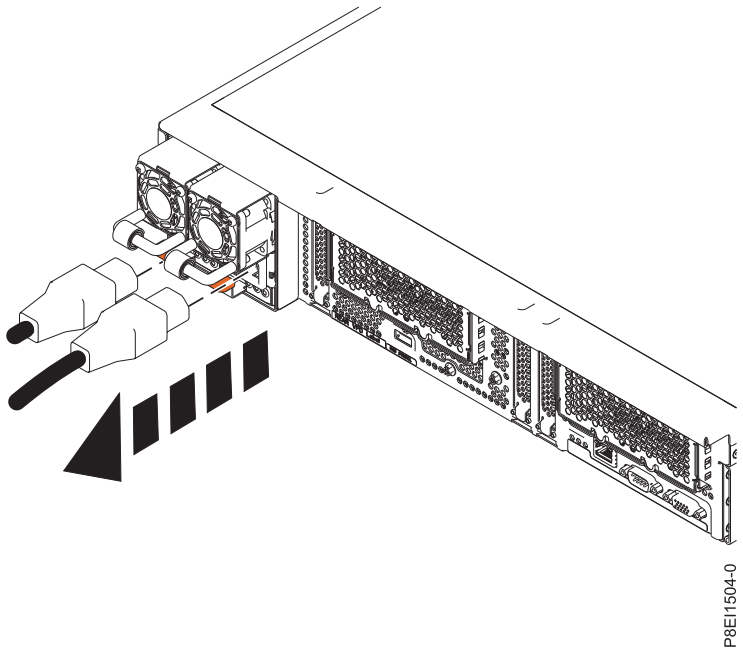


Figure 51. Disconnecting the power cord from the power supply

3. Remove the power supply from the system.
   a. To unseat the power supply from its position in the system, pull up the terracotta locking-tab **(A)**. See Figure 52.
   b. Grasp the power supply handle with one hand, and pull the power supply **(B)** part of the way out of the system.
   c. Place your other hand underneath the power supply and pull the power supply completely out of the system and place it on an ESD mat.

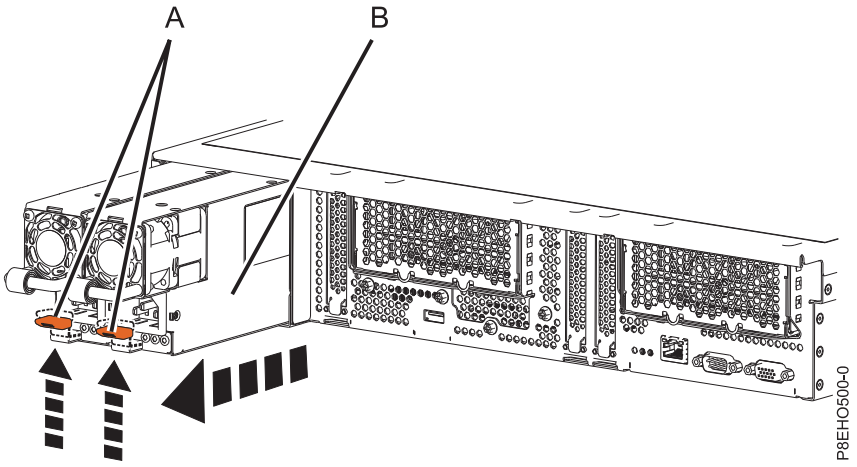


Figure 52. Removing a power supply from the system

Replacing a power supply in the 8335-GCA or 8335-GTA

To replace a power supply in the system, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Align the power supply **(A)** with the bay and slide the power supply into the system until the terracotta latch **(B)** locks in place. See Figure 53.

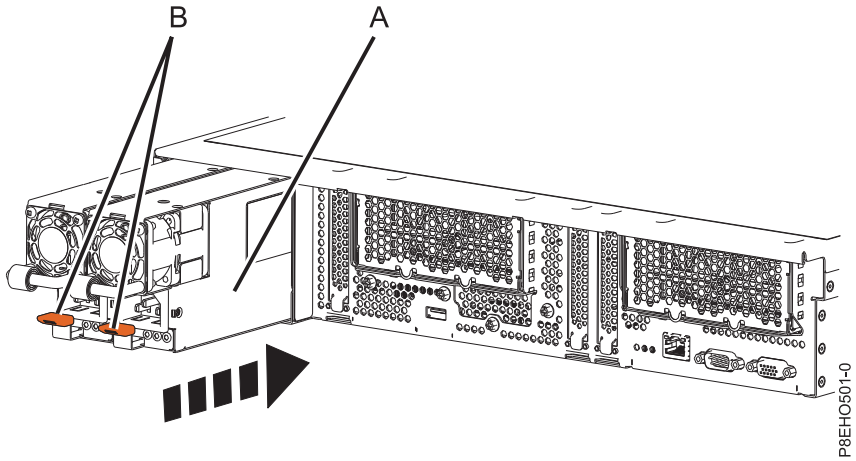


Figure 53. Replacing a power supply in the system

3. Connect and fasten the power cord to the power supply.
   a. Connect the power cord to the power supply. See Figure 54.
   b. Use the hook-and-loop fastener and tie the power cord to the power supply handle. To properly loop the power cables, see "Connecting the power cords to an 8335-GCA or 8335-GTA system" on page 129

      Attention: This system is equipped with two power supplies. Before you continue with this procedure, connect all power cords to the power supplies and strap them.

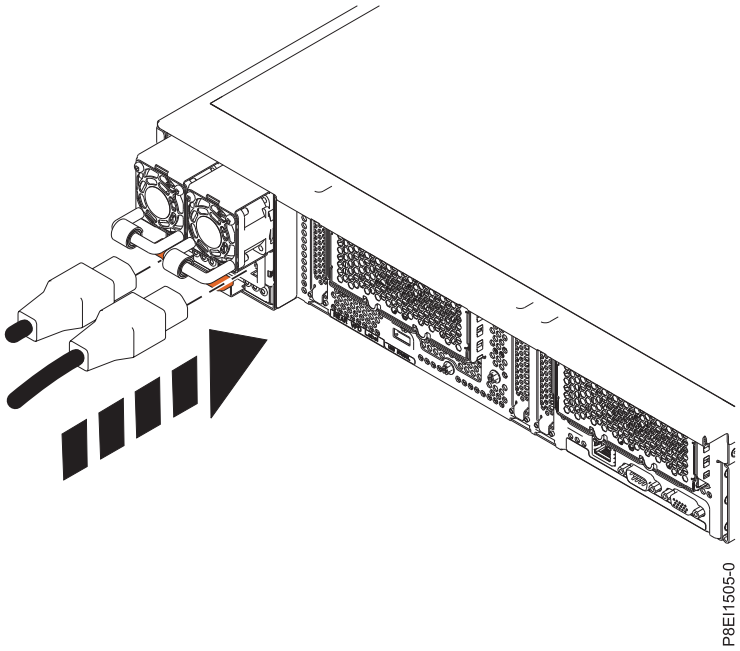


Figure 54. Connecting the power cord to the power supply

Preparing the system for operation after removing and replacing a power supply

To prepare the system for operation after removing and replacing a power supply, complete the steps in this procedure.

About this task

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Start the system for a nonconcurrent repair. For instuctions, see “Starting the system” on page 118.
3. Note the state of LEDs on the replaced power supply. The LEDs for that power supply must be in the following state:
   - The ac power-on LED is **On** (solid).
   - The dc power-on LED is **On** (flashing).
   - The amber fault LED is **Off**.
4. Verify the installed part. See Verifying a repair in the 8335-GCA or 8335-GTA (http://www.ibm.com/support/knowledgecenter/POWER8/p8ei3/p8ei3_verifyrepair.htm).
5. If applicable, close the rack door at the rear of the system.

Removing and replacing the power switch and cable in the 8335-GCA or 8335-GTA

Learn how to remove and replace the power switch and cable in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Removing the power switch and cable from the 8335-GCA or 8335-GTA system

Follow these steps to remove the power switch and cable from the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Remove the disk drive fan card. For instructions, see “Removing the disk drive and fan card from the 8335-GCA or 8335-GTA” on page 9.
3. Locate the front USB cable **(A)** and the power switch cable **(B)**. They connect between the system backplane and the power switch along the inside of the system. Label each cable.

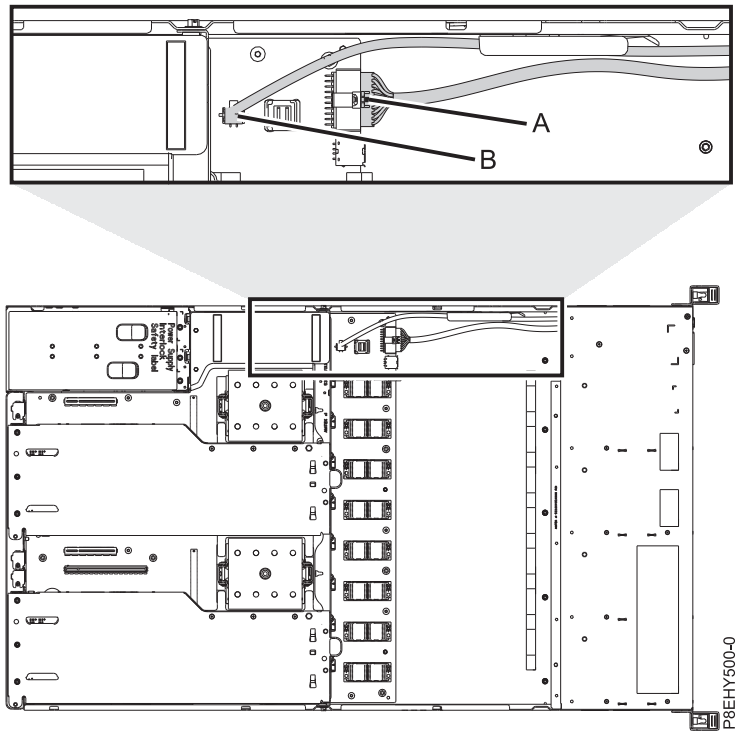


Figure 55. Location of the power switch and cable connectors

4. Release each cable from the retaining clip on the inside wall of the system.
5. Pressing the latch release on the connector, disconnect the front USB cable **(A)**. See Figure 56 on page 58.

   Note: The latch release on the connector must be depressed before unplugging the cable. Failure to do so can damage the cable and the connector.

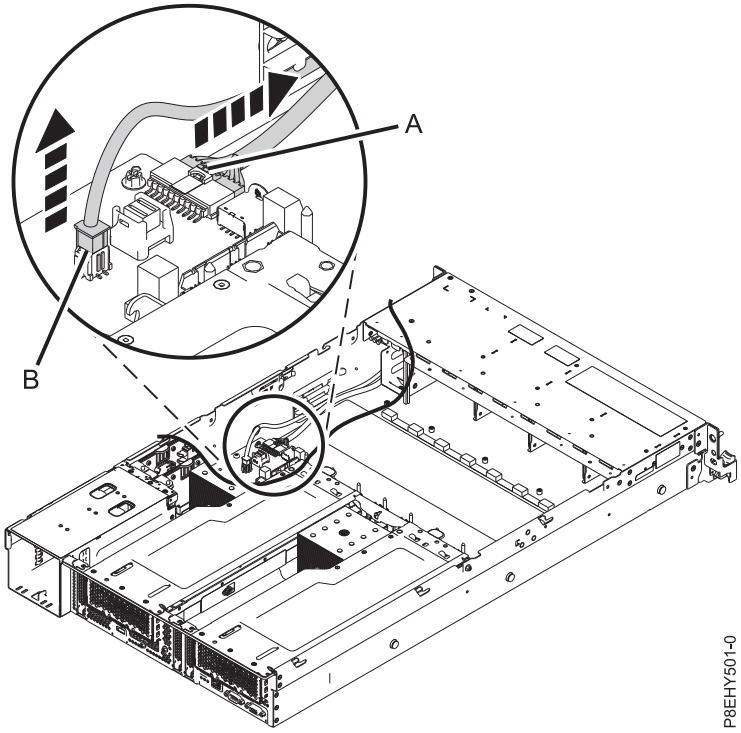


Figure 56. Removing the front USB cable and the power switch cable from the system backplane and disk drive fan card

6. Pressing the latch release on the connector, disconnect the power switch cable **(B)** from the system backplane. See Figure 56.
7. Remove the rack installation support from the side of the system. See Figure 57.

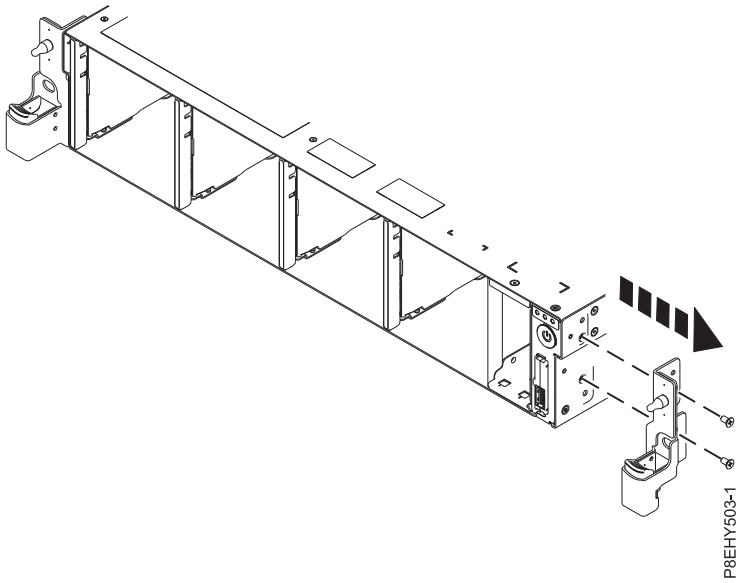


Figure 57. Removing the rack installation support

8. Remove the top and side screws from the power switch. See Figure 58 on page 59.

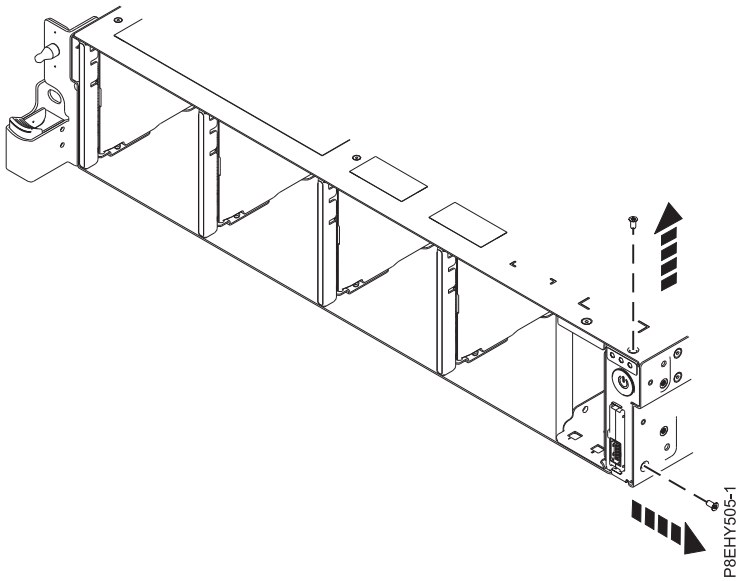


Figure 58. Remove the top and side screws

9. Pull the power switch from the system See Figure 59.

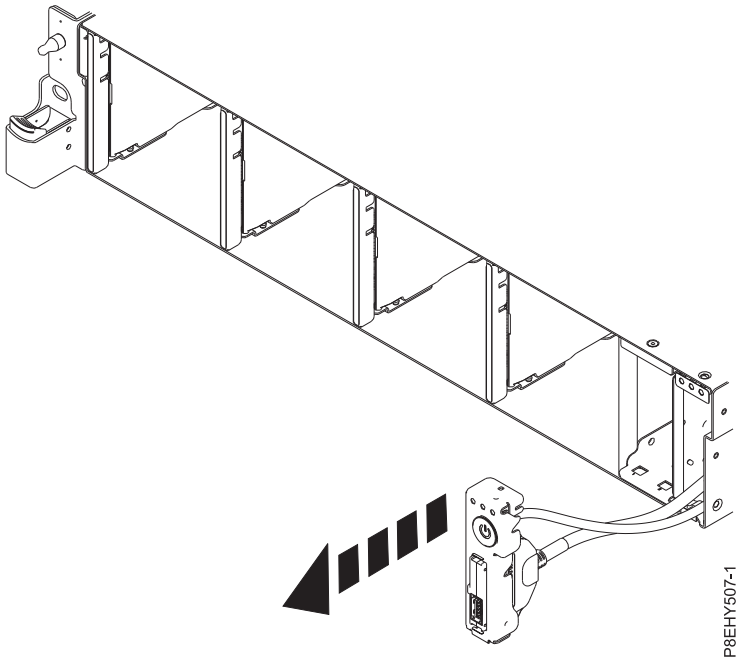


Figure 59. Pull power switch from system

10. Pressing the latch releases on the connector **(A)**, disconnect the front USB cable from the power switch. See Figure 60 on page 60.

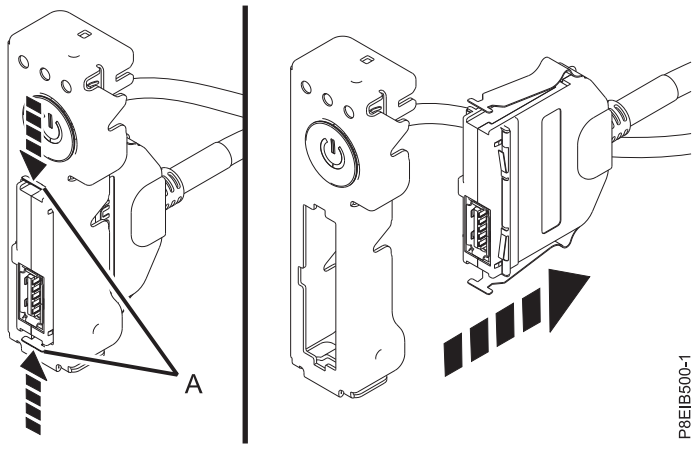


Figure 60. Removing front USB cable from power switch

11. Place the power switch and the front USB cable on the table.

Replacing the power switch and cable in the 8335-GCA or 8335-GTA system

Follow these steps to replace the power switch and cable in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Find the replacement power switch and cable and remove it from the protective plastic envelope.
3. Connect the front USB cable to the power switch. Push in the retaining latches **(A)** so that the USB port locks into the power switch. See Figure 61.

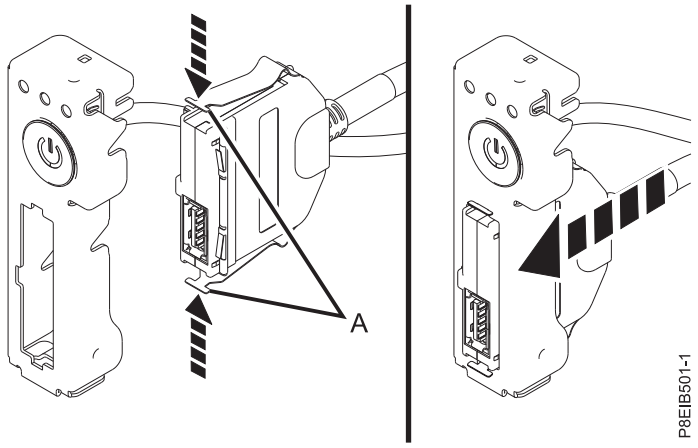
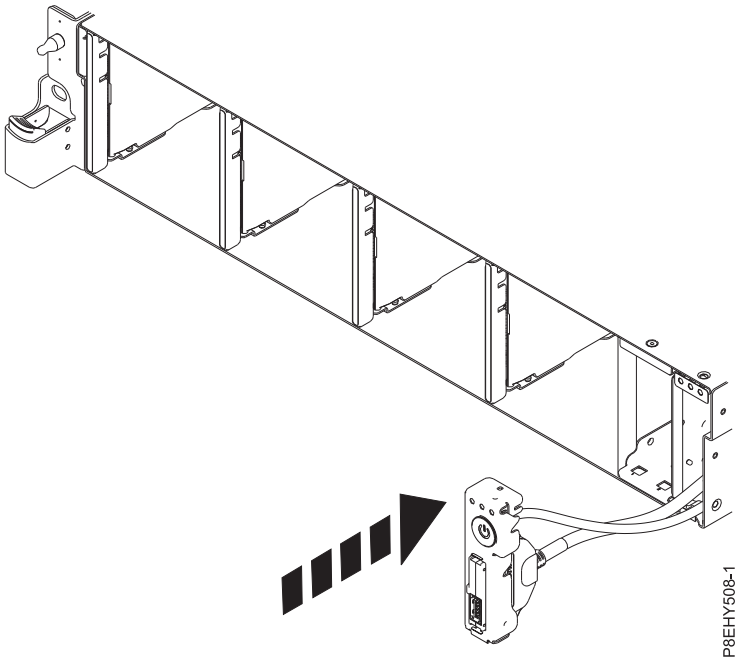
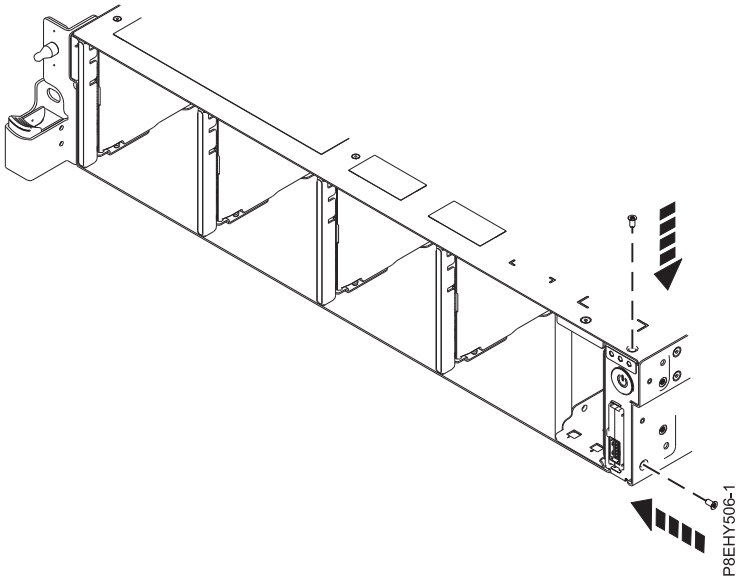


Figure 61. Attaching the front USB cable to the power switch

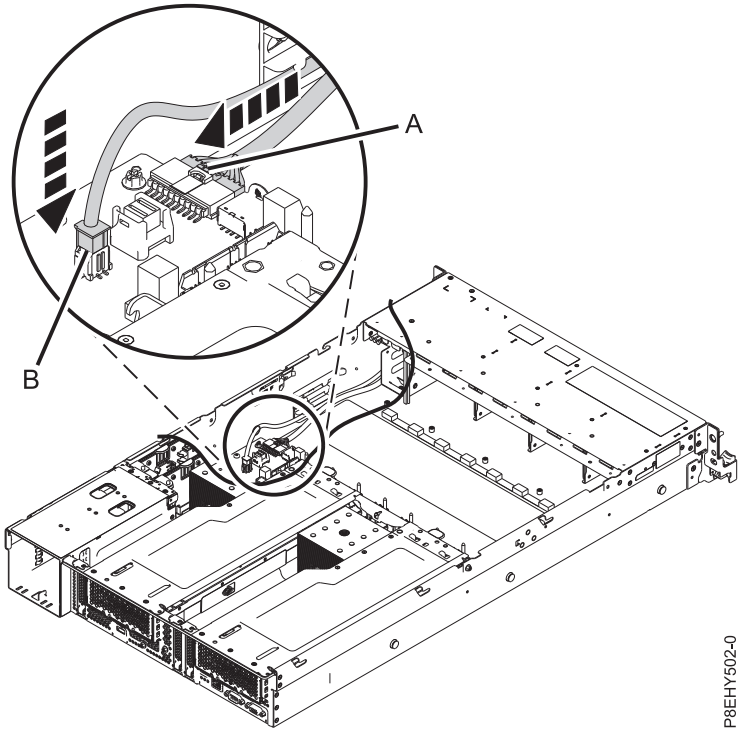
4. Insert the power switch and cables into the system. Be careful to route the cables through to the system backplane.



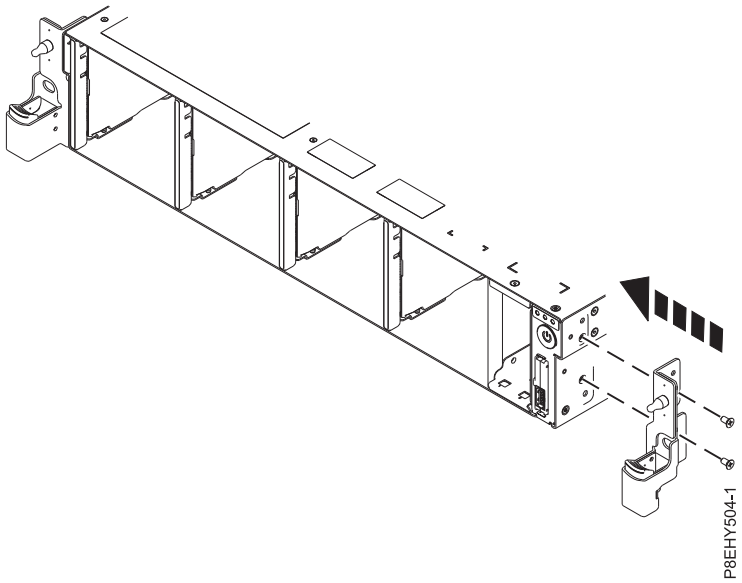
5. Replace the top and side screws for the power switch



6. Using the labels, plug the front USB cable **(A)** and the power switch cable **(B)** to the system backplane. Ensure that the cable latch clip snaps into place on the connectors.



7. Replace the rack installation support on the side of the system.



8. Secure each cable in the retaining clip on the inside wall of the system.
9. Replace the disk fan card. For instructions, see "Replacing the disk drive and fan card in the 8335-GCA or 8335-GTA" on page 11.

Removing and replacing the system backplane in the 8335-GCA or 8335-GTA

You can remove and replace the system backplane in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Before you begin replacing the system backplane, write down the system serial number and machine model type. After you replace the system backplane, you must set the system serial number and machine model type in the system backplane.

Removing the system backplane from the 8335-GCA or 8335-GTA

To remove the system backplane from the IBM Power System S822LC (8335-GCA and 8335-GTA) system, complete the steps in this procedure.

About this task

As part of the system backplane replacement, the system processor modules are moved from the old system backplane to the new system backplane.

As part of the system processor module replacement, the heat sink is removed. The system can use two types of thermal interface materials (TIMs); silver with trimmed corners, or gray with square corners.

- When the heat sink is removed from the system processor module, the silver-colored thermal interface material (TIM) is typically adhered to the heat sink. Unless damaged, the TIM that is adhered to the heat sink can be reused. If the silver-colored TIM is damaged, do not reuse the removed heat sink. Before you begin the removal and replacement procedure, ensure that you have a spare TIM and heat sink, part number 01AF286, on hand.
- If a gray-colored TIM is used and needs replacing, ensure that you have a spare TIM, part number 01AF742, on hand. Alternatively, have a spare TIM and heat sink, part number 01AF286, on hand.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Remove the power riser air baffle. See Figure 62.

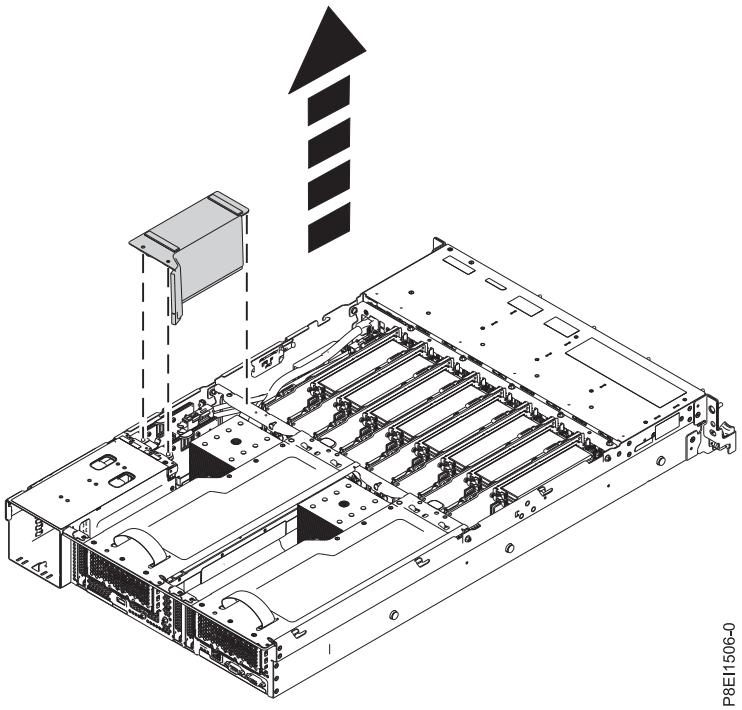


Figure 62. Removing the power riser air baffle

3. Label and remove the graphics processing unit (GPU) assemblies. For instructions, see “Removing the graphics processing unit from the 8335-GCA or 8335-GTA system” on page 31.
4. Label and remove the PCIe adapter cards. For instructions, see “Removing a PCIe adapter from the system backplane in the 8335-GCA or 8335-GTA” on page 44.
5. Label and remove the memory cards or fillers. For instructions, see “Removing memory risers from the 8335-GCA or 8335-GTA” on page 37.
6. Label and remove the fan power cable from the power distribution card. For instructions, see “Removing the fan power cable from the 8335-GCA or 8335-GTA” on page 21.
7. Label and remove the disk and fan signal cable from the system backplane. For instructions, see “Removing the disk and fan signal cable from the 8335-GCA or 8335-GTA system” on page 13.
8. Label and remove the USB cable and the power signal cable from the system backplane. For instructions, see “Removing the front USB cable and connector from the 8335-GCA or 8335-GTA system” on page 25.
9. Remove the power distribution cards. For instructions, see “Removing a power riser from the 8335-GCA or 8335-GTA” on page 46.
10. Remove the middle support **(C)**. See Figure 63.
    a. Remove the two screws **(B)** from each side of the system.
    b. Remove the four screws **(A)** that connect the middle support to the system backplane.
    c. Lift out the middle support **(C)**.

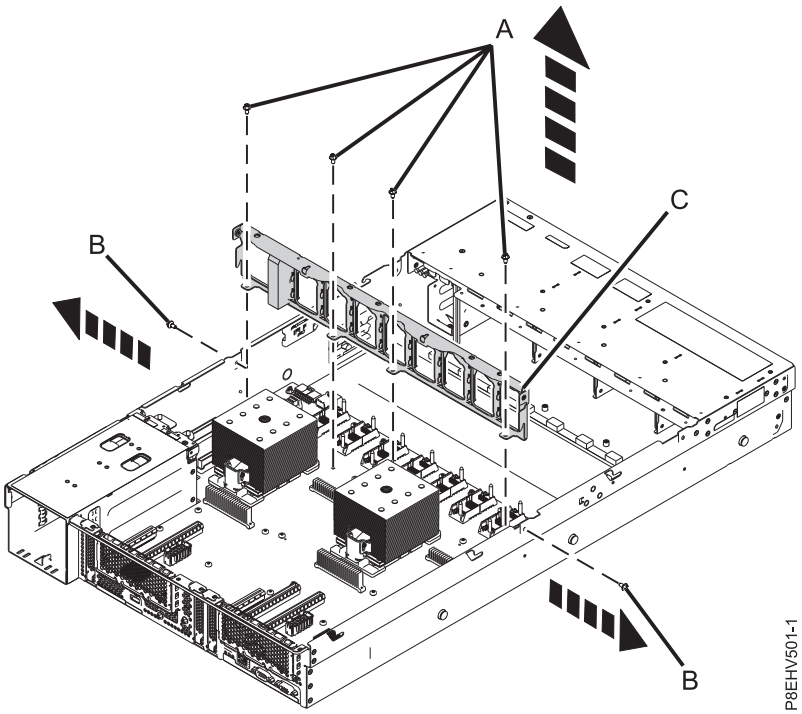


Figure 63. Remove the middle support and screw locations

11. Unscrew and remove 10 black hex screws **(D)** from the system backplane. The screw locations are shown in Figure 64 on page 65.

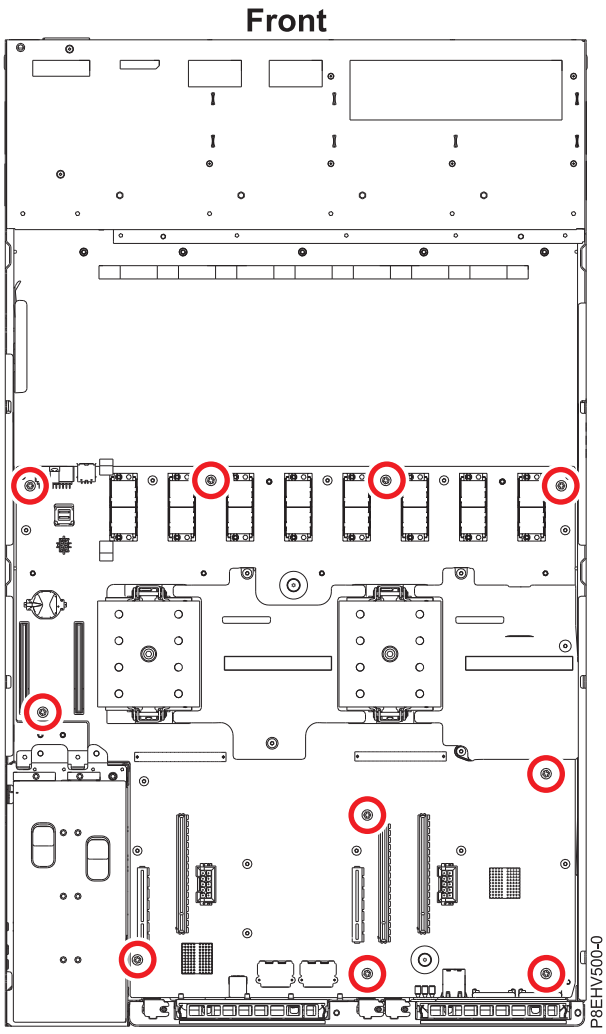


Figure 64. System backplane screw locations

12. Using the blue lift points, slide the system backplane **(E)** towards the fans, then lift to remove it. See Figure 65 on page 66.

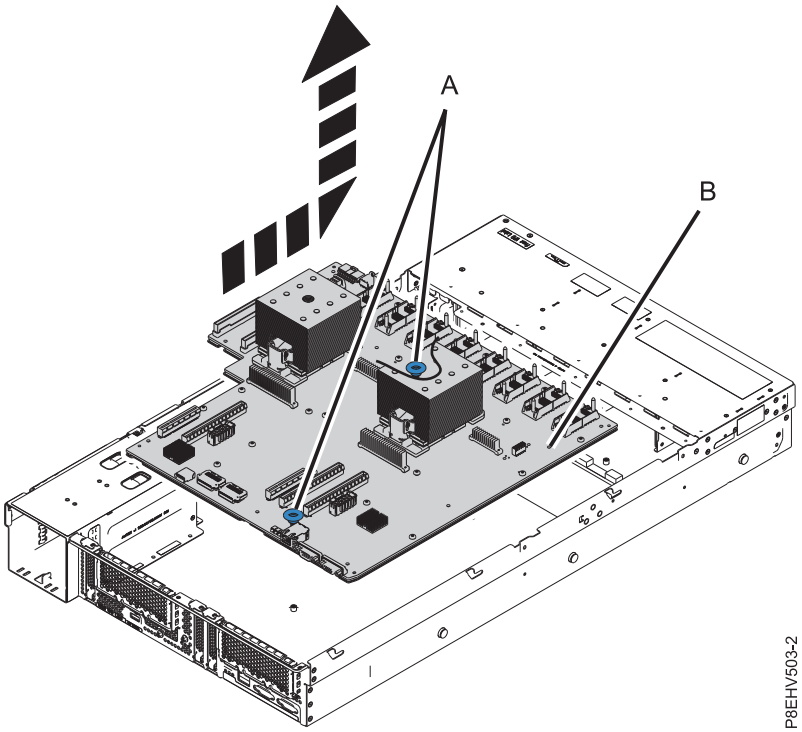


Figure 65. Lifting out the backplane

13. Place the system backplane on the ESD mat.

Replacing the system backplane in the 8335-GCA or 8335-GTA

To replace the system backplane, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Remove the replacement system backplane from the static-protective package and place it on an ESD mat.
3. Using the blue lift points, lower the system backplane **(A)** into the system, sliding it to the back of the system. Ensure that the connectors align and pass through the rear of the system.

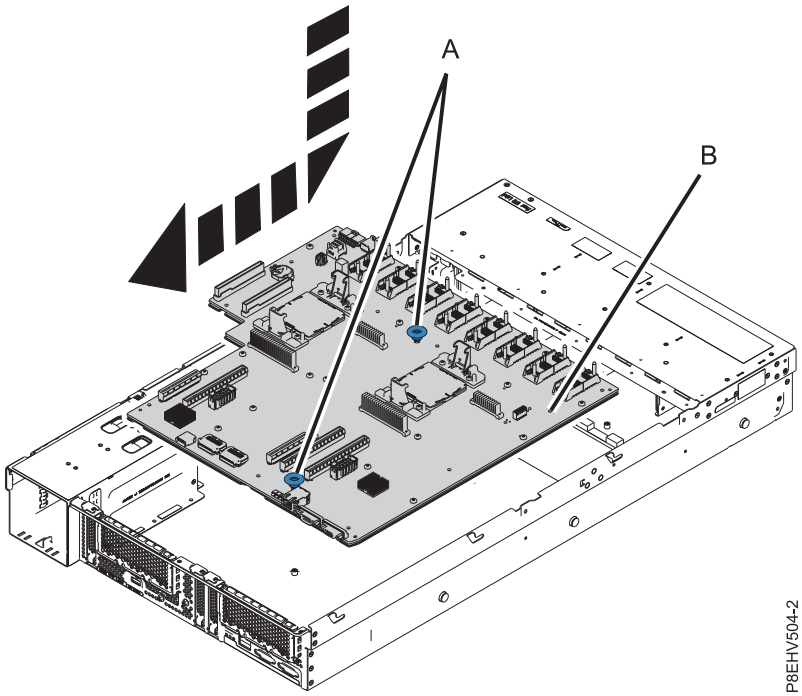


Figure 66. Lowering the system backplane into the system and sliding it to the back of the system.

4. Align and screw the 10 black hex screws **(B)** into the system backplane. The screw locations are shown in Figure 67 on page 68.

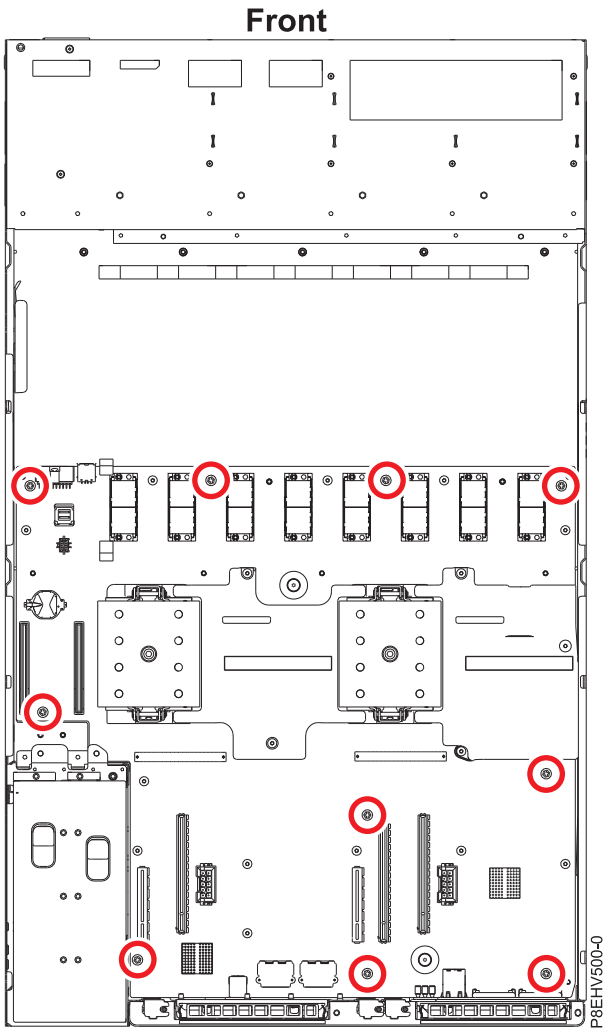


Figure 67. System backplane screw locations

5. Replace the middle support **(C)**. See Figure 68 on page 69.
   a. Lower the middle support **(C)** into place.
   b. Replace the two screws **(E)** on the side of the system.
   c. Replace the four screws **(D)** that connect the middle support to the system backplane.

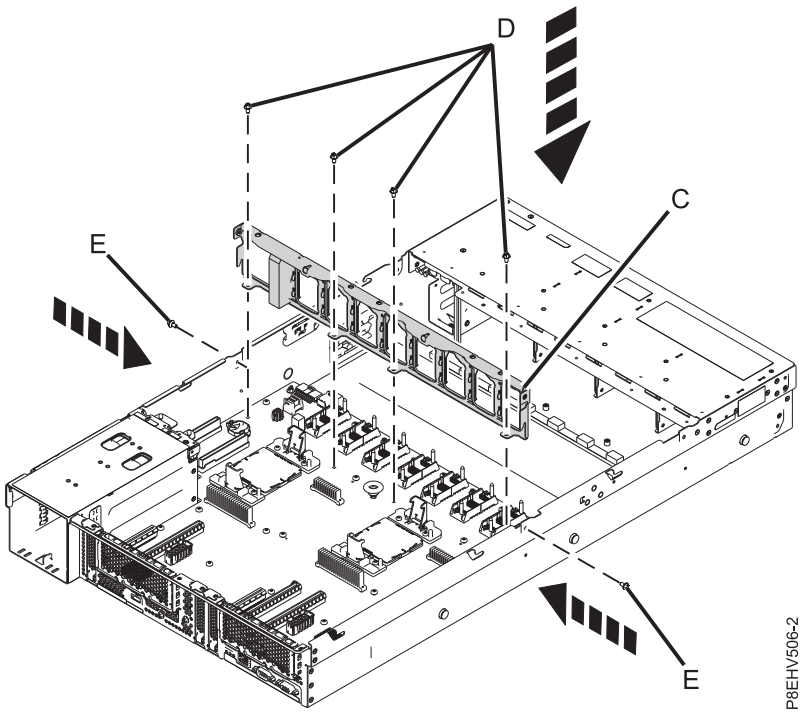


Figure 68. Replacing the middle support

These next steps move the system processor modules from the old system backplane to the new system backplane you just installed:

6. Begin the process of transferring the system processors, one at a time.
7. Remove the heat sink from the system processor module:
   a. Loosen the heat sink actuation screw by turning the supplied hex key counterclockwise **(A)**. Loosen the screw until it moves freely. See Figure 69 on page 70.
   b. Grip the heat sink **(B)** on opposing sides and remove the heat sink by lifting it upward. Set the heat sink aside with the module side facing upward.

      Note: If you plan to remove dust or debris from the heat sink, this operation must be performed in another room that is greater than 7.6 m (24.9 ft) away from the work area.

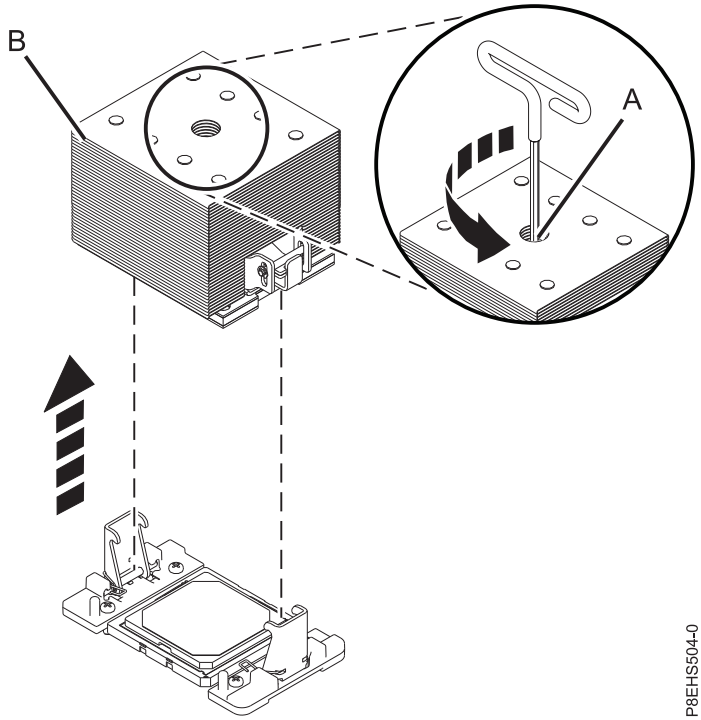


Figure 69. Removing the heat sink

8. If the system uses the gray-colored thermal interface material (TIM): Using the tweezers, remove the gray-colored TIM from the top of the processor and place it in a clean, dry area as shown in Figure 70 on page 71. The system can use two types of TIMs. One TIM is silver-colored with trimmed corners and typically adheres to the heat sink. The other is TIM is dark gray with square corners and does not adhere. The gray-colored TIM needs to be removed before the processor is removed.

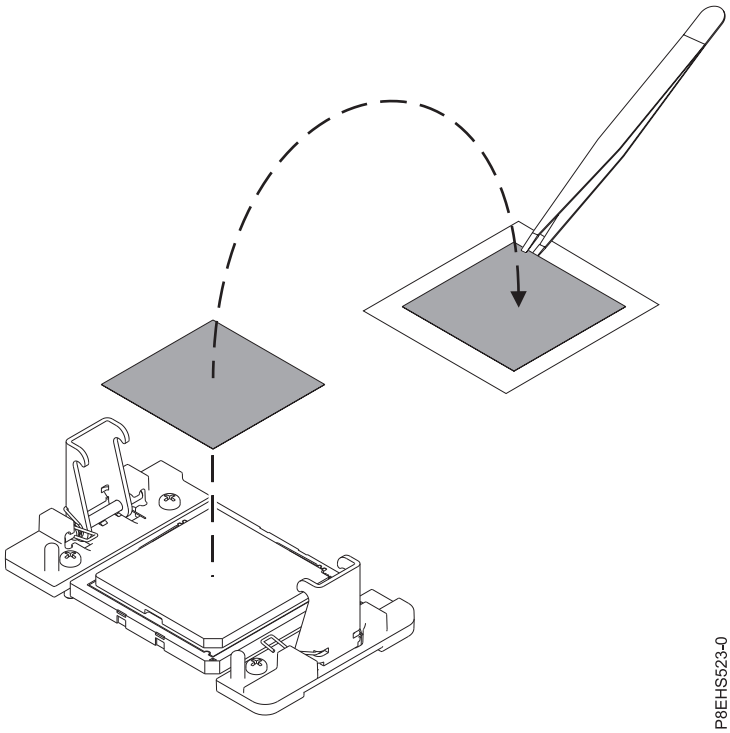


Figure 70. Removing the gray-colored TIM from the processor

9. Remove dust and debris from the system processor module area.
   a. If dust or debris is present, use the supplied air pump (part number 45D2645) to clean the system processor module area. Blow small bursts of air from the center toward the sides of the system processor module as shown in Figure 71 on page 72. If your air pump is not assembled as shown in Figure 71 on page 72, fasten the tip onto the bulb.

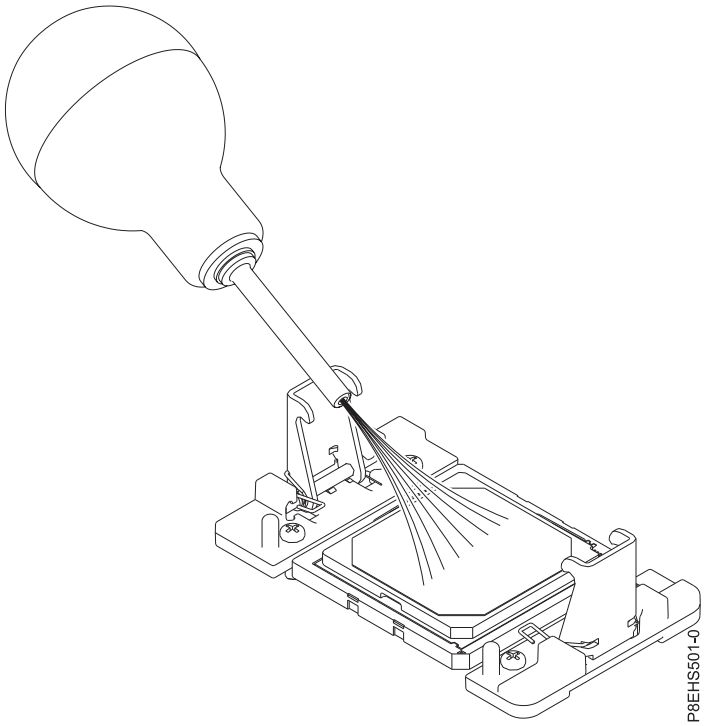


Figure 71. Removing dust and debris from the system processor module area

10. On the new system backplane, remove the socket cover from a system processor socket.
11. Prepare the system processor module for removal.
    a. Using the supplied removal tool (part number 01AF101), align the beveled corner **(A)** of the tool over the beveled corner of the system processor module as shown in Figure 72 on page 73.
    b. Lower the tool over the system processor module by ensuring the two guide pins **(C)** are inserted into the alignment holes **(B)** on each side of the tool.

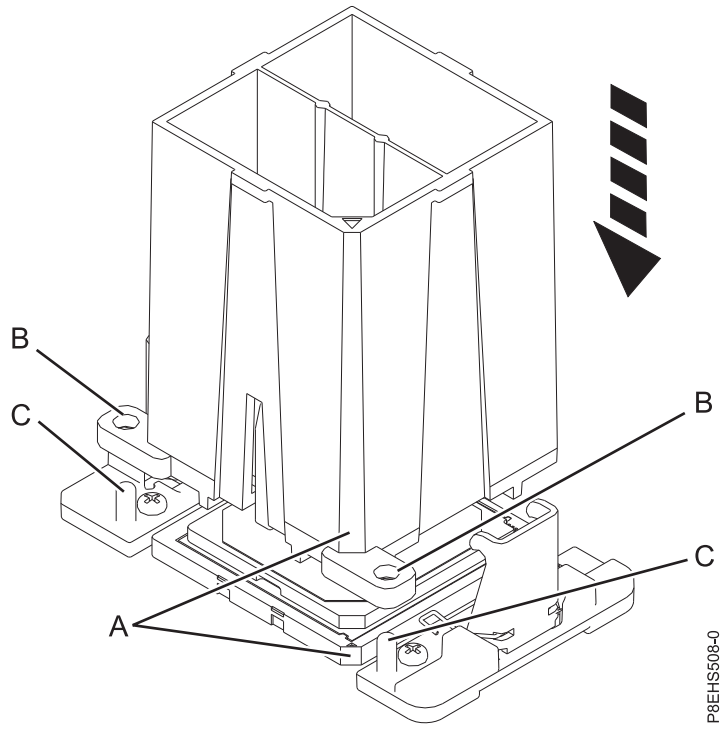


Figure 72. Lowering the removal tool onto the system processor module

c. With the removal tool **(A)** sitting on top of the system processor module, push down on the tool to lock the system processor module into the tool, as shown in Figure 73 on page 74. Make sure that both of the tool jaws are locked on the system processor module. Do not press the blue release tabs until directed to do so later.

   Note: The tool drops slightly when you push down on the processor module so that the jaws can grab the bottom of the module.

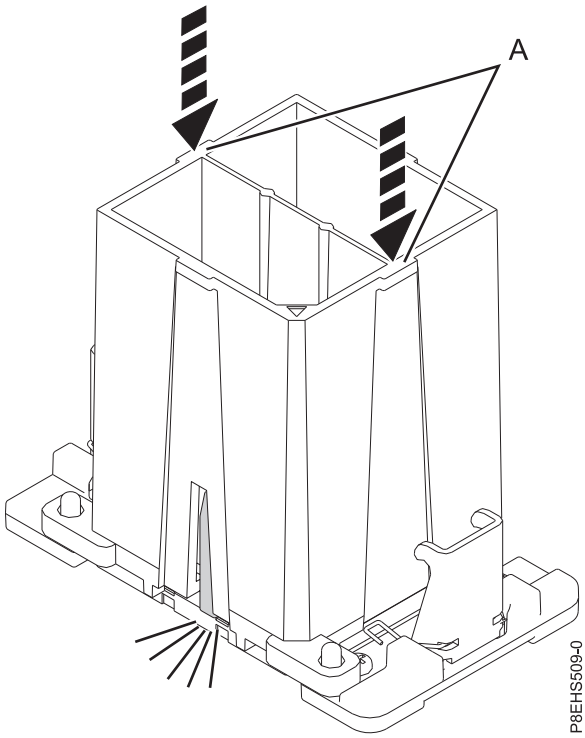


Figure 73. Locking the system processor module into the tool

12. Holding the outside of the tool, lift the tool and system processor module from the old system backplane socket to transfer it to the new system backplane socket.
13. Install the system processor module:
    a. If dust or debris is present on the system processor socket, use the supplied air pump (part number 45D2645) to clean the socket. Blow small bursts of air from the center toward the sides of the socket, as shown Figure 74 on page 75.

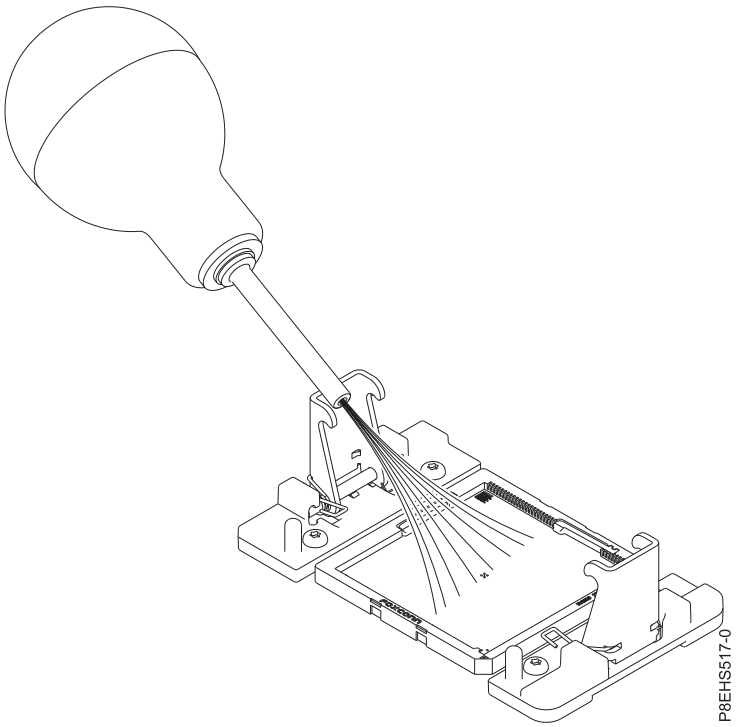


Figure 74. Removing dust and debris from the system processor socket

b. Lower the tool and system processor module onto the socket. Align the beveled corner **(A)** of the tool with the beveled corner on the socket. Ensure that the two guide pins **(C)** are inserted into the alignment holes **(B)** on each side of the tool. Use care to lower the tool evenly without tilting the tool. See Figure 75 on page 76.

   Note: Do not attempt to slide the tool and the system processor module in any direction while the system processor module is touching the socket. If the tool and the system processor module are not aligned with the guide pins, lift the tool and the system processor module and reposition them.

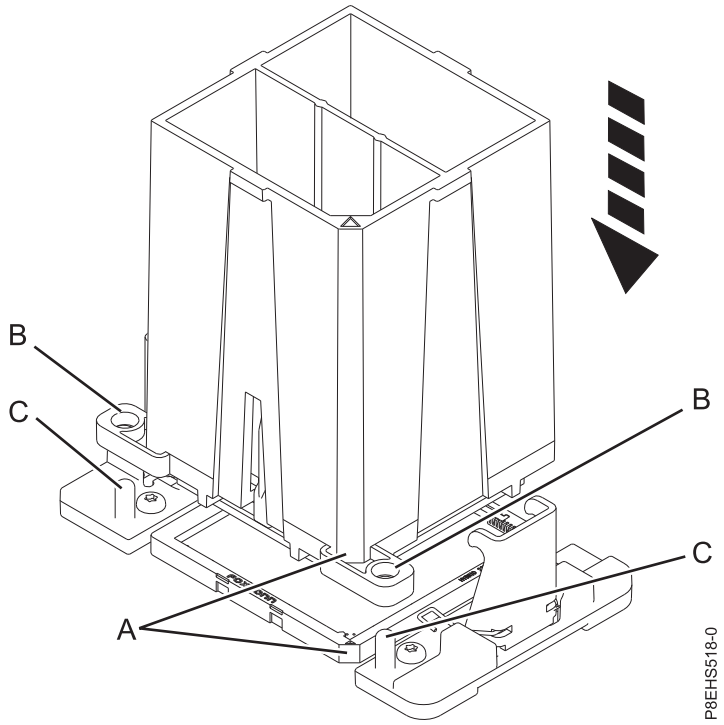


Figure 75. Installing the system processor module

c. After the tool and system processor module holes and guide pins are properly aligned, squeeze and hold the two blue release tabs **(A)** together until a firm stop is reached, as shown in Figure 76. Then, lift the tool off the system processor module.

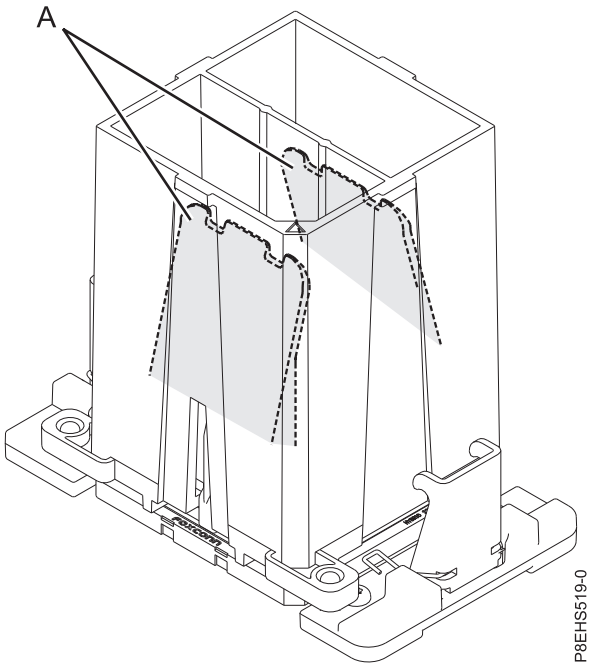


Figure 76. Removing the system processor module tool

14. Inspect the thermal interface material (TIM) for visible signs of damage, as shown in Figure 77 or Figure 78. If you see folds, tears, bends, or if you have doubts about the TIM, replace it.

    The system can use two types of thermal interface materials (TIMs).

    - One TIM is silver-colored with trimmed corners and a red line, part number 44V8038.

      The silver-colored TIM is typically adhered to the heat sink. Unless damaged, the silver-colored TIM that is adhered to the heat sink can be reused. If the silver-colored TIM is damaged, use the supplied scraper to remove the TIM. If you cannot remove the damaged TIM from the heat sink, you will need to replace both the silver TIM and heat sink. Ensure that you have a spare TIM and heat sink, part number 01AF286, on hand.
    - The other is TIM is dark gray with square corners, part number 01AF742.

      The dark gray TIM can be reused unless it is damaged. You will need to move it to the new system processor module.

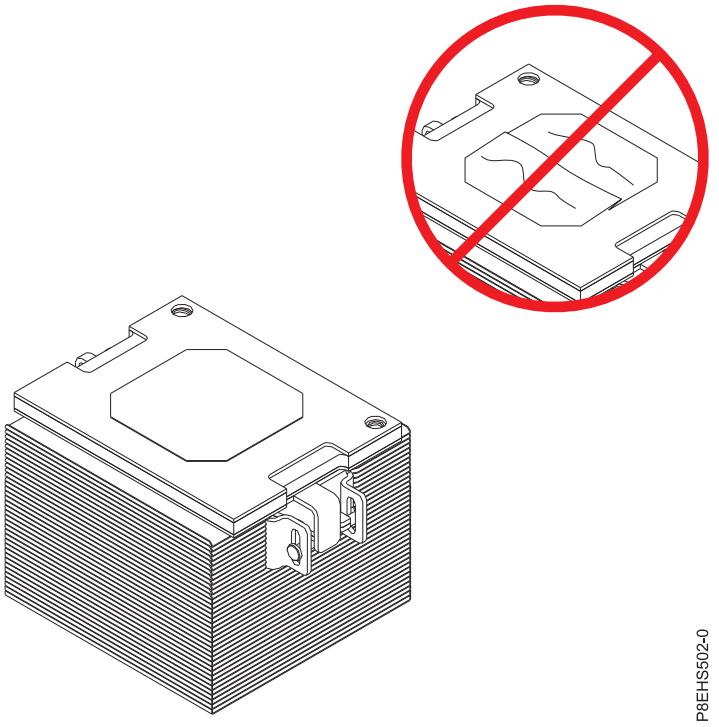


Figure 77. Inspecting the silver-colored thermal interface material

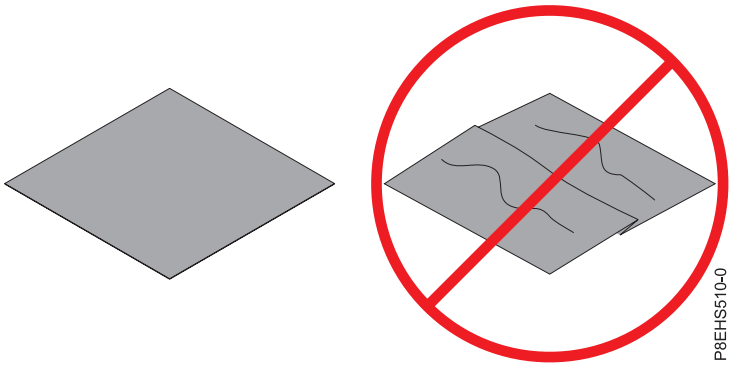


Figure 78. Inspecting the gray-colored thermal interface material

15. Choose one of the following repair options:

Option	Description
Is the silver-colored TIM damaged?	It is damaged. Proceed to step 16 to replace both the silver-colored TIM and heat sink.
Is the silver-colored TIM not damaged?	It is not damaged and can be reused. Proceed to step 17 on page 79 to install the existing silver-colored TIM and heat sink.
Is the gray-colored TIM damaged?	It is damaged. Proceed to step 18 on page 80 to replace the gray-colored TIM and install the existing heat sink.
Is the gray-colored TIM not damaged?	It is not damaged and can be reused. Proceed to step 19 on page 82 to move the gray-colored TIM and install the existing heat sink.

16. Use this step to install a new silver-colored TIM and heat sink.
    a. Open the TIM packaging and carefully remove the TIM, holding it by the edges of the carrier strip and holding it away from the shipping container.
    b. Remove the protective film from the clear carrier strip by using the supplied tweezers.

       Note: The TIM must remain flat. Small wrinkles are acceptable, but folds are not acceptable.
    c. Using the tweezers, remove the TIM from the carrier strip and center it onto the system processor module. The silver-colored TIM must have the red stripe up. Align the beveled edges of the silver-colored TIM and the system processor module **(A)**, as shown in Figure 79.

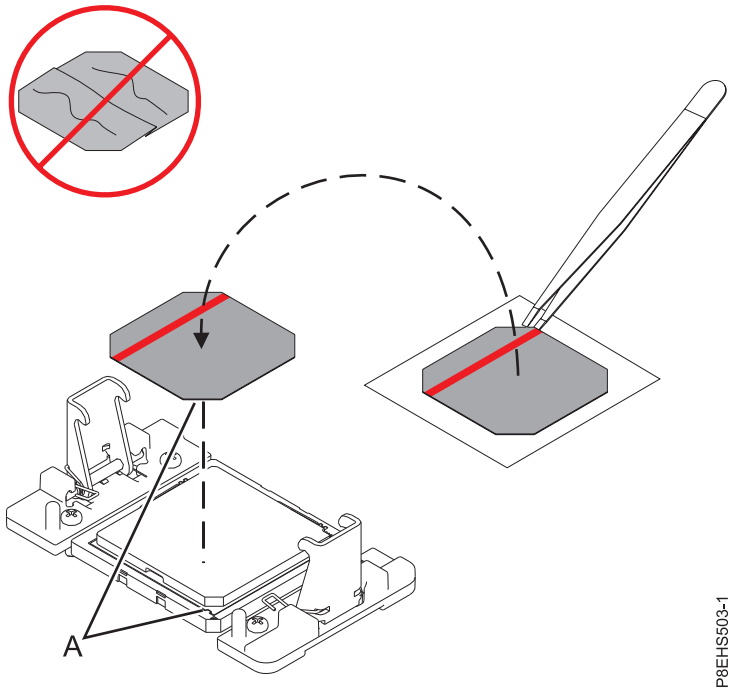


Figure 79. Installing the silver-colored TIM onto the processor. The red stripe must be up.

    d. Place the new heat sink on the TIM as shown in Figure 80 on page 79.

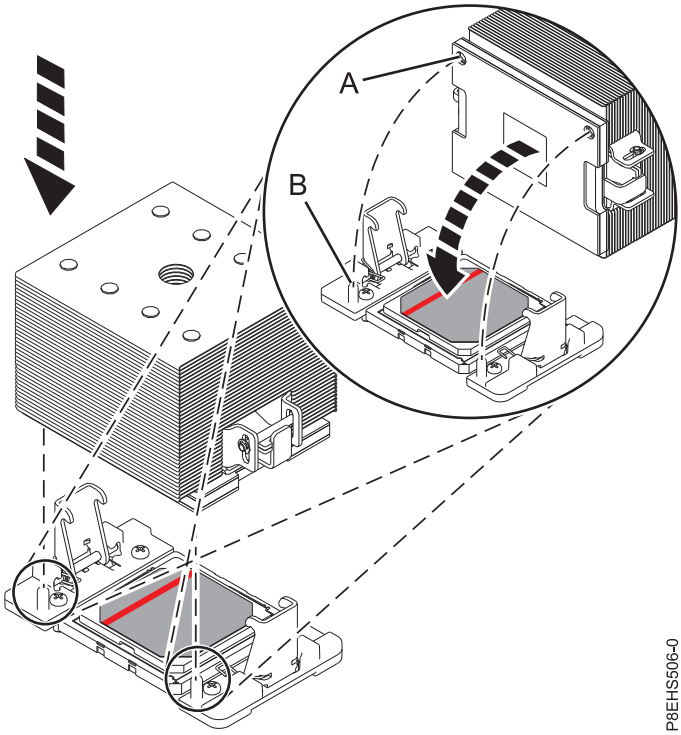


Figure 80. Installing the new heat sink on the silver-colored TIM

Continue with step 20 on page 83.

17. Use this step to reuse the existing undamaged silver-colored TIM and heat sink. The undamaged silver TIM is adhered to the heat sink. Both need to be placed on the processor as shown in Figure 81 on page 80.

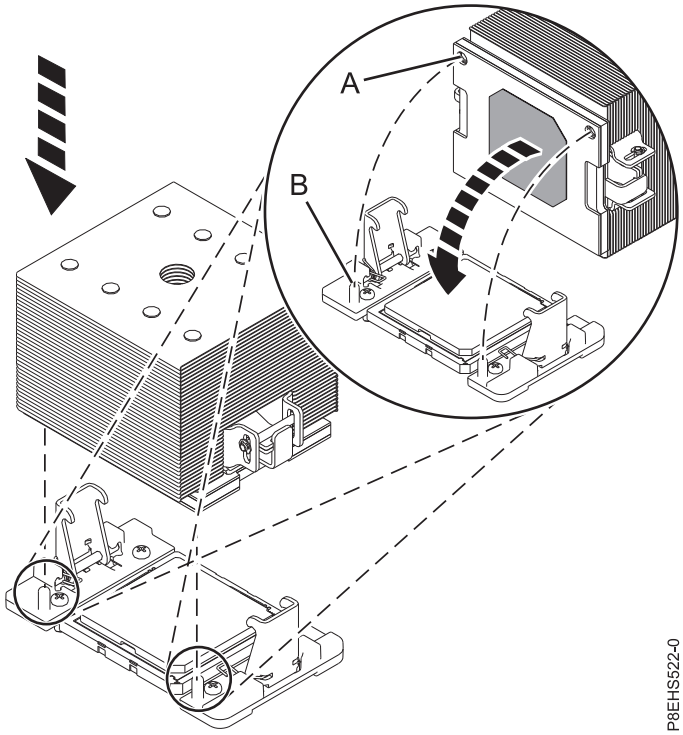


Figure 81. Reusing the undamaged silver-colored TIM and heat sink

Continue with step 20 on page 83.

18. Use this step to install a new gray-colored TIM and reuse the existing heat sink.
    a. Open the TIM packaging and carefully remove the TIM, holding it by the edges of the carrier strip and holding it away from the shipping container.
    b. Remove the protective film from the clear carrier strip by using the supplied tweezers.

       Note: The TIM must remain flat. Small wrinkles are acceptable, but folds are not acceptable.
    c. Using the tweezers, remove the TIM from the carrier strip and center it onto the system processor module. The gray-colored TIM has no preferred up side. The gray-colored TIM can be placed on the processor and centered as shown in Figure 82 on page 81.

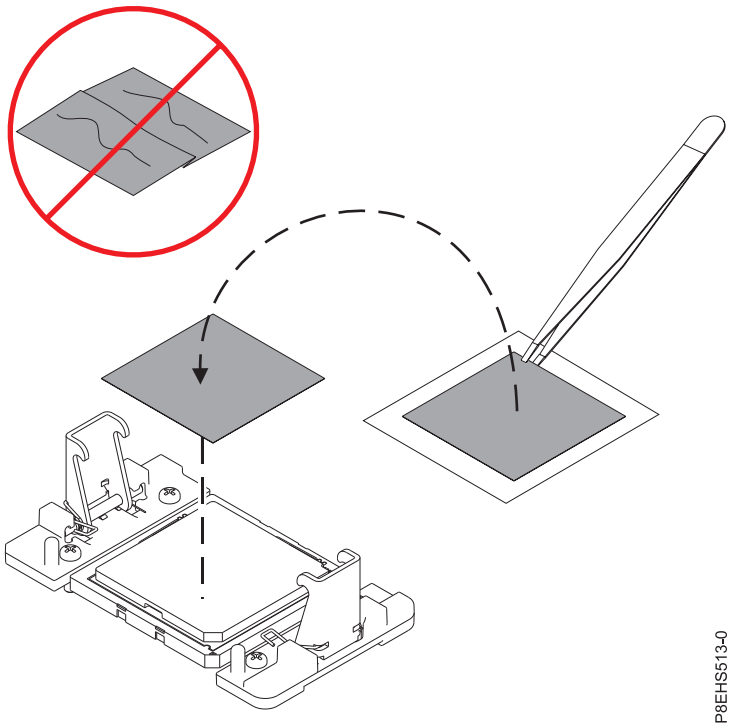


Figure 82. Installing a new gray-colored TIM onto the processor. The gray colored TIM has no preferred up side.

d. Place the heat sink on the TIM as shown in Figure 83.

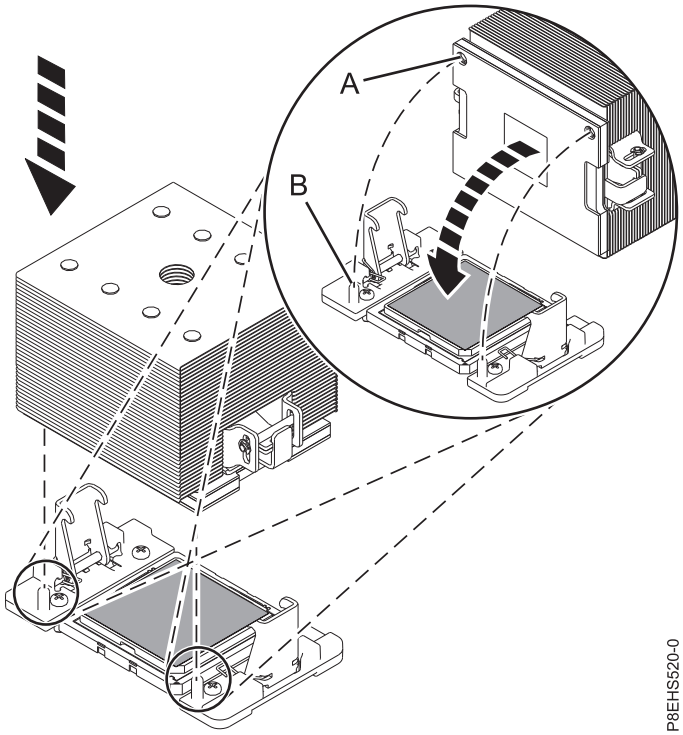


Figure 83. Installing the heat sink on the gray-colored TIM

Continue with step 20 on page 83.

19. Use this step to reuse the existing undamaged gray-colored TIM and heat sink.
    a. Using the tweezers, move the old processor's TIM from the clean, dry surface and center it onto the new system processor module. The gray-colored TIM has no preferred up side. The gray-colored TIM can be placed on the processor and centered as shown in Figure 84.

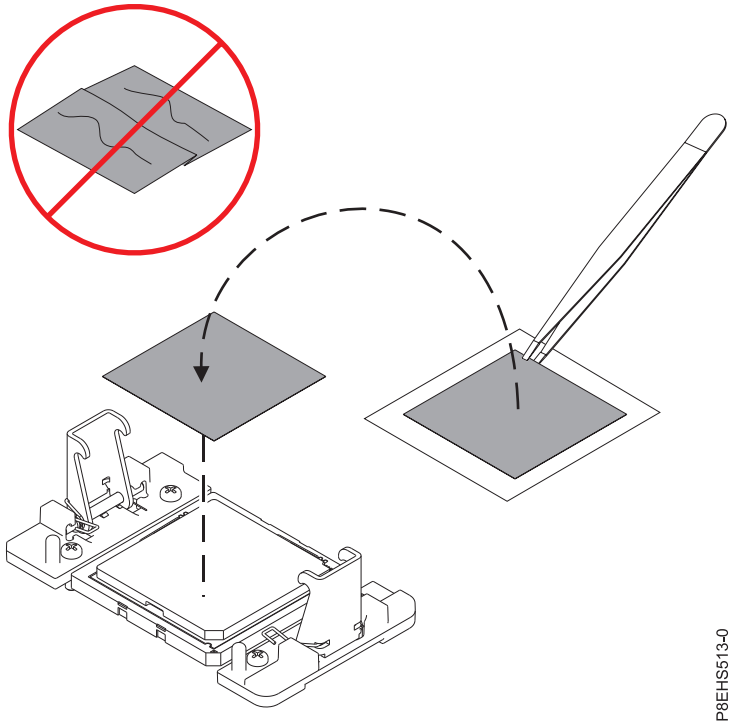


Figure 84. Moving the gray-colored TIM onto the processor. The gray colored TIM has no preferred up side.

    b. Place the heat sink on the TIM as shown in Figure 85 on page 83.

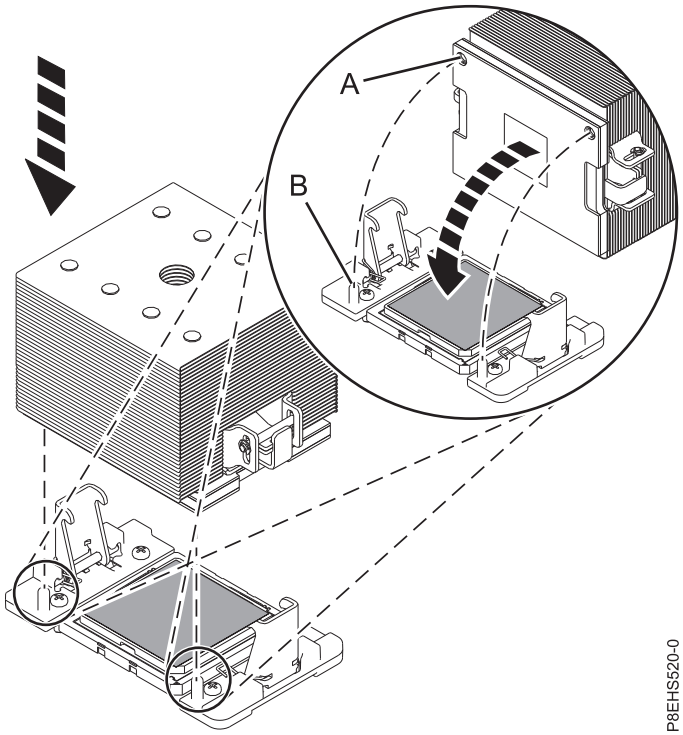


Figure 85. Installing the heat sink on the gray-colored TIM

Continue with step 20.

20. Secure the TIM and heat sink to the processor socket.
    a. Ensure that the heat sink load arms are engaged as shown by **(A)** in Figure 86.
    b. Tighten the center load screw clockwise by using the supplied hex key as shown by **(B)** in Figure 86 until a firm stop is reached. If the heat sink moves noticeably, the load arms are not engaged. Unscrew the center load screw and repeat this step again.

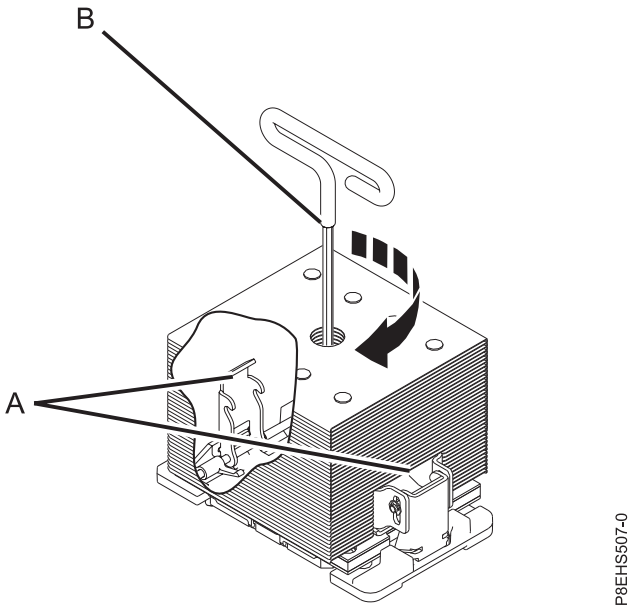


Figure 86. Tightening the center load screw on the heat sink

21. Repeat from step 6 on page 69 with the other system processor module

These next steps continue installing components into the new system backplane:

22. Replace the power distribution cards. For instructions, see “Replacing a power riser in the 8335-GCA or 8335-GTA” on page 49.
23. Using your labels, replace the USB cable and the power signal cable into that connector in the system backplane. For instructions, see “Replacing the front USB cable and connector in the 8335-GCA or 8335-GTA system” on page 28.
24. Using your labels, replace the disk and fan signal cable into that connector in the system backplane. For instructions, see “Replacing the disk and fan signal cable in the 8335-GCA or 8335-GTA system” on page 15.
25. Using your labels, replace the fan power cable into that connector in the power distribution card. For instructions, see “Replacing the 8335-GCA or 8335-GTA fan power cable” on page 23.
26. Using your labels, replace the memory cards or fillers. For instructions, see “Replacing memory risers in the 8335-GCA or 8335-GTA” on page 39. The fillers are required to maintain proper cooling.
27. Using your labels, replace the PCIe adapter cards. For instructions, see “Replacing a PCIe adapter in the system backplane in the 8335-GCA or 8335-GTA” on page 45.
28. Using your labels, replace the graphic processing unit (GPU) assemblies. For instructions, see “Replacing the graphics processing unit in the 8335-GCA or 8335-GTA system” on page 31.
29. Install the power riser air baffle. See Figure 87. Ensure that the holes in the baffle align with the pins on the system.

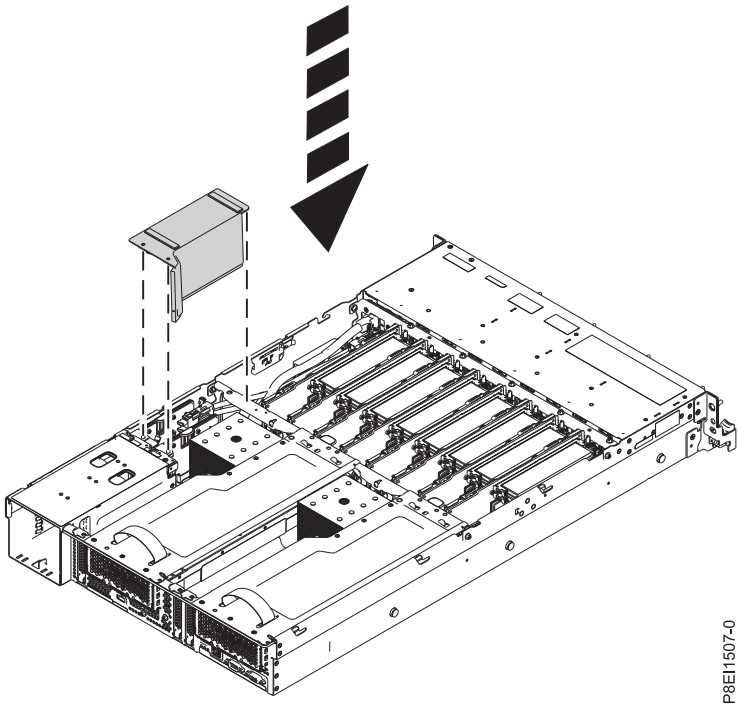


Figure 87. Installing the power riser air baffle

What to do next

After you replace the system backplane, you must set the system serial number and machine model type in the system backplane by using the vital product data (VPD) update tool. To download the tool, complete the following steps:

1. Go to the IBM Support Portal website (www.ibm.com/support/entry/portal/product/power/scale-out_lc).
2. From the Downloads list, click Scale-out LC system VPD update tool.
3. Follow the directions that are provided with the tool to update the VPD.

After you replace a system backplane, you must update the BMC firmware. To download the update, go to the Fix Central website (www.ibm.com/support/fixcentral/). Follow the instructions provided with the update.

Removing and replacing a system processor module for the 8335-GCA or 8335-GTA

You can remove and replace the system processor module in the IBM Power System S822LC (8335-GCA and 8335-GTA) server.

Removing a system processor module in the 8335-GCA or 8335-GTA system

Follow these steps to remove a system processor module from the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

About this task

As part of the system processor module replacement, the heat sink is removed. The system can use two types of thermal interface materials (TIMs); silver with trimmed corners, or gray with square corners.

- When the heat sink is removed from the system processor module, the silver-colored thermal interface material (TIM) is typically adhered to the heat sink. Unless damaged, the TIM that is adhered to the heat sink can be reused. If the silver-colored TIM is damaged, do not reuse the removed heat sink. Before you begin the removal and replacement procedure, ensure that you have a spare TIM and heat sink, part number 01AF286, on hand.
- If a gray-colored TIM is used and needs replacing, ensure that you have a spare TIM, part number 01AF742, on hand. Alternatively, have a spare TIM and heat sink, part number 01AF286, on hand.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Open the packaging of the new system processor module, and place the cover upside down next to the tray, as shown in Figure 88 on page 86. The cover is used for the system processor module that you are replacing.

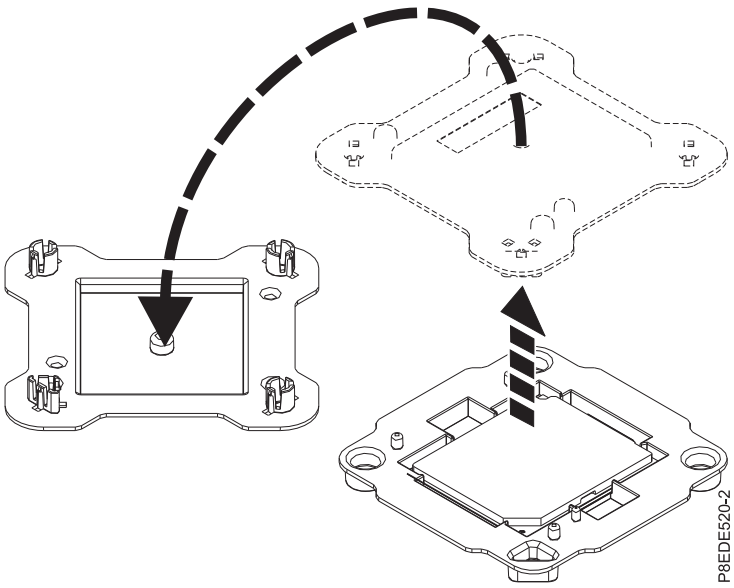


Figure 88. Opening the system processor module packaging

3. Remove the heat sink from the system processor module:
   a. Loosen the heat sink actuation screw by turning the supplied hex key counterclockwise **(A)**. Loosen the screw until it moves freely. See Figure 89 on page 87.
   b. Grip the heat sink **(B)** on opposing sides and remove the heat sink by lifting it upward. Set the heat sink aside with the module side facing upward.

      Note: If you plan to remove dust or debris from the heat sink, this operation must be performed in another room that is greater than 7.6 m (24.9 ft) away from the work area.

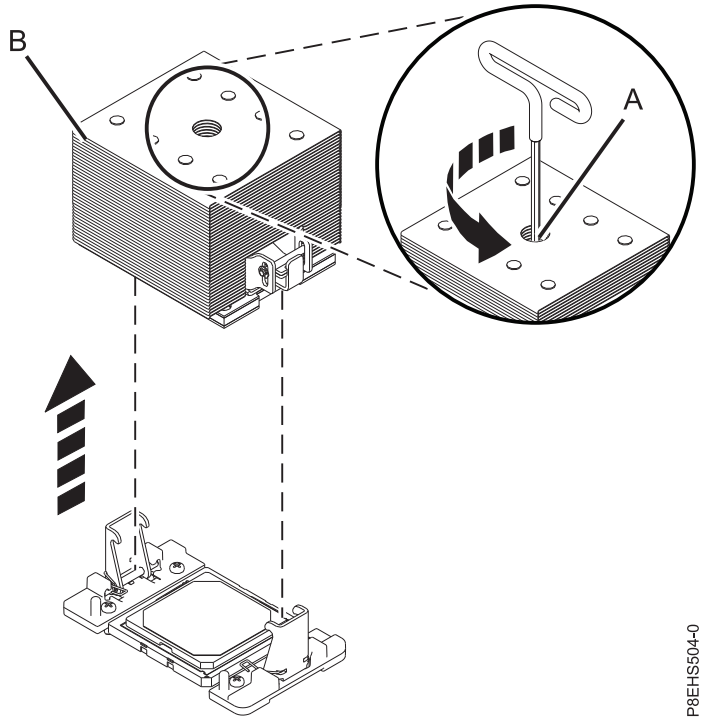


Figure 89. Removing the heat sink

4. If the system uses the gray-colored thermal interface material (TIM): Using the tweezers, remove the gray-colored TIM from the top of the processor and place it in a clean, dry area as shown in Figure 90 on page 88. The system can use two types of TIMs. One TIM is silver-colored with trimmed corners and typically adheres to the heat sink. The other is TIM is dark gray with square corners and does not adhere. The gray-colored TIM needs to be removed before the processor is removed.

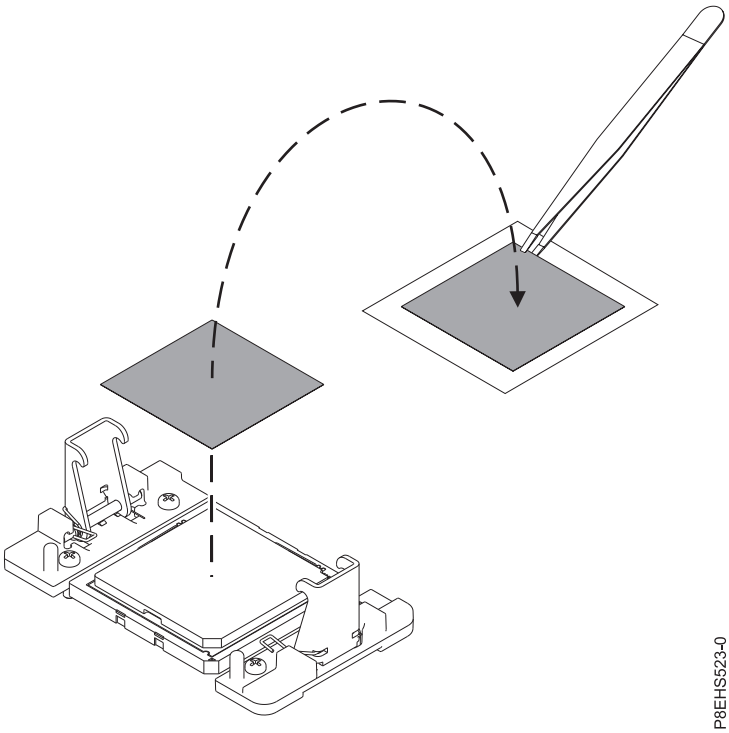


Figure 90. Removing the gray-colored TIM from the processor

5. Remove dust and debris from the system processor module area.
   a. If dust or debris is present, use the supplied air pump (part number 45D2645) to clean the system processor module area. Blow small bursts of air from the center toward the sides of the system processor module as shown in Figure 91 on page 89. If your air pump is not assembled as shown in Figure 91 on page 89, fasten the tip onto the bulb.

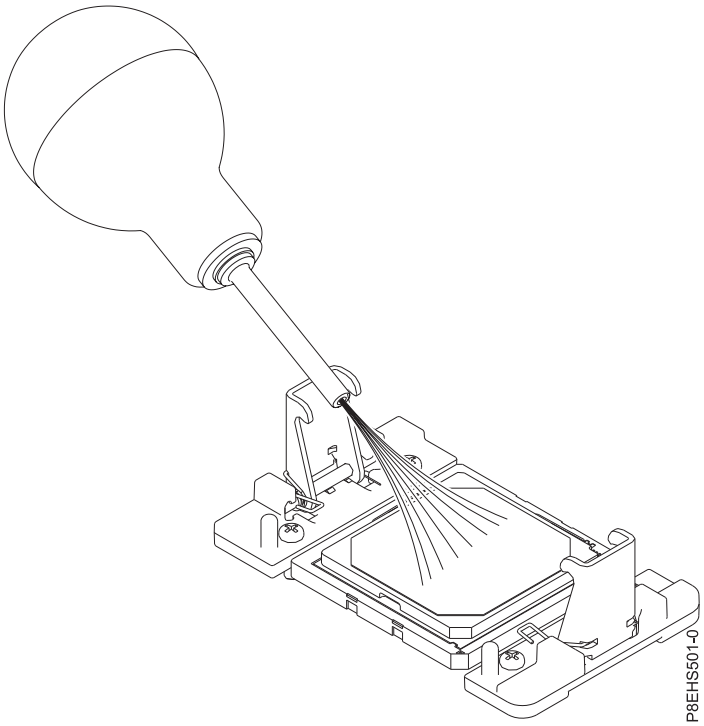


Figure 91. Removing dust and debris from the system processor module area

6. Prepare the system processor module for removal.
   a. Using the supplied removal tool (part number 01AF101), align the beveled corner **(A)** of the tool over the beveled corner of the system processor module as shown in Figure 92 on page 90.
   b. Lower the tool over the system processor module by ensuring the two guide pins **(C)** are inserted into the alignment holes **(B)** on each side of the tool.

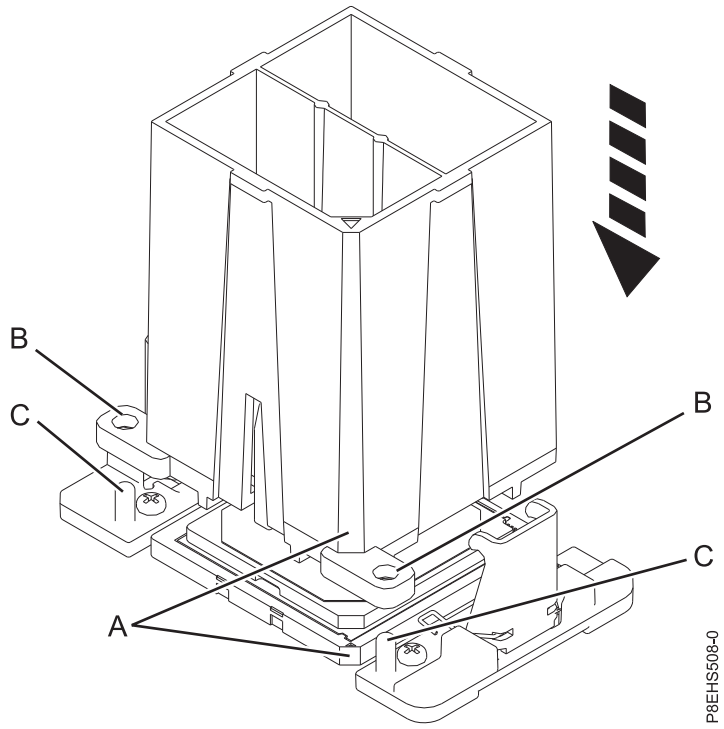


Figure 92. Lowering the removal tool onto the system processor module

c. With the removal tool **(A)** sitting on top of the system processor module, push down on the tool to lock the system processor module into the tool, as shown in Figure 93 on page 91. Make sure that both of the tool jaws are locked on the system processor module. Do not press the blue release tabs until directed to do so later.

   Note: The tool drops slightly when you push down on the processor module so that the jaws can grab the bottom of the module.

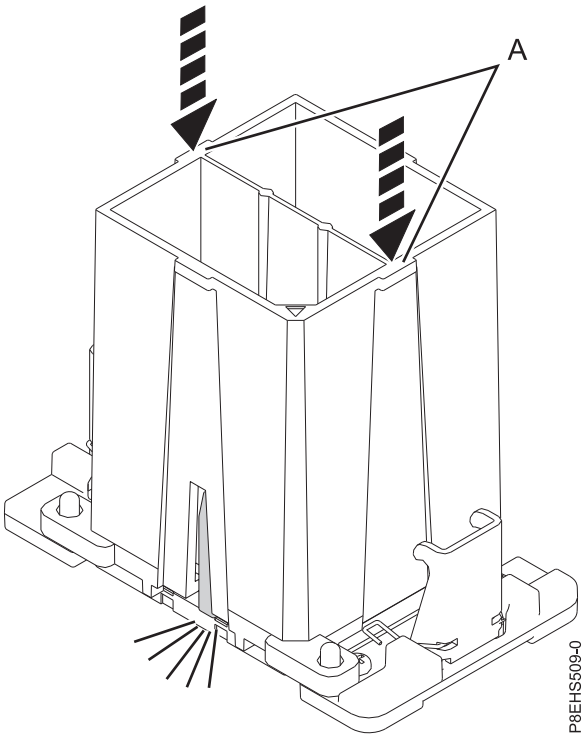


Figure 93. Locking the system processor module into the tool

7. Holding the outside of the tool, lift the tool and system processor module from the socket. Place them at an angle in the top cover of the system processor module packaging, as shown in Figure 94 on page 92.

   Note: Setting the tool and system processor module at an angle on the top cover of the system processor module packaging will make it easier to pick up and place in the packaging after you replace the system processor module.

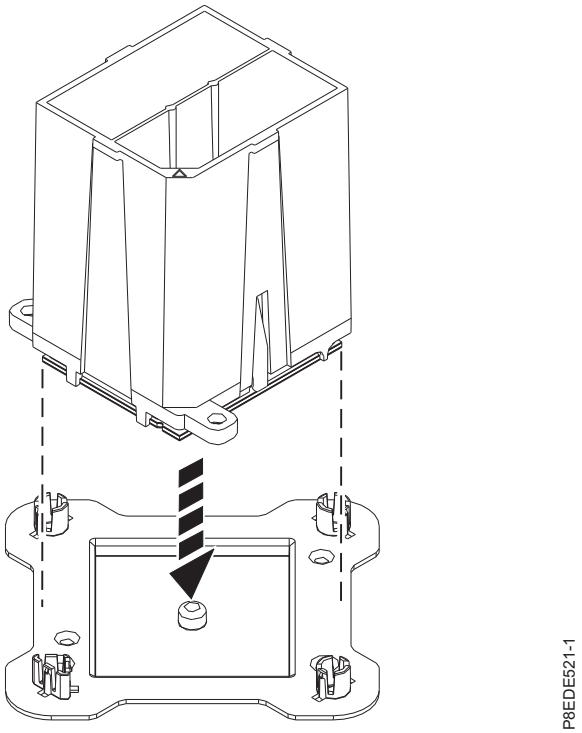


Figure 94. Placing the tool at an angle on the top cover of the packaging

8. Squeeze the two blue tabs to release the system processor module from the tool. See Figure 95 on page 93.

   Note: To prevent the system processor module from falling, do not squeeze the two tabs before you place the tool on the top cover of the system processor module packaging.

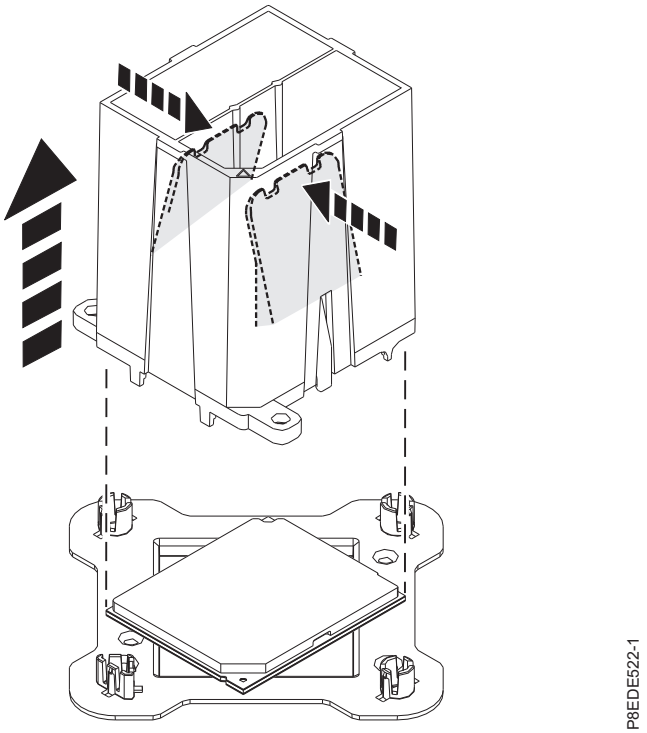


Figure 95. Releasing the system processor module from the tool

Replacing a system processor module in the 8335-GCA or 8335-GTA system

Follow these steps to replace a system processor module in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Remove dust and debris from the system processor socket area. If dust or debris is present, use the supplied air pump (part number 45D2645) to clean the system processor socket area.
3. Prepare the system processor module for installation:
   a. Remove the replacement processor module from the shipping tray. Using the supplied removal tool (part number 01AF101), align the beveled corner **(A)** of the tool over the beveled corner of the module, as shown in Figure 96 on page 94.
   b. Lower the tool over the system processor module by ensuring that the two guide pins **(C)** are inserted into the alignment holes **(B)** on each side of the tool, as shown in Figure 96 on page 94. Then, push down on the tool to lock the system processor module into the tool, as shown in Figure 97 on page 94. Do not press the blue release tabs until directed to do so later.

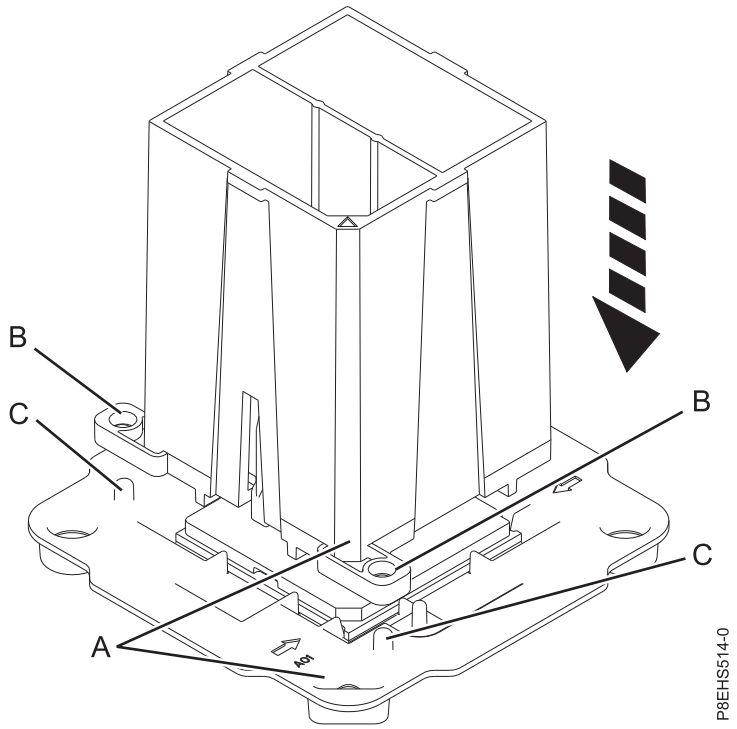


Figure 96. Aligning the removal tool

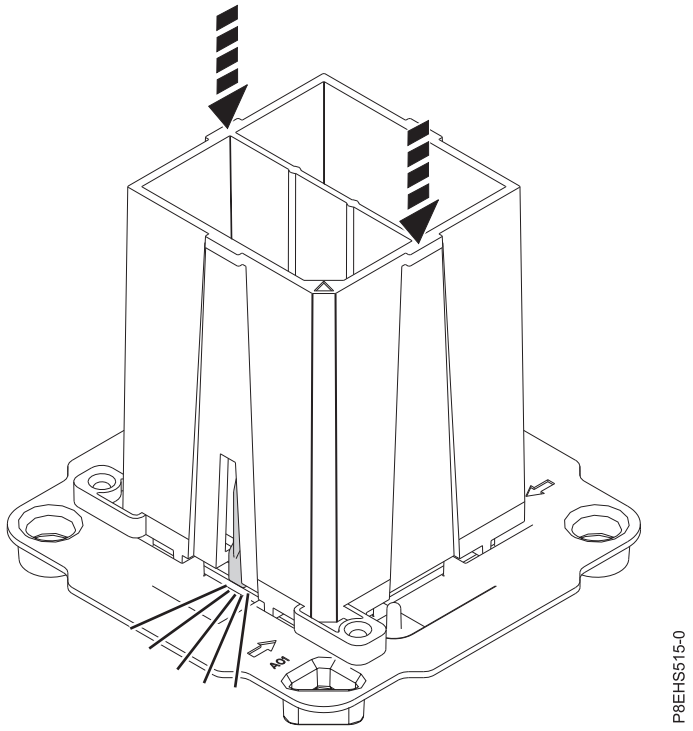


Figure 97. Locking the system processor module into the tool

4. Prepare for system processor module installation:

a. Grasping the sides of the tool and system processor module, carefully lift it slightly out of the system processor module tray. Then, turn it over so that the system processor module side is up.
b. Ensure that both jaws **(A)** are firmly grabbing the system processor module, as shown in Figure 98.

   Note: If both jaws are not firmly grabbing the system processor module, press down on the corner of the system processor module closest to the jaw until it locks into place. Do not touch any part of the system processor module other than the corners.

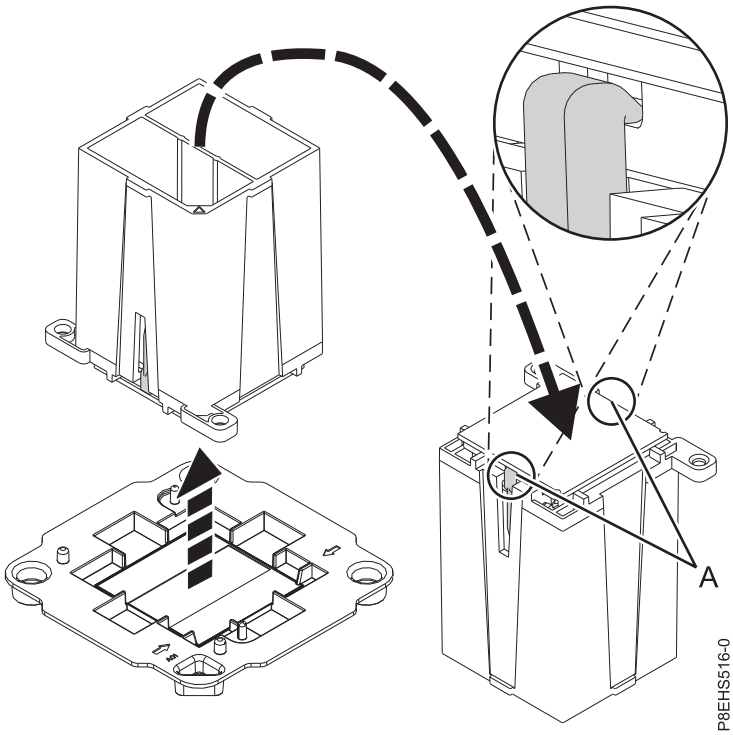


Figure 98. Preparing for system processor module installation

5. Install the system processor module:
   a. If dust or debris is present on the system processor socket, use the supplied air pump (part number 45D2645) to clean the socket. Blow small bursts of air from the center toward the sides of the socket, as shown Figure 99 on page 96.

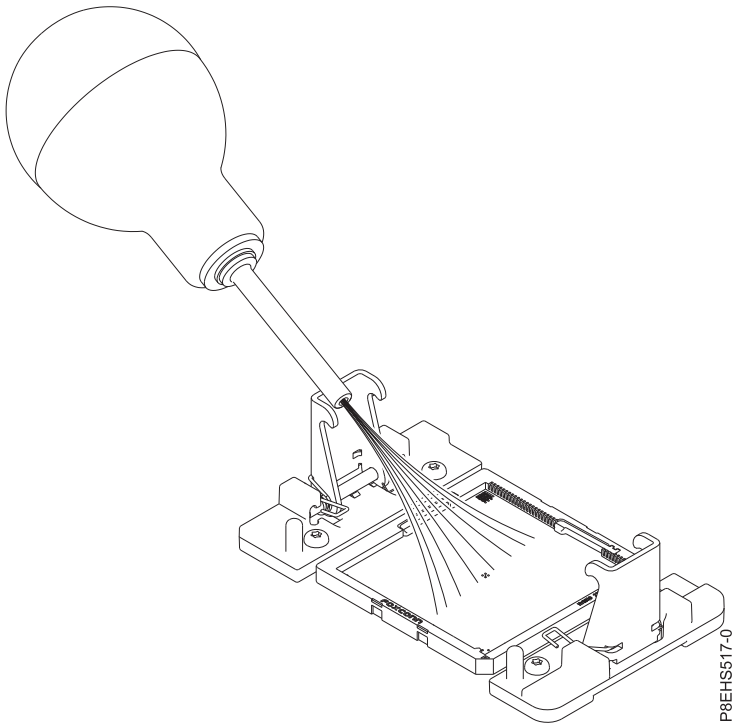


Figure 99. Removing dust and debris from the system processor socket

b. Lower the tool and system processor module onto the socket. Align the beveled corner **(A)** of the tool with the beveled corner on the socket. Ensure that the two guide pins **(C)** are inserted into the alignment holes **(B)** on each side of the tool. Use care to lower the tool evenly without tilting the tool. See Figure 100 on page 97.

   Note: Do not attempt to slide the tool and the system processor module in any direction while the system processor module is touching the socket. If the tool and the system processor module are not aligned with the guide pins, lift the tool and the system processor module and reposition them.

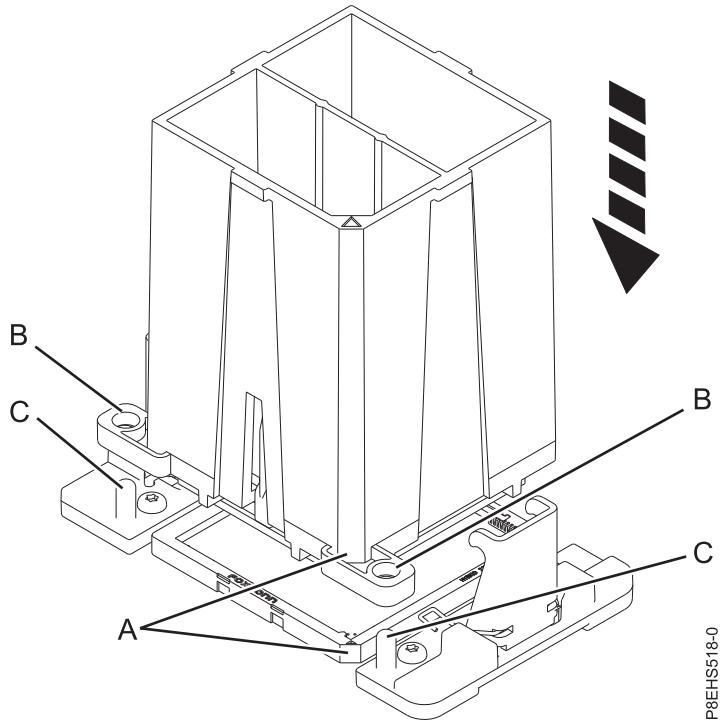


Figure 100. Installing the system processor module

c. After the tool and system processor module holes and guide pins are properly aligned, squeeze and hold the two blue release tabs **(A)** together until a firm stop is reached, as shown in Figure 101. Then, lift the tool off the system processor module.

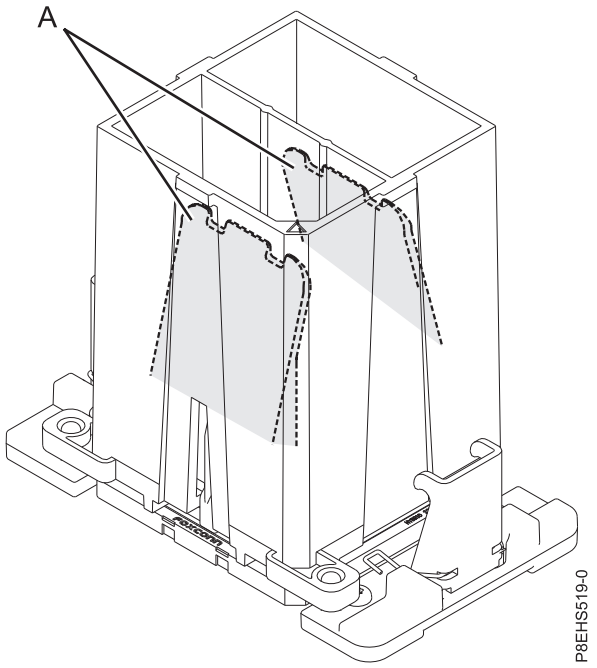


Figure 101. Removing the system processor module tool

6. Inspect the thermal interface material (TIM) for visible signs of damage, as shown in Figure 102 or Figure 103. If you see folds, tears, bends, or if you have doubts about the TIM, replace it.

   The system can use two types of thermal interface materials (TIMs).

   - One TIM is silver-colored with trimmed corners and a red line, part number 44V8038.

     The silver-colored TIM is typically adhered to the heat sink. Unless damaged, the silver-colored TIM that is adhered to the heat sink can be reused. If the silver-colored TIM is damaged, use the supplied scraper to remove the TIM. If you cannot remove the damaged TIM from the heat sink, you will need to replace both the silver TIM and heat sink. Ensure that you have a spare TIM and heat sink, part number 01AF286, on hand.
   - The other is TIM is dark gray with square corners, part number 01AF742.

     The dark gray TIM can be reused unless it is damaged. You will need to move it to the new system processor module.

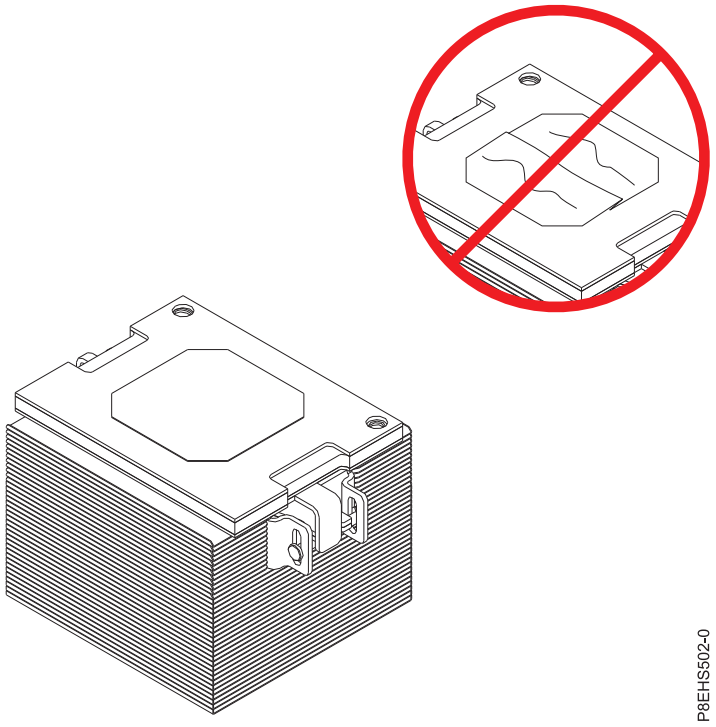


Figure 102. Inspecting the silver-colored thermal interface material

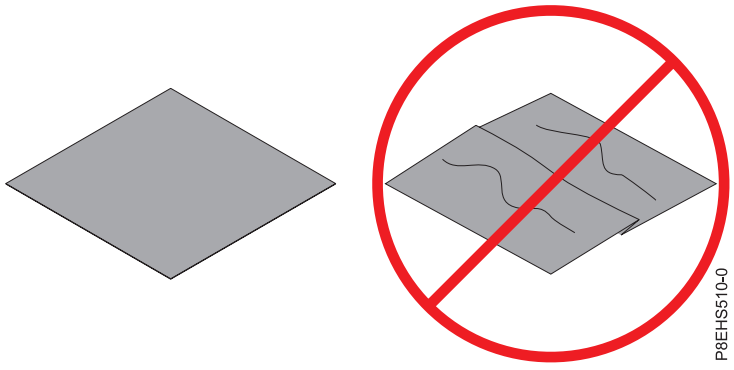


Figure 103. Inspecting the gray-colored thermal interface material

7. Choose one of the following repair options:

Option	Description
Is the silver-colored TIM damaged?	It is damaged. Proceed to step 8 to replace both the silver-colored TIM and heat sink.
Is the silver-colored TIM not damaged?	It is not damaged and can be reused. Proceed to step 9 on page 100 to install the existing silver-colored TIM and heat sink.
Is the gray-colored TIM damaged?	It is damaged. Proceed to step 10 on page 101 to replace the gray-colored TIM and install the existing heat sink.
Is the gray-colored TIM not damaged?	It is not damaged and can be reused. Proceed to step 11 on page 103 to move the gray-colored TIM and install the existing heat sink.

8. Use this step to install a new silver-colored TIM and heat sink.
   a. Open the TIM packaging and carefully remove the TIM, holding it by the edges of the carrier strip and holding it away from the shipping container.
   b. Remove the protective film from the clear carrier strip by using the supplied tweezers.

      Note: The TIM must remain flat. Small wrinkles are acceptable, but folds are not acceptable.
   c. Using the tweezers, remove the TIM from the carrier strip and center it onto the system processor module. The silver-colored TIM must have the red stripe up. Align the beveled edges of the silver-colored TIM and the system processor module **(A)**, as shown in Figure 104.

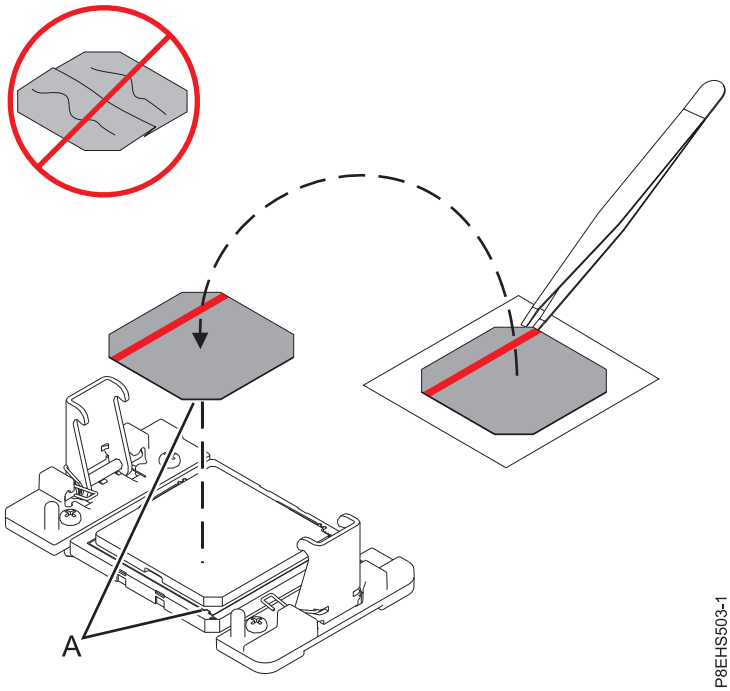


Figure 104. Installing the silver-colored TIM onto the processor. The red stripe must be up.

   d. Place the new heat sink on the TIM as shown in Figure 105 on page 100.

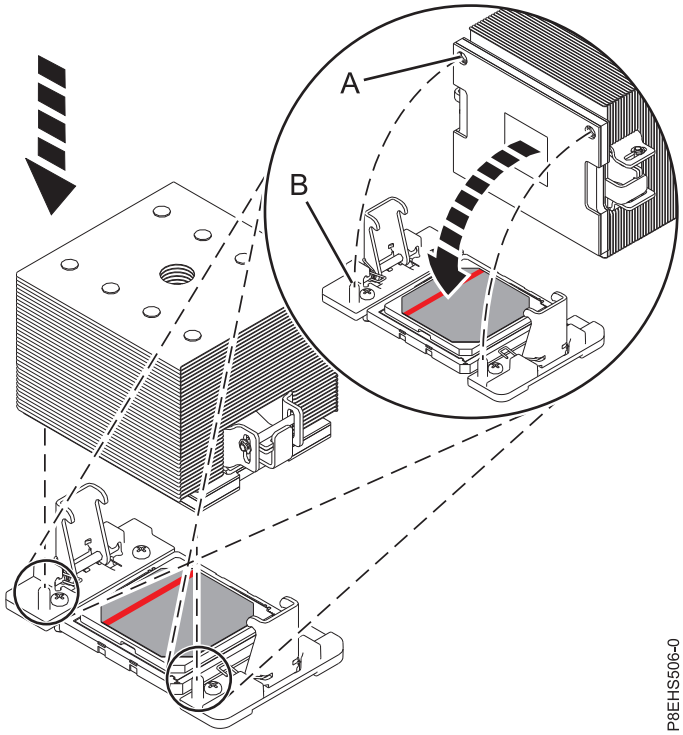


Figure 105. Installing the new heat sink on the silver-colored TIM

Continue with step 12 on page 104.

9. Use this step to reuse the existing undamaged silver-colored TIM and heat sink. The undamaged silver TIM is adhered to the heat sink. Both need to be placed on the processor as shown in Figure 106 on page 101.

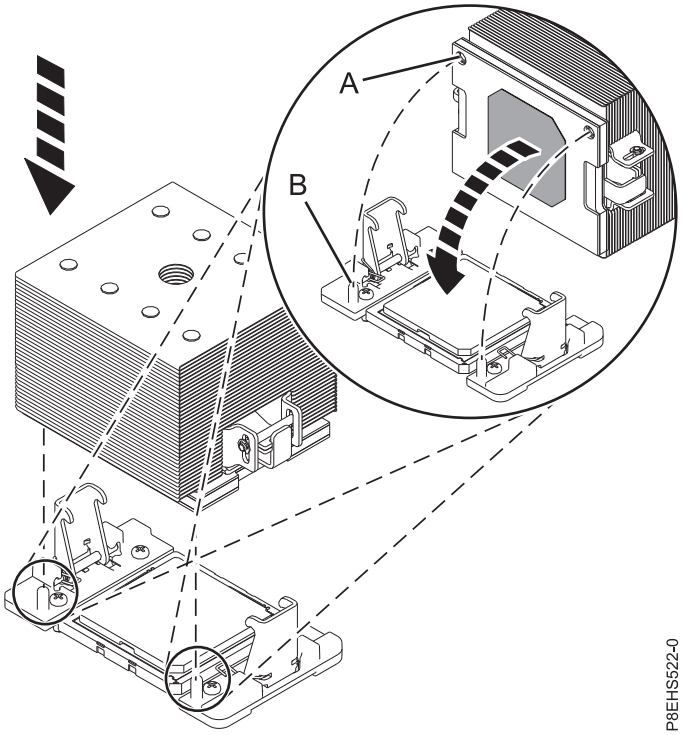


Figure 106. Reusing the undamaged silver-colored TIM and heat sink

Continue with step 12 on page 104.

10. Use this step to install a new gray-colored TIM and reuse the existing heat sink.
    a. Open the TIM packaging and carefully remove the TIM, holding it by the edges of the carrier strip and holding it away from the shipping container.
    b. Remove the protective film from the clear carrier strip by using the supplied tweezers.

       Note: The TIM must remain flat. Small wrinkles are acceptable, but folds are not acceptable.
    c. Using the tweezers, remove the TIM from the carrier strip and center it onto the system processor module. The gray-colored TIM has no preferred up side. The gray-colored TIM can be placed on the processor and centered as shown in Figure 107 on page 102.

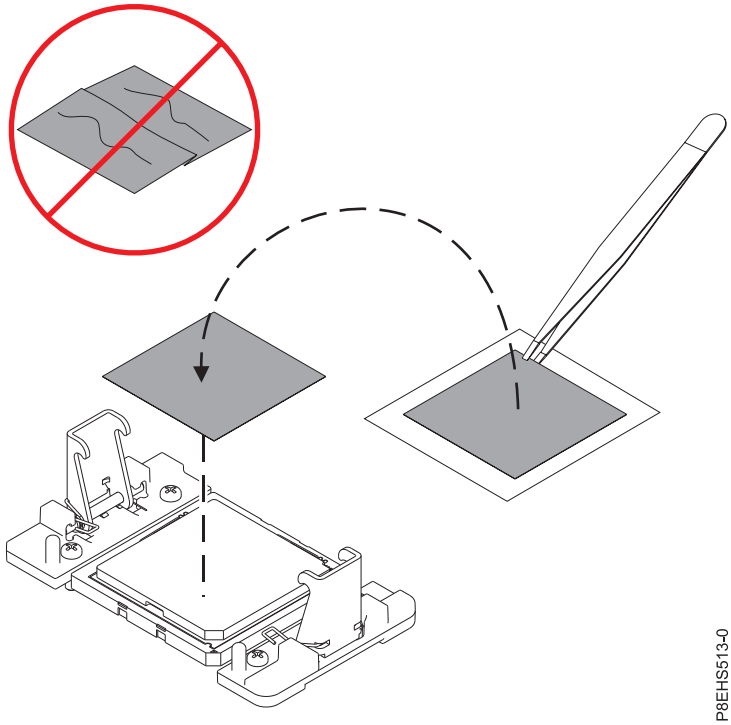


Figure 107. Installing a new gray-colored TIM onto the processor. The gray colored TIM has no preferred up side.

d. Place the heat sink on the TIM as shown in Figure 108.

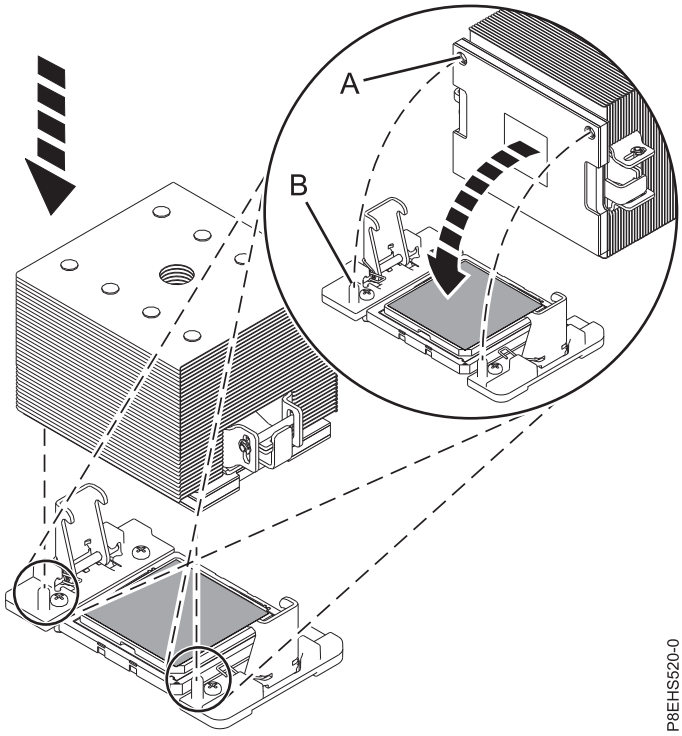


Figure 108. Installing the heat sink on the gray-colored TIM

Continue with step 12 on page 104.

11. Use this step to reuse the existing undamaged gray-colored TIM and heat sink.
    a. Using the tweezers, move the old processor's TIM from the clean, dry surface and center it onto the new system processor module. The gray-colored TIM has no preferred up side. The gray-colored TIM can be placed on the processor and centered as shown in Figure 109.

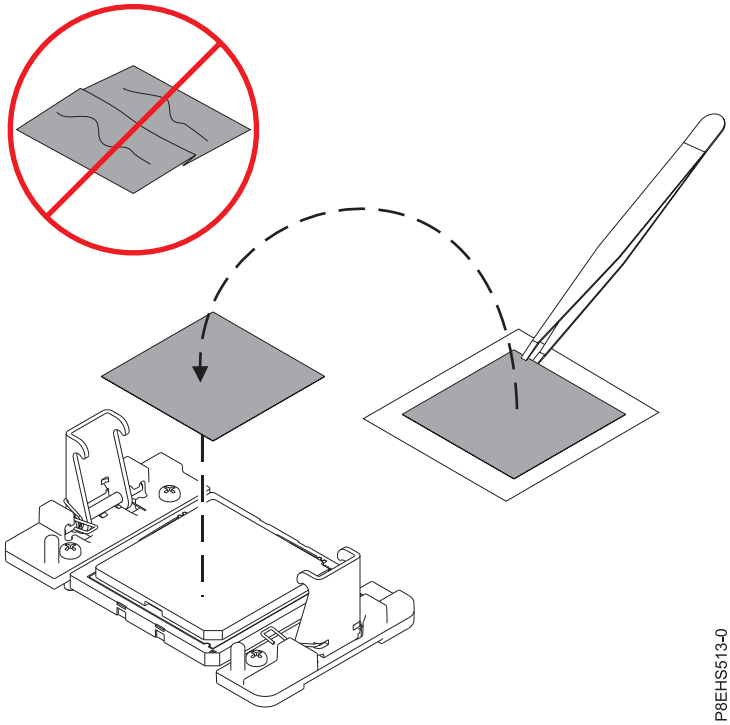


Figure 109. Moving the gray-colored TIM onto the processor. The gray colored TIM has no preferred up side.

    b. Place the heat sink on the TIM as shown in Figure 110 on page 104.

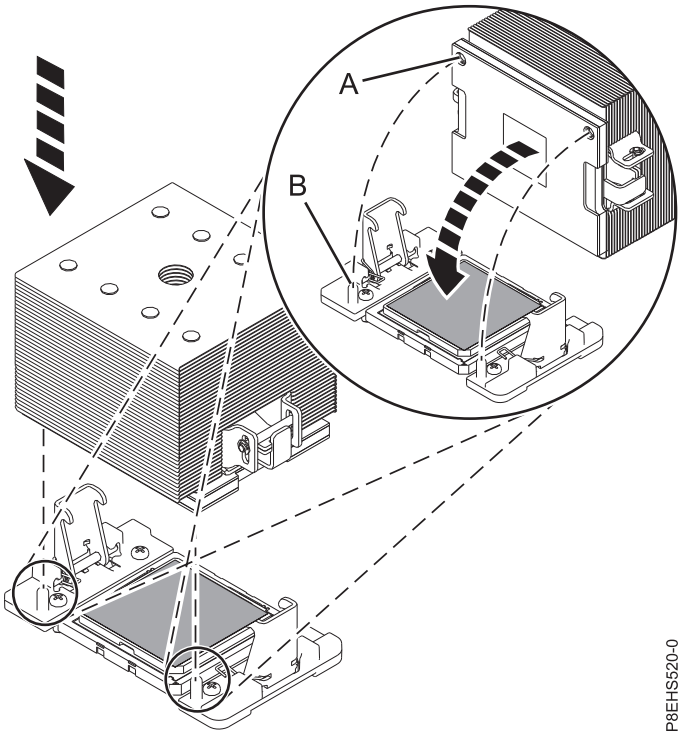


Figure 110. Installing the heat sink on the gray-colored TIM

Continue with step 12.

12. Secure the TIM and heat sink to the processor socket.
    a. Ensure that the heat sink load arms are engaged as shown by **(A)** in Figure 111.
    b. Tighten the center load screw clockwise by using the supplied hex key as shown by **(B)** in Figure 111 until a firm stop is reached. If the heat sink moves noticeably, the load arms are not engaged. Unscrew the center load screw and repeat this step again.

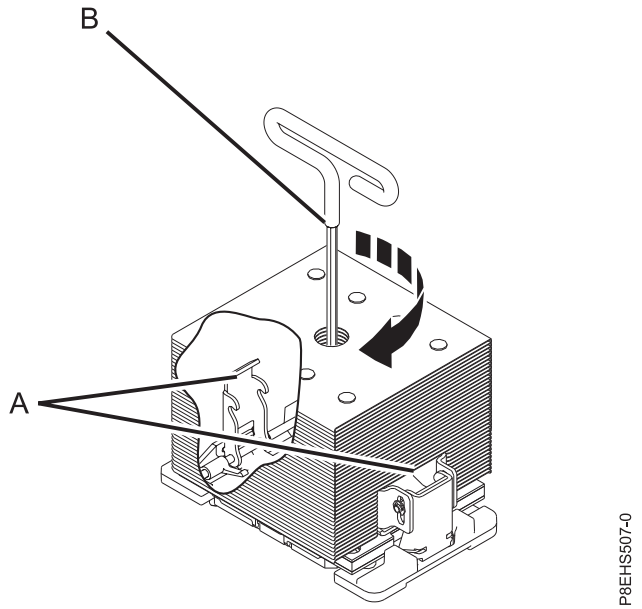


Figure 111. Tightening the center load screw on the heat sink

13. Lightly grip the system processor module that you replaced by the edges and lift it off of the packaging cover. Align the beveled corner of the module **(A)** to the corner of the packaging with triangle **(B)** and place it in the packaging, as shown in Figure 112. Close the packaging cover.

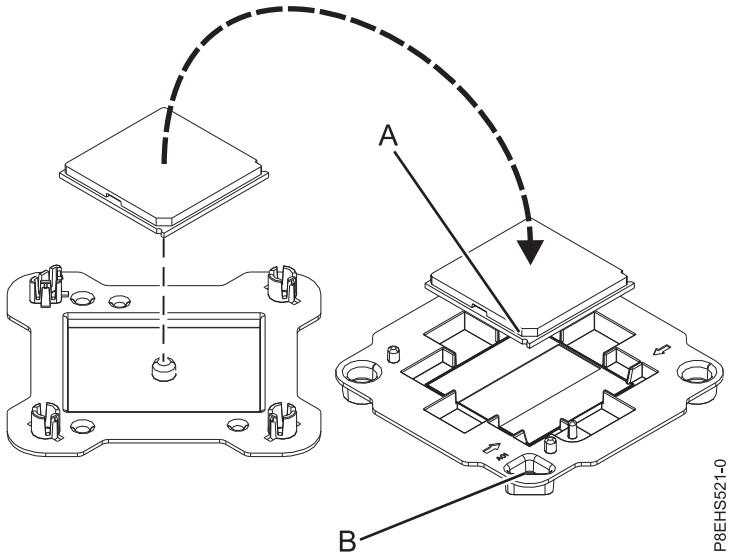


Figure 112. Placing the system processor module into the packaging

Removing and replacing the time-of-day battery in the 8335-GCA or 8335-GTA

Learn about removing and replacing the time-of-day battery in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.

Remove:

2. Remove the power riser air baffle. See Figure 113 on page 106.

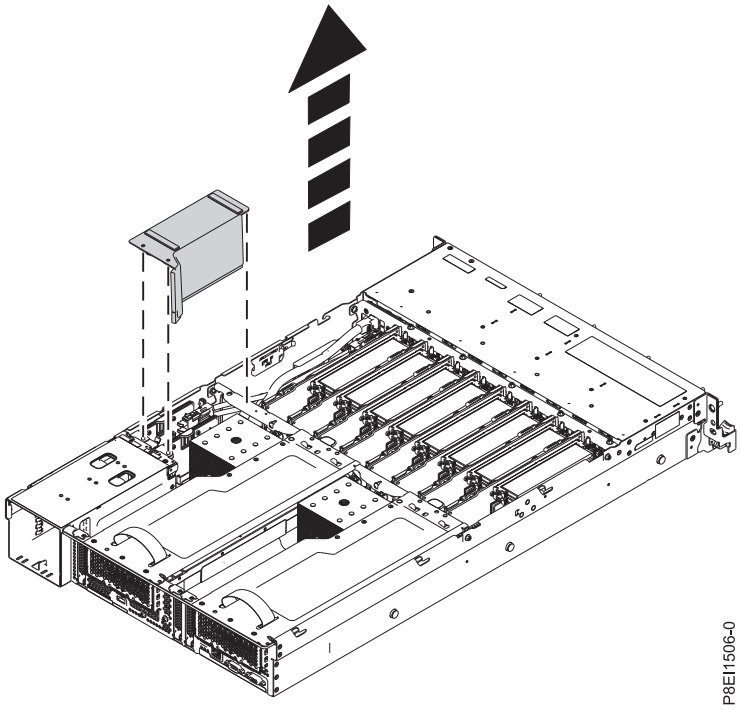


Figure 113. Removing the power riser air baffle

3. Locate the time-of-day battery on the power riser nearest to the side of the system as shown in Figure 114.

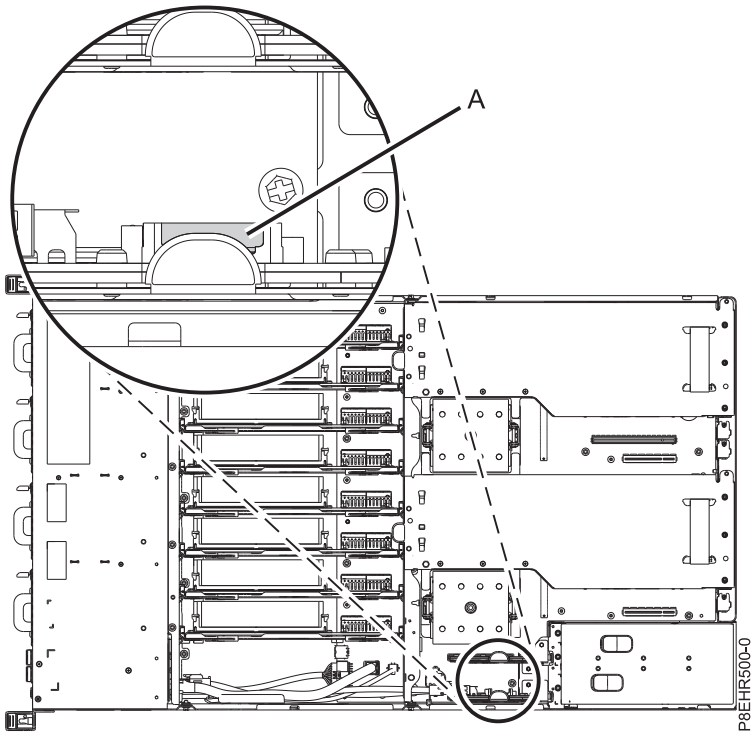


Figure 114. Location of the time-of-day battery

4. Remove the power riser that contains the time-of-day battery.
   a. Grasp the connector end of the fan power cable that is connected to the power riser. See **(A)** in Figure 115.
   b. While you press the latch release lever with your thumb, disconnect the cable from the connector.

      Note: The latch release on the connector must be depressed before you unplug the cable. Failure to do so might damage the cable and the connector.
   c. Pull the power riser from the slot by holding the blue tab. See **(B)** in Figure 115.
   d. Place the power riser on an ESD mat.

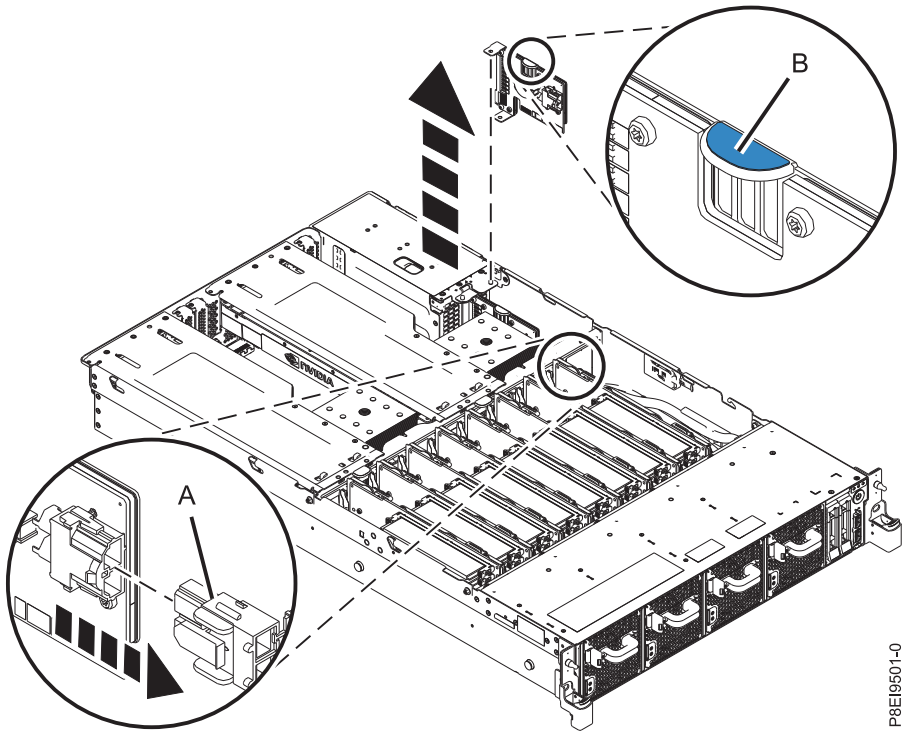


Figure 115. Removing the power riser from the system

5. Remove the time-of-day battery from its slot on the power riser, as shown in Figure 116 on page 108. Ensure to record the orientation of the polarity of the battery so that you can insert it with the same orientation later.

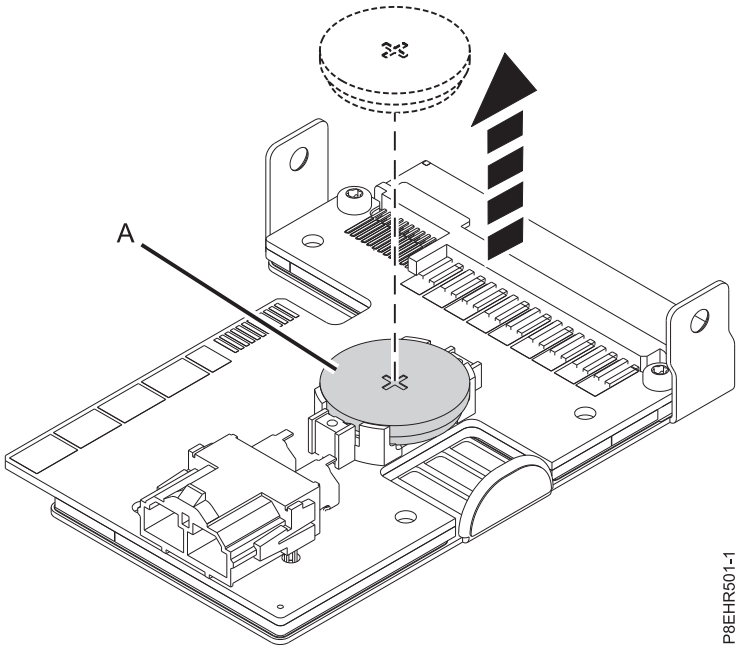


Figure 116. Removing the time-of-day battery from the power riser

Replace:

6. Insert the time-of-day battery in the slot on the power riser, as shown in Figure 117. Ensure to insert the battery with the correct polarity as recorded during removing of the battery.

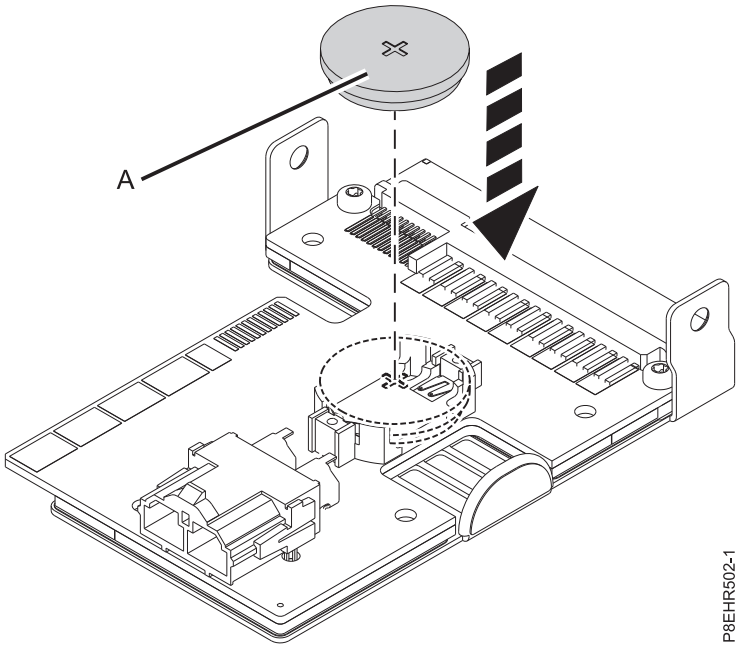


Figure 117. Replacing the time-of-day battery on the power riser

7. To replace a power riser, complete the following steps:
   a. Hold the power riser by the blue tab.
   b. Using the alignment pins **(A)**, insert the power riser into the slot. See Figure 118 on page 109.
   c. Reconnect the fan power cable to the power riser. See **(C)** in Figure 118 on page 109.

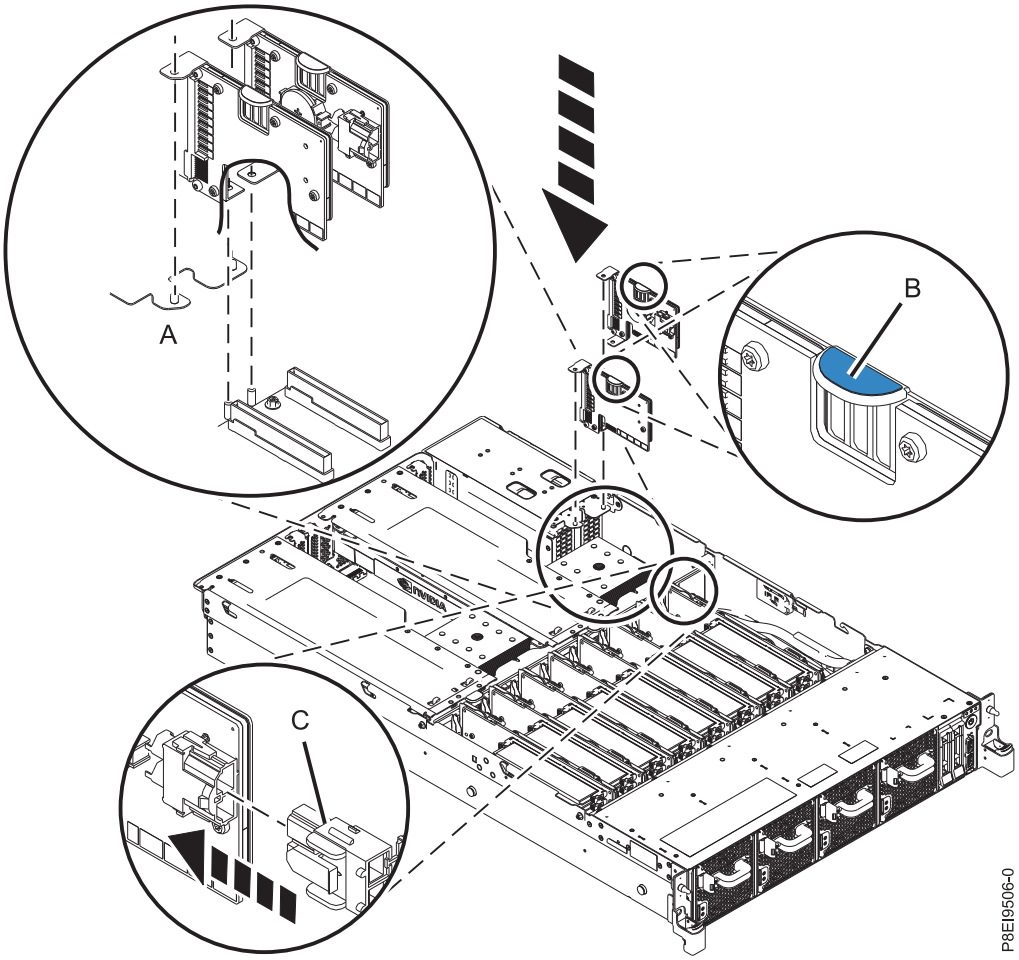


Figure 118. Replacing a power riser in the system

8. Install the power riser air baffle. See Figure 119 on page 110. Ensure that the holes in the baffle align with the pins on the system.

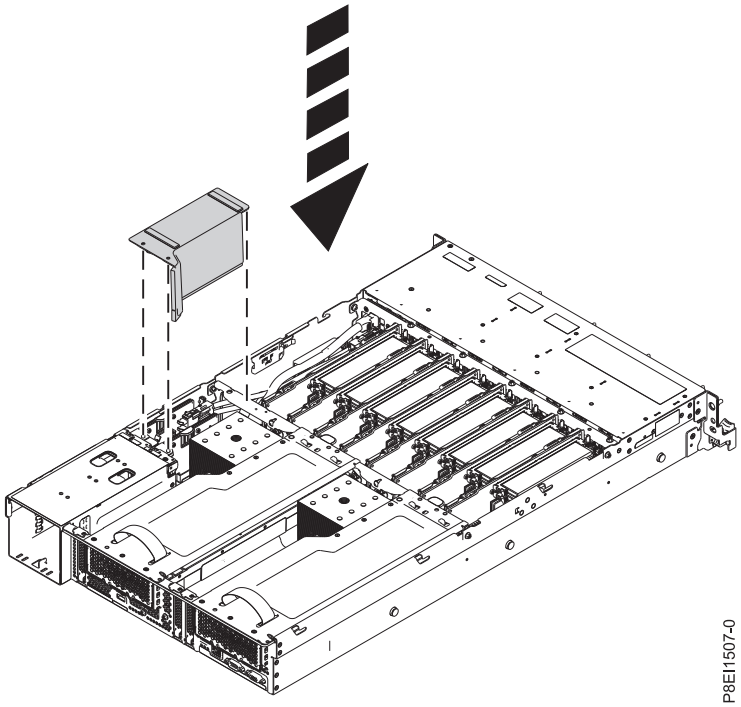


Figure 119. Installing the power riser air baffle

Common procedures for servicing or installing features in the 8335-GCA or 8335-GTA

This section contains all the common procedures related to installing, removing, and replacing features in the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Before you begin

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

About this task

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

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

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

- If IBM supplied the power cord(s), connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
  - For AC power, disconnect all power cords from their AC power source.

  - For racks with a DC power distribution panel (PDP), disconnect the customer's DC power source to the PDP.
- When connecting power to the product ensure all power cables are properly connected.
  - For racks with AC power, 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.
  - For racks with a DC power distribution panel (PDP), connect the customer's DC power source to the PDP. Ensure that the proper polarity is used when attaching the DC power and DC power return wiring.
- 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.
- Do not attempt to switch on power to the machine until all possible unsafe conditions are corrected.
- Assume that an electrical safety hazard is present. Perform all continuity, grounding, and power checks specified during the subsystem installation procedures to ensure that the machine meets safety requirements.
- Do not continue with the inspection if any unsafe conditions are present.
- Before you open the device covers, unless instructed otherwise in the installation and configuration procedures: Disconnect the attached AC power cords, turn off the applicable circuit breakers located in the rack power distribution panel (PDP), and disconnect any telecommunications systems, networks, and modems.

DANGER:
- 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. For AC power, remove the power cords from the outlets.
  3. For racks with a DC power distribution panel (PDP), turn off the circuit breakers located in the PDP and remove the power from the Customer's DC power source.
  4. Remove the signal cables from the connectors.
  5. 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. For AC power, attach the power cords to the outlets.
  5. For racks with a DC power distribution panel (PDP), restore the power from the Customer's DC power source and turn on the circuit breakers located in the PDP.
  6. Turn on the devices.

  Sharp edges, corners and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes and pinching. (D005)

(R001 part 1 of 2):

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. In addition, do not lean on rack mounted devices and do not use them to stabilize your body position (for example, when working from a ladder).

- Each rack cabinet might have more than one power cord.
  - For AC powered racks, be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
  - For racks with a DC power distribution panel (PDP), turn off the circuit breaker that controls the power to the system unit(s), or disconnect the customer's DC power source, 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.

(R001 part 2 of 2):

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.

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

Procedure

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

   Blue or terra-cotta on a part of the hardware indicates a touch point where you can grip the hardware to remove it from or install it in the system, open or close a latch, and so on. Terra-cotta might also indicate that the part can be removed and replaced with the system or logical partition power on.
5. Ensure that you have access to a medium flat-blade screwdriver, a Phillips screwdriver, and a pair of scissors.
6. If parts are incorrect, missing, or visibly damaged, do the following:
   - If you are replacing a part, contact the provider of your parts or next level of support.
   - If you are installing a feature, contact one of the following service organizations:
     – The provider of your parts or next level of support.
     – In the United States, the IBM Rochester Manufacturing Automated Information Line (R–MAIL) at 1–800–300–8751.

   In countries and regions outside of the United States, use the following website to locate your service and support telephone numbers:

   `http://www.ibm.com/planetwide`
7. If you encounter difficulties during the installation, contact your service provider, your IBM reseller, or your next level of support.
8. For the IBM Power System S822LC (8335-GCA and 8335-GTA) systems, ensure that the top cover is on when running for thermal performance.

Identifying the system that contains the part to replace

Learn how to determine which server or enclosure has the part you want to replace.

About this task

If the part does not have problem indicator LED, you will need to use a troubleshooting program such as **`impitool`** to identify the issue.

LEDs on the 8335-GCA or 8335-GTA system

Use this information as a guide to the LEDs on the IBM Power System S822LC (8335-GCA and 8335-GTA) system.

The LEDs indicate various system status. These LEDs are located at the front (as shown in Figure 120 on page 114) and at the rear of the system.

- The green LED indicates the power status.
  – A constant light indicates full system power to the unit.
  – A flashing light indicates standby power to the unit.
  – It takes approximately 30-seconds from the time the power-on button is pressed to when the power LED changes from flashing to solid. During the transition period, the LED might flash faster.
- The amber LED indicates a problem in the system. After a part is repaired, the amber LED takes a minute to turn off.
- The blue LED is used to identify the system that requires service.

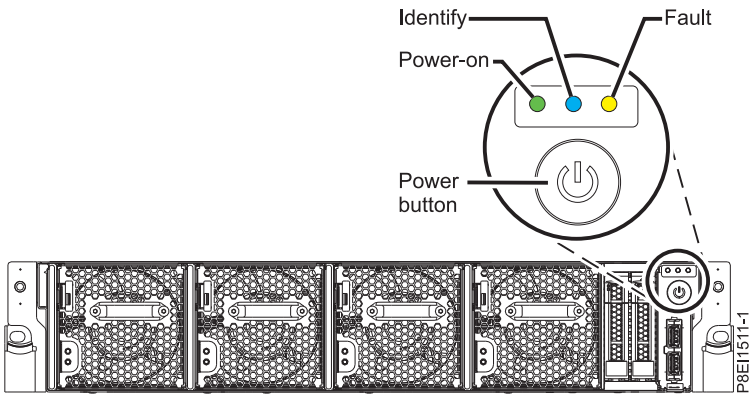


Figure 120. LEDs on an 8335-GCA or 8335-GTA system

LED indicators are located on the following parts:

- At the front of the system:
  - Disk drives (green LED indicates activity; amber LED indicates a problem)
  - Fans (green LED indicates activity; amber LED indicates a problem)
- At the rear of the system:
  - Backplane, near the rear LAN port: Green, amber, and blue (same as on the front next to the power button)
  - Power supplies (Two green LEDs indicate AC and DC power; amber LED indicates a problem)

Identifying the 8335-GCA or 8335-GTA that needs servicing

Use the Intelligent Platform Management Interface (IPMI program to turn on the blue identify LED to help you find the system that needs servicing.

Procedure

Use the **ipmitool** command to activate the blue system identify LED.
For in-band networks, the chassis identify command is:

```
ipmitool -I <interface> chassis identify <interval>
```

Where:

interface
: Is the interface you are using to connect to the system; for example `usb`.

interval
: Is the time to turn on the identify LED in seconds. The default is 15; meaning the LED is on for 15 seconds then turns off. A value of zero (0) turns off the LED. A value of `force` turns on the LED and leaves it on until turned off.

To run the command remotely over the LAN, the chassis identify command to enter is:

```
ipmitool -I lanplus -H <hostname> -U <username> -P <password> chassis identify <interval>
```

Preparing the system to remove and replace internal parts in the 8335-GCA or 8335-GTA

To prepare the IBM Power System S822LC (8335-GCA and 8335-GTA) system to remove and replace internal parts, complete the steps in this procedure.

Procedure

1. Complete the prerequisite tasks. For instructions, see “Before you begin” on page 110.

2. Identify the part and the system that you will be working on. For instructions, see “Identifying the system that contains the part to replace” on page 113.
3. If applicable, open the rack front door.
4. Attach the electrostatic discharge (ESD) wrist strap.

   Attention:

   - Attach an electrostatic discharge (ESD) wrist strap to the front ESD jack, to the rear ESD jack, or to an unpainted metal surface of your hardware to prevent the electrostatic discharge from damaging your hardware.
   - When you use an ESD wrist strap, follow all electrical safety procedures. An ESD wrist strap is used for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
   - If you do not have an ESD wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.
5. Remove the front cover. For instructions, see “Removing the front cover from an 8335-GCA or 8335-GTA system” on page 123.

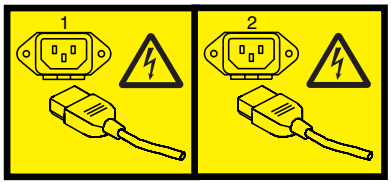
   (L007)

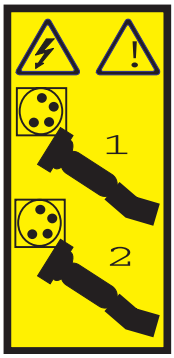
   CAUTION: A hot surface nearby. (L007)
6. Stop the system. For instructions, see “Stopping the system” on page 119.
7. If applicable, open the rack door at the rear of the system.
8. Disconnect the power source from the system by unplugging the system. For instructions, see “Disconnecting the power cords from an 8335-GCA or 8335-GTA system” on page 127.

   Note: The system might be equipped with redundant power supply. Before you continue with this procedure, ensure that all power to your system is disconnected.

   (L003)

   or



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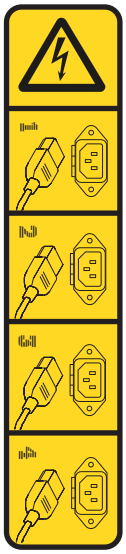

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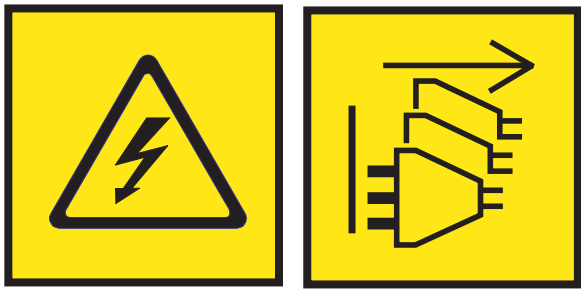


DANGER: Multiple power cords. The product might be equipped with multiple AC power cords or multiple DC power cables. To remove all hazardous voltages, disconnect all power cords and power cables. (L003)

9. Remove the two power supplies from the system. For instructions, see “Removing a power supply from the 8335-GCA or 8335-GTA” on page 53.
10. Place the system into the service position. For instructions, see “Placing an 8335-GCA or 8335-GTA system into the service position” on page 124.

    CAUTION:
    Do not place any object on top of a rack-mounted device unless that rack-mounted device is intended for use as a shelf. (R008)

    (L012)


or


    CAUTION: Pinch hazard. (L012)
11. Remove the service access cover. For instructions, see “Removing the service access cover from an 8335-GCA or 8335-GTA system” on page 121.

Preparing the system for operation after removing and replacing internal parts for the 8335-GCA or 8335-GTA

To prepare the IBM Power System S822LC (8335-GCA and 8335-GTA) system for operation after removing and replacing internal parts, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Replace the service access cover. For instructions, see “Installing the service access cover on an 8335-GCA or 8335-GTA system” on page 122.
3. Place the system into the operating position. For instructions, see “Placing an 8335-GCA or 8335-GTA system into the operating position” on page 125.

    (L012)


or


    CAUTION: Pinch hazard. (L012)
4. Install both of the power supplies into the system. For instructions, see “Replacing a power supply in the 8335-GCA or 8335-GTA” on page 54.
5. Reconnect the power cords to the system. For instructions, see “Connecting the power cords to an 8335-GCA or 8335-GTA system” on page 129.
6. If applicable, close the rack door at the rear of the system.
7. Start the system. For instructions, see “Starting the system” on page 118.

8. Replace the front cover. For instructions, see “Installing the front cover on an 8335-GCA or 8335-GTA system” on page 123.
9. If applicable, close the rack front door.
10. Verify the installed part. See Verifying a repair in the 8335-GCA or 8335-GTA (http://www.ibm.com/support/knowledgecenter/POWER8/p8ei3/p8ei3_verifyrepair.htm).

Starting and stopping the 8335-GCA or 8335-GTA

Learn how to start and stop the IBM Power System S822LC (8335-GCA and 8335-GTA) system for performing a service action or system upgrade.

Starting the system

You use the power button to start the system.

About this task

Attention: For safety, airflow purposes and thermal performance, the service access cover must be installed and fully seated prior to powering the system on.

You can use this procedure to power on the system; or you can use a console and the IPMI tool to power on the system.

Procedure

1. Open the front rack door, if necessary.
2. Before you press the power button, ensure that the power supplies are connected to the system unit and verify the following items:
   - All system power cables are connected to a power source.
   - The Power-on LED, as shown in Figure 121, is flashing. A flashing light indicates standby power to the unit.
3. Press the power button shown in Figure 121. The power-on light stops flashing and remains on, indicating that the system power is on. The system cooling fans are operate at a high speed, and after approximately 30 seconds, return to operating speed.

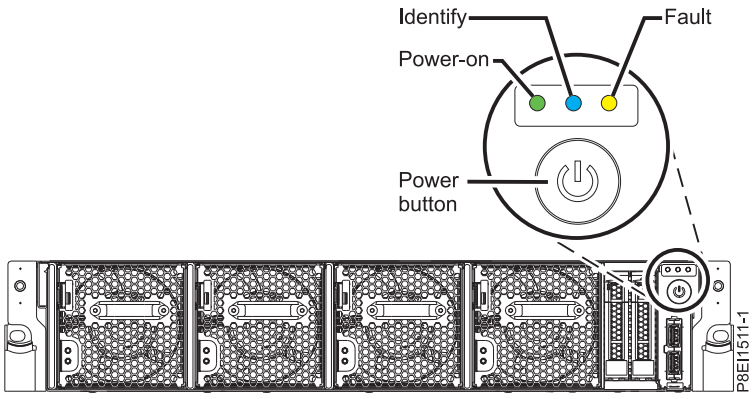


Figure 121. Power button

What to do next

If pressing the power button does not start the system, then contact your next level of support or your service provider.

Stopping the system

Learn how to stop the system to complete another task.

Procedure

You can use the Linux **shutdown** command to stop and power down the system.
For example, the following command will shut down the system in 10 minutes and send the message "Repairs coming." to the users.

```
shutdown -P +10 "Repairs coming."
```

The `-P` setting instructs the system to shut down and then power down. The `+` indicates the time in minutes before the shutdown occurs.

Event sensor status GUI display

The event sensor status GUI display is a way to quickly determine the general health status of the server without having to look at the detailed system event log (SEL) information.

To view the event sensor status GUI display, log in to the BMC web interface. The sensors and values appear on the first page (the dashboard).

Some occurrences of errors in the system might not appear in the event sensor GUI. After you view the event sensor status GUI display, use the SEL logs to view any active SEL events that indicate a service action event.

Event sensor status display operation

Most sensors are initially gray, then change status and color during the boot process when the FRU is initialized and either determined to be good (green) or faulty (red). No sensor display is available until you can get to the sensor display selection on the BMC, which means that the system attains a certain power level or that the BMC finishes initializing. The indicator color of the sensor is determined based on the sensor status at time of invocation of the display. The sensor display maintains the sensor status indicator color until the display is refreshed, which updates the sensor value with the latest status. Changes to SEL events changes color of sensor indicator when you refresh or restart the display. Sensor status display also starts over with a reboot or a power cycle with a few exceptions, indicated in Table 2 on page 120.

Event sensor status indicator descriptions

Gray indicator:

- FRU not plugged
- Sensor not initialized
- Sensor function is not initialized

Red (faulty) indicator:

- Critical threshold exceeded (an event requires a service action)
- Service action required for hard fail
- Partial function failure that reached a "service action required" state
- A deconfigured resource requires service action

Green (good) indicator:

- FRU or sensor is plugged in and fully operational
- Recoverable event is below the critical "service action required" threshold
- FRU or sensor returned to "normal" operating range (for threshold sensors)

Sensor state values during boot process

The key stages of operation.

Initial power on to BMC ready state

In this stage, some indicator values might not reflect the status of the physical sensor. In some instances, the state is not available because the sensor is not initialized; in this case, the sensor color is gray. In other cases (typically associated with Host Boot sensors), the value of the sensor shows the state when the system was operational. These sensors update to indicate the current status if the display is refreshed when the system reaches the Petitboot stage of operation. Table 2 shows the affected indicators.

BMC ready to PetitBoot or Host operation state

When the system reaches the Petitboot menu stage, and you refresh the display, all of the indicators reflect their operational state.

Table 2. Sensors and values during the stages of system operation

Sensor Name	Value at BMC Ready	Value at Petitboot or Later
Mem Buf Temp x (x = 0 - 7)	Not Available	Current
CPUx Temp (x = 0 - 1)	Not Available	Current
CPU Core Temp x (x = 0 - 23)	Not Available	Current
DIMMx Temp (x = 0 – 31)	Not Available	Current
GPU Temp x (x = 1 – 4)	Not Available	Current
CPU Diode x (x = 1 – 2)	Current	Current
Ambient Temp	Current	Current
CPU VDD Volt	Not Available	Current
CPU VDD Current	Not Available	Current
Fan x (x = 0 – 5)	Not Available	Current
Mem Buf Func x (X = 0 – 7)	From Previous IPL	Current
DIMM Func x (x = 0 – 31)	From Previous IPL	Current
GPU Func x (x = 1 – 4)	Not Available	Current
CPU Core Func x (x = 0 – 23)	From Previous IPL	Current
CPU Func x (X = 0 – 1)	From Previous IPL	Current
Checkstop	Current	Current
Quick Power Drop	Current	Current
OCC x Active (x = 1 – 2)	Current	Current
PSU Fault x (x = 1 – 2)	Current	Current
All Pgood	Current	Current
FW Boot Progress	From Previous IPL	Current
Host Status	Current	Current
Watchdog	From Previous IPL	Current
System Event	From Previous IPL	Current
OS Boot	From Previous IPL	Current
PCI	From Previous IPL	Current
Mem ProcX Pwr (x = 0 – 3)	From Previous IPL	Current
Procx Power (x = 0 – 1)	From Previous IPL	Current
PCIE Procx Pwr (x = 0 – 1)	From Previous IPL	Current

Table 2. Sensors and values during the stages of system operation (continued)

Sensor Name	Value at BMC Ready	Value at Petitboot or Later
Fan Power A (Fan Power)	From Previous IPL	Current
Mem Cache Power	From Previous IPL	Current
12V Sense	From Previous IPL	Current
GPU Sense (GPU Power)	From Previous IPL	Current
IO (A-B) Power	From Previous IPL	Current
Storage Power (A-B)	From Previous IPL	Current
Motherboard Flt	From Previous IPL	Current
Ref Clock Fault	From Previous IPL	Current
PCI Clock Fault	From Previous IPL	Current
TOD Clock Fault	From Previous IPL	Current
APSS Fault	From Previous IPL	Current
BMC Golden Side	Current	Current
BIOS Golden Side	Current	Current
Boot Count	Current	Current
Activate Pwr Lt	From Previous IPL	Current
PS Derating Fac	Current	Current
NxtPwr Redundant	Current	Current
CurPwr Redundant	Current	Current
System Power	Not Applicable	Current if applicable
Freq Limit OT x (x = 1 - 2)	Not Applicable	Current if applicable
Freq Limit Pwr x (x = 1 - 2)	Not Applicable	Current if applicable
CPU x VDD Temp (x = 1 - 2)	Not Applicable	Current if applicable

Removing and replacing covers on an 8335-GCA or 8335-GTA system

Learn how to remove and replace the covers for an IBM Power System S822LC (8335-GCA and 8335-GTA) system so that you can access the hardware parts or perform service.

Removing the service access cover from an 8335-GCA or 8335-GTA system

Learn how to remove the service access cover from an IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Procedure

1. Remove the power supplies from the system. For instructions, see “Removing a power supply from the 8335-GCA or 8335-GTA” on page 53.
2. Release the cover by pressing the blue release latch **(A)**.
3. While pressing down on latch **(A)** and touch point **(B)**, slide the cover **(C)** toward the rear of the system unit. When the front of the service access cover clears the upper frame ledge, lift the cover up and off the system unit.

   Attention: For proper cooling and airflow, replace the cover before powering on the system.

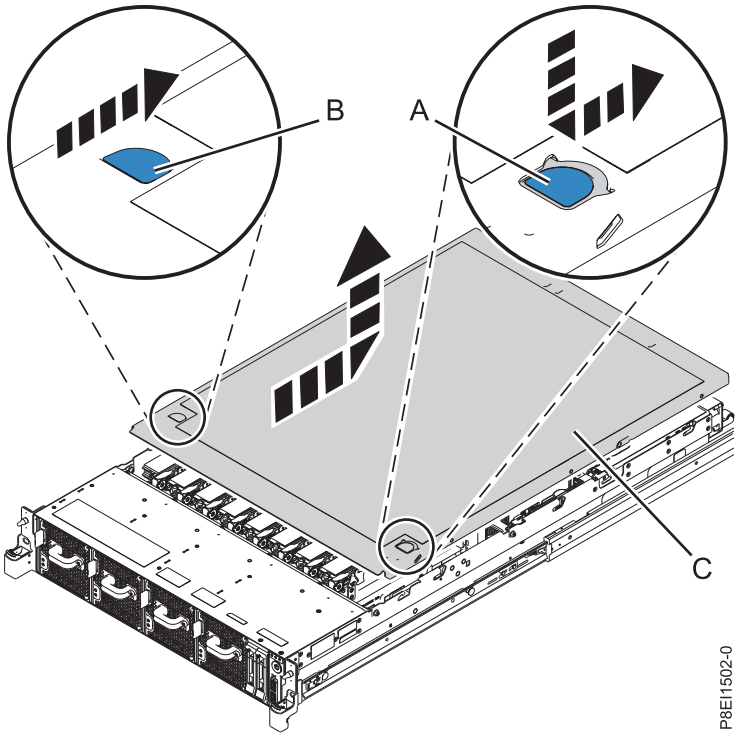


Figure 122. Removing the service access cover

Installing the service access cover on an 8335-GCA or 8335-GTA system

Learn how to install the service access cover on a rack-mounted IBM Power System S822LC (8335-GCA and 8335-GTA) system.

About this task

Attention: For safety, airflow purposes and thermal performance, the service access cover must be installed and fully seated prior to powering the system on.

Procedure

1. Place the cover **(A)** on to the system unit such that the alignment pins on the cover are aligned to the slots on the chassis.
2. Press down to engage the pins and slide the cover to the front of the system until the blue release latch **(B)** locks in to place, as shown in Figure 123 on page 123.

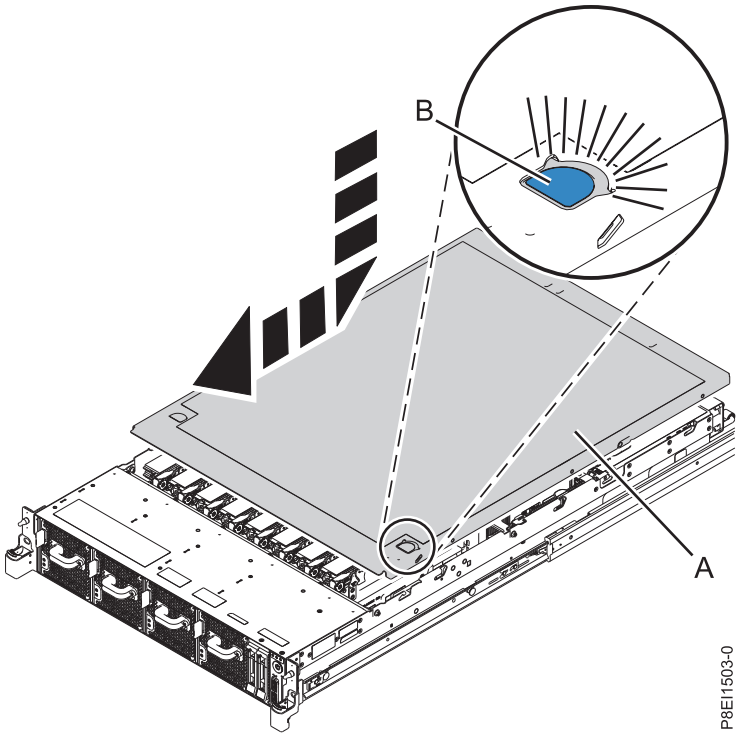


Figure 123. Installing the service access cover

3. Replace the power supplies into the chassis. For instructions, see "Replacing a power supply in the 8335-GCA or 8335-GTA" on page 54.

Removing the front cover from an 8335-GCA or 8335-GTA system

Learn how to remove the cover from an IBM Power System S822LC (8335-GCA and 8335-GTA) system so that you can access the components or perform service.

Procedure

1. If necessary, open the front rack door.
2. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
3. If applicable, remove the screws located on both sides of the cover to disengage the cover from the system unit.
4. Pull the cover away from the system.

Installing the front cover on an 8335-GCA or 8335-GTA system

Learn how to install the front cover on an IBM Power System S822LC (8335-GCA and 8335-GTA) system after accessing the components or performing service.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Position the cover on the front of the system unit so that the pins on the system match the holes at the rear of the cover.
3. Press the cover on to the system unit such that the pins engage with the holes and cover is firmly in place.
4. If applicable, replace the screws on each side of the cover to secure the system to the rack.
5. Close the front rack door.

Service and operating positions for 8335-GCA or 8335-GTA

Learn how to place on an IBM Power System S822LC (8335-GCA and 8335-GTA) system into the service or operating position.

Placing an 8335-GCA or 8335-GTA system into the service position

Learn how to place an IBM Power System S822LC (8335-GCA and 8335-GTA) system into the service position.

About this task

Pick the proper type of rails for your system:

- "Slide rails"
- "Fixed rails" on page 125

Slide rails:

Use this procedure when your system is installed using slide rails.

Before you begin

Notes:

- When placing the system into the service position, it is essential that all stability plates are firmly installed to prevent the rack from toppling. Ensure that only one system unit is in the service position at a time.
- Ensure that the cables at the rear of the system unit do not catch or bind as you pull the system unit forward in the rack.
- When the rails are fully extended, the rail safety latches lock into place. This action prevents the system from being pulled out too far.

Procedure

1. Remove the screws on either side of the system that secure the system to the rack.
2. Push down the front latches **(A)** that secure the system unit to the rack.

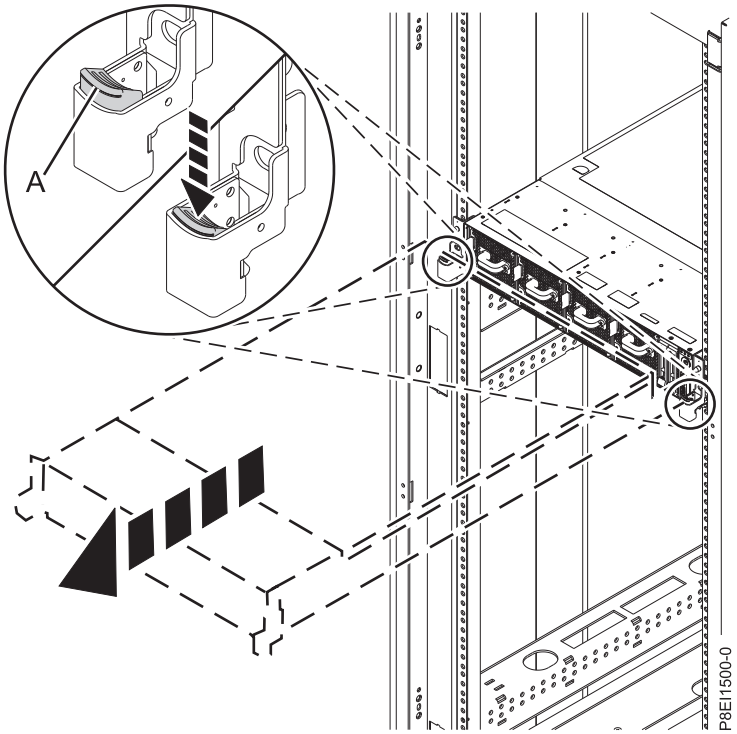


Figure 124. Placing the system into the srvice position

3. Pull the system unit out of the rack.

Fixed rails:

Use this procedure when your system is installed using fixed rails.

Before you begin

CAUTION:
This system requires two people to remove the system from the rack. Do not begin this procedure unless physical assistance is available to remove the system from the rack.

Note: When placing the system into the service position, it is essential that all stability plates are firmly installed to prevent the rack from toppling. Ensure that only one system unit is removed at a time.

Procedure

1. Label and disconnect the cables at the rear of the system unit.
2. At the front, remove the screws on either side of the system that secure the system to the rack.
3. While one person is supporting the weight of the front of the system, have the second person move to the rear of the system and push the system partially out of the rack.
4. Position one person on the left side of the system and one person on the right side of the system.
5. Tilt and lift the system off of the rails.
6. Carefully set the system on a table with an appropriate ESD surface.

Placing an 8335-GCA or 8335-GTA system into the operating position

Learn how to place an IBM Power System S822LC (8335-GCA and 8335-GTA) system into the operating position.

About this task

Pick the proper type of rails for your system:

- "Slide rails"
- "Fixed rails"

Slide rails:

Use this procedure when your system is installed using slide rails.

Before you begin

When you place the system in the operating position, ensure that the cables at the rear of the system do not catch or bind as you push the system unit back into the rack.

Procedure

1. Unlock the blue rail safety latches **(A)** by lifting them upward.
2. Align the system unit on to the rails and push the system unit back into the rack until both release latches lock into position.

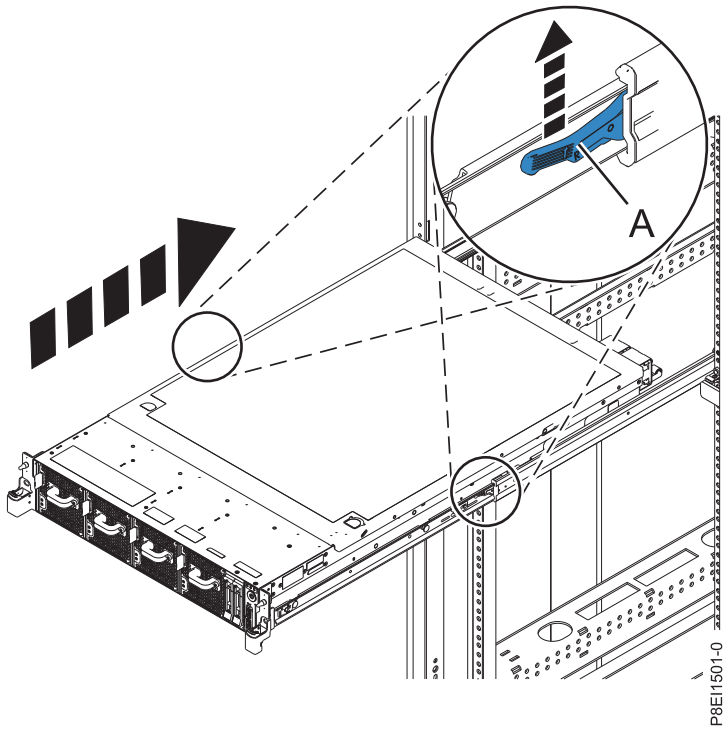


Figure 125. Placing the system into the operating position

3. Replace the screws on either side of the system that secure the system to the rack.

Fixed rails:

Use this procedure when your system is installed using fixed rails.

Before you begin

CAUTION:
This system requires two people to replace the system into the rack. Do not begin this procedure unless physical assistance is available to replace the system into the rack.

Note: When placing the system into the operating position, it is essential that all stability plates are firmly installed to prevent the rack from toppling. Ensure that only one system unit is replaced at a time.

Procedure

1. Position one person on the left side of the system and one person on the right side of the system.
2. Lift the system.
3. Move the system into position over the front of the fixed rack rails.
4. Carefully lower the system until the rear of the system rests on the rails.
5. Push the system all the way into the rack.
6. Using your labels, reconnect the cables at the rear of the system unit.
7. At the front, replace the screws on either side of the system that secure the system to the rack.

Power cords

Learn how to disconnect and connect the power cords on IBM Power System S822LC (8335-GCA and 8335-GTA) systems.

Disconnecting the power cords from an 8335-GCA or 8335-GTA system

Learn how to disconnect the power cords from an IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Procedure

1. Open the rear rack door on the system unit that you are servicing.
2. Identify the system unit that you are servicing in the rack.
3. Label and disconnect the power cords from the power supply handle. Unfasten the hook and loop fastener that ties the power cord to the power supply handle. Note how the power is looped; you will need to make that same loop when you reattach the power cords. There are two types of loops, detailed in Figure 126 on page 128 and Figure 127 on page 128.

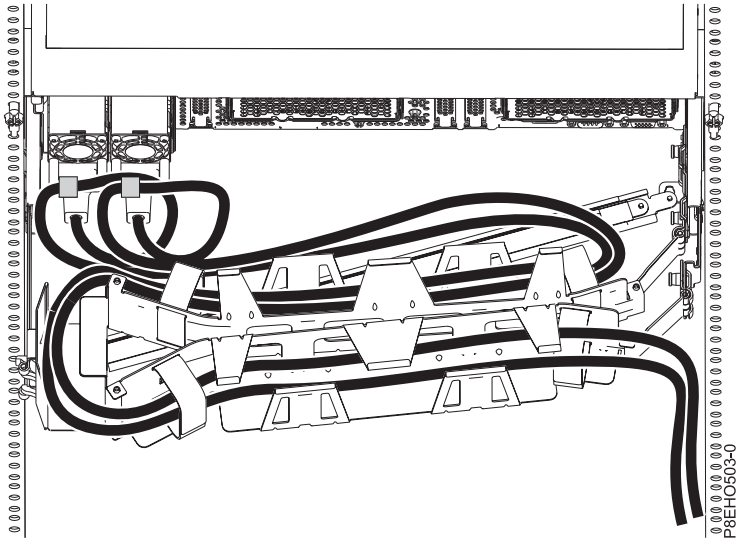


Figure 126. Power cord loop with cable management arm routing. The power cord loops counter-clockwise to the right.

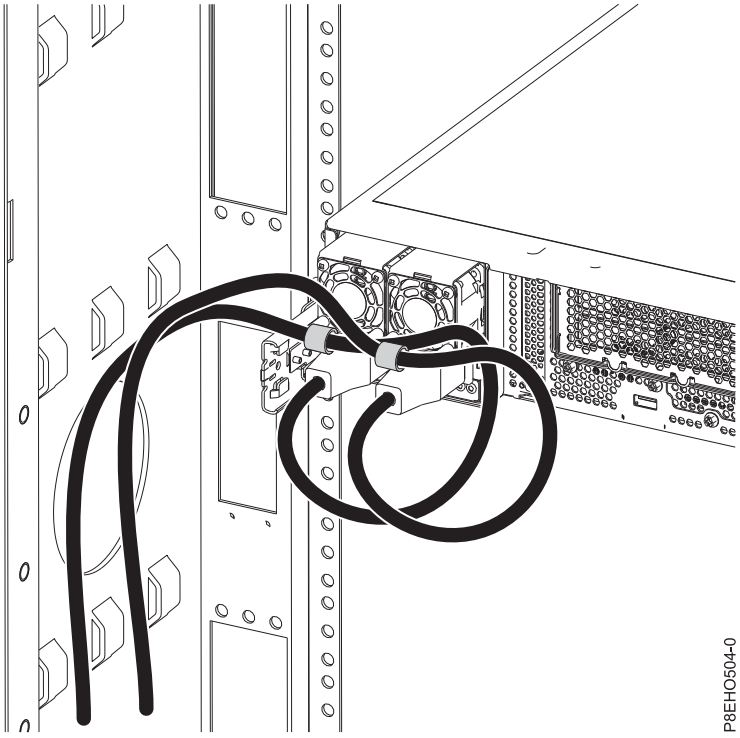


Figure 127. Power cord loop with sidewall routing. The power cord loops counter-clockwise to the left.

4. Disconnect the power cords from the system unit. See figure Figure 128 on page 129.

   Note: This system might be equipped with two or more power supplies. If the removing and replacing procedures require the power to be off, then ensure that all the power sources to the system have been completely disconnected.

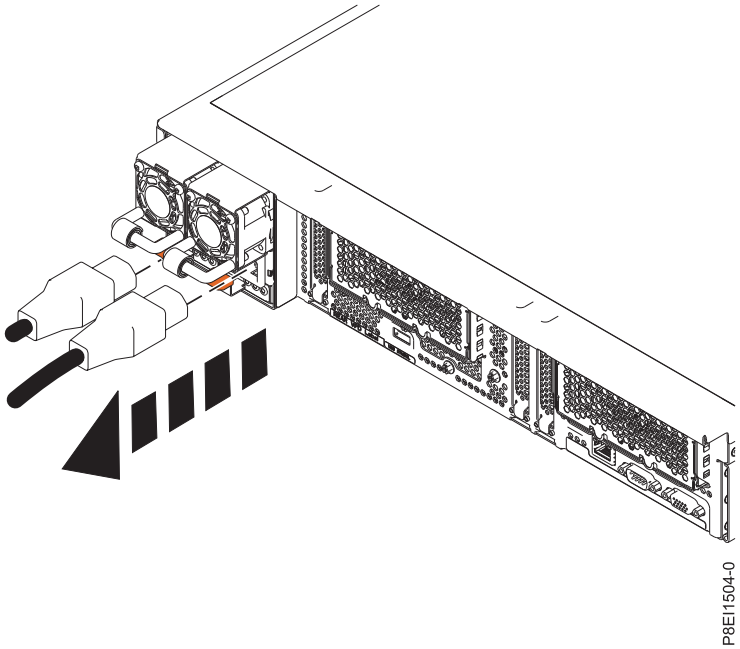


Figure 128. Removing the power cords from an 8335-GTA or 8335-GCA system

Connecting the power cords to an 8335-GCA or 8335-GTA system

Learn how to connect the power cords to an IBM Power System S822LC (8335-GCA and 8335-GTA) system.

Procedure

1. Open the rear rack door on the system unit that you are servicing.
2. Using your labels, reconnect the power cords to the system unit. See figure Figure 129 on page 130.

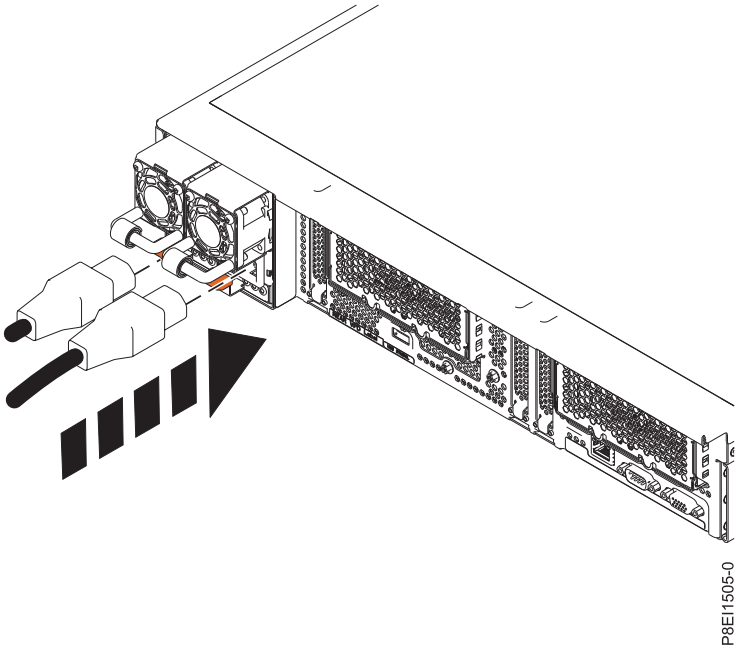


Figure 129. Connecting the power cords to an 8335-GTA or 8335-GCA system

3. Loop and attach the power cords to the power supply handle. Note how the power is looped; be sure to maintain at least a 5 cm (2 in.) diameter loop. There are two types of loops, detailed in Figure 130 and Figure 131 on page 131. Use the hook-and-loop fastener to tie the power cord to the power supply handle.

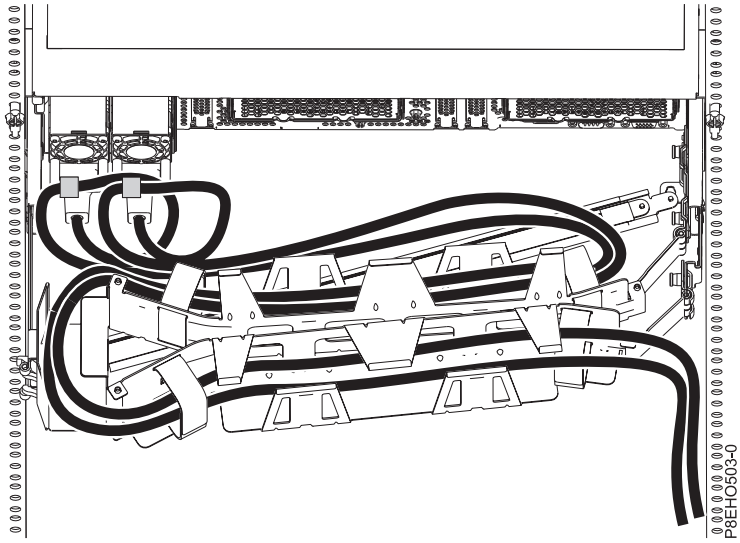


Figure 130. Power cord loop with cable management arm routing. The power cord loops counterclockwise to the right.

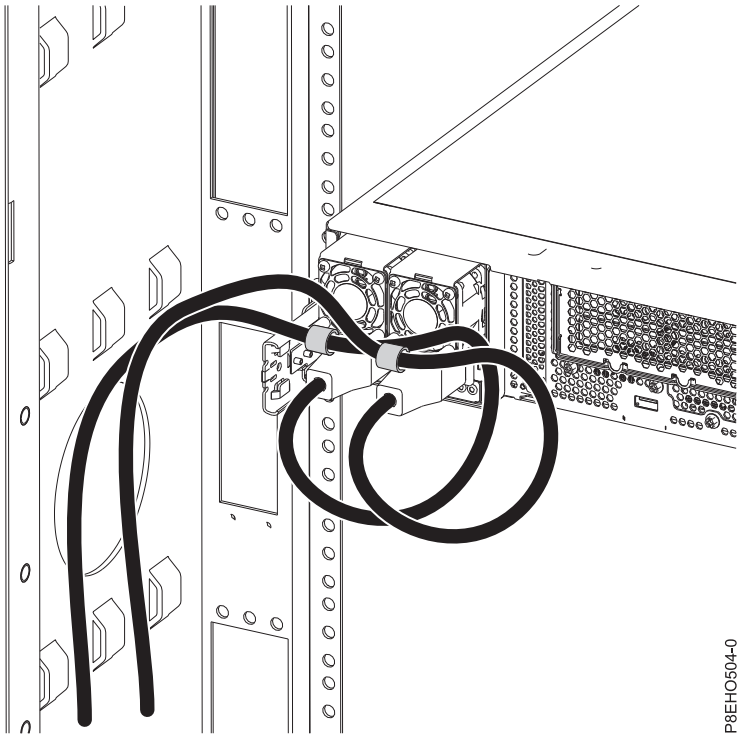


Figure 131. Power cord loop with sidewall routing. The power cord loops counterclockwise to the left.

4. Close the rack door at the rear of the system.

Additional procedures

Preparing the system to remove and replace memory risers in the 8335-GCA or 8335-GTA

To prepare the system to remove and replace memory, complete the steps in this procedure.

Procedure

1. Complete the prerequisite tasks. For instructions, see "Before you begin" on page 110.
2. Identify the part and the system that you will be working on. For instructions, see "Identifying the system that contains the part to replace" on page 113.
3. If applicable, open the rack front door.
4. Attach the electrostatic discharge (ESD) wrist strap.

   Attention:

   - Attach an electrostatic discharge (ESD) wrist strap to the front ESD jack, to the rear ESD jack, or to an unpainted metal surface of your hardware to prevent the electrostatic discharge from damaging your hardware.
   - When you use an ESD wrist strap, follow all electrical safety procedures. An ESD wrist strap is used for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
   - If you do not have an ESD wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.
5. Remove the front cover. For instructions, see "Removing the front cover from an 8335-GCA or 8335-GTA system" on page 123.

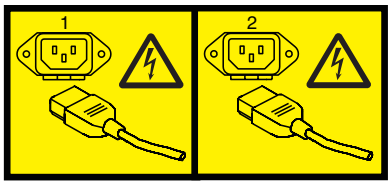
(L007)

CAUTION: A hot surface nearby. (L007)

6. Stop the system. For instructions, see "Stopping the system" on page 119.
7. If applicable, open the rack door at the rear of the system.
8. Disconnect the power source from the system by unplugging the system. For instructions, see "Disconnecting the power cords from an 8335-GCA or 8335-GTA system" on page 127.

   Note: The system might be equipped with redundant power supply. Before you continue with this procedure, ensure that all power to your system is disconnected.

   (L003)



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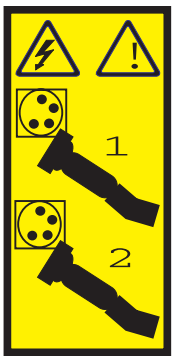

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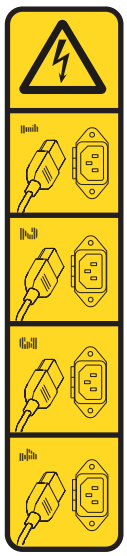
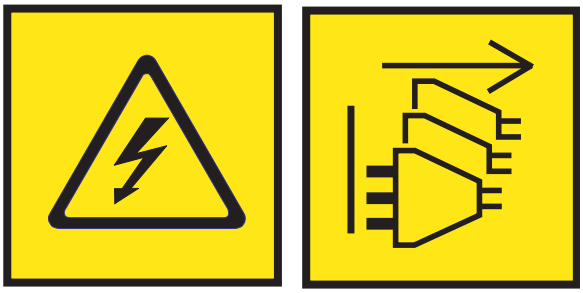


or



DANGER: Multiple power cords. The product might be equipped with multiple AC power cords or multiple DC power cables. To remove all hazardous voltages, disconnect all power cords and power cables. (L003)

9. Remove the two power supplies from the system. For instructions, see "Removing a power supply from the 8335-GCA or 8335-GTA" on page 53.
10. Place the system into the service position. For instructions, see "Placing an 8335-GCA or 8335-GTA system into the service position" on page 124.

    CAUTION:
    Do not place any object on top of a rack-mounted device unless that rack-mounted device is intended for use as a shelf. (R008)

    (L012)

or

CAUTION: Pinch hazard. (L012)

11. Remove the service access cover. For instructions, see "Removing the service access cover from an 8335-GCA or 8335-GTA system" on page 121.

Preparing the system for operation after removing and replacing memory risers

To prepare the system for operation after removing and replacing memory, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Replace the service access cover. For instructions, see “Installing the service access cover on an 8335-GCA or 8335-GTA system” on page 122.
3. Place the system into the operating position. For instructions, see “Placing an 8335-GCA or 8335-GTA system into the operating position” on page 125.

   (L012)

   
   or
   

   CAUTION: Pinch hazard. (L012)
4. Install both of the power supplies into the system. For instructions, see “Replacing a power supply in the 8335-GCA or 8335-GTA” on page 54.
5. Reconnect the power cords to the system. For instructions, see “Connecting the power cords to an 8335-GCA or 8335-GTA system” on page 129.
6. If applicable, close the rack door at the rear of the system.
7. Start the system. For instructions, see “Starting the system” on page 118.
8. Replace the front cover. For instructions, see “Installing the front cover on an 8335-GCA or 8335-GTA system” on page 123.
9. If applicable, close the rack front door.
10. Verify the installed part. See Verifying a repair in the 8335-GCA or 8335-GTA (http://www.ibm.com/support/knowledgecenter/POWER8/p8ei3/p8ei3_verifyrepair.htm).

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This product may not be certified in your country for connection by any means whatsoever to interfaces of public telecommunications networks. Further certification may be required by law prior to making any such connection. Contact an IBM representative or reseller for any questions.

Accessibility features for IBM Power Systems servers

Accessibility features assist users who have a disability, such as restricted mobility or limited vision, to use information technology content successfully.

Overview

The IBM Power Systems servers include the following major accessibility features:

- Keyboard-only operation
- Operations that use a screen reader

The IBM Power Systems servers use the latest W3C Standard, WAI-ARIA 1.0 (www.w3.org/TR/wai-aria/), to ensure compliance with US Section 508 (www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards) and Web Content Accessibility Guidelines (WCAG) 2.0 (www.w3.org/TR/WCAG20/). To take advantage of accessibility features, use the latest release of your screen reader and the latest web browser that is supported by the IBM Power Systems servers.

The IBM Power Systems servers online product documentation in IBM Knowledge Center is enabled for accessibility. The accessibility features of IBM Knowledge Center are described in the Accessibility section of the IBM Knowledge Center help (www.ibm.com/support/knowledgecenter/doc/kc_help.html#accessibility).

Keyboard navigation

This product uses standard navigation keys.

Interface information

The IBM Power Systems servers user interfaces do not have content that flashes 2 - 55 times per second.

The IBM Power Systems servers web user interface relies on cascading style sheets to render content properly and to provide a usable experience. The application provides an equivalent way for low-vision users to use system display settings, including high-contrast mode. You can control font size by using the device or web browser settings.

The IBM Power Systems servers web user interface includes WAI-ARIA navigational landmarks that you can use to quickly navigate to functional areas in the application.

Vendor software

The IBM Power Systems servers include certain vendor software that is not covered under the IBM license agreement. IBM makes no representation about the accessibility features of these products. Contact the vendor for accessibility information about its products.

Related accessibility information

In addition to standard IBM help desk and support websites, IBM has a TTY telephone service for use by deaf or hard of hearing customers to access sales and support services:

TTY service
800-IBM-3383 (800-426-3383)
(within North America)

For more information about the commitment that IBM has to accessibility, see IBM Accessibility (www.ibm.com/able).

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Electronic emission notices

When attaching a monitor to the equipment, you must use the designated monitor cable and any interference suppression devices supplied with the monitor.

Class A Notices

The following Class A statements apply to the IBM servers that contain the POWER8 processor and its features unless designated as electromagnetic compatibility (EMC) Class B in the feature information.

Federal Communications Commission (FCC) Statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Compliance Statement

CAN ICES-3 (A)/NMB-3(A)

European Community Compliance Statement

This product is in conformity with the protection requirements of EU Council Directive 2014/30/EU on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

European Community contact:
IBM Deutschland GmbH
Technical Regulations, Abteilung M456
IBM-Allee 1, 71139 Ehningen, Germany
Tel: +49 800 225 5426
email: halloibm@de.ibm.com

Warning: This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

VCCI Statement - Japan

この装置は、クラスA 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI－A

The following is a summary of the VCCI Japanese statement in the box above:

This is a Class A product based on the standard of the VCCI Council. If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.

Japan Electronics and Information Technology Industries Association Statement

This statement explains the Japan JIS C 61000-3-2 product wattage compliance.

（一社）電子情報技術産業協会　高調波電流抑制対策実施要領に基づく定格入力電力値： Knowledge Centerの各製品の仕様ページ参照

This statement explains the Japan Electronics and Information Technology Industries Association (JEITA) statement for products less than or equal to 20 A per phase.

高調波電流規格 JIS C 61000-3-2 適合品

This statement explains the JEITA statement for products greater than 20 A, single phase.

高調波電流規格 JIS C 61000-3-2 準用品

本装置は、「高圧又は特別高圧で受電する需要家の高調波抑制対策ガイドライン」対象機器（高調波発生機器）です。
• 回路分類 ：6（単相、ＰＦＣ回路付）
• 換算係数 ：0

This statement explains the JEITA statement for products greater than 20 A per phase, three-phase.

高調波電流規格 JIS C 61000-3-2 準用品

本装置は、「高圧又は特別高圧で受電する需要家の高調波抑制対策ガイドライン」対象機器（高調波発生機器）です。
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• 換算係数 ：0

Electromagnetic Interference (EMI) Statement - People's Republic of China

声　明

此为 A 级产品，在生活环境中，
该产品可能会造成无线电干扰。
在这种情况下，可能需要用户对其
干扰采取切实可行的措施。

Declaration: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may need to perform practical action.

Electromagnetic Interference (EMI) Statement - Taiwan

警告使用者：
這是甲類的資訊產品，在
居住的環境中使用時，可
能會造成射頻干擾，在這
種情況下，使用者會被要
求採取某些適當的對策。

The following is a summary of the EMI Taiwan statement above.

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user will be required to take adequate measures.

IBM Taiwan Contact Information:

台灣IBM 產品服務聯絡方式：
台灣國際商業機器股份有限公司
台北市松仁路7號3樓
電話：0800-016-888

Electromagnetic Interference (EMI) Statement - Korea

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Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2014/30/EU zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaatenund hält die Grenzwerte der EN 55022 / EN 55032 Klasse A ein.

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EN 55022 / EN 55032 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden:
"Warnung: Dieses ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funk-Störungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen zu ergreifen und dafür aufzukommen."

Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem “Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)“. Dies ist die Umsetzung der EU-Richtlinie 2014/30/EU in der Bundesrepublik Deutschland.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC Richtlinie 2014/30/EU) für Geräte der Klasse A

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Verantwortlich für die Einhaltung der EMV Vorschriften ist der Hersteller:
International Business Machines Corp.
New Orchard Road

Armonk, New York 10504
Tel: 914-499-1900

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:
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Technical Relations Europe, Abteilung M456
IBM-Allee 1, 71139 Ehningen, Germany
Tel: +49 (0) 800 225 5426
email: HalloIBM@de.ibm.com

Generelle Informationen:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 / EN 55032 Klasse A.

Electromagnetic Interference (EMI) Statement - Russia

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дополнительные меры

Class B Notices

The following Class B statements apply to features designated as electromagnetic compatibility (EMC) Class B in the feature installation information.

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an IBM-authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM-authorized dealers. IBM is not responsible for any radio or television interference caused by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Compliance Statement

CAN ICES-3 (B)/NMB-3(B)

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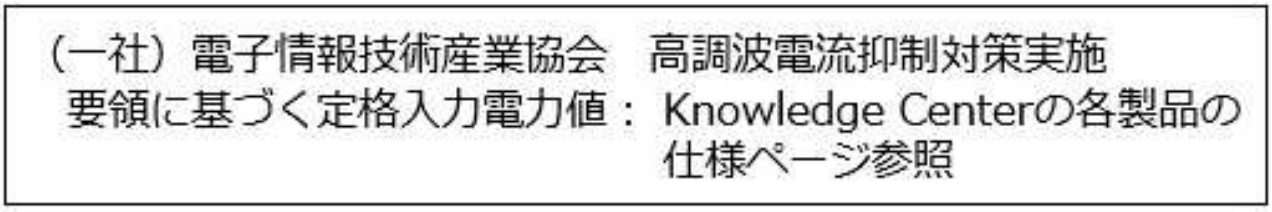
取扱説明書に従って正しい取り扱いをして下さい。 VCCI－B

Japan Electronics and Information Technology Industries Association Statement

This statement explains the Japan JIS C 61000-3-2 product wattage compliance.



This statement explains the Japan Electronics and Information Technology Industries Association (JEITA) statement for products less than or equal to 20 A per phase.

This statement explains the JEITA statement for products greater than 20 A, single phase.

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• 換算係数 ：0

This statement explains the JEITA statement for products greater than 20 A per phase, three-phase.

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• 回路分類 ：5（3相、ＰＦＣ回路付）
• 換算係数 ：0

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台灣IBM 產品服務聯絡方式：
台灣國際商業機器股份有限公司
台北市松仁路7號3樓
電話：0800-016-888

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Deutschsprachiger EU Hinweis: Hinweis für Geräte der Klasse B EU-Richtlinie zur Elektromagnetischen Verträglichkeit

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Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

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Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC Richtlinie 2014/30/EU) für Geräte der Klasse B

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Verantwortlich für die Einhaltung der EMV Vorschriften ist der Hersteller:
International Business Machines Corp.
New Orchard Road
Armonk, New York 10504
Tel: 914-499-1900

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Technical Relations Europe, Abteilung M456
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Tel: +49 (0) 800 225 5426
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Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022/ EN 55032 Klasse B.

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