

Power Systems

Problem analysis, system parts, and locations for the IBM Power System S822LC (8335-GCA, 8335-GTA, and 8335-GTB), and IBM Power System S812LC (8348-21C)

IBM

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Problem analysis, system parts, and locations for the IBM Power System S822LC (8335-GCA, 8335-GTA, and 8335-GTB), and IBM Power System S812LC (8348-21C)

IBM

Note

Before using this information and the product it supports, read the information in “Safety notices” on page v, “Notices” on page 145, 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.

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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)



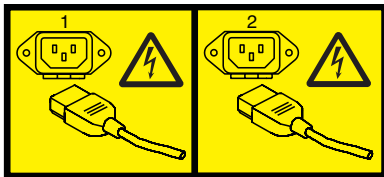
DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

(L002)

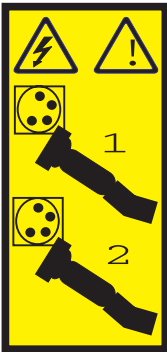


DANGER: Rack-mounted devices are not to be used as shelves or work spaces. (L002)

(L003)



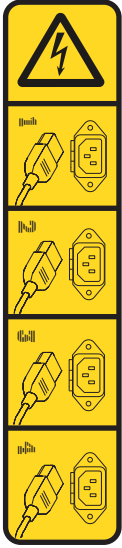
or



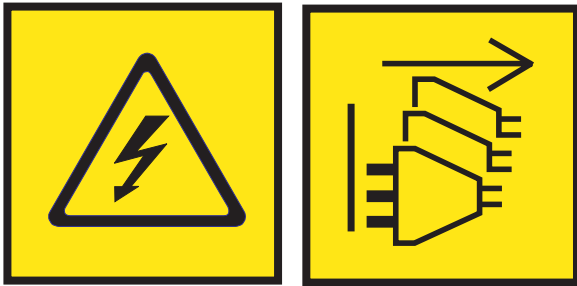
or



or



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)

(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 metalically 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 metalically 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.

Beginning troubleshooting and problem analysis

This information provides a starting point for analyzing problems.

This information is the starting point for diagnosing and repairing systems. From this point, you are guided to the appropriate information to help you diagnose problems, determine the appropriate repair action, and then complete the necessary steps to repair the system.

Note: Update the system firmware to the latest level before you start problem analysis. If you update the system firmware, you will have the latest available fixes and improvements for error handling, reporting, and isolation. For instructions about updating the system firmware, see Getting fixes.

What type of problem are you dealing with?	Problem analysis procedure
You do not know the type of problem.	Go to "Determining the problem analysis procedure to perform."
A baseboard management controller (BMC) access problem occurred.	Go to "Resolving a BMC access problem" on page 2.
The system does not power on (the power button or the BMC power on command does not power on the system).	Go to "Resolving a power problem" on page 3.
A system firmware boot failure occurred (the system started but was not able to boot to the Petitboot menu).	Go to "Resolving a system firmware boot failure" on page 4.
A video graphics array (VGA) monitor problem occurred (the system started but video is not displayed on the monitor).	Go to "Resolving a VGA monitor problem" on page 8.
An operating system boot failure occurred (the system booted to the Petitboot menu but the operating system did not start).	Go to "Resolving an operating system boot failure" on page 9.
A BMC dashboard sensor is red.	Go to "Resolving a sensor indicator problem" on page 11.
A processor, memory, power, or cooling hardware failure occurred.	Go to "Resolving a hardware problem" on page 12.
Missing or faulty graphics processing unit (GPU), PCIe adapter, disk drive, or solid-state drive.	Go to Resolving a GPU, PCIe adapter, or device problem.

Determining the problem analysis procedure to perform

Learn how to identify the correct problem analysis procedure to perform.

To determine the correct problem analysis procedure to perform, complete the following steps:

1. After you apply power to the system, do the power supply LEDs display XXX and after 30 seconds the power button flashes?

If	Then
Yes:	Continue with the next step.
No:	Go to "Resolving a power problem" on page 3.

2. Can you access the baseboard management controller (BMC) across the network?

If	Then
Yes:	Continue with the next step.
No:	Go to "Resolving a BMC access problem."

3. Can you boot the system to the Petitboot menu?

If	Then
Yes:	Continue with the next step.
No:	Go to "Resolving a system firmware boot failure" on page 4.

4. Is video displayed on the video graphics array (VGA) monitor?

If	Then
Yes:	Continue with the next step.
No:	Go to "Resolving a VGA monitor problem" on page 8.

5. Can you start the operating system?

If	Then
Yes:	Continue with the next step.
No:	Go to "Resolving an operating system boot failure" on page 9.

6. On the BMC dashboard, are any sensors red?

If	Then
Yes:	Go to "Resolving a sensor indicator problem" on page 11.
No:	Continue with the next step.

7. Go to "Resolving a hardware problem" on page 12. **This ends the procedure.**

Resolving a BMC access problem

Learn how to identify the service action that is needed to resolve a baseboard management controller (BMC) access problem.

1. Ensure that the BMC password is not set to the default password. For information about changing the default password, see Logging on to the BMC GUI. Does the problem persist?

If	Then
Yes:	Continue with the next step.
No:	This ends the procedure.

2. Are both ends of the network cable seated securely?

If	Then
Yes:	Continue with the next step.
No:	Seat both ends of the cable securely. If the problem persists, continue with the next step.

3. Power off the system and disconnect all ac power cords for 30 seconds. Then, reconnect the ac power cords and power on the system. Does the BMC access problem persist?

If	Then
Yes:	Continue with the next step.
No:	This ends the procedure.

4. Verify that the BMC network settings are correct.
 - a. Power on the system by using the power button on the front of the system. Wait 1 - 2 minutes for the system to display the Petitboot menu.
 - b. When the Petitboot menu is displayed, press any key to interrupt the boot process. Then, select Exit to Shell.
 - c. Type the following command and press Enter:
ipmitool lan print 1
 - d. Verify that the MAC address and the IP address settings are correct. Then, continue with the next step.

Note: If the IP address setting is incorrect, go to Configuring the firmware IP address website(<http://www.ibm.com/support/knowledgecenter/linuxonibm/liabw/liabwenablenetwork.htm>). If the MAC address is 00:00:00:00:00:00, go to “Contacting IBM service and support” on page 110.

5. Complete the following actions:
 - a. Power on to the Petitboot menu.
 - b. Use the BMC to update the system firmware. For instructions, see Updating the system firmware by using the BMC.

Are you able to access the BMC?

If	Then
Yes:	This ends the procedure.
No:	Continue with the next step.

6. Complete the service action that is indicated for your system:
 - If your system is an 8335-GCA or 8335-GTA, replace the system backplane. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and the removal and replacement procedure. **This ends the procedure.**
 - If your system is an 8335-GTB, replace the BMC card. Go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure. **This ends the procedure.**
 - If your system is an 8348-21C, replace the system backplane. Go to “8348-21C locations” on page 133 to identify the physical location and the removal and replacement procedure. **This ends the procedure.**

Resolving a power problem

Learn how to identify the service action that is needed to resolve a power problem.

1. Is the amber LED of a power supply on solid and is the amber LED on the front of the system turned off?

If	Then
Yes:	Ensure that the power cords for both power supplies are fully seated and that the power distribution units (PDUs) and power outlets are supplying electricity. This ends the procedure.
No:	Continue with the next step.

2. Are the power supply LEDs turned off?

If	Then
Yes:	Continue with the next step.
No:	Continue with step 4.

3. Perform the following actions, one at a time, until the problem is resolved:

- a. Ensure that all of the power cords are fully seated in the power supplies.
- b. Ensure that all of the power cords are fully seated in the power distribution units (PDUs) or wall outlets.
- c. If the power cords are plugged into PDUs, ensure that the PDUs are turned on.
- d. Ensure that all of the power cords are plugged into PDUs or wall outlets that are supplying electricity.
- e. Replace the power cords.
- f. Replace the power supplies.
 - If your system is an 8335-GCA or 8335-GTA, go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and the removal and replacement procedure.
 - If your system is an 8335-GTB, go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure.
 - If your system is an 8348-21C, go to “8348-21C locations” on page 133 to identify the physical location and the removal and replacement procedure.

This ends the procedure.

4. Is the amber LED of a power supply on solid and is the red LED on the front of the system flashing at 0.25 Hz?

If	Then
Yes:	Continue with the next step.
No:	Go to “Contacting IBM service and support” on page 110. This ends the procedure.

5. Perform the following actions, one at a time, until the problem is resolved:

- a. Ensure that the power supply is fully seated in the system.
- b. Ensure that the power supply fan is not blocked.
- c. Replace the power supply.
 - If your system is an 8335-GCA or 8335-GTA, go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and the removal and replacement procedure.
 - If your system is an 8335-GTB, go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure.
 - If your system is an 8348-21C, go to “8348-21C locations” on page 133 to identify the physical location and the removal and replacement procedure.

This ends the procedure.

Resolving a system firmware boot failure

Learn how to identify the service action that is needed to resolve a failure while booting your system firmware.

1. After you pressed the power button, did the system turn on but fail to display the Petitboot menu?

If	Then
Yes:	Continue with the next step.

If	Then
No:	Continue with step 5.

2. Does the baseboard management controller (BMC) respond to commands?

Note: To determine whether the BMC responds to commands, run the following **ipmitool** command:

```
ipmitool -I lanplus -U <username> -P <password> -H <bmc ip or bmc hostname> chassis status
```

If	Then
Yes:	Continue with the next step.
No:	Continue with step 4.

3. Complete the following actions:

- a. Use the BMC to update the system firmware. For instructions, see Updating the system firmware by using the BMC.
- b. Check the system event logs. For instructions, see “Identifying a service action by using system event logs” on page 27. Then, continue with step 5.

4. Complete the following actions, one at a time, until the problem is resolved:

- a. Reset the BMC remotely by entering the following command:

```
ipmitool -I lanplus -U <username> -P <password> -H <bmc ip or bmc hostname> mc reset cold
```

- b. Disconnect the power cords from the system for 30 seconds. Reconnect the power cords, wait 5 minutes, and then go to step 2.

- c. Use the IPMI tool to update the system firmware. For instructions, see Updating the system firmware by using the IPMI tool.

- d. Complete the service action that is indicated for your system:

- If your system is an 8335-GCA or 8335-GTA, replace the system backplane. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and the removal and replacement procedure.
- If your system is an 8335-GTB, replace the BMC card. Go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure.
- If your system is an 8348-21C, replace the system backplane. Go to “8348-21C locations” on page 133 to identify the physical location and the removal and replacement procedure.

This ends the procedure.

5. Are you here because of a system event log (SEL) with the value **OEM record c0** and OEM c0 specific log information **3a1503xxxxx**?

If	Then
Yes:	Continue with step 8 on page 6.
No:	Continue with the next step.

6. Are you here because of a SEL event with the value **OEM record c0** and OEM c0 specific log information **3a1504xxxxx**?

If	Then
Yes:	Continue with step 12 on page 7.
No:	Continue with the next step.

7. Power off the system and disconnect all ac power cords for 30 seconds. Then, reconnect the ac power cords and power on the system. Does the system boot successfully?

If	Then
Yes:	This ends the procedure.
No:	Go to “Resolving a hardware problem” on page 12. This ends the procedure.

8. Did the system complete the boot process successfully?

If	Then
Yes:	Continue with the next step.
No:	Continue with step 12 on page 7.

9. Determine whether the system is booted from the user-updated level of the system firmware image (primary side) or the manufacturing level of the system firmware image (golden side).

- For in-band networks, enter the following command:

```
ipmitool sensor list | grep -i golden
```

- To run the command remotely over the LAN, enter the following command:

```
ipmitool -I lanplus -U <username> -P <password> -H <BMC IP address or BMC hostname>
sensor list | grep -i golden
```

Do both of the returned records show 0x0080 in the data fields?

If	Then
Yes:	The error was temporary. No service action is required. This ends the procedure.
No:	One or both of the returned records have 0x0180 in the data fields. The system was booted from the golden side. Continue with the next step.

10. Search for processor deconfiguration SEL events that have a time stamp in close proximity to the time stamp of the event with value **OEM record c0** that sent you here. Processor deconfiguration SEL events are displayed in the following form:

- Processor CPU Func *x* | Transition to Non-recoverable | Asserted

Are processor deconfiguration events present?

If	Then
Yes:	Complete the service actions for the processor deconfiguration events. <ul style="list-style-type: none"> • If your system is an 8335-GCA or 8335-GTA, go to “Identifying a service action by using sensor and event information for the 8335-GCA and 8335-GTA” on page 37. This ends the procedure. • If your system is an 8335-GTB, go to “Identifying a service action by using sensor and event information for the 8335-GTB” on page 57. This ends the procedure. • If your system is an 8348-21C, go to “Identifying a service action by using sensor and event information for the 8348-21C” on page 78. This ends the procedure.
No:	Continue with the next step.

11. Are there other types of SEL events that require a service action and have a time stamp in close proximity to the time stamp of the event with value **OEM record c0** that sent you here?

If	Then
Yes:	Complete the service actions for the SEL events that require service actions. <ul style="list-style-type: none"> • If your system is an 8335-GCA or 8335-GTA, go to “Identifying a service action by using sensor and event information for the 8335-GCA and 8335-GTA” on page 37. This ends the procedure. • If your system is an 8335-GTB, go to “Identifying a service action by using sensor and event information for the 8335-GTB” on page 57. This ends the procedure. • If your system is an 8348-21C, go to “Identifying a service action by using sensor and event information for the 8348-21C” on page 78. This ends the procedure.
No:	If the boot problem persists, reload or update the system firmware image. Go to Getting fixes and reload the system firmware with the same level of firmware or update the system firmware with a more recent level of firmware. Then, reboot the system. This ends the procedure.

12. Search for processor deconfiguration SEL events that have a time stamp in close proximity to the time stamp of the event with value **OEM record c0** that sent you here. Processor deconfiguration SEL events are displayed in the following form:

- Processor CPU Func *x* | Transition to Non-recoverable | Asserted

Are processor deconfiguration events present?

If	Then
Yes:	Complete the service actions for the processor deconfiguration events. <ul style="list-style-type: none"> • If your system is an 8335-GCA or 8335-GTA, go to “Identifying a service action by using sensor and event information for the 8335-GCA and 8335-GTA” on page 37. This ends the procedure. • If your system is an 8335-GTB, go to “Identifying a service action by using sensor and event information for the 8335-GTB” on page 57. This ends the procedure. • If your system is an 8348-21C, go to “Identifying a service action by using sensor and event information for the 8348-21C” on page 78. This ends the procedure.
No:	Continue with the next step.

13. Are there other types of SEL events that require a service action and have a time stamp in close proximity to the time stamp of the event with value **OEM record c0** that sent you here?

If	Then
Yes:	Complete the service actions for the SEL events that require service actions. <ul style="list-style-type: none"> • If your system is an 8335-GCA or 8335-GTA, go to “Identifying a service action by using sensor and event information for the 8335-GCA and 8335-GTA” on page 37. This ends the procedure. • If your system is an 8335-GTB, go to “Identifying a service action by using sensor and event information for the 8335-GTB” on page 57. This ends the procedure. • If your system is an 8348-21C, go to “Identifying a service action by using sensor and event information for the 8348-21C” on page 78. This ends the procedure.
No:	Continue with the next step.

14. Power off the system and disconnect all AC power cords for 30 seconds. Then, reconnect the AC power cords and power on the system. Does the system boot successfully?

If	Then
Yes:	This ends the procedure.
No:	Continue with the next step.

15. Is the system an 8348-21C, and are all 32 of the DIMM locations populated with 32 GB DIMMs?

If	Then
Yes:	Continue with the next step.
No:	Go to step 18.

16. Use the baseboard management controller (BMC) to update the system firmware. For instructions, see Updating the system firmware by using the BMC. Does the problem persist?

If	Then
Yes:	Continue with the next step.
No:	This ends the procedure.

17. Is your system is an 8335-GTB?

If	Then
Yes:	Replace the Baseboard management controller (BMC) card. Go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure. If the problem persists, continue with the next step. Otherwise, this ends the procedure.
No:	Continue with the next step.

18. Replace the system backplane.

- If your system is an 8335-GCA or 8335-GTA, go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and the removal and replacement procedure. Then, continue with the next step.
- If your system is an 8335-GTB, go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure. Then, continue with the next step.
- If your system is an 8348-21C, go to “8348-21C locations” on page 133 to identify the physical location and the removal and replacement procedure. Then, continue with the next step.

19. Does the problem persist?

If	Then
Yes:	Go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110. This ends the procedure.
No:	This ends the procedure.

Resolving a VGA monitor problem

Learn how to identify the service action that is needed to resolve a video graphics array (VGA) monitor problem.

1. Is the system powered on and is the VGA monitor connected to the VGA display port, but video is not displayed?

If	Then
Yes:	Continue with the next step.
No:	This ends the procedure.

2. Complete the following steps, one at a time until the problem is resolved:

- a. Ensure that the VGA cable is properly seated to the server port and to the monitor port.

- b. Verify that the monitor and the VGA cable are working properly by testing them on a system that is known to be working properly. If the monitor or the VGA cable does not work properly, replace it.
- c. Verify that the system is powered on by activating a serial over LAN (SOL) session through the baseboard management controller (BMC). If the system is not active, go to “Resolving a system firmware boot failure” on page 4.
- d. Replace the system backplane.
 - If your system is an 8335-GCA or 8335-GTA, go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and the removal and replacement procedure.
 - If your system is an 8335-GTB, go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure.
 - If your system is an 8348-21C, go to “8348-21C locations” on page 133 to identify the physical location and the removal and replacement procedure.

This ends the procedure.

Resolving an operating system boot failure

Learn how to identify the service action that is needed to resolve a failure while booting your operating system.

1. Was the system recently installed, serviced, moved, or upgraded?

If	Then
Yes:	Ensure that all cables are properly seated in the connection path to the designated boot device. This ends the procedure.
No:	Continue with the next step.

2. Are you booting the operating system from a network location?

If	Then
Yes:	Continue with the next step.
No:	Continue with step 4.

3. Complete the following actions, one at a time, until the problem is resolved:
 - a. Ensure that a problem does not exist with the connection to the network location.
 - b. Ensure that the adapter has a valid IP address for the network.
 - c. Replace the network adapter.
 - If your system is an 8335-GCA or 8335-GTA, go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and the removal and replacement procedure.
 - If your system is an 8335-GTB, go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure.
 - If your system is an 8348-21C, go to “8348-21C locations” on page 133 to identify the physical location and the removal and replacement procedure.
4. Petitboot displays all recognized bootable images to use by default. Is the boot image recognized by Petitboot?

If	Then
Yes:	Continue with step 11 on page 11.
No:	Select the Petitboot menu option to refresh the boot images. If the problem persists, continue with the next step.

5. Is the system an 8348-21C, and is the boot image on a storage device that is configured in a RAID configuration?

If	Then
Yes:	Continue with the next step.
No:	Continue with step 11 on page 11.

6. On the Petitboot command line, type the following command:

```
arcconf getconfig 1 LD
```

Is the logical boot drive recognized and in optimal status?

If	Then
Yes:	Reinstall the operating system on the logical drive. This ends the procedure.
No:	Continue with the next step.

7. Are the drives properly seated in their respective drive bays?

Note:

- If your system is an 8335-GCA or 8335-GTA, go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and the removal and replacement procedure.
- If your system is an 8335-GTB, go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure.
- If your system is an 8348-21C, go to “8348-21C locations” on page 133 to identify the physical location and the removal and replacement procedure.

If	Then
Yes:	Continue with the next step.
No:	Properly seat the drives in the drive bays. Then, go to step 4 on page 9.

8. Refresh the Petitboot boot options. Is the boot image on the logical drive recognized?

If	Then
Yes:	Boot the operating system. Then, continue with step 11 on page 11.
No:	Continue with the next step.

9. Verify that the physical drives are in the RAID array. On the Petitboot command line, type the following command:

```
arcconf getconfig 1 PD
```

Are the physical drives that are known to be in the RAID array recognized?

If	Then
Yes:	Reinstall the operating system on the logical drive. This ends the procedure.
No:	Continue with the next step.

10. Complete the following actions, one at a time, until the physical drives are recognized in the RAID array:

Note:

- If your system is an 8335-GCA or 8335-GTA, go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and the removal and replacement procedure.

- If your system is an 8335-GTB, go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure.
- If your system is an 8348-21C, go to “8348-21C locations” on page 133 to identify the physical location and the removal and replacement procedure.
 - a. Ensure that the SAS cable is securely seated in the RAID adapter and the storage backplane.
 - b. Replace the RAID adapter.
 - c. Replace the SAS cable.

This ends the procedure.

11. Does an operating system error occur during the boot?

If	Then
Yes:	Recover the operating system with the tools provided for the operating system. If that does not resolve the problem, reinstall the operating system. This ends the procedure.
No:	Reinstall the operating system. This ends the procedure.

Resolving a sensor indicator problem

Learn how to resolve a sensor indicator problem by using the BMC dashboard.

After the system is powered on, some sensors retain their status from the last time the system was operational. As a result, the sensor indicator LED might not reflect the status of the physical sensor, and it can be unclear whether the sensor indicator LED indicates an actual problem that requires a service action. For more information about BMC dashboard sensors on an 8335-GCA or 8335-GTA, see Event sensor status GUI display. For more information about BMC dashboard sensors on an 8335-GTB, see Event sensor status GUI display. For more information about BMC dashboard sensors on an 8348-21C, see Event sensor status GUI display.

To refresh the sensor indicator LEDs and to determine whether a service action is required, complete the following procedure:

1. Power off the system. Then, boot the system to the operational state. Click **Refresh** on the BMC dashboard.

Are any of the sensor indicator LEDs still red?

- **Yes:** Continue with the next step.
- **No:** **This ends the procedure.**

2. Record the names of any sensors that have a red LED indicator status.

Note: Repeat steps 3 - 6 for every sensor that you record in this step.

3. Use one of the following commands to list the sensor event logs (SELs).

- To list SELs by using an in-band network, enter the following command:

```
ipmitool sel elist
```

- To list SELs remotely over the LAN, enter the following command:

```
ipmitool -I lanplus -U <username> -P <password> -H <BMC IP address or BMC hostname> sel elist
```

4. Review the list of SELs and locate the log entry that meets the following criteria:

- The name of any of the sensors you recorded in step 2.
- A service action keyword is present. For a list of service action keywords, see “Identifying service action keywords in system event logs” on page 36.
- **Asserted** is in the description.

Did you identify a log entry that meets the above criteria?

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

- **No:** Go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110. **This ends the procedure.**

5. Use one of the following options to display the SEL details for the sensor:

Note: You must specify the SEL record ID in hexadecimal format. For example: 0x1a.

- To display SEL details by using an in-band network, enter the following command:

```
ipmitool sel get <SEL record ID>
```

- To display SEL details remotely over the LAN, enter the following command:

```
ipmitool -I lanplus -U <username> -P <password> -H <BMC IP address or BMC hostname> sel get <SEL record ID>
```

6. The sensor ID field contains sensor information in the sensor name (sensor ID) format. Record the sensor name, sensor ID, and event description. Then, use this information to determine the service action to perform:

- If your system is an 8335-GCA or 8335-GTA, go to “Identifying a service action by using sensor and event information for the 8335-GCA and 8335-GTA” on page 37 to determine the service action to perform. **This ends the procedure.**
- If your system is an 8335-GTB, go to “Identifying a service action by using sensor and event information for the 8335-GTB” on page 57 to determine the service action to perform. **This ends the procedure.**
- If your system is an 8348-21C, go to “Identifying a service action by using sensor and event information for the 8348-21C” on page 78 to determine the service action to perform. **This ends the procedure.**

Resolving a hardware problem

Learn how to identify the service action that is needed to resolve a hardware problem.

1. If you have not already done so, manually boot the system.
2. Go to “Identifying a service action by using system event logs” on page 27. Then, continue with the next step.
3. Was a service action identified?

If	Then
Yes:	Continue with the next step.
No:	Go to step 5.

4. Did the service action fix the problem?

If	Then
Yes:	This ends the procedure.
No:	Go to step 5.

5. Go to “Resolving a GPU, PCIe adapter, or device problem” on page 13. Then, continue with the next step.

6. Was a service action identified?

If	Then
Yes:	Continue with the next step.
No:	Go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110. This ends the procedure.

7. Did the service action fix the problem?

If	Then
Yes:	This ends the procedure.
No:	Go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110. This ends the procedure.

Resolving a GPU, PCIe adapter, or device problem

Learn how to access log files, information to identify types of events, and a list of potential problems and service actions.

1. Are all of the adapters in the system missing or failed?

If	Then
Yes:	Replace the system backplane. <ul style="list-style-type: none"> • If your system is an 8335-GCA or 8335-GTA, go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and the removal and replacement procedure. • If your system is an 8335-GTB, go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure. • If your system is an 8348-21C, go to “8348-21C locations” on page 133 to identify the physical location and the removal and replacement procedure.
No:	Continue with the next step.

2. To identify the correct service procedure to perform by using operating system log information, complete the following steps:
 - a. Log in as the root user.
 - b. At the command prompt, type `dmesg` and press Enter.
3. Scan the operating system logs for the first occurrence of keywords, such as fail, failure, or failed. When you find a keyword that accompanies one or more of the resource names in the following table, a service action is required. Use the following table to determine the service procedure to perform for your type of problem.

Table 1. Resource names, examples, and service procedures for different types of operating system logs.

Resource name	Example of a log requiring a service action	Type of problem	Service procedure
aacraid	PCI error detected 2	RAID Note: This adapter is available only for 8348-21C systems.	Go to “Resolving a RAID adapter problem” on page 14.
eth1, eth2, eth3	Failed to re-initialize device	Network	Go to “Resolving a network adapter problem” on page 15.
NVRM	aborting RmInitAdapter failed!	Graphics	Go to “Resolving a graphics processing unit problem” on page 16.
nvidia-nvlink	IBMNPU: NPU FENCE detected, machine power cycle required	Graphics	Go to “Resolving a graphics processing unit problem” on page 16.
nvme	Failed status: ffffffff, reset controller	NVMe Flash adapter Note: This adapter is available only for 8335-GCA systems.	Go to “Resolving an NVMe Flash adapter problem” on page 19.

Table 1. Resource names, examples, and service procedures for different types of operating system logs. (continued)

Resource name	Example of a log requiring a service action	Type of problem	Service procedure
ata1, ata2	SError: { RecovComm PHYRdyChg 10B8B Dispar }	Marvell storage adapter Note: This adapter is available only for 8348-21C systems.	Go to “Resolving a storage device problem” on page 20.
sda, sdb, sdc	FAILED Result	Storage	

Resolving a RAID adapter problem

Learn about the possible problems and service actions that you can perform to resolve a RAID adapter problem.

Note: To determine the location of the PCIe adapter, see “Identifying the location of the PCIe adapter by using the slot number” on page 21.

Table 2. RAID adapter problems and service actions.

Problem	Service action
System unable to find adapter	<ol style="list-style-type: none"> 1. Verify that the adapter is properly seated in a compatible slot. 2. Install the adapter in a different compatible slot. 3. Verify that the drivers for the adapter are installed. 4. Verify that the most recent firmware is installed on the system. Otherwise, install the most recent firmware if it is not already installed. 5. Restart the system. 6. Replace the adapter. 7. Replace the system backplane. 8. Replace the central processing unit (CPU).
Adapter stops working suddenly	<ol style="list-style-type: none"> 1. If the system was recently installed, moved, serviced, or upgraded, verify that the adapter is seated properly and all associated cables are connected correctly. 2. Inspect the PCIe socket and verify that there is no dirt or debris in the socket. 3. Inspect the card and verify that it is not physically damaged. 4. Verify that all cables are properly seated and are not physically damaged. If you recently added one or more new adapters, remove them and then test to determine whether the failing adapter is functioning properly again. If the RAID adapter is functioning again, review the IBM support tips to confirm that there are no PCI address, driver, or firmware conflicts. Then, reinstall the new adapters again one at a time until all adapters function properly. 5. Replace the adapter. 6. Replace the system backplane. 7. Replace the CPU.

Table 2. RAID adapter problems and service actions (continued).

Problem	Service action
One or more drives are not recognized	<ol style="list-style-type: none"> 1. If more than one drive is not recognized, verify that the cables are properly attached to the RAID card. 2. Verify that the drive or drives are fully seated in the system. 3. Verify that all of the cables that attach to the backplane are properly seated. 4. Verify that the drive or drives are compatible with the RAID adapter. 5. Verify that the most recent firmware is installed for the RAID adapter, or install the most recent firmware if it is not already installed. 6. If more than one drive is not recognized, replace the drive. 7. Replace the RAID adapter. 8. Replace the system backplane. 9. Replace the cable or cables.
Other problems	For information about adapter diagnostics, see Supporting diagnostics. For information about adapter user information, see "User guides for GPUs and PCIe adapters" on page 25.

Resolving a network adapter problem

Learn about the possible problems and service actions that you can perform to resolve a network adapter problem.

Note: To determine the location of the PCIe adapter, see "Identifying the location of the PCIe adapter by using the slot number" on page 21.

Table 3. Network adapter problems and service actions.

Problem	Service action
System unable to find adapter	<ol style="list-style-type: none"> 1. Verify that the adapter is properly seated in a compatible slot. 2. Install the adapter in a different compatible slot. 3. Verify that the drivers for the adapter are installed. 4. Verify that the most recent firmware is installed on the system. Otherwise, install the most recent firmware if it is not already installed. 5. Restart the system. 6. Replace the adapter. 7. Replace the system backplane. 8. Replace the central processing unit (CPU).

Table 3. Network adapter problems and service actions (continued).

Problem	Service action
Adapter stops working suddenly	<ol style="list-style-type: none"> 1. If the system was recently installed, moved, serviced, or upgraded, verify that the adapter is seated properly and all associated cables are correctly connected. 2. Inspect the PCIe socket and verify that there is no dirt or debris in the socket. 3. Inspect the card and verify that it is not physically damaged. 4. Verify that all cables are properly seated and are not physically damaged. If you recently added one or more new adapters, remove them and then test to determine whether the failing adapter is functioning properly again. If the network adapter is functioning again, review the IBM support tips to confirm that there are no PCI address, driver, or firmware conflicts. Then, reinstall the new adapters again one at a time until all adapters function properly. 5. Replace the adapter. 6. Replace the system backplane. 7. Replace the CPU.
Link indicator light on the adapter is off	<ol style="list-style-type: none"> 1. Verify that the cable functions properly by testing it with a known working connection. 2. Verify that the port or ports on the switch are enabled and functional. 3. Verify that the switch and adapter are compatible. 4. Replace the adapter.
Link light on the adapter is on, but there is no communication from the adapter	<ol style="list-style-type: none"> 1. Verify that the most recent driver is installed, or install the most recent driver if it is not already installed. 2. Verify that the adapter and its link have compatible settings, such as speed and duplex configuration.
Other problems	<p>For information about adapter diagnostics, see Supporting diagnostics. For information about adapter user information, see “User guides for GPUs and PCIe adapters” on page 25.</p>

Resolving a graphics processing unit problem

Learn about the possible problems and service actions that you can perform to resolve a graphics processing unit (GPU) problem.

Note: To determine the location of the GPU, see “Identifying the location of the GPU” on page 22.

Table 4. GPU problems and service actions for the 8335-GCA or 8335-GTA

Problem	Service action
System unable to find GPU	<ol style="list-style-type: none"> 1. Verify that the GPU is properly seated in a compatible slot. 2. Install the GPU in a different compatible slot. 3. Verify that the drivers for the GPU are installed. 4. Verify that the most recent firmware is installed on the system. Otherwise, install the most recent firmware if it is not already installed. 5. Restart the system. 6. If the GPU is still missing, replace the following items, one at a time, until the problem is resolved: Note: Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and the removal and replacement procedure. <ol style="list-style-type: none"> a. GPU b. System processor modules c. System backplane
GPU stops working suddenly	<ol style="list-style-type: none"> 1. If the system was recently installed, moved, serviced, or upgraded, verify that the GPU is seated properly and all associated cables are connected correctly. 2. Inspect the PCIe socket and verify that there is no dirt or debris in the socket. 3. Inspect the card and verify that it is not physically damaged. 4. Verify that all cables are properly seated and are not physically damaged. If you recently added one or more new adapters, remove them and then test to determine whether the failing adapter is functioning properly again. If the graphics adapter is functioning again, review the IBM support tips to confirm that there are no PCI address, driver, or firmware conflicts. Then, reinstall the new adapters again one at a time until all adapters function properly. 5. If the GPU is still not working, replace the following items, one at a time, until the problem is resolved: Note: Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and the removal and replacement procedure. <ol style="list-style-type: none"> a. GPU b. System processor modules c. System backplane
Other problems	<p>For information about adapter diagnostics, see Supporting diagnostics. For information about adapter user information, see “User guides for GPUs and PCIe adapters” on page 25.</p>

Table 5. GPU problems and service actions for the 8335-GTB

Problem	Service action
System unable to find GPU	<ol style="list-style-type: none"> 1. Verify that the GPU is properly seated. 2. Verify that the drivers for the GPU are installed. 3. Verify that the most recent firmware is installed on the system. Otherwise, install the most recent firmware if it is not already installed. 4. Restart the system. 5. If the GPU is still missing, replace the following items, one at a time, until the problem is resolved: Note: Go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure. <ol style="list-style-type: none"> a. GPU b. System processor modules c. System backplane
Fence errors in the operating system log	<ol style="list-style-type: none"> 1. Restart the system. Do fence errors continue to be logged in the operating system log? <ul style="list-style-type: none"> • Yes: Continue with the next step. • No: This ends the procedure. 2. Does NPU chip 0 appear in the fence error log entry? <ul style="list-style-type: none"> • Yes: Continue with the next step. • No: Go to step 4. 3. Replace the following items, one at a time, until the problem is resolved: Note: Go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure. <ol style="list-style-type: none"> a. CPU 1 b. GPU 2 c. GPU 1 d. System backplane This ends the procedure. 4. Does NPU chip 1 appear in the fence error log entry? <ul style="list-style-type: none"> • Yes: Continue with the next step. • No: Go to “Contacting IBM service and support” on page 110. This ends the procedure. 5. Replace the following items, one at a time, until the problem is resolved: Note: Go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure. <ol style="list-style-type: none"> a. CPU 2 b. GPU 4 c. GPU 3 d. System backplane This ends the procedure.

Table 5. GPU problems and service actions for the 8335-GTB (continued)

Problem	Service action
GPU stops working suddenly	<ol style="list-style-type: none"> 1. If the system was recently installed, moved, serviced, or upgraded, verify that the GPU is seated properly. 2. Inspect the GPU and verify that it is not physically damaged. 3. If the GPU is still not working, replace the following items, one at a time, until the problem is resolved: Note: Go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure. <ol style="list-style-type: none"> a. GPU b. System processor modules c. System backplane
Other problems	For information about adapter diagnostics, see Supporting diagnostics. For information about adapter user information, see “User guides for GPUs and PCIe adapters” on page 25.

Resolving an NVMe Flash adapter problem

Learn about the possible problems and service actions that you can perform to resolve a Non-Volatile Memory Express (NVMe) Flash adapter problem.

If you suspect a problem with a PCIe3 1.92 TB CAPI NVMe Flash accelerator adapter (FC EJ1K; CCIN 58CD), see PCIe3 1.92 TB CAPI NVMe Flash Accelerator Adapter (FC EJ1K; CCIN 58CD).

If you suspect a problem with an NVMe Flash adapter, use the following table to determine the service action to perform.

Note: To determine the location of the NVMe Flash adapter, see “Identifying the location of the NVMe Flash adapter” on page 23.

Table 6. NVMe Flash adapter problems and service actions

Problem	Service action
System is unable to find the NVMe Flash adapter	<ol style="list-style-type: none"> 1. If the NVMe Flash adapter has an amber LED that is flashing or is on solid, replace the adapter. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure. Important: Before you remove an NVMe Flash adapter, 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. 2. If the system was recently installed, moved, serviced, or upgraded, verify that the NVMe Flash adapter is seated and installed properly. 3. Verify that the NVMe Flash adapter is compatible with the system. 4. Verify that the most recent firmware is installed on the system. Otherwise, install the most recent firmware if it is not already installed. 5. Replace the NVMe Flash adapter. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure. Important: Before you remove an NVMe Flash adapter, 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.

Table 6. NVMe Flash adapter problems and service actions (continued)

Problem	Service action
NVMe Flash adapter stops working suddenly	<ol style="list-style-type: none"> <li data-bbox="407 254 1421 443">1. If the NVMe Flash adapter has an amber LED that is flashing or is on solid, replace the adapter. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure. Important: Before you remove an NVMe Flash adapter, 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. <li data-bbox="407 449 1421 478">2. Check the system logs to verify whether the system detected a problem. <li data-bbox="407 485 1421 632">3. Replace the NVMe Flash adapter. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure. Important: Before you remove an NVMe Flash adapter, 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.
Maximum write capability of an NVMe Flash adapter is depleted	<p data-bbox="407 638 1421 814">To determine whether the maximum write capability of a PCIe3 1.6 TB NVMe Flash adapter is depleted, see PCIe3 1.6 TB NVMe Flash adapter (FC EC54; CCIN 58CB). To determine whether the maximum write capability of a PCIe3 3.2 TB NVMe Flash adapter is depleted, see PCIe3 3.2 TB NVMe Flash adapter (FC EC56; CCIN 58CC). If you determine that the adapter must be replaced, go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.</p> <p data-bbox="407 821 1421 905">Important: Before you remove an NVMe Flash adapter, 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.</p>
Other problems	<ol style="list-style-type: none"> <li data-bbox="407 911 1421 982">1. Check for and resolve any nvmeX entries in the operating system log, where nvmeX is the resource name of the NVMe Flash adapter. Then, test the NVMe Flash adapter again. <li data-bbox="407 989 1421 1060">2. Ensure that the latest I/O adapter firmware is installed. For instructions, see Getting firmware fixes for IBM I/O adapters by using Fix Central. <li data-bbox="407 1066 1421 1138">3. Ensure that you have the latest device driver service updates by installing the latest Linux distribution fixes. <li data-bbox="407 1144 1421 1308">4. Type the following command and press Enter: nvme smart-log /dev/nvmeX, where nvmeX is the resource name of the NVMe Flash adapter. Check for problems with the critical warning, temperature, available spare, percentage used, power cycles, or power on hours fields. Note: For more information about nvme commands, type man nvme and press Enter.

Resolving a storage device problem

Learn about the possible problems and service actions that you can perform to resolve a storage device problem.

Note: To determine the location of the storage device, see “Identifying the location of the storage device” on page 24.

Table 7. Storage device problems and service actions

Problem	Service action
System is unable to find a storage device that is at the front of the system	<ol style="list-style-type: none"> 1. If the system was recently installed, moved, serviced, or upgraded, verify that the device is seated and installed properly. 2. Verify that the device is compatible with your system. 3. Verify that all internal cables are properly seated and are not physically damaged. 4. Verify that the most recent firmware is installed on the system. Otherwise, install the most recent firmware if it is not already installed. 5. Replace the drive. 6. If your system is a 8348-21C, replace the system backplane or the storage mezzanine card. 7. Replace the cable. 8. If you have a RAID adapter installed, replace it.
System is unable to find a storage device that is at the rear of the system (8348-21C only)	<p>If the system is unable to find one storage device that is at the rear of the system, replace the following items, one at a time until the problem is resolved:</p> <ul style="list-style-type: none"> • Drive • Drive tray • System backplane <p>If the system is unable to find more than one storage device that is at the rear of the system, replace the following items, one at a time until the problem is resolved:</p> <ul style="list-style-type: none"> • Drive tray • System backplane
Drive stops working suddenly	<ol style="list-style-type: none"> 1. Verify that all internal cables are properly seated and are not physically damaged. 2. Check the system logs to verify whether the system detected a problem. 3. Replace the drive. 4. If your system is a 8348-21C, replace the system backplane or the storage mezzanine card. 5. Replace the cable. 6. If you have a RAID adapter that is installed, replace it.
Other problems	Check the messages and resolve any other problems that were detected. Then, test the drive again. If the drive continues not to function, refer to the documentation for the drive.

Identifying the location of the PCIe adapter by using the slot number

The error message provides information to help you to determine the location of the PCIe adapter.

For example, the log might contain an error message similar to the following text:

```
[131779.752714] EEH: PHB#0 failure detected, location: Slot5
```

Use the following table to map the slot number information in the operating system log to the PCIe adapter description and service action.

Table 8. Slot numbers, adapter descriptions, and service action for the 8335-GCA or 8335-GTA.

Slot information from the log	PCIe adapter description	Service action
Slot1	PCIe adapter 1	Replace the PCIe adapter indicated in the PCIe adapter description column. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and the removal and replacement procedure.
Slot2	PCIe adapter 2	
Slot3	PCIe adapter 3	
Slot4	PCIe adapter 4	
Slot5	PCIe adapter 5	

Table 9. Slot numbers, adapter descriptions, and service action for the 8335-GTB

Slot information from the log	PCIe adapter description	Service action
Slot1	PCIe adapter 1	Replace the PCIe adapter indicated in the PCIe adapter description column. Go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure.
Slot2	PCIe adapter 2	
Slot3	PCIe adapter 3	

Table 10. Slot numbers, adapter descriptions, and service action for the 8348-21C.

Slot information from the log	PCIe adapter description	Service action
Slot1	PCIe adapter 1	Replace the PCIe adapter indicated in the PCIe adapter description column. Go to “8348-21C locations” on page 133 to identify the physical location and the removal and replacement procedure.
Slot2	PCIe adapter 2	
Slot3	PCIe adapter 3	
Slot4	PCIe adapter 4	

Identifying the location of the GPU

The error message provides information to help you to determine the location of the graphics processing unit (GPU).

On an 8335-GCA or 8335-GTA system, the log might contain an error message similar to the following text:

```
EEH: PHB#0 failure detected, location: Slot5
```

On an 8335-GTB system, the log might contain an error message similar to the following text:

```
EEH: PHB#0 failure detected, location: GPU1
```

If you have an 8335-GTB system with Red Hat Enterprise Linux 7.4 or later, and if you get an error message with only PCI bus information (for example, 0002:01:00.0), you can determine the GPU slot information by using the **lshw** command. Complete the following steps:

1. Record the PCI bus information that is in the error message.
2. Log in to the operating system with root authority.
3. Type the following command and press Enter:

```
lshw -class display
```
4. Determine the GPU slot that is associated with the PCI bus information that you recorded in step 1.

Use the following table to map the slot or GPU number information in the operating system log to the GPU description and service action. **This ends the procedure.**

Table 11. Slot numbers, GPU descriptions, and service action for the 8335-GCA or 8335-GTA

Slot number information from the log	GPU description	Service action
Slot5	GPU 2	Replace the GPU indicated in the GPU description column. Go to "8335-GCA and 8335-GTA locations" on page 111 to identify the physical location and the removal and replacement procedure.
Slot2	GPU 1	

Table 12. GPU numbers, GPU descriptions, and service action for the 8335-GTB

GPU number information from the log	GPU description	Service action
GPU1	GPU 1	Replace the GPU indicated in the GPU description column. Go to "8335-GTB locations" on page 121 to identify the physical location and the removal and replacement procedure.
GPU2	GPU 2	
GPU3	GPU 3	
GPU4	GPU 4	

Identifying the location of the NVMe Flash adapter

Use this procedure to identify the location of a Non-Volatile Memory Express (NVMe) Flash adapter.

1. Does the operating system log contain the slot number? For example, the log might contain an error message similar to the following text:

[131779.752714] EEH: PHB#0 failure detected, location: Slot1

If	Then
Yes:	If your system is an 8335-GCA, use Table 13 on page 24 to map the slot number information in the operating system log to the PCIe adapter description and service action. If your system is an 8335-GTB, use Table 14 on page 24 to map the slot number information in the operating system log to the PCIe adapter description and service action. This ends the procedure.
No:	Continue with the next step.

2. Locate the NVMe Flash adapter by using the PCI address:
 - a. The operating system log contains information about the NVMe Flash adapter in the form of a PCI address. Record the PCI address information for the NVMe Flash adapter that has failed. For example, in the operating system log message `nvme 0006:01:00.0: Failed status: ffffffff, reset controller`, the PCI address of the failing NVMe Flash adapter is `0006:01:00.0`.
 - b. At the command line, type `lscfg -vl pciaddress`, where `pciaddress` is the NVMe Flash adapter information that you recorded in step 2.a. Then, press Enter.
 - c. Record the slot number information that is in the location code field.
 - d. If your system is an 8335-GCA, use Table 13 on page 24 to map the slot number information to the PCIe adapter description and service action. If your system is an 8335-GTB, use Table 14 on page 24 to map the slot number information to the PCIe adapter description and service action. **This ends the procedure.**

Table 13. Slot numbers, adapter descriptions, and service action for the 8335-GCA

Slot information from the log	PCIe adapter description	Service action
Slot1	PCIe adapter 1	Replace the NVMe Flash adapter indicated in the PCIe adapter description column. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and the removal and replacement procedure.
Slot3	PCIe adapter 3	
Slot4	PCIe adapter 4	

Table 14. Slot numbers, adapter descriptions, and service action for the 8335-GTB

Slot information from the log	PCIe adapter description	Service action
Slot1	PCIe adapter 1	Replace the NVMe Flash adapter indicated in the PCIe adapter description column. Go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure.
Slot2	PCIe adapter 2	
Slot3	PCIe adapter 3	

Identifying the location of the storage device

Use this procedure to identify the location of a storage device.

1. Is there a disk drive or solid-state drive with an amber fault LED turned on solid?

If	Then
Yes:	Continue with step 2.
No:	Continue with step 3.

2. Replace the disk drive or solid-state drive.

- If your system is an 8335-GCA or 8335-GTA, go to “8335-GCA and 8335-GTA locations” on page 111 to identify the removal and replacement procedure. **This ends the procedure.**
- If your system is an 8335-GTB, go to “8335-GTB locations” on page 121 to identify the removal and replacement procedure. **This ends the procedure.**
- If your system is an 8348-21C, go to “8348-21C locations” on page 133 to identify the removal and replacement procedure. **This ends the procedure.**

3. Is the system an 8335-GCA, 8335-GTA, or 8335-GTB?

If	Then
Yes:	Continue with step 4.
No:	Continue with step 5.

4. The storage device location is determined in the drive removal and replacement procedures for your system. Use the following table to find the correct removal and replacement procedure. **This ends the procedure.**

Table 15. Drive removal and replacement procedures

System	Drive removal and replacement procedures
8335-GCA or 8335-GTA	See Removing and replacing a disk drive in the 8335-GCA or 8335-GTA with the system power turned on.
8335-GTB	See Removing and replacing a disk drive in the 8335-GTB.

5. The system is an 8348-21C. Are the devices controlled by a RAID adapter?

If	Then
Yes:	Continue with step 6.
No:	Continue with step 9.

6. To locate the device by using the identify LED, complete the following steps:
- The operating system log contains information about the device in the form `sdx`, where `x` is the letter associated with the drive that failed. Record the `sdx` information for the device that failed. For example, the failing device in the following operating system log is `sdb:[2614.698832]`
`blk_update_request: I/O error, dev sdb, sector 131072`
 - At the command prompt, type `hdparm -i /dev/sdx`, where `sdx` is the device information recorded in step 6a. Then, press Enter.
 - Record the serial number of the device.
 - At the command prompt, type `arcconf getconfig 1 PD` and press Enter. Find the reported channel and device numbers for the device that has the same serial number that you recorded in the previous step. Record the reported channel and device numbers.
 - At the command prompt, type `arcconf identify 1 device x y start`, where `x` is the reported channel number and `y` is the reported device number that you recorded in the previous step. Then, press Enter.
 Is the identify LED for one of the devices flashing?

If	Then
Yes:	Continue with the next step.
No:	Continue with step 9.

7. Replace the device with the flashing identify LED. Go to “8348-21C locations” on page 133 to identify the removal and replacement procedure. After you have replaced the device, continue with the next step.
8. At the command prompt, type `arcconf identify 1 device x y stop`, where `x` is the reported channel number and `y` is the reported device number that you recorded in step 6d. Then, press Enter. **This ends the procedure.**
9. To locate the device by using the device serial number, complete the following steps:
- The operating system log contains information about the device in the form `sdx`, where `x` is the letter associated with the drive that failed. Record the `sdx` information for the device that failed. For example, the failing device in the following operating system log is `sdb:[2614.698832]`
`blk_update_request: I/O error, dev sdb, sector 131072`
 - At the command prompt, type `hdparm -i /dev/sdx`, where `sdx` is the device information recorded in step 9a. Then, press Enter.
 - Record the serial number of the device.
 - Power off the system. Remove one device at a time until you identify the device with the serial number identified in step 9c. Replace only the device with the matching serial number. Reinstall the other devices. Go to “8348-21C locations” on page 133 to identify the removal and replacement procedure. **This ends the procedure.**

User guides for GPUs and PCIe adapters

Use this information to find the user guide for your graphics processing unit (GPU) or PCIe adapter.

Use the following table to find the user guide for the GPU or PCIe adapter that you are using.

Table 16. GPU and PCIe adapter user guides

Name	User guide
Broadcom	Broadcom website (http://www.broadcom.com)
Emulex	Emulex website (http://www.emulex.com/products/ethernet-networking-storage-connectivity/ethernet-networking-adapters/ibm-branded/selection-guide/)
Marvell	Marvell website (http://www.marvell.com/storage/system-solutions/sata-controllers/)
Mellanox	Mellanox Technologies website (http://mymellanox.force.com/support/VF_SerialSearch)
NVIDIA	NVIDIA website (http://www.nvidia.com)
PMC-Sierra	PMC-Sierra website (http://www.nvidia.com)
QLogic	QLogic website (http://driverdownloads.qlogic.com/QLogicDriverDownloads_UI/IBM_Search.aspx)

Resolving an over temperature problem for a water-cooled 8335-GTB system

Learn how to identify the service action that is needed to resolve an over temperature problem.

1. Go to Water cooling system specification and requirements. Are all of the requirements for water-cooled systems met?

Note: For information specific to the 8335-GTB, see Model 8335-GTB water cooling option (Feature code E2RD).

If	Then
Yes:	Continue with the next step.
No:	Work with the customer to ensure that all of the requirements for water-cooled systems are met. This ends the procedure.

2. Is the room temperature less than 40°C (104°F)?

If	Then
Yes:	Continue with the next step.
No:	Notify the customer. The customer must bring the room temperature within normal range. Continue with the next step.

3. Ensure that the following requirements are met:
 - a. The quick-connects between the 8335-GTB system and the water manifold are mated and connected to the proper circuits of the manifold. The supply hose must be connected to the supply manifold circuit, which is the manifold circuit that is located toward the inside of the rack. The return hose must be connected to the return manifold circuit, which is the manifold circuit that is located toward the outside of the rack.
 - b. The facility water supply hose is properly connected to the supply hose on the manifold and the return hose on the manifold is properly connected to the facility water return hose.
 - The ball valves that connect the facility water supply hose to the manifold supply hose and the facility water return hose to the manifold return hose are open. For more information about connecting the facility water hoses to the manifold hoses, see Replacing the water manifold in the 8335-GTB.

- All of the valves that might restrict the flow of water through the hoses are open in the facility water system.
 - The pumping unit of the facility water system is on and does not have errors.
- c. The facility water system is supplying water at the required temperature and flow. For instructions, see Model 8335-GTB water cooling option (Feature code E2RD).

Does the problem persist?

If	Then
Yes:	Continue with the next step. Note: Steps 1- 3 resolve most problems. Ensure that you carefully check steps 1 - 3 before you continue with the next step.
No:	This ends the procedure.

4. Is a processor over heating, but the other processor and the graphics processing units (GPUs) are not over heating?

If	Then
Yes:	Check the thermal interface material (TIM) between the cold plate and the processor that is over heating. Go to Removing a system processor module from a water-cooled 8335-GTB system and complete the steps to lift the cold plate off the processor. If the TIM pad is damaged, replace the TIM pad. To replace a TIM pad, go to Replacing a system processor module in a water-cooled 8335-GTB system and complete the steps for removing and installing a new TIM pad. This ends the procedure.
No:	Continue with the next step.

5. Is a GPU over heating, but the other GPUs and the processors are not over heating?

If	Then
Yes:	Replace the thermal interface material (TIM) between the cold plate and the GPU that is over heating. Go to Removing the graphics processing unit from a water-cooled 8335-GTB system and complete the steps to lift the cold plate off the GPU. Then, go to Replacing the graphics processing unit in a water-cooled 8335-GTB system and complete the steps for installing a new TIM pad. If the problem is not resolved, replace the GPU. For instructions about replacing a GPU, see Removing and replacing a graphics processing unit in the 8335-GTB. This ends the procedure.
No:	Continue with the next step.

6. Replace the cold plates. For instructions about how to replace the cold plates, see Removing and replacing the cold plates in the 8335-GTB. Does the problem persist?

If	Then
Yes:	Go to “Contacting IBM service and support” on page 110. This ends the procedure.
No:	This ends the procedure.

Identifying a service action

Use the following procedures to help you identify the service action that is needed.

Identifying a service action by using system event logs

Use the Intelligent Platform Management Interface (IPMI) program to examine system event logs (SELs) to identify a service action.

1. Use the **ipmitool** command to examine SELs.

- To list SELs by using an in-band network, use the following command:
ipmitool sel elist
- To list SELs remotely over the LAN, use the following command:

ipmitool -I lanplus -U <username> -P <password> -H <BMC IP address or BMC hostname> sel elist

2. Scan the SELs for an event with the value OEM record de. Did you find a SEL with the value OEM record de?

If	Then
Yes:	Continue with the next step.
No	Go to step 4 on page 29.

3. The OEM record de specific log information is indicated by the rightmost digits of the SEL with the value OEM record de. Use Table 17 to determine the service action to perform.

Table 17. OEM record de specific log information and service action

OEM record de specific log information	Service action
00xxxxxxxx	Go to Getting fixes and update the system firmware to the most recent level of firmware that is available. If this SEL event continues to be logged, go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110.
01xxxxxxxx	Go to the “EPUB_PRC_FIND_DECONFIGURE_PART isolation procedure” on page 96.
04xxxxxxxx	Go to the “EPUB_PRC_SP_CODE isolation procedure” on page 97.
05xxxxxxxx	Go to the “EPUB_PRC_PHYYP_CODE isolation procedure” on page 97.
08xxxxxxxx	Go to the “EPUB_PRC_ALL_PROCS isolation procedure” on page 98.
09xxxxxxxx	Go to the “EPUB_PRC_ALL_MEMCRDS isolation procedure” on page 98.
0Axxxxxxxx	Go to Getting fixes and update the system firmware to the most recent level of firmware that is available. If this SEL event continues to be logged, go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110.
10xxxxxxxx	Go to the “EPUB_PRC_LVL_SUPPORT isolation procedure” on page 99.
16xxxxxxxx	Go to Getting fixes and update the system firmware to the most recent level of firmware that is available. If this SEL event continues to be logged, go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110.
1Cxxxxxxxx	Go to Getting fixes and update the system firmware to the most recent level of firmware that is available. If this SEL event continues to be logged, go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110.
22xxxxxxxx	Go to the “EPUB_PRC_MEMORY_PLUGGING_ERROR isolation procedure” on page 100.
2Dxxxxxxxx	Go to the “EPUB_PRC_FSI_PATH isolation procedure” on page 100.

Table 17. OEM record de specific log information and service action (continued)

OEM record de specific log information	Service action
30xxxxxxxxx	Go to the “EPUB_PRC_PROC_AB_BUS isolation procedure” on page 101.
31xxxxxxxxx	Go to the “EPUB_PRC_PROC_XYZ_BUS isolation procedure” on page 101.
34xxxxxxxxx	Go to Getting fixes and update the system firmware to the most recent level of firmware that is available. If this SEL event continues to be logged, go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110.
37xxxxxxxxx	Go to the “EPUB_PRC_EIBUS_ERROR isolation procedure” on page 102.
3Fxxxxxxxxx	Go to the “EPUB_PRC_POWER_ERROR isolation procedure” on page 103.
4Dxxxxxxxxx	Go to Getting fixes and update the system firmware to the most recent level of firmware that is available. If this SEL event continues to be logged, go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110.
4Fxxxxxxxxx	Go to the “EPUB_PRC_MEMORY_UE isolation procedure” on page 104.
55xxxxxxxxx	Go to the “EPUB_PRC_HB_CODE isolation procedure” on page 104.
56xxxxxxxxx	Go to the “EPUB_PRC_TOD_CLOCK_ERR isolation procedure” on page 106.
5Cxxxxxxxxx	Go to the “EPUB_PRC_COOLING_SYSTEM_ERR isolation procedure” on page 106.
5Exxxxxxxxxx	Go to the “EPUB_PRC_GPU_ISOLATION_PROCEDURE isolation procedure” on page 107.

This ends the procedure.

- Scan the SELs for an event with the value OEM record df. Did you find a SEL with the value OEM record df?

If	Then
Yes:	Continue with the next step.
No	Go to step 10 on page 31.

- One or more events might be logged around the same time as the event with the value OEM record df. These events require a service action if they meet the following criteria:
 - A service action keyword is present. For a list of service action keywords, see “Identifying service action keywords in system event logs” on page 36.
 - Asserted** is in the description.
 - OEM record** is not in the description.
 - The event has a time stamp in close proximity to the time stamp of the event with the value OEM record df.
- Did you find any SEL events that require a service action as defined in step 5?

If	Then
Yes:	Continue with the next step.

If	Then
No:	Go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110.

7. Did you find only one SEL event that requires a service action as defined in step 5 on page 29?

If	Then
Yes:	Continue with the next step.
No:	Go to step 9.

8. Record the SEL record ID for the event you identified in step 5 on page 29. The SEL record ID is indicated by the leftmost digits of the SEL. Use the **ipmitool** command to display the SEL details.

- To display SEL details by using an in-band network, use the following command:

```
ipmitool sel get <SEL record ID>
```

Note: The SEL record ID must be entered in hexadecimal format. For example: 0x1a.

- To display SEL details remotely over the LAN, use the following command:

```
ipmitool -I lanplus -U <username> -P <password> -H <BMC IP address or BMC hostname> sel get <SEL record ID>
```

Note: The SEL record ID must be entered in hexadecimal format. For example: 0x1a.

The sensor ID field contains sensor information in the format sensor name (sensor ID). Record the sensor name, sensor ID, and event description. Then, use the following information to determine the service action to perform:

- If your system is an 8335-GCA or 8335-GTA, go to “Identifying a service action by using sensor and event information for the 8335-GCA and 8335-GTA” on page 37.
- If your system is an 8335-GTB, go to “Identifying a service action by using sensor and event information for the 8335-GTB” on page 57.
- If your system is an 8348-21C, go to “Identifying a service action by using sensor and event information for the 8348-21C” on page 78.

This ends the procedure.

9. You identified more than one event in step 5 on page 29. The service actions for all of the events that were identified in step 5 on page 29 must be performed to successfully complete the repair. Record the SEL record IDs for the events that you identified in step 5 on page 29. The SEL record ID is indicated by the leftmost digits of the SEL. Use the **ipmitool** command to display SEL details for each SEL record ID that you recorded.

- To display SEL details by using an in-band network, use the following command:

```
ipmitool sel get <SEL record ID>
```

Note: The SEL record ID must be entered in hexadecimal format. For example: 0x1a.

- To display SEL details remotely over the LAN, use the following command:

```
ipmitool -I lanplus -U <username> -P <password> -H <BMC IP address or BMC hostname> sel get <SEL record ID>
```

Note: The SEL record ID must be entered in hexadecimal format. For example: 0x1a.

The sensor ID field contains sensor information in the format sensor name (sensor ID). Record the sensor name, sensor ID, and event description. Then, use this information to determine the service action to perform:

- If your system is an 8335-GCA or 8335-GTA, go to “Identifying a service action by using sensor and event information for the 8335-GCA and 8335-GTA” on page 37.

- If your system is an 8335-GTB, go to “Identifying a service action by using sensor and event information for the 8335-GTB” on page 57.
- If your system is an 8348-21C, go to “Identifying a service action by using sensor and event information for the 8348-21C” on page 78.

This ends the procedure.

10. Scan the SEL for an event with the value OEM record c0.

11. Did you find an event with the value OEM record c0?

If	Then
Yes:	Continue with the next step.
No:	Go to step 13 on page 35.

12. The OEM record c0 specific log information is indicated by the rightmost digits of the SEL with the value OEM record c0. If your system is an 8335-GCA or 8335-GTA, use Table 18 to determine the service action to perform. If your system is an 8335-GTB, use Table 19 on page 32 to determine the service action to perform. If your system is an 8348-21C, use Table 20 on page 34 to determine the service action to perform.

Table 18. OEM record c0 specific log information, description, and service action for an 8335-GCA or 8335-GTA

OEM record c0 specific log information	Description	Service action
320a01xxxxxx	Phy read failure	If you are viewing this event from the BMC, the missing or defective cable is now operational and no service action is required. Otherwise, replace the missing or failed LAN cable that attaches the console to the system.
320a02xxxxxx	Phy speed and duplex failure	
320exxxxxxxx	OCC reset required	This event is for information only. No service action is required.
3a0400xxxxxx	Chassis soft power off	A user initiated power off request occurred. No service action is required.
3a0402xxxxxx	Chassis soft reboot	
3a0701xxxxxx	Request for PNOR access	This event is for information only. No service action is required.
3a0702xxxxxx	Release of PNOR access	
3a1100xxxxxx	Fan thread stopped	
3a1101xxxxxx	Fan thread started	
3a1503xxxxxx	Primary side boot failed	Go to “Resolving a system firmware boot failure” on page 4.
3a1504xxxxxx	Golden side boot failed	Go to “Resolving a system firmware boot failure” on page 4.
3a1601xxxxxx	Fan 1 failure	Replace Fan 1. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.
3a1602xxxxxx	Fan 2 failure	Replace Fan 2. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.

Table 18. OEM record c0 specific log information, description, and service action for an 8335-GCA or 8335-GTA (continued)

OEM record c0 specific log information	Description	Service action
3a1603xxxxx	Fan 3 failure	Replace Fan 3. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.
3a1604xxxxx	Fan 4 failure	Replace Fan 4. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.
3a260xyyyyyy, where x = 1, 2, or 3	System shut down due to one or more missing or failed fans	The OEM record c0 specific log information is 3a260xyyyyyy, where x is the number of fans that were missing or failed when the system was shut down. The system cannot be powered on with missing fans. If any SEL events were logged with OEM record c0 specific log information 3a16xxxxxx, complete the service action indicated in this table. Otherwise, replace the fans, one at a time, until the problem is resolved. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.
3a2604yyyyyy	All of the fans are missing or failed	Ensure that the fan power cable and the disk and fan signal cable are seated properly. If the problem persists, replace the following items, one at a time, until the problem is resolved: Note: Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure. <ul style="list-style-type: none"> • Power riser with time-of-day battery slot • Fan power cable • Disk and fan signal cable • Disk drive and fan card

Table 19. OEM record c0 specific log information, description, and service action for an 8335-GTB

OEM record c0 specific log information	Description	Service action
320a01xxxxx	Phy read failure	If you are viewing this event from the BMC, the missing or defective cable is now operational and no service action is required. Otherwise, replace the missing or failed LAN cable that attaches the console to the system.
320a02xxxxx	Phy speed and duplex failure	

Table 19. OEM record c0 specific log information, description, and service action for an 8335-GTB (continued)

OEM record c0 specific log information	Description	Service action
320xxxxxxx	OCC reset required	This event is for information only. No service action is required.
3a0400xxxxx	Chassis soft power off	A user initiated power off request occurred. No service action is required.
3a0402xxxxx	Chassis soft reboot	
3a0701xxxxx	Request for PNOR access	This event is for information only. No service action is required.
3a0702xxxxx	Release of PNOR access	
3a1100xxxxx	Fan thread stopped	
3a1101xxxxx	Fan thread started	
3a1503xxxxx	Primary side boot failed	Go to “Resolving a system firmware boot failure” on page 4.
3a1504xxxxx	Golden side boot failed	Go to “Resolving a system firmware boot failure” on page 4.
3a1601xxxxx	Fan 1 failure	Replace Fan 1. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.
3a1602xxxxx	Fan 2 failure	Replace Fan 2. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.
3a1603xxxxx	Fan 3 failure	Replace Fan 3. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.
3a1604xxxxx	Fan 4 failure	Replace Fan 4. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.
3a2600xxxxx	The water-cooled system shut down due to too many processor core sensors reading a temperature at or above the maximum temperature that is allowed.	At least one processor is over heating. Go to “Resolving an over temperature problem for a water-cooled 8335-GTB system” on page 26.
3a260xyyyyyy, where x = 1, 2, or 3	System shut down due to one or more missing or failed fan	The OEM record c0 specific log information is 3a260xyyyyyy where x is the number of fans that were missing or failed when the system was shut down. The system cannot be powered on with missing fans. If any SEL events were logged with OEM record c0 specific log information 3a16xxxxxxx, complete the service action indicated in this table. Otherwise, replace the fans, one at a time, until the problem is resolved. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.

Table 19. OEM record c0 specific log information, description, and service action for an 8335-GTB (continued)

OEM record c0 specific log information	Description	Service action
3a2604yyyyyy	All of the fans are missing or failed	<p>Ensure that the fan power cable and the disk and fan signal cable are seated properly. If the problem persists, replace the following items, one at a time, until the problem is resolved:</p> <p>Note: Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.</p> <ul style="list-style-type: none"> • Power riser with time-of-day battery slot • Fan power cable • Disk and fan signal cable • Disk drive and fan card

Table 20. OEM record c0 specific log information, description, and service action for an 8348-21C

OEM record c0 specific log information	Description	Service action
320a01xxxxxx	Phy read failure	If you are viewing this event from the BMC, the missing or defective cable is now operational and no service action is required. Otherwise, replace the missing or failed LAN cable that attaches the console to the system.
320a02xxxxxx	Phy speed and duplex failure	
320exxxxxxxx	OCC reset required	This event is for information only. No service action is required.
3a0400xxxxxx	Chassis soft power off	A user initiated power off request occurred. No service action is required.
3a0402xxxxxx	Chassis soft reboot	
3a0701xxxxxx	Request for PNOR access	This event is for information only. No service action is required.
3a0702xxxxxx	Release of PNOR access	
3a1100xxxxxx	Fan thread stopped	
3a1101xxxxxx	Fan thread started	
3a1503xxxxxx	Primary side boot failed	Go to “Resolving a system firmware boot failure” on page 4.
3a1504xxxxxx	Golden side boot failed	Go to “Resolving a system firmware boot failure” on page 4.
3a1601xxxxxx	Fan 1 failure	Replace Fan 1. Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure.
3a1602xxxxxx	Fan 2 failure	Replace Fan 2. Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure.

Table 20. OEM record c0 specific log information, description, and service action for an 8348-21C (continued)

OEM record c0 specific log information	Description	Service action
3a1603xxxxxx	Fan 3 failure	Replace Fan 3. Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure.
3a1604xxxxxx	Fan 4 failure	Replace Fan 4. Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure.
3a1605xxxxxx	Fan 5 failure	Replace Fan 5. Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure.
3a260xyyyyyy, where x = 1, 2, 3, or 4	System shut down due to one or more missing or failed fans	The OEM record c0 specific log information is 3a260xyyyyyy, where x is the number of fans that were missing or failed when the system was shut down. The system cannot be powered on with missing or failed fans. If any SEL events were logged with OEM record c0 specific log information 3a16xxxxxx, complete the service action indicated in this table. Otherwise, replace the fans, one at a time, until the problem is resolved. Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure.
3a2605yyyyyy	All of the fans are missing or failed	Replace the disk drive backplane. Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure.

13. One or more SEL events might require a service action. These events require a service action if they meet the following criteria:
- A service action keyword is present. For a list of service action keywords, see “Identifying service action keywords in system event logs” on page 36.
 - **Asserted** is in the description.
 - **OEM record** is not in the description.
14. Did you find one or more SEL events that require a service action as defined in step 13?

If	Then
Yes:	Continue with the next step.
No:	This ends the procedure.

15. The service actions for all of the events that were identified in step 13 must be performed to successfully complete the repair. Record the SEL record IDs for the events that you identified in step 13. The SEL record ID is indicated by the leftmost digits of the SEL. Use the `ipmitool` command to display SEL details for each SEL record ID that you recorded.
- To display SEL details by using an in-band network, use the following command:
`ipmitool sel get <SEL record ID>`

Note: The SEL record ID must be entered in hexadecimal format. For example: 0x1a.

- To display SEL details remotely over the LAN, use the following command:
ipmitool -I lanplus -U <username> -P <password> -H <BMC IP address or BMC hostname> sel
get <SEL record ID>

Note: The SEL record ID must be entered in hexadecimal format. For example: 0x1a.

The sensor ID field contains sensor information in the format sensor name (sensor ID). Record the sensor name, sensor ID, and event description. Then, use this information to determine the service action to perform:

- If your system is an 8335-GCA or 8335-GTA, go to “Identifying a service action by using sensor and event information for the 8335-GCA and 8335-GTA” on page 37.
- If your system is an 8335-GTB, go to “Identifying a service action by using sensor and event information for the 8335-GTB” on page 57.
- If your system is an 8348-21C, go to “Identifying a service action by using sensor and event information for the 8348-21C” on page 78.

This ends the procedure.

Identifying service action keywords in system event logs

System event logs (SELs) that have **Asserted** and any of the keywords indicated below in the description require a service action.

Temperature, voltage, and current service action keywords

- Transition to Critical from Less Severe
- Transition to Critical from Non-recoverable
- Transition to Non-recoverable

Fan service action keywords

- Transition to Critical from Less Severe
- Transition to Non-recoverable from Less Severe
- Transition to Critical from Non-recoverable
- Device Removed / Device Absent
- Transition to degraded
- Install error
- Redundancy lost
- Non-redundant insufficient resources

Memory service action keywords

- Configuration Error
- Transition to Non-recoverable
- Predictive Failure

Processor service action keywords

- IERR
- Transition to Non-recoverable
- Predictive Failure

Power supply and All PGood service action keywords

- Power Supply Failure Detected
- Predictive Failure

- Power Supply Input Lost or AC DC
- Power Supply Input Lost Or Out of Range
- Power Supply Input Out of Range But Present
- Configuration Error
- Transition to Critical from Less Severe
- Transition to Non-recoverable from Less Severe
- Transition to Critical from Non-recoverable
- Transition to Non-recoverable
- Redundancy lost
- Non-redundant insufficient resources
- AC Lost
- Soft Power Control Failure
- Power Unit Failure Detected
- Predictive Failure

System firmware service action keywords

- System Firmware Error
- System Firmware Hang
- Transition to Critical from Less Severe
- Transition to Non-recoverable from Less Severe
- Transition to Critical from Non-recoverable
- Transition to Non-recoverable

System ACPI power state service action keywords

- Unknown

Watchdog service action keywords

- Hard Reset
- Power Down
- Power Cycle
- Timer Interrupt

System event service action keywords

- Undetermined system hardware failure

OS boot service action keywords

- Installation aborted
- Installation failed

Identifying a service action by using sensor and event information

You can use sensor and event information from the system event log (SEL) to determine a service action.

Identifying a service action by using sensor and event information for the 8335-GCA and 8335-GTA

You can use the sensor and event information from the system event log (SEL) to determine a service action to perform for the IBM Power® System S822LC (8335-GCA and 8335-GTA).

If you have not done so already, complete “Identifying a service action by using system event logs” on page 27. Then, use the following table to determine the service action to perform.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA

Sensor name (Sensor ID)	Event description	Service action
Watchdog (0x00)	<ul style="list-style-type: none"> • Timer Expired • Reserved1 • Reserved2 • Reserved3 • Reserved4 	No service action is required.
	<ul style="list-style-type: none"> • Hard Reset • Power Down • Power Cycle • Timer Interrupt 	SEL events with OEM record c0 000e000 3a150xxxxxx indicate that a boot failed. Search for boot failure SEL events that have a time stamp in close proximity to the time stamp of this SEL event. If events exist, go to "Resolving a system firmware boot failure" on page 4. If there are no boot failure SEL events and the system booted correctly, no service action is required.
Host Status (0x04)	Unknown	Go to Getting fixes and update the system firmware to the most recent level of firmware that is available. If this SEL event continues to be logged each time you power on the system, go to "Collecting diagnostic data" on page 109. Then, go to "Contacting IBM service and support" on page 110.
	<ul style="list-style-type: none"> • S0/Go "Working" • S1 "Sleeping with system h/w & processor context maintained" • S2 "sleeping, processor context lost" • S3 "sleeping, processor & h/w context lost, memory retained" • S4 "non-volatile sleep / suspend-to disk" • S5 / G2: "soft-off" • S4 / S5: "soft-off" • G3 mechanical Off • Sleeping in an S1/S2/S3 State • G1: Sleeping • S5: entered by override • Legacy ON state • Legacy OFF state 	No service action is required.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
FW Boot Progress (0x05)	<ul style="list-style-type: none"> System Firmware Error System Firmware Hang 	SEL events with OEM record c0 000e000 3a150xxxxxx indicate that a boot failed. Search for boot failure SEL events that have a time stamp in close proximity to the time stamp of this SEL event. If events exist, go to "Resolving a system firmware boot failure" on page 4.
	System Firmware Progress	No service action is required.
<ul style="list-style-type: none"> OCC 1 Active (0x08) OCC 2 Active (0x09) 	Device Disabled	If the sensor name is OCC 1 Active, replace CPU 1. If the sensor name is OCC 2 Active, replace CPU 2. Go to "8335-GCA and 8335-GTA locations" on page 111 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> State Deasserted Device Enabled 	No service action is required.
Ambient Temp (0x0A)	<ul style="list-style-type: none"> Upper Critical - going low Lower Non-critical – going low Lower Non-critical – going high Lower Critical – going high Lower Non-recoverable – going low Lower Non-recoverable – going high Upper Non-critical – going low Upper Non-critical – going high Lower Critical - going low Upper Non-recoverable – going low Upper Non-recoverable – going high 	No service action is required.
	Upper Critical - going high	Ensure that the room temperature meets the requirements that are specified for the system. Ensure that no obstructions are blocking air flow to the system.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • CPU1 Temp (0x0B) • CPU2 Temp (0x0D) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical - going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Lower Critical - going low • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	<p>No service action is required.</p>

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • CPU Func 1 (0x0C) • CPU Func 2 (0x0E) 	<ul style="list-style-type: none"> • IERR • Transition to Non-recoverable • Predictive Failure 	If the sensor name is CPU Func 1, replace CPU 1. If the sensor name is CPU Func 2, replace CPU 2. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> • Thermal Trip • FRB1 BIST Failure • FRB2 Hang In POST Failure • FRB3 Processor Startup Initialization Failure • Configuration Error • SMBIOS Uncorrectable CPU Complex Error • Processor Disabled • Terminator Presence Detected • Processor Automatically Throttled • Machine Check Exception • Correctable Machine Check Error • State Deasserted • Device Disabled • Transition to Critical from Less Severe • Transition to Non-recoverable from Less Severe • Transition to Critical from Non-recoverable • Processor Presence Detected • State Asserted • Device Enabled • Transition to OK • Transition to Non-Critical from OK • Transition to Non-Critical from More Severe • Monitor • Informational 	No service action is required.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
All PGood (0x1C)	<ul style="list-style-type: none"> • Interlock Power Down • Power Off Power Down • Power Cycle • 240VA Power Down 	No service action is required.
	<ul style="list-style-type: none"> • AC Lost • Soft Power Control Failure 	<ul style="list-style-type: none"> • Ensure that ac power is supplied to the rack. • Ensure that the system power cords are plugged tightly into both the power supply and the rack power distribution unit (PDU) for both system power supplies. • Ensure that the system was not powered off.
	<ul style="list-style-type: none"> • Power Unit Failure Detected • Predictive Failure 	<ul style="list-style-type: none"> • Ensure that ac power is supplied to the rack. • Ensure that the power supply cords are plugged tightly into the power supplies and the rack PDU unit. • Ensure that the system was not powered off. • Check for service action required SEL events for the power supply sensor. If any exist, follow the service action that is specified in “Identifying a service action by using sensor and event information for the 8335-GCA and 8335-GTA” on page 37.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • DIMM Func 1 (0x1E) • DIMM Func 2 (0x1F) • DIMM Func 3 (0x20) • DIMM Func 4 (0x21) • DIMM Func 5 (0x22) • DIMM Func 6 (0x23) • DIMM Func 7 (0x24) • DIMM Func 8 (0x25) • DIMM Func 9 (0x26) • DIMM Func 10 (0x27) • DIMM Func 11 (0x28) • DIMM Func 12 (0x29) • DIMM Func 13 (0x2A) • DIMM Func 14 (0x2B) • DIMM Func 15 (0x2C) • DIMM Func 16 (0x2D) • DIMM Func 17 (0x2E) • DIMM Func 18 (0x2F) • DIMM Func 19 (0x30) • DIMM Func 20 (0x31) • DIMM Func 21 (0x32) • DIMM Func 22 (0x33) • DIMM Func 23 (0x34) • DIMM Func 24 (0x35) • DIMM Func 25 (0x36) • DIMM Func 26 (0x37) 	<ul style="list-style-type: none"> • Memory Device Disabled • Uncorrectable Memory Error • Memory Scrub Failed • State Deasserted • Device Disabled • Transition to Critical from Less Severe • Transition to Non-recoverable from Less Severe • Transition to Critical from Non-recoverable • Correctable Memory Error • Parity • Correctable Memory Error Logging Limit Reached • Memory Automatically Throttled • Critical Over temperature • Presence Detected • Spare • State Asserted • Device Enabled • Transition to OK • Transition to Non-Critical from OK • Transition to Non-Critical from More Severe • Monitor • Informational 	No service action is required.
<ul style="list-style-type: none"> • DIMM Func 27 (0x38) • DIMM Func 28 (0x39) • DIMM Func 29 (0x3A) • DIMM Func 30 (0x3B) • DIMM Func 31 (0x3C) • DIMM Func 32 (0x3D) 	<ul style="list-style-type: none"> • Transition to Non-recoverable • Predictive Failure 	If the sensor name is DIMM Func 1, replace DIMM 1. If the sensor name is DIMM Func 2, replace DIMM 2. And so on. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • DIMM Func 1 (0x1E) • DIMM Func 2 (0x1F) • DIMM Func 3 (0x20) • DIMM Func 4 (0x21) • DIMM Func 5 (0x22) • DIMM Func 6 (0x23) • DIMM Func 7 (0x24) • DIMM Func 8 (0x25) • DIMM Func 9 (0x26) • DIMM Func 10 (0x27) • DIMM Func 11 (0x28) • DIMM Func 12 (0x29) • DIMM Func 13 (0x2A) • DIMM Func 14 (0x2B) • DIMM Func 15 (0x2C) • DIMM Func 16 (0x2D) • DIMM Func 17 (0x2E) • DIMM Func 18 (0x2F) • DIMM Func 19 (0x30) • DIMM Func 20 (0x31) • DIMM Func 21 (0x32) • DIMM Func 22 (0x33) • DIMM Func 23 (0x34) • DIMM Func 24 (0x35) • DIMM Func 25 (0x36) • DIMM Func 26 (0x37) • DIMM Func 27 (0x38) • DIMM Func 28 (0x39) • DIMM Func 29 (0x3A) • DIMM Func 30 (0x3B) • DIMM Func 31 (0x3C) • DIMM Func 32 (0x3D) 	Configuration Error	<p>Complete the following steps:</p> <ol style="list-style-type: none"> 1. If the sensor name is DIMM Func 1, ensure that DIMM 1 is seated properly. If the sensor name is DIMM Func 2, ensure that DIMM 2 is seated properly. And so on. 2. If you recently installed or replaced memory DIMMs, ensure that the DIMMs are plugged in the correct memory slots. 3. If the sensor name is DIMM Func 1, replace DIMM 1. If the sensor name is DIMM Func 2, replace DIMM 2. And so on. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • CPU Core Func 1 (0x3E) • CPU Core Func 2 (0x3F) • CPU Core Func 3 (0x40) • CPU Core Func 4 (0x41) 	<ul style="list-style-type: none"> • IERR • Transition to Non-recoverable • Predictive Failure 	Replace system processor CPU 1. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.
<ul style="list-style-type: none"> • CPU Core Func 5 (0x42) • CPU Core Func 6 (0x43) • CPU Core Func 7 (0x44) • CPU Core Func 8 (0x45) • CPU Core Func 9 (0x46) • CPU Core Func 10 (0x47) • CPU Core Func 11 (0x48) • CPU Core Func 12 (0x49) 	<ul style="list-style-type: none"> • FRB1 BIST Failure • FRB2 Hang In POST Failure • FRB3 Processor Startup Initialization Failure • Configuration Error • SMBIOS Uncorrectable CPU Complex Error • Processor Disabled • Terminator Presence Detected • Machine Check Exception • Correctable Machine Check Error • State Deasserted • Device Disabled • Transition to Critical from Less Severe • Transition to Non-recoverable from Less Severe • Transition to Critical from Non-recoverable • Thermal Trip • Processor Automatically Throttled • Processor Presence Detected • State Asserted • Device Enabled • Transition to OK • Transition to Non-Critical from OK • Transition to Non-Critical from More Severe • Monitor • Informational 	No service action is required.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • CPU Core Func 13 (0x4A) • CPU Core Func 14 (0x4B) • CPU Core Func 15 (0x4C) • CPU Core Func 16 (0x4D) 	<ul style="list-style-type: none"> • IERR • Transition to Non-recoverable • Predictive Failure 	Replace system processor CPU 2. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.
<ul style="list-style-type: none"> • CPU Core Func 17 (0x4E) • CPU Core Func 18 (0x4F) • CPU Core Func 19 (0x50) • CPU Core Func 20 (0x51) • CPU Core Func 21 (0x52) • CPU Core Func 22 (0x53) • CPU Core Func 23 (0x54) • CPU Core Func 24 (0x55) 	<ul style="list-style-type: none"> • FRB1 BIST Failure • FRB2 Hang In POST Failure • FRB3 Processor Startup Initialization Failure • Configuration Error • SMBIOS Uncorrectable CPU Complex Error • Processor Disabled • Terminator Presence Detected • Machine Check Exception • Correctable Machine Check Error • State Deasserted • Device Disabled • Transition to Critical from Less Severe • Transition to Non-recoverable from Less Severe • Transition to Critical from Non-recoverable • Thermal Trip • Processor Automatically Throttled • Processor Presence Detected • State Asserted • Device Enabled • Transition to OK • Transition to Non-Critical from OK • Transition to Non-Critical from More Severe • Monitor • Informational 	No service action is required.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • Mem Buf Func 1 (0x56) • Mem Buf Func 2 (0x57) • Mem Buf Func 3 (0x58) • Mem Buf Func 4 (0x59) • Mem Buf Func 5 (0x5A) • Mem Buf Func 6 (0x5B) • Mem Buf Func 7 (0x5C) • Mem Buf Func 8 (0x5D) 	<ul style="list-style-type: none"> • Uncorrectable Memory Error • Memory Device Disabled • State Deasserted • Device Disabled • Transition to Critical from Less Severe • Transition to Non-recoverable from Less Severe • Transition to Critical from Non-recoverable • Correctable Memory Error • Parity • Memory Scrub Failed • Correctable Memory Error Logging Limit Reached • Memory Automatically Throttled • Critical Over temperature • Presence Detected • Spare • State Asserted • Device Enabled • Transition to OK • Transition to Non-Critical from OK • Transition to Non-Critical from More Severe • Monitor • Informational 	No service action is required.
	<ul style="list-style-type: none"> • Configuration Error • Transition to Non-recoverable • Predictive Failure 	If the sensor name is Mem Buf Func 1, replace memory riser 1. If the sensor name is Mem Buf Func 2, replace memory riser 2. And so on. Go to "8335-GCA and 8335-GTA locations" on page 111 to identify the physical location and removal and replacement procedure.
Boot Count (0x5F)	None	No service action is required.
Motherboard Flt (0x60)	State Deasserted	No service action is required.
	State Asserted	Replace the system backplane. Go to "8335-GCA and 8335-GTA locations" on page 111 to identify the physical location and removal and replacement procedure.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
System Event (0x61)	Undetermined system hardware failure	Go to "Collecting diagnostic data" on page 109. Then, go to "Contacting IBM service and support" on page 110.
	<ul style="list-style-type: none"> • System Reconfigured • OEM System boot event • Entry added to auxiliary log • PEF Action • Timestamp Clock Sync • Transition State Active • Transition State Idle • Transition State Busy 	No service action is required.
Activate Pwr Lt (0x62)	None	No service action is required.
<ul style="list-style-type: none"> • Ref Clock Fault (0x63) • PCI Clock Fault (0x64) 	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • DIMM1 Temp (0x69) • DIMM2 Temp (0x6A) • DIMM3 Temp (0x6B) • DIMM4 Temp (0x6C) • DIMM5 Temp (0x6D) • DIMM6 Temp (0x6E) • DIMM7 Temp (0x6F) • DIMM8 Temp (0x70) • DIMM9 Temp (0x71) • DIMM10 Temp (0x72) • DIMM11 Temp (0x73) • DIMM12 Temp (0x74) • DIMM13 Temp (0x75) • DIMM14 Temp (0x76) • DIMM15 Temp (0x77) • DIMM16 Temp (0x78) • DIMM17 Temp (0x79) • DIMM18 Temp (0x7A) • DIMM19 Temp (0x7B) • DIMM20 Temp (0x7C) • DIMM21 Temp (0x7D) • DIMM22 Temp (0x7E) • DIMM23 Temp (0x7F) • DIMM24 Temp (0x80) • DIMM25 Temp (0x81) • DIMM26 Temp (0x82) • DIMM27 Temp (0x83) • DIMM28 Temp (0x84) • DIMM29 Temp (0x85) • DIMM30 Temp (0x86) • DIMM31 Temp (0x87) • DIMM32 Temp (0x88) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • CPU Core Temp 1 (0x89) • CPU Core Temp 2 (0x8A) • CPU Core Temp 3 (0x8B) • CPU Core Temp 4 (0x8C) • CPU Core Temp 5 (0x8D) • CPU Core Temp 6 (0x8E) • CPU Core Temp 7 (0x8F) • CPU Core Temp 8 (0x90) • CPU Core Temp 9 (0x91) • CPU Core Temp 10 (0x92) • CPU Core Temp 11 (0x93) • CPU Core Temp 12 (0x94) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.
<ul style="list-style-type: none"> • CPU Core Temp 13 (0x95) • CPU Core Temp 14 (0x96) • CPU Core Temp 15 (0x97) • CPU Core Temp 16 (0x98) • CPU Core Temp 17 (0x99) • CPU Core Temp 18 (0x9A) • CPU Core Temp 19 (0x9B) • CPU Core Temp 20 (0x9C) • CPU Core Temp 21 (0x9D) • CPU Core Temp 22 (0x9E) • CPU Core Temp 23 (0x9F) • CPU Core Temp 24 (0xA0) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • 12V Sense (0xA1) • Proc0 Power (0xA2) • Proc1 Power (0xA3) • PCIE Proc0 Pwr (0xA6) • PCIE Proc1 Pwr (0xA7) • GPU Sense (0xAA) • Mem Cache Power (0xAB) • Mem Proc0 Pwr (0xAC) • Mem Proc1 Pwr (0xAD) • Fan Power A (0xB0) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action required.
<ul style="list-style-type: none"> • TOD Clock Fault (0xB1) • APSS Fault (0xB2) 	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.
PS Derating Factor (0xB4)	None	No service action is required.
OS Boot (0xB5)	<ul style="list-style-type: none"> • Installation aborted • Installation failed 	Ensure that the operating system boot image is loaded. Ensure that the disk drive or solid-state drive is ready. Reload the operating system boot image.
	<ul style="list-style-type: none"> • A: boot completed • C: boot completed • PXE boot completed • Diagnostic boot completed • CD-ROM boot completed • ROM boot completed • Boot completed - device not specified • Installation started • Installation completed 	No service action is required.
PCI (0xB6)	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • GPU Func 1 (0xB8) • GPU Func 2 (0xB9) • GPU Func 3 (0xBA) • GPU Func 4 (0xBB) 	<ul style="list-style-type: none"> • Uncorrectable Memory Error • Parity • Memory Scrub Failed • Memory Device Disabled • Configuration Error • Memory Automatically Throttled 	If the sensor name is GPU Func 1 or GPU Func 2, replace GPU 1. If the sensor name is GPU Func 3 or GPU Func 4, replace GPU 2. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> • Correctable Memory Error • Parity • Correctable Memory Error Logging Limit Reached • Presence Detected • Spare • Critical Over temperature 	No service action is required.
<ul style="list-style-type: none"> • GPU Temp 1 (0xBC) • GPU Temp 2 (0xBD) • GPU Temp 3 (0xBE) • GPU Temp 4 (0xBF) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.
<ul style="list-style-type: none"> • Mem Buf Temp 1 (0xC0) • Mem Buf Temp 2 (0xC1) • Mem Buf Temp 3 (0xC2) • Mem Buf Temp 4 (0xC3) • Mem Buf Temp 5 (0xC4) • Mem Buf Temp 6 (0xC5) • Mem Buf Temp 7 (0xC6) • Mem Buf Temp 8 (0xC7) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • CPU Diode 1 (0xC8) • CPU Diode 2 (0xCB) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	<p>No service action is required.</p>

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
Checkstop (0xC9)	IERR	<p>If this event immediately precedes a system power off, no service action is required. Otherwise, search for SEL events that meet the following criteria:</p> <ul style="list-style-type: none"> • The event has a time stamp in close proximity to the time stamp of this event. • A service action keyword is present. For a list of service action keywords, see “Identifying service action keywords in system event logs” on page 36. • Asserted is in the description. <p>If you found a SEL event that matches the criteria, perform the service action that is indicated in this table for the SEL event. Otherwise, go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110.</p>
	<ul style="list-style-type: none"> • Thermal Trip • Configuration Error • Processor Automatically Throttled • Correctable Machine Check Error • Processor Presence Detected 	No service action is required.
	<ul style="list-style-type: none"> • FRB1 BIST Failure • FRB2 Hang In POST Failure • FRB3 Processor Startup Initialization Failure • SMBIOS Uncorrectable CPU Complex Error • Processor Disabled • Terminator Presence Detected • Machine Check Exception 	Go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • PSU Fault 1 (0xCD) • PSU Fault 2 (0xCE) 	Power Supply Failure Detected	An assert event immediately followed by a deassert event indicates that a power cycle of the system occurred. No service action is required. If there is no deassert event immediately following the assert event, replace the power supply. If the sensor name is PSU Fault 1, replace PSU 1. If the sensor name is PSU Fault 2, replace PSU 2. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> • Predictive Failure • Power Supply Input Out of Range But Present 	If the sensor name is PSU Fault 1, replace PSU 1. If the sensor name is PSU Fault 2, replace PSU 2. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> • Power Supply Input Lost or AC DC • Power Supply Input Lost Or Out Of Range 	Ensure that ac power is supplied to the rack. Ensure that the system power cords are plugged tightly into both the power supply and the rack PDU unit for both system power supplies. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.
	Configuration Error	Ensure that both power supplies are securely seated in the system. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> • Presence Detected • Power Supply Inactive 	No service action is required.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
CPU VDD Volt (0xCF)	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.
CPU VDD Curr (0xD0)	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.
BIOS Golden Side (0xD2)	None	Go to “Resolving a system firmware boot failure” on page 4 and follow the service action for a system event log (SEL) with the value OEM record c0 and OEM c0 specific log information 3a1504xxxxxx.
BMC Golden Side (0xD3)	None	Go to “Resolving a system firmware boot failure” on page 4 and follow the service action for a system event log (SEL) with the value OEM record c0 and OEM c0 specific log information 3a1504xxxxxx.

Table 21. Sensor information, event description, and service action for the 8335-GCA and 8335-GTA (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • Fan 1 (0xD4) • Fan 2 (0xD5) • Fan 3 (0xD6) • Fan 4 (0xD7) 	<ul style="list-style-type: none"> • Transition to Critical from less Severe • Transition to Non-recoverable from less severe • Transition to critical from non-recoverable 	If the sensor name is Fan 1, replace Fan 1. If the sensor name is Fan 2, replace Fan 2. And so on. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high • Device Inserted/Device Present 	No service action is required.
	<ul style="list-style-type: none"> • Device Removed/Device Absent • Transition to degraded • Install error • Redundancy lost • Non-redundant insufficient resources 	Ensure that all fans are seated securely. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.
CurPwr Redundant (0xD8)	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.
NxtPwr Redundant (0xD9)	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.
Turbo Allowed (0xDA)	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.

Identifying a service action by using sensor and event information for the 8335-GTB

You can use the sensor and event information from the system event log (SEL) to determine a service action to perform for the IBM Power System S822LC (8335-GTB).

If you have not done so already, complete “Identifying a service action by using system event logs” on page 27. Then, use the following table to determine the service action to perform.

Table 22. Sensor information, event description, and service action for the 8335-GTB

Sensor name (Sensor ID)	Event description	Service action
Watchdog (0x00)	<ul style="list-style-type: none"> • Timer Expired • Reserved1 • Reserved2 • Reserved3 • Reserved4 	No service action is required.
	<ul style="list-style-type: none"> • Hard Reset • Power Down • Power Cycle • Timer Interrupt 	SEL events with OEM record c0 000e000 3a150xxxxxx indicate that a boot failed. Search for boot failure SEL events that have a time stamp close to the time stamp of this SEL event. If events exist, go to "Resolving a system firmware boot failure" on page 4. If there are no boot failure SEL events and the system booted correctly, no service action is required.
Host Status (0x04)	Unknown	Go to Getting fixes and update the system firmware to the most recent level of firmware that is available. If this SEL event continues to be logged each time you power on the system, go to "Collecting diagnostic data" on page 109. Then, go to "Contacting IBM service and support" on page 110.
	<ul style="list-style-type: none"> • S0/Go "Working" • S1 "Sleeping with system h/w & processor context maintained" • S2 "sleeping, processor context lost" • S3 "sleeping, processor & h/w context lost, memory retained" • S4 "non-volatile sleep / suspend-to disk" • S5 / G2: "soft-off" • S4 / S5: "soft-off" • G3 mechanical Off • Sleeping in an S1/S2/S3 State • G1: Sleeping • S5: entered by override • Legacy ON state • Legacy OFF state 	No service action is required.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
FW Boot Progress (0x05)	<ul style="list-style-type: none"> System Firmware Error System Firmware Hang 	SEL events with OEM record c0 000e000 3a150xxxxxx indicate that a boot failed. Search for boot failure SEL events that have a time stamp close to the time stamp of this SEL event. If events exist, go to "Resolving a system firmware boot failure" on page 4.
	System Firmware Progress	No service action is required.
<ul style="list-style-type: none"> OCC 1 Active (0x08) OCC 2 Active (0x09) 	Device Disabled	If the sensor name is OCC 1 Active, replace CPU 1. If the sensor name is OCC 2 Active, replace CPU 2. Go to "8335-GTB locations" on page 121 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> State Deasserted Device Enabled 	No service action is required.
Ambient Temp (0x0A)	<ul style="list-style-type: none"> Upper Critical - going low Lower Non-critical – going low Lower Non-critical – going high Lower Critical – going high Lower Non-recoverable – going low Lower Non-recoverable – going high Upper Non-critical – going low Upper Non-critical – going high Lower Critical - going low Upper Non-recoverable – going low Upper Non-recoverable – going high 	No service action is required.
	Upper Critical - going high	Ensure that the room temperature meets the requirements that are specified for the system. Ensure that no obstructions are blocking air flow to the system.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • CPU1 Temp (0x0B) • CPU2 Temp (0x0D) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical - going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Lower Critical - going low • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	<p>No service action is required.</p>

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • CPU Func 1 (0x0C) • CPU Func 2 (0x0E) 	<ul style="list-style-type: none"> • IERR • Transition to Non-recoverable • Predictive Failure 	If the sensor name is CPU Func 1, replace CPU 1. If the sensor name is CPU Func 2, replace CPU 2. Go to "8335-GTB locations" on page 121 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> • Thermal Trip • FRB1 BIST Failure • FRB2 Hang In POST Failure • FRB3 Processor Startup Initialization Failure • Configuration Error • SMBIOS Uncorrectable CPU Complex Error • Processor Disabled • Terminator Presence Detected • Processor Automatically Throttled • Machine Check Exception • Correctable Machine Check Error • State Deasserted • Device Disabled • Transition to Critical from Less Severe • Transition to Non-recoverable from Less Severe • Transition to Critical from Non-recoverable • Processor Presence Detected • State Asserted • Device Enabled • Transition to OK • Transition to Non-Critical from OK • Transition to Non-Critical from More Severe • Monitor • Informational 	No service action is required.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
All PGood (0x1C)	<ul style="list-style-type: none"> • Interlock Power Down • Power Off Power Down • Power Cycle • 240VA Power Down 	No service action is required.
	<ul style="list-style-type: none"> • AC Lost • Soft Power Control Failure 	<ul style="list-style-type: none"> • Ensure that ac power is supplied to the rack. • Ensure that the system power cords are plugged tightly into both the power supply and the rack power distribution unit (PDU) for both system power supplies. • Ensure that the system was not powered off.
	<ul style="list-style-type: none"> • Power Unit Failure Detected • Predictive Failure 	<ul style="list-style-type: none"> • Ensure that ac power is supplied to the rack. • Ensure that the power supply cords are plugged tightly into the power supplies and the rack PDU unit. • Ensure that the system was not powered off. • Check for service action required SEL events for the power supply sensor. If any exist, follow the service action that is specified in “Identifying a service action by using sensor and event information for the 8335-GTB” on page 57.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • DIMM Func 1 (0x1E) • DIMM Func 2 (0x1F) • DIMM Func 3 (0x20) • DIMM Func 4 (0x21) • DIMM Func 5 (0x22) • DIMM Func 6 (0x23) • DIMM Func 7 (0x24) • DIMM Func 8 (0x25) • DIMM Func 9 (0x26) • DIMM Func 10 (0x27) • DIMM Func 11 (0x28) • DIMM Func 12 (0x29) • DIMM Func 13 (0x2A) • DIMM Func 14 (0x2B) • DIMM Func 15 (0x2C) • DIMM Func 16 (0x2D) • DIMM Func 17 (0x2E) • DIMM Func 18 (0x2F) • DIMM Func 19 (0x30) • DIMM Func 20 (0x31) • DIMM Func 21 (0x32) • DIMM Func 22 (0x33) • DIMM Func 23 (0x34) • DIMM Func 24 (0x35) • DIMM Func 25 (0x36) • DIMM Func 26 (0x37) 	<ul style="list-style-type: none"> • Memory Device Disabled • Uncorrectable Memory Error • Memory Scrub Failed • State Deasserted • Device Disabled • Transition to Critical from Less Severe • Transition to Non-recoverable from Less Severe • Transition to Critical from Non-recoverable • Correctable Memory Error • Parity • Correctable Memory Error Logging Limit Reached • Memory Automatically Throttled • Critical Over temperature • Presence Detected • Spare • State Asserted • Device Enabled • Transition to OK • Transition to Non-Critical from OK • Transition to Non-Critical from More Severe • Monitor • Informational 	No service action is required.
<ul style="list-style-type: none"> • DIMM Func 27 (0x38) • DIMM Func 28 (0x39) • DIMM Func 29 (0x3A) • DIMM Func 30 (0x3B) • DIMM Func 31 (0x3C) • DIMM Func 32 (0x3D) 	<ul style="list-style-type: none"> • Transition to Non-recoverable • Predictive Failure 	If the sensor name is DIMM Func 1, replace DIMM 1. If the sensor name is DIMM Func 2, replace DIMM 2. And so on. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • DIMM Func 1 (0x1E) • DIMM Func 2 (0x1F) • DIMM Func 3 (0x20) • DIMM Func 4 (0x21) • DIMM Func 5 (0x22) • DIMM Func 6 (0x23) • DIMM Func 7 (0x24) • DIMM Func 8 (0x25) • DIMM Func 9 (0x26) • DIMM Func 10 (0x27) • DIMM Func 11 (0x28) • DIMM Func 12 (0x29) • DIMM Func 13 (0x2A) • DIMM Func 14 (0x2B) • DIMM Func 15 (0x2C) • DIMM Func 16 (0x2D) • DIMM Func 17 (0x2E) • DIMM Func 18 (0x2F) • DIMM Func 19 (0x30) • DIMM Func 20 (0x31) • DIMM Func 21 (0x32) • DIMM Func 22 (0x33) • DIMM Func 23 (0x34) • DIMM Func 24 (0x35) • DIMM Func 25 (0x36) • DIMM Func 26 (0x37) • DIMM Func 27 (0x38) • DIMM Func 28 (0x39) • DIMM Func 29 (0x3A) • DIMM Func 30 (0x3B) • DIMM Func 31 (0x3C) • DIMM Func 32 (0x3D) 	Configuration Error	<p>Complete the following steps:</p> <ol style="list-style-type: none"> 1. If the sensor name is DIMM Func 1, ensure that DIMM 1 is seated properly. If the sensor name is DIMM Func 2, ensure that DIMM 2 is seated properly. And so on. 2. If you recently installed or replaced memory DIMMs, ensure that the DIMMs are plugged in the correct memory slots. 3. If the sensor name is DIMM Func 1, replace DIMM 1. If the sensor name is DIMM Func 2, replace DIMM 2. And so on. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • CPU Core Func 1 (0x3E) • CPU Core Func 2 (0x3F) • CPU Core Func 3 (0x40) 	<ul style="list-style-type: none"> • IERR • Transition to Non-recoverable • Predictive Failure 	Replace system processor CPU 1. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.
<ul style="list-style-type: none"> • CPU Core Func 4 (0x41) • CPU Core Func 5 (0x42) • CPU Core Func 6 (0x43) • CPU Core Func 7 (0x44) • CPU Core Func 8 (0x45) • CPU Core Func 9 (0x46) • CPU Core Func 10 (0x47) • CPU Core Func 11 (0x48) • CPU Core Func 12 (0x49) 	<ul style="list-style-type: none"> • FRB1 BIST Failure • FRB2 Hang In POST Failure • FRB3 Processor Startup Initialization Failure • Configuration Error • SMBIOS Uncorrectable CPU Complex Error • Processor Disabled • Terminator Presence Detected • Machine Check Exception • Correctable Machine Check Error • State Deasserted • Device Disabled • Transition to Critical from Less Severe • Transition to Non-recoverable from Less Severe • Transition to Critical from Non-recoverable • Thermal Trip • Processor Automatically Throttled • Processor Presence Detected • State Asserted • Device Enabled • Transition to OK • Transition to Non-Critical from OK • Transition to Non-Critical from More Severe • Monitor • Informational 	No service action is required.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • CPU Core Func 13 (0x4A) • CPU Core Func 14 (0x4B) • CPU Core Func 15 (0x4C) 	<ul style="list-style-type: none"> • IERR • Transition to Non-recoverable • Predictive Failure 	Replace system processor CPU 2. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.
<ul style="list-style-type: none"> • CPU Core Func 16 (0x4D) • CPU Core Func 17 (0x4E) • CPU Core Func 18 (0x4F) • CPU Core Func 19 (0x50) • CPU Core Func 20 (0x51) • CPU Core Func 21 (0x52) • CPU Core Func 22 (0x53) • CPU Core Func 23 (0x54) • CPU Core Func 24 (0x55) 	<ul style="list-style-type: none"> • FRB1 BIST Failure • FRB2 Hang In POST Failure • FRB3 Processor Startup Initialization Failure • Configuration Error • SMBIOS Uncorrectable CPU Complex Error • Processor Disabled • Terminator Presence Detected • Machine Check Exception • Correctable Machine Check Error • State Deasserted • Device Disabled • Transition to Critical from Less Severe • Transition to Non-recoverable from Less Severe • Transition to Critical from Non-recoverable • Thermal Trip • Processor Automatically Throttled • Processor Presence Detected • State Asserted • Device Enabled • Transition to OK • Transition to Non-Critical from OK • Transition to Non-Critical from More Severe • Monitor • Informational 	No service action is required.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • Mem Buf Func 1 (0x56) • Mem Buf Func 2 (0x57) • Mem Buf Func 3 (0x58) • Mem Buf Func 4 (0x59) • Mem Buf Func 5 (0x5A) • Mem Buf Func 6 (0x5B) • Mem Buf Func 7 (0x5C) • Mem Buf Func 8 (0x5D) 	<ul style="list-style-type: none"> • Uncorrectable Memory Error • Memory Device Disabled • State Deasserted • Device Disabled • Transition to Critical from Less Severe • Transition to Non-recoverable from Less Severe • Transition to Critical from Non-recoverable • Correctable Memory Error • Parity • Memory Scrub Failed • Correctable Memory Error Logging Limit Reached • Memory Automatically Throttled • Critical Over temperature • Presence Detected • Spare • State Asserted • Device Enabled • Transition to OK • Transition to Non-Critical from OK • Transition to Non-Critical from More Severe • Monitor • Informational 	No service action is required.
	<ul style="list-style-type: none"> • Configuration Error • Transition to Non-recoverable • Predictive Failure 	If the sensor name is Mem Buf Func 1, replace memory riser 1. If the sensor name is Mem Buf Func 2, replace memory riser 2. And so on. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.
Boot Count (0x5F)	None	No service action is required.
Motherboard Flt (0x60)	State Deasserted	No service action is required.
	State Asserted	Replace the system backplane. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
System Event (0x61)	Undetermined system hardware failure	Go to "Collecting diagnostic data" on page 109. Then, go to "Contacting IBM service and support" on page 110.
	<ul style="list-style-type: none"> • System Reconfigured • OEM System boot event • Entry added to auxiliary log • PEF Action • Timestamp Clock Sync • Transition State Active • Transition State Idle • Transition State Busy 	No service action is required.
Activate Pwr Lt (0x62)	None	No service action is required.
<ul style="list-style-type: none"> • Ref Clock Fault (0x63) • PCI Clock Fault (0x64) 	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • DIMM1 Temp (0x69) • DIMM2 Temp (0x6A) • DIMM3 Temp (0x6B) • DIMM4 Temp (0x6C) • DIMM5 Temp (0x6D) • DIMM6 Temp (0x6E) • DIMM7 Temp (0x6F) • DIMM8 Temp (0x70) • DIMM9 Temp (0x71) • DIMM10 Temp (0x72) • DIMM11 Temp (0x73) • DIMM12 Temp (0x74) • DIMM13 Temp (0x75) • DIMM14 Temp (0x76) • DIMM15 Temp (0x77) • DIMM16 Temp (0x78) • DIMM17 Temp (0x79) • DIMM18 Temp (0x7A) • DIMM19 Temp (0x7B) • DIMM20 Temp (0x7C) • DIMM21 Temp (0x7D) • DIMM22 Temp (0x7E) • DIMM23 Temp (0x7F) • DIMM24 Temp (0x80) • DIMM25 Temp (0x81) • DIMM26 Temp (0x82) • DIMM27 Temp (0x83) • DIMM28 Temp (0x84) • DIMM29 Temp (0x85) • DIMM30 Temp (0x86) • DIMM31 Temp (0x87) • DIMM32 Temp (0x88) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • CPU Core Temp 1 (0x89) • CPU Core Temp 2 (0x8A) • CPU Core Temp 3 (0x8B) • CPU Core Temp 4 (0x8C) • CPU Core Temp 5 (0x8D) • CPU Core Temp 6 (0x8E) • CPU Core Temp 7 (0x8F) • CPU Core Temp 8 (0x90) • CPU Core Temp 9 (0x91) • CPU Core Temp 10 (0x92) • CPU Core Temp 11 (0x93) • CPU Core Temp 12 (0x94) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.
<ul style="list-style-type: none"> • CPU Core Temp 13 (0x95) • CPU Core Temp 14 (0x96) • CPU Core Temp 15 (0x97) • CPU Core Temp 16 (0x98) • CPU Core Temp 17 (0x99) • CPU Core Temp 18 (0x9A) • CPU Core Temp 19 (0x9B) • CPU Core Temp 20 (0x9C) • CPU Core Temp 21 (0x9D) • CPU Core Temp 22 (0x9E) • CPU Core Temp 23 (0x9F) • CPU Core Temp 24 (0xA0) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • System Power (0xA1) • Proc0 Power (0xA2) • Proc1 Power (0xA3) • PCIE Proc0 Pwr (0xA6) • PCIE Proc1 Power (0xA7) • GPU Power (0xAA) • Mem Cache Power (0xAB) • Mem Proc0 Pwr (0xAC) • Mem Proc1 Pwr (0xAD) • Fan Power (0xB0) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action required.
<ul style="list-style-type: none"> • TOD Clock Fault (0xB1) • APSS Fault (0xB2) 	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.
PS Derating Fac (0xB4)	None	No service action is required.
OS Boot (0xB5)	<ul style="list-style-type: none"> • Installation aborted • Installation failed 	Ensure that the operating system boot image is loaded. Ensure that the disk drive or solid-state drive is ready. Reload the operating system boot image.
	<ul style="list-style-type: none"> • A: boot completed • C: boot completed • PXE boot completed • Diagnostic boot completed • CD-ROM boot completed • ROM boot completed • Boot completed - device not specified • Installation started • Installation completed 	No service action is required.
PCI (0xB6)	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • GPU Func 1 (0xB8) • GPU Func 2 (0xB9) • GPU Func 3 (0xBA) • GPU Func 4 (0xBB) 	<ul style="list-style-type: none"> • Uncorrectable Memory Error • Parity • Memory Scrub Failed • Memory Device Disabled • Configuration Error • Memory Automatically Throttled 	If the sensor name is GPU Func 1, replace GPU 1. If the sensor name is GPU Func 2, replace GPU 2. And so on. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> • Correctable Memory Error • Parity • Correctable Memory Error Logging Limit Reached • Presence Detected • Spare • Critical Over temperature 	No service action is required.
<ul style="list-style-type: none"> • GPU Temp 1 (0xBC) • GPU Temp 2 (0xBD) • GPU Temp 3 (0xBE) • GPU Temp 4 (0xBF) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.
<ul style="list-style-type: none"> • Mem Buf Temp 1 (0xC0) • Mem Buf Temp 2 (0xC1) • Mem Buf Temp 3 (0xC2) • Mem Buf Temp 4 (0xC3) • Mem Buf Temp 5 (0xC4) • Mem Buf Temp 6 (0xC5) • Mem Buf Temp 7 (0xC6) • Mem Buf Temp 8 (0xC7) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • CPU Diode 1 (0xC8) • CPU Diode 2 (0xCB) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	<p>No service action is required.</p>

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
Checkstop (0xC9)	IERR	<p>If this event immediately precedes a system power off, no service action is required. Otherwise, search for SEL events that meet the following criteria:</p> <ul style="list-style-type: none"> • The event has a time stamp close to the time stamp of this event. • A service action keyword is present. For a list of service action keywords, see “Identifying service action keywords in system event logs” on page 36. • Asserted is in the description. <p>If you found a SEL event that matches the criteria, perform the service action that is indicated in this table for the SEL event. Otherwise, go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110.</p>
	<ul style="list-style-type: none"> • Thermal Trip • Configuration Error • Processor Automatically Throttled • Correctable Machine Check Error • Processor Presence Detected 	No service action is required.
	<ul style="list-style-type: none"> • FRB1 BIST Failure • FRB2 Hang In POST Failure • FRB3 Processor Startup Initialization Failure • SMBIOS Uncorrectable CPU Complex Error • Processor Disabled • Terminator Presence Detected • Machine Check Exception 	Go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> PSU Fault 1 (0xCD) PSU Fault 2 (0xCE) 	Power Supply Failure Detected	An assert event immediately followed by a deassert event indicates that a power cycle of the system occurred. No service action is required. If there is no deassert event immediately following the assert event, replace the power supply. If the sensor name is PSU Fault 1, replace PSU 1. If the sensor name is PSU Fault 2, replace PSU 2. Go to "8335-GTB locations" on page 121 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> Predictive Failure Power Supply Input Out of Range But Present 	If the sensor name is PSU Fault 1, replace PSU 1. If the sensor name is PSU Fault 2, replace PSU 2. Go to "8335-GTB locations" on page 121 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> Power Supply Input Lost or AC DC Power Supply Input Lost Or Out Of Range 	Ensure that ac power is supplied to the rack. Ensure that the system power cords are plugged tightly into both the power supply and the rack PDU unit for both system power supplies. Go to "8335-GTB locations" on page 121 to identify the physical location and removal and replacement procedure.
	Configuration Error	Ensure that both power supplies are securely seated in the system. Go to "8335-GTB locations" on page 121 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> Presence Detected Power Supply Inactive 	No service action is required.
CPU VDD Volt (0xCF)	<ul style="list-style-type: none"> Lower Non-critical – going low Lower Non-critical – going high Lower Critical – going low Lower Critical – going high Lower Non-recoverable – going low Lower Non-recoverable – going high Upper Non-critical – going low Upper Non-critical – going high Upper Critical - going low Upper Critical - going high Upper Non-recoverable – going low Upper Non-recoverable – going high 	No service action is required.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
CPU VDD Curr (0xD0)	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.
BIOS Golden Side (0xD2)	None	Go to “Resolving a system firmware boot failure” on page 4 and follow the service action for a system event log (SEL) with the value OEM record c0 and OEM c0 specific log information 3a1504xxxxxx.
BMC Golden Side (0xD3)	None	Go to “Resolving a system firmware boot failure” on page 4 and follow the service action for a system event log (SEL) with the value OEM record c0 and OEM c0 specific log information 3a1504xxxxxx.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • Fan 1 (0xD4) • Fan 2 (0xD5) • Fan 3 (0xD6) • Fan 4 (0xD7) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high • Device Inserted/Device Present 	No service action is required.
	<ul style="list-style-type: none"> • Device Removed/Device Absent • Transition to degraded • Install error • Redundancy lost • Non-redundant insufficient resources 	Ensure that all fans are seated securely. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.
CurPwr Redundant (0xD8)	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.
NxtPwr Redundant (0xD9)	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.
Turbo Allowed (0xDA)	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.
<ul style="list-style-type: none"> • Freq Limit OT 1 (0xDB) • Freq Limit OT 2 (0xDF) 	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.
<ul style="list-style-type: none"> • Freq Limit Pwr 1 (0xDC) • Freq Limit Pwr 2 (0xE0) 	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.
<ul style="list-style-type: none"> • Mem Thrthl OT 1 (0xDD) • Mem Thrthl OT 2 (0xE1) 	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.

Table 22. Sensor information, event description, and service action for the 8335-GTB (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> Quick Pwr Drop 1 (0xDE) Quick Pwr Drop 2 (0xE2) 	State Deasserted	No service action is required.
	State Asserted	<ul style="list-style-type: none"> Ensure that ac power is supplied to the rack. Ensure that the power supply cords are plugged tightly into the power supplies and the rack PDU unit. Check for service action required SEL events for the power supply sensor. If any exist, follow the service action that is specified in “Identifying a service action by using sensor and event information for the 8335-GTB” on page 57.
Water Cooled (0xE3)	None	No service action is required.
CPU 1 VDD Temp (0xE4)	Upper Critical - going high	If the system is a water-cooled system, go to “Resolving an over temperature problem for a water-cooled 8335-GTB system” on page 26. If the system is an air-cooled system, ensure that there are no air flow obstructions at the front or at the rear of the system. Ensure that the fans are operating properly.
CPU 2 VDD Temp (0xE5)	Upper Critical - going high	If the system is a water-cooled system, go to “Resolving an over temperature problem for a water-cooled 8335-GTB system” on page 26. If the system is an air-cooled system, ensure that there are no air flow obstructions at the front or at the rear of the system. Ensure that the fans are operating properly.

Identifying a service action by using sensor and event information for the 8348-21C

You can use the sensor and event information from the system event log to determine a service action to perform for the IBM Power System S812LC (8348-21C).

If you have not done so already, complete “Identifying a service action by using system event logs” on page 27. Then, use the following table to determine the service action to perform.

Table 23. Sensor information, event description, and service action for the 8348-21C

Sensor name (Sensor ID)	Event description	Service action
Watchdog (0x00)	<ul style="list-style-type: none"> • Timer Expired • Reserved1 • Reserved2 • Reserved3 • Reserved4 	No service action is required.
	<ul style="list-style-type: none"> • Hard Reset • Power Down • Power Cycle • Timer Interrupt 	SEL events with OEM record c0 000e000 3a150xxxxxx indicate that a boot failed. Search for boot failure SEL events that have a time stamp in close proximity to the time stamp of this SEL event. If events exist, go to "Resolving a system firmware boot failure" on page 4. If there are no boot failure SEL events and the system booted correctly, no service action is required.
Host Status (0x04)	Unknown	Go to Getting fixes and update the system firmware to the most recent level of firmware that is available. If this SEL event continues to be logged each time you power on the system, go to "Collecting diagnostic data" on page 109. Then, go to "Contacting IBM service and support" on page 110.
	<ul style="list-style-type: none"> • S0/Go "Working" • S1 "Sleeping with system h/w & processor context maintained" • S2 "sleeping, processor context lost" • S3 "sleeping, processor & h/w context lost, memory retained" • S4 "non-volatile sleep / suspend-to disk" • S5 / G2: "soft-off" • S4 / S5: "soft-off" • G3 mechanical Off • Sleeping in an S1/S2/S3 State • G1: Sleeping • S5: entered by override • Legacy ON state • Legacy OFF state 	No service action is required.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
FW Boot Progress (0x05)	<ul style="list-style-type: none"> System Firmware Error System Firmware Hang 	SEL events with OEM record c0 000e000 3a150xxxxxx indicate that a boot failed. Search for boot failure SEL events that have a time stamp in close proximity to the time stamp of this SEL event. If events exist, go to "Resolving a system firmware boot failure" on page 4.
	System Firmware Progress	No service action is required.
OCC Active (0x08)	Device Disabled	Replace the system processor. Go to "8348-21C locations" on page 133 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> State Deasserted Device Enabled 	No service action is required.
Ambient Temp (0x0A)	<ul style="list-style-type: none"> Upper Critical - going low Lower Non-critical – going low Lower Non-critical – going high Lower Critical – going high Lower Non-recoverable – going low Lower Non-recoverable – going high Upper Non-critical – going low Upper Non-critical – going high Lower Critical - going low Upper Non-recoverable – going low Upper Non-recoverable – going high 	No service action is required.
	Upper Critical - going high	Ensure that the room temperature meets the requirements that are specified for the system. Ensure that no obstructions are blocking air flow to the system.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
CPU Temp (0x64)	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical - going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Lower Critical - going low • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
CPU Func (0x4E)	<ul style="list-style-type: none"> • IERR • Transition to Non-recoverable • Predictive Failure 	Replace the system processor. Go to "8348-21C locations" on page 133 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> • Processor Disabled • Thermal Trip • FRB1 BIST Failure • FRB2 Hang In POST Failure • FRB3 Processor Startup Initialization Failure • Configuration Error • SMBIOS Uncorrectable CPU Complex Error • Terminator Presence Detected • Processor Automatically Throttled • Machine Check Exception • Correctable Machine Check Error • State Deasserted • Device Disabled • Transition to Critical from Less Severe • Transition to Non-recoverable from Less Severe • Transition to Critical from Non-recoverable • Processor Presence Detected • State Asserted • Device Enabled • Transition to OK • Transition to Non-Critical from OK • Transition to Non-Critical from More Severe • Monitor • Informational 	No service action is required.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
All PGood (0x1C)	<ul style="list-style-type: none"> • Interlock Power Down • Power Off Power Down • Power Cycle • 240VA Power Down 	No service action is required.
	<ul style="list-style-type: none"> • AC Lost • Soft Power Control Failure 	<ul style="list-style-type: none"> • Ensure that ac power is supplied to the rack. • Ensure that the system power cords are plugged tightly into both the power supply and the rack power distribution unit (PDU) for both system power supplies. • Ensure that the system was not powered off.
	<ul style="list-style-type: none"> • Power Unit Failure Detected • Predictive Failure 	<ul style="list-style-type: none"> • Ensure that ac power is supplied to the rack. • Ensure that the power supply cords are plugged tightly into the power supplies and the rack PDU unit. • Ensure that the system was not powered off. • Check for service action required SEL events for the power supply sensor. If any exist, follow the service action that is specified in “Identifying a service action by using sensor and event information for the 8348-21C” on page 78.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • DIMM Func 0 (0x1E) • DIMM Func 1 (0x1F) • DIMM Func 2 (0x20) • DIMM Func 3 (0x21) • DIMM Func 4 (0x22) • DIMM Func 5 (0x23) • DIMM Func 6 (0x24) • DIMM Func 7 (0x25) • DIMM Func 8 (0x26) • DIMM Func 9 (0x27) • DIMM Func 10 (0x28) • DIMM Func 11 (0x29) • DIMM Func 12 (0x2A) • DIMM Func 13 (0x2B) • DIMM Func 14 (0x2C) • DIMM Func 15 (0x2D) • DIMM Func 16 (0x2E) • DIMM Func 17 (0x2F) • DIMM Func 18 (0x30) • DIMM Func 19 (0x31) • DIMM Func 20 (0x32) • DIMM Func 21 (0x33) • DIMM Func 22 (0x34) • DIMM Func 23 (0x35) • DIMM Func 24 (0x36) • DIMM Func 25 (0x37) 	<ul style="list-style-type: none"> • Memory Device Disabled • Uncorrectable Memory Error • Memory Scrub Failed • State Deasserted • Device Disabled • Transition to Critical from Less Severe • Transition to Non-recoverable from Less Severe • Transition to Critical from Non-recoverable • Correctable Memory Error • Parity • Correctable Memory Error Logging Limit Reached • Memory Automatically Throttled • Critical Over temperature • Presence Detected • Spare • State Asserted • Device Enabled • Transition to OK • Transition to Non-Critical from OK • Transition to Non-Critical from More Severe • Monitor • Informational 	No service action is required.
<ul style="list-style-type: none"> • DIMM Func 26 (0x38) • DIMM Func 27 (0x39) • DIMM Func 28 (0x3A) • DIMM Func 29 (0x3B) • DIMM Func 30 (0x3C) • DIMM Func 31 (0x3D) 	<ul style="list-style-type: none"> • Transition to Non-recoverable • Predictive Failure 	If the sensor name is DIMM Func 0, replace DIMM 0. If the sensor name is DIMM Func 1, replace DIMM 1. And so on. Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • DIMM Func 0 (0x1E) • DIMM Func 1 (0x1F) • DIMM Func 2 (0x20) • DIMM Func 3 (0x21) • DIMM Func 4 (0x22) • DIMM Func 5 (0x23) • DIMM Func 6 (0x24) • DIMM Func 7 (0x25) • DIMM Func 8 (0x26) • DIMM Func 9 (0x27) • DIMM Func 10 (0x28) • DIMM Func 11 (0x29) • DIMM Func 12 (0x2A) • DIMM Func 13 (0x2B) • DIMM Func 14 (0x2C) • DIMM Func 15 (0x2D) • DIMM Func 16 (0x2E) • DIMM Func 17 (0x2F) • DIMM Func 18 (0x30) • DIMM Func 19 (0x31) • DIMM Func 20 (0x32) • DIMM Func 21 (0x33) • DIMM Func 22 (0x34) • DIMM Func 23 (0x35) • DIMM Func 24 (0x36) • DIMM Func 25 (0x37) • DIMM Func 26 (0x38) • DIMM Func 27 (0x39) • DIMM Func 28 (0x3A) • DIMM Func 29 (0x3B) • DIMM Func 30 (0x3C) • DIMM Func 31 (0x3D) 	Configuration Error	<p>Complete the following steps:</p> <ol style="list-style-type: none"> 1. If the sensor name is DIMM Func 0, ensure that DIMM 0 is seated properly. If the sensor name is DIMM Func 1, ensure that DIMM 1 is seated properly. And so on. 2. If you recently installed or replaced memory DIMMs, ensure that the DIMMs are plugged in the correct memory slots. 3. If the sensor name is DIMM Func 0, replace DIMM 0. If the sensor name is DIMM Func 1, replace DIMM 1. And so on. Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • CPU Core Func 1 (0x3E) • CPU Core Func 2 (0x3F) • CPU Core Func 3 (0x40) 	<ul style="list-style-type: none"> • IERR • Transition to Non-recoverable • Predictive Failure 	Replace the system processor. Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure.
<ul style="list-style-type: none"> • CPU Core Func 4 (0x41) • CPU Core Func 5 (0x42) • CPU Core Func 6 (0x43) • CPU Core Func 7 (0x44) • CPU Core Func 8 (0x45) • CPU Core Func 9 (0x46) • CPU Core Func 10 (0x47) • CPU Core Func 11 (0x48) • CPU Core Func 12 (0x49) 	<ul style="list-style-type: none"> • Processor Disabled • FRB1 BIST Failure • FRB2 Hang In POST Failure • FRB3 Processor Startup Initialization Failure • Configuration Error • SMBIOS Uncorrectable CPU Complex Error • Terminator Presence Detected • Machine Check Exception • Correctable Machine Check Error • State Deasserted • Device Disabled • Transition to Critical from Less Severe • Transition to Non-recoverable from Less Severe • Transition to Critical from Non-recoverable • Thermal Trip • Processor Automatically Throttled • Processor Presence Detected • State Asserted • Device Enabled • Transition to OK • Transition to Non-Critical from OK • Transition to Non-Critical from More Severe • Monitor • Informational 	No service action is required.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • Membuf Func 0 (0x4A) • Membuf Func 1 (0x4B) • Membuf Func 2 (0x4C) • Membuf Func 3 (0x4D) 	<ul style="list-style-type: none"> • Uncorrectable Memory Error • Memory Device Disabled • State Deasserted • Device Disabled • Transition to Critical from Less Severe • Transition to Non-recoverable from Less Severe • Transition to Critical from Non-recoverable • Correctable Memory Error • Parity • Memory Scrub Failed • Correctable Memory Error Logging Limit Reached • Memory Automatically Throttled • Critical Over temperature • Presence Detected • Spare • State Asserted • Device Enabled • Transition to OK • Transition to Non-Critical from OK • Transition to Non-Critical from More Severe • Monitor • Informational 	No service action is required.
	<ul style="list-style-type: none"> • Configuration Error • Transition to Non-recoverable • Predictive Failure 	Replace the system backplane. Go to "8348-21C locations" on page 133 to identify the physical location and removal and replacement procedure.
Boot Count (0x50)	None	No service action is required.
Backplane Fault (0x51)	State Deasserted	No service action is required.
	State Asserted	Replace the system backplane. Go to "8348-21C locations" on page 133 to identify the physical location and removal and replacement procedure.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
System Event (0x52)	Undetermined system hardware failure	Go to "Collecting diagnostic data" on page 109. Then, go to "Contacting IBM service and support" on page 110.
	<ul style="list-style-type: none"> • System Reconfigured • OEM System boot event • Entry added to auxiliary log • PEF Action • Timestamp Clock Sync • Transition State Active • Transition State Idle • Transition State Busy 	No service action is required.
Activate Pwr Lt (0x53)	None	No service action is required.
<ul style="list-style-type: none"> • Ref Clock Fault (0x54) • PCI Clock Fault (0x55) 	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • DIMM Temp 0 (0x69) • DIMM Temp 1 (0x6A) • DIMM Temp 2 (0x6B) • DIMM Temp 3 (0x6C) • DIMM Temp 4 (0x6D) • DIMM Temp 5 (0x6E) • DIMM Temp 6 (0x6F) • DIMM Temp 7 (0x70) • DIMM Temp 8 (0x71) • DIMM Temp 9 (0x72) • DIMM Temp 10 (0x73) • DIMM Temp 11 (0x74) • DIMM Temp 12 (0x75) • DIMM Temp 13 (0x76) • DIMM Temp 14 (0x77) • DIMM Temp 15 (0x78) • DIMM Temp 16 (0x79) • DIMM Temp 17 (0x7A) • DIMM Temp 18 (0x7B) • DIMM Temp 19 (0x7C) • DIMM Temp 20 (0x7D) • DIMM Temp 21 (0x7E) • DIMM Temp 22 (0x7F) • DIMM Temp 23 (0x80) • DIMM Temp 24 (0x81) • DIMM Temp 25 (0x82) • DIMM Temp 26 (0x83) • DIMM Temp 27 (0x84) • DIMM Temp 28 (0x85) • DIMM Temp 29 (0x86) • DIMM Temp 30 (0x87) • DIMM Temp 31 (0x88) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • CPU Core Temp 1 (0x89) • CPU Core Temp 2 (0x8A) • CPU Core Temp 3 (0x8B) • CPU Core Temp 4 (0x8C) • CPU Core Temp 5 (0x8D) • CPU Core Temp 6 (0x8E) • CPU Core Temp 7 (0x8F) • CPU Core Temp 8 (0x90) • CPU Core Temp 9 (0x91) • CPU Core Temp 10 (0x92) • CPU Core Temp 11 (0x93) • CPU Core Temp 12 (0x94) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.
<ul style="list-style-type: none"> • Mem Proc0 Pwr (0xA1) • Mem Proc1 Pwr (0xA2) • Mem Proc2 Pwr (0xA3) • Mem Proc3 Pwr (0xA4) • Proc0 Power (0xA5) • PCIE Proc0 Pwr (0xA6) • Fan Power A (0xA9) • Mem Cache Power (0xAC) • GPU Power (0xAD) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action required.
<ul style="list-style-type: none"> • TOD Clock Fault (0x56) • APSS Fault (0x57) 	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.
PS Derating Fac (0x58)	None	No service action is required.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
OS Boot (0x5A)	<ul style="list-style-type: none"> • Installation aborted • Installation failed 	Ensure that the operating system boot image is loaded. Ensure that the disk drive or solid-state drive is ready. Reload the operating system boot image.
	<ul style="list-style-type: none"> • A: boot completed • C: boot completed • PXE boot completed • Diagnostic boot completed • CD-ROM boot completed • ROM boot completed • Boot completed - device not specified • Installation started • Installation completed 	No service action is required.
PCI (0x5B)	<ul style="list-style-type: none"> • State Deasserted • State Asserted 	No service action is required.
<ul style="list-style-type: none"> • Membuf Temp 0 (0x65) • Membuf Temp 1 (0x66) • Membuf Temp 2 (0x67) • Membuf Temp 3 (0x68) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
CPU Diode Sensor (0x0B)	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
Checkstop (0x0C)	IERR	<p>If this event immediately precedes a system power off, no service action is required. Otherwise, search for SEL events that meet the following criteria:</p> <ul style="list-style-type: none"> • The event has a time stamp in close proximity to the time stamp of this event. • A service action keyword is present. For a list of service action keywords, see “Identifying service action keywords in system event logs” on page 36. • Asserted is in the description. <p>If you found a SEL event that matches the criteria, perform the service action that is indicated in this table for the SEL event. Otherwise, go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110.</p>
	<ul style="list-style-type: none"> • Thermal Trip • Configuration Error • Processor Automatically Throttled • Correctable Machine Check Error • Processor Presence Detected 	No service action is required.
	<ul style="list-style-type: none"> • FRB1 BIST Failure • FRB2 Hang In POST Failure • FRB3 Processor Startup Initialization Failure • SMBIOS Uncorrectable CPU Complex Error • Processor Disabled • Terminator Presence Detected • Machine Check Exception 	Go to “Collecting diagnostic data” on page 109. Then, go to “Contacting IBM service and support” on page 110.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> PSU Fault 1 (0x5D) PSU Fault 2 (0x5E) 	Power Supply Failure Detected	An assert event immediately followed by a deassert event indicates that a power cycle of the system occurred. No service action is required. If there is no deassert event immediately following the assert event, replace the power supply. If the sensor name is PSU Fault 1, replace PSU 1. If the sensor name is PSU Fault 2, replace PSU 2. Go to "8348-21C locations" on page 133 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> Predictive Failure Power Supply Input Out of Range But Present 	If the sensor name is PSU Fault 1, replace PSU 1. If the sensor name is PSU Fault 2, replace PSU 2. Go to "8348-21C locations" on page 133 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> Power Supply Input Lost or AC DC Power Supply Input Lost Or Out Of Range 	Ensure that ac power is supplied to the rack. Ensure that the system power cords are plugged tightly into both the power supply and the rack PDU unit for both system power supplies. Go to "8348-21C locations" on page 133 to identify the physical location and removal and replacement procedure.
	Configuration Error	Ensure that both power supplies are securely seated in the system. Go to "8348-21C locations" on page 133 to identify the physical location and removal and replacement procedure.
	<ul style="list-style-type: none"> Presence Detected Power Supply Inactive 	No service action is required.
BIOS Golden Side (0x5C)	None	Go to "Resolving a system firmware boot failure" on page 4 and follow the service action for a system event log (SEL) with the value OEM record c0 and OEM c0 specific log information 3a1504xxxxxx.
BMC Golden Side (0x60)	None	Go to "Resolving a system firmware boot failure" on page 4 and follow the service action for a system event log (SEL) with the value OEM record c0 and OEM c0 specific log information 3a1504xxxxxx.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
<ul style="list-style-type: none"> • Fan 1 (0xB3) • Fan 2 (0xB4) • Fan 3 (0xB5) • Fan 4 (0xB6) • Fan 5 (0xB7) 	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.
Quick power drop (0x0D)	<ul style="list-style-type: none"> • IERR • Thermal Trip • FRB1 BIST Failure • FRB2 Hang In POST Failure • FRB3 Processor Startup Initialization Failure • Configuration Error • SMBIOS Uncorrectable CPU Complex Error • Processor Presence Detected • Processor Disabled • Terminator Presence Detected • Processor Automatically Throttled • Machine Check Exception • Correctable Machine Check Error 	No service action is required.
<ul style="list-style-type: none"> • IO A Power (0xA7) • IO B Power (0xA8) • Storage Power A (0xAA) • Storage Power B (0xAB) 		No service action is required.

Table 23. Sensor information, event description, and service action for the 8348-21C (continued)

Sensor name (Sensor ID)	Event description	Service action
CPU VDD Volt (0x0E)	<ul style="list-style-type: none"> • Lower Non-critical – going low • Lower Non-critical – going high • Lower Critical – going low • Lower Critical – going high • Lower Non-recoverable – going low • Lower Non-recoverable – going high • Upper Non-critical – going low • Upper Non-critical – going high • Upper Critical - going low • Upper Critical - going high • Upper Non-recoverable – going low • Upper Non-recoverable – going high 	No service action is required.

Isolation procedures

Use this information to isolate problems that might occur with your system.

EPUB_PRC_FIND_DECONFIGURE_PART isolation procedure

A part vital to the system has been deconfigured.

1. Use the `ipmitool` command to examine system event logs (SELs).
 - To list SELs by using an in-band network, use the following command:
`ipmitool sel elist`
 - To list SELs remotely over the LAN, use the following command:
`ipmitool -I lanplus -U <username> -P <password> -H <BMC IP address or BMC hostname> sel elist`
2. Identify all SELs with the value OEM record df and **Correctable Machine Check Error** or **Transition to Non-recoverable** in the description. Did you find one or more SELs with the value OEM record df and **Correctable Machine Check Error** or **Transition to Non-recoverable** in the description?

If	Then
Yes:	Continue with the next step.
No:	Go to “Contacting IBM service and support” on page 110. This ends the procedure.

3. Is your system an 8335-GCA, 8335-GTA, or 8335-GTB?

If	Then
Yes:	Continue with the next step.
No:	Continue with step 5 on page 97.

4. For each of the SELs that you identified in step 2, determine the sensor name that is associated with each SEL. Replace the following items, one at a time, until the problem is resolved:

Note: If your system is an 8335-GCA or 8335-GTA, go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure. If your system is an 8335-GTB, go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.

- If the sensor name is CPU Func 1 or CPU Core Func x , where x is 1 - 12, replace system processor CPU 1.
- If the sensor name is CPU Func 2 or CPU Core Func x , where x is 13 - 24, replace system processor CPU 2.
- If the sensor name is Mem Buf Func 1, replace memory riser 1. If the sensor name is Mem Buf Func 2, replace memory riser 2. And so on.

Does the problem persist?

If	Then
Yes:	Replace the system backplane. If the replacement of the system backplane does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.
No:	This ends the procedure.

5. The system is an 8348-21C. For each of the SELs that you identified in step 2 on page 96, are any of the sensor names CPU Func or CPU Core Func x , where x is 1 - 12?

Note: Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure.

If	Then
Yes:	Replace the system processor. Then, continue with the next step.
No:	Replace the system backplane. If the replacement of the system backplane does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.

6. Does the problem persist?

If	Then
Yes:	Replace the system backplane. If the replacement of the system backplane does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.
No:	This ends the procedure.

EPUB_PRC_SP_CODE isolation procedure

A problem was detected in the system firmware.

Update the system firmware image. Go to Getting fixes and update the system firmware with the most recent level of firmware. Then, reboot the system. If the system firmware update does not resolve the problem, go to “Contacting IBM service and support” on page 110. **This ends the procedure.**

EPUB_PRC_PHYP_CODE isolation procedure

A problem was detected in the system firmware.

Update the system firmware image. Go to Getting fixes and update the system firmware with the most recent level of firmware. Then, reboot the system. If the system firmware update does not resolve the problem, go to “Contacting IBM service and support” on page 110. **This ends the procedure.**

EPUB_PRC_ALL_PROCS isolation procedure

A problem was detected with a system processor.

Use the following table to determine the service action:

Table 24. EPUB_PRC_ALL_PROCS service actions

System	Service action
8335-GCA or 8335-GTA	<p>Replace the following items, one at a time, in the order that is shown until the problem is resolved:</p> <ol style="list-style-type: none">1. System processor CPU 12. System processor CPU 23. System backplane <p>Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure. If the replacement of the system processors and the system backplane does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.</p>
8335-GTB	<p>Replace the following items, one at a time, in the order that is shown until the problem is resolved:</p> <ol style="list-style-type: none">1. System processor CPU 12. System processor CPU 23. System backplane <p>Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure. If the replacement of the system processors and the system backplane does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.</p>
8348-21C	<p>Replace the following items, one at a time, in the order that is shown until the problem is resolved:</p> <ol style="list-style-type: none">1. System processor2. System backplane <p>Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure. If the replacement of the system processor and the system backplane does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.</p>

EPUB_PRC_ALL_MEMCRDS isolation procedure

A problem was detected with a memory DIMM, but it cannot be isolated to a specific memory DIMM.

1. Use the `ipmitool` command to examine system event logs (SELs).
 - To list SELs by using an in-band network, use the following command:
`ipmitool sel elist`
 - To list SELs remotely over the LAN, use the following command:
`ipmitool -I lanplus -U <username> -P <password> -H <BMC IP address or BMC hostname> sel elist`
2. Identify all SELs with the value OEM record df and **Transition to Non-recoverable** in the description. Did you find one or more SELs with the value OEM record df and **Transition to Non-recoverable** in the description?

If	Then
Yes:	Continue with the next step.
No:	Go to “Contacting IBM service and support” on page 110. This ends the procedure.

3. Is your system an 8335-GCA, 8335-GTA, or 8335-GTB?

If	Then
Yes:	Continue with the next step.
No:	Go to step 5.

4. For each of the SELs that you identified in step 2 on page 98, determine the sensor name that is associated with each SEL. Replace the following items, one at a time, until the problem is resolved:

Note: If your system is an 8335-GCA or 8335-GTA, go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and the removal and replacement procedure. If your system is an 8335-GTB, go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure.

- If the sensor name is Mem Buf Func 1, replace memory riser 1. If the sensor name is Mem Buf Func 2, replace memory riser 2. And so on.
- If the sensor name is DIMM Func 1, replace DIMM 1. If the sensor name is DIMM Func 2, replace DIMM 2. And so on.

Does the problem persist?

If	Then
Yes:	Replace the system backplane. If the replacement of the system backplane does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.
No:	This ends the procedure.

5. The system is an 8348-21C. For each of the SELs that you identified in step 2 on page 98, determine the sensor name that is associated with each SEL. Replace the following items, one at a time, until the problem is resolved:

Note: Go to “8348-21C locations” on page 133 to identify the physical location and the removal and replacement procedure.

- If the sensor name is Membuf Func *x*, replace the system backplane.
- If the sensor name is DIMM Func 0, replace DIMM 0. If the sensor name is DIMM Func 1, replace DIMM 1. And so on.

Does the problem persist?

If	Then
Yes:	If you have not already done so, replace the system backplane. If the replacement of the system backplane does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.
No:	This ends the procedure.

EPUB_PRC_LVL_SUPPORT isolation procedure

Contact your next level of support for assistance.

Go to “Contacting IBM service and support” on page 110.

EPUB_PRC_MEMORY_PLUGGING_ERROR isolation procedure

Memory DIMMs are plugged in a configuration that is not valid.

- If your system is an 8335-GCA or 8335-GTA, go to Plugging rules for memory in the 8335-GCA system.
- If your system is an 8335-GTB, go to Plugging rules for memory in the 8335-GTB system.
- If your system is an 8348-21C, go to Placement rules for memory in the 8348-21C system.

This ends the procedure.

EPUB_PRC_FSI_PATH isolation procedure

The system detected an error with the FSI path.

Use the following table to determine the service action:

Table 25. EPUB_PRC_FSI_PATH service actions

System	Service action
8335-GCA or 8335-GTA	<p>Replace the following items, one at a time, in the order that is shown until the problem is resolved:</p> <ol style="list-style-type: none">1. System processor CPU 12. System processor CPU 23. System backplane <p>Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure. If the replacement of the system processors and the system backplane does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.</p>
8335-GTB	<p>Replace the following items, one at a time, in the order that is shown until the problem is resolved:</p> <ol style="list-style-type: none">1. System processor CPU 12. System processor CPU 23. System backplane <p>Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure. If the replacement of the system processors and the system backplane does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.</p>
8348-21C	<p>Replace the following items, one at a time, in the order that is shown until the problem is resolved:</p> <ol style="list-style-type: none">1. System processor2. System backplane <p>Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure. If the replacement of the system processor and the system backplane does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.</p>

EPUB_PRC_PROC_AB_BUS isolation procedure

A diagnostic function detected an external processor interface problem.

Use the following table to determine the service action:

Table 26. EPUB_PRC_PROC_AB_BUS service actions

System	Service action
8335-GCA or 8335-GTA	<p>Replace the system backplane. If replacing the system backplane does not resolve the problem, replace system processor CPU 1. If replacing system processor CPU 1 does not resolve the problem, replace system processor CPU 2. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.</p> <p>If replacing the system backplane and both system processors does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.</p>
8335-GTB	<p>Replace the system backplane. If replacing the system backplane does not resolve the problem, replace system processor CPU 1. If replacing system processor CPU 1 does not resolve the problem, replace system processor CPU 2. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.</p> <p>If replacing the system backplane and both system processors does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.</p>
8348-21C	<p>Replace the system backplane. If replacing the system backplane does not resolve the problem, replace the system processor. Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure.</p> <p>If replacing the system backplane and the system processor does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.</p>

EPUB_PRC_PROC_XYZ_BUS isolation procedure

A diagnostic function detected an internal processor interface problem.

Use the following table to determine the service action:

Table 27. EPUB_PRC_PROC_XYZ_BUS service actions

System	Service action
8335-GCA or 8335-GTA	<p>Replace system processor CPU 1. If replacing system processor CPU 1 does not resolve the problem, replace system processor CPU 2. If replacing both system processors does not resolve the problem, replace the system backplane. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.</p> <p>If replacing the system backplane and both system processors does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.</p>
8335-GTB	<p>Replace system processor CPU 1. If replacing system processor CPU 1 does not resolve the problem, replace system processor CPU 2. If replacing both system processors does not resolve the problem, replace the system backplane. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.</p> <p>If replacing the system backplane and both system processors does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.</p>
8348-21C	<p>Replace the system processor. If replacing the system processor does not resolve the problem, replace the system backplane. Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure.</p> <p>If replacing the system backplane and the system processor does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.</p>

EPUB_PRC_EIBUS_ERROR isolation procedure

A bus error occurred.

- Use the `ipmitool` command to examine system event logs (SELs).
 - To list SELs by using an in-band network, use the following command:


```
ipmitool sel elist
```
 - To list SELs remotely over the LAN, use the following command:


```
ipmitool -I lanplus -U <username> -P <password> -H <BMC IP address or BMC hostname> sel elist
```
- Identify all SELs with the value OEM record df and **Correctable Machine Check Error** or **Transition to Non-recoverable** in the description. Did you find one or more SELs with the value OEM record df and **Correctable Machine Check Error** or **Transition to Non-recoverable** in the description?

If	Then
Yes:	Continue with the next step.
No:	Go to “Contacting IBM service and support” on page 110. This ends the procedure.

- Is your system an 8335-GCA, 8335-GTA, or 8335-GTB?

If	Then
Yes:	Continue with the next step.
No:	Continue with step 5.

4. For each of the SELs that you identified in step 2 on page 102, determine the sensor name that is associated with each SEL. Replace the following items, one at a time, until the problem is resolved:

Note: If your system is an 8335-GCA or 8335-GTA, go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure. If your system is an 8335-GTB, go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.

- If the sensor name is CPU Func 1 or CPU Core Func x , where x is 1 - 12, replace system processor CPU 1.
- If the sensor name is CPU Func 2 or CPU Core Func x , where x is 13 - 24, replace system processor CPU 2.
- If the sensor name is Mem Buf Func 1, replace memory riser 1. If the sensor name is Mem Buf Func 2, replace memory riser 2. And so on.

Does the problem persist?

If	Then
Yes:	Replace the system backplane. If the replacement of the system backplane does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.
No:	This ends the procedure.

5. The system is an 8348-21C. For each of the SELs that you identified in step 2 on page 102, are any of the sensor names CPU Func or CPU Core Func x , where x is 1 - 12?

Note: Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure.

If	Then
Yes:	Replace the system processor. Then, continue with the next step.
No:	Replace the system backplane. If the replacement of the system backplane does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.

6. Does the problem persist?

If	Then
Yes:	Replace the system backplane. If the replacement of the system backplane does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.
No:	This ends the procedure.

EPUB_PRC_POWER_ERROR isolation procedure

A power problem occurred.

Perform the service action indicated for any system event logs that are related to power and occurred prior to the problem that you are working on. Go to “Identifying a service action by using system event logs” on page 27. **This ends the procedure.**

EPUB_PRC_MEMORY_UE isolation procedure

An uncorrectable memory problem occurred.

1. Look for system event logs that are related to memory and occurred around the same time as the problem that you are working on. Go to “Identifying a service action by using system event logs” on page 27. Did you find any system event logs that are related to memory?

If	Then
Yes:	Perform the service actions indicated for the system event logs that are related to memory. This ends the procedure.
No:	Continue with the next step.

2. Use the following table to determine the service action:

Table 28. EPUB_PRC_MEMORY_UE service actions

System	Service action
8335-GCA or 8335-GTA	Replace system processor CPU 1. If replacing system processor CPU 1 does not resolve the problem, replace system processor CPU 2. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure. This ends the procedure.
8335-GTB	Replace system processor CPU 1. If replacing system processor CPU 1 does not resolve the problem, replace system processor CPU 2. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure. This ends the procedure.
8348-21C	Replace the system processor. Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure. This ends the procedure.

EPUB_PRC_HB_CODE isolation procedure

The service processor detected a problem during the early boot process.

1. Update the system firmware image. Go to Getting fixes and update the system firmware with the most recent level of firmware. Then, reboot the system. Does the problem persist?

If	Then
Yes:	Continue with the next step.
No:	This ends the procedure.

2. Use the `ipmitool` command to examine system event logs (SELs).
 - To list SELs by using an in-band network, use the following command:
`ipmitool sel elist`
 - To list SELs remotely over the LAN, use the following command:
`ipmitool -I lanplus -U <username> -P <password> -H <BMC IP address or BMC hostname> sel elist`
3. Identify all SELs with the value OEM record df and **Correctable Machine Check Error** or **Transition to Non-recoverable** in the description. Did you find one or more SELs with the value OEM record df and **Correctable Machine Check Error** or **Transition to Non-recoverable** in the description?

If	Then
Yes:	Continue with the next step.
No:	Go to "Contacting IBM service and support" on page 110. This ends the procedure.

4. Is your system an 8335-GCA, 8335-GTA, or 8335-GTB?

If	Then
Yes:	Continue with the next step.
No:	Continue with step 6.

5. For each of the SELs that you identified in step 3 on page 104, determine the sensor name that is associated with each SEL. Replace the following items, one at a time, until the problem is resolved:

Note: If your system is an 8335-GCA or 8335-GTA, go to "8335-GCA and 8335-GTA locations" on page 111 to identify the physical location and removal and replacement procedure. If your system is an 8335-GTB, go to "8335-GTB locations" on page 121 to identify the physical location and removal and replacement procedure.

- If the sensor name is CPU Func 1 or CPU Core Func x , where x is 1 - 12, replace system processor CPU 1.
- If the sensor name is CPU Func 2 or CPU Core Func x , where x is 13 - 24, replace system processor CPU 2.

Does the problem persist?

If	Then
Yes:	Replace the system backplane. If the replacement of the system backplane does not resolve the problem, go to "Contacting IBM service and support" on page 110. This ends the procedure.
No:	This ends the procedure.

6. The system is an 8348-21C. For each of the SELs that you identified in step 3 on page 104, are any of the sensor names CPU Func or CPU Core Func x , where x is 1 - 12?

Note: Go to "8348-21C locations" on page 133 to identify the physical location and removal and replacement procedure.

If	Then
Yes:	Replace the system processor. Then, continue with the next step.
No:	Replace the system backplane. If the replacement of the system backplane does not resolve the problem, go to "Contacting IBM service and support" on page 110. This ends the procedure.

7. Does the problem persist?

If	Then
Yes:	Replace the system backplane. If the replacement of the system backplane does not resolve the problem, go to "Contacting IBM service and support" on page 110. This ends the procedure.
No:	This ends the procedure.

EPUB_PRC_TOD_CLOCK_ERR isolation procedure

A diagnostic function detected a problem with the time of day or clock function.

Use the following table to determine the service action:

Table 29. EPUB_PRC_TOD_CLOCK_ERR service actions

System	Service action
8335-GCA or 8335-GTA	<p>Replace the system backplane. If replacing the system backplane does not resolve the problem, replace system processor CPU 1. If replacing system processor CPU 1 does not resolve the problem, replace system processor CPU 2. Go to “8335-GCA and 8335-GTA locations” on page 111 to identify the physical location and removal and replacement procedure.</p> <p>If replacing the system backplane and both system processors does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.</p>
8335-GTB	<p>Replace the system backplane. If replacing the system backplane does not resolve the problem, replace system processor CPU 1. If replacing system processor CPU 1 does not resolve the problem, replace system processor CPU 2. Go to “8335-GTB locations” on page 121 to identify the physical location and removal and replacement procedure.</p> <p>If replacing the system backplane and both system processors does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.</p>
8348-21C	<p>Replace the system backplane. If replacing the system backplane does not resolve the problem, replace the system processor. Go to “8348-21C locations” on page 133 to identify the physical location and removal and replacement procedure.</p> <p>If replacing the system backplane and the system processor does not resolve the problem, go to “Contacting IBM service and support” on page 110. This ends the procedure.</p>

EPUB_PRC_COOLING_SYSTEM_ERR isolation procedure

One or more processor sensors detected an over temperature condition.

To resolve the over temperature condition, complete the following steps:

1. Is your system a water-cooled 8335-GTB?

If	Then
Yes:	Go to “Resolving an over temperature problem for a water-cooled 8335-GTB system” on page 26. This ends the procedure.
No:	Continue with the next step.

2. If your system is an 8335-GCA, 8335-GTA, or 8335-GTB, is the room temperature less than 40°C (104°F)? If your system is an 8348-21C, is the room temperature less than 35°C (95°F)?

If	Then
No:	Bring the room temperature to within the allowable operating range. This ends the procedure.
Yes:	Continue with the next step.

3. Are the system front and rear doors free of obstructions?

If	Then
No:	The system must be free of obstructions for proper air flow. Remove any obstructions. This ends the procedure.
Yes:	Continue with the next step.

4. Perform the service action indicated for any system event logs that are related to fans and occurred prior to the problem that you are working on. Go to “Identifying a service action by using system event logs” on page 27. **This ends the procedure.**

EPUB_PRC_GPU_ISOLATION_PROCEDURE isolation procedure

Learn how to identify the service action that is needed to resolve a graphics processing unit (GPU) problem.

1. Is the system an 8335-GTB?

If	Then
Yes:	Continue with the next step.
No:	Go to “Contacting IBM service and support” on page 110. This ends the procedure.

2. Use the `ipmitool` command to examine system event logs (SELs).

- To list SELs by using an in-band network, use the following command:

```
ipmitool sel elist
```

- To list SELs remotely over the LAN, use the following command:

```
ipmitool -I lanplus -U <username> -P <password> -H <BMC IP address or BMC hostname> sel elist
```

3. Identify all SELs with **CPU Func** or **CPU Core Func** in the description. Did you find one or more SELs with **CPU Func** or **CPU Core Func** in the description?

If	Then
Yes:	Continue with the next step.
No:	Go to “Contacting IBM service and support” on page 110. This ends the procedure.

4. For each of the SELs that you identified in step 3, is the sensor name **CPU Func 1** or **CPU Core Func x**, where *x* is 1 - 12?

If	Then
Yes:	Continue with the next step.
No:	Continue with step 6 on page 108.

5. Replace the following items one at a time until the problem is resolved:

Note: Go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure.

- CPU 1

- b. GPU 2
- c. GPU 1
- d. System backplane

This ends the procedure.

6. Is the sensor name **CPU Func 2** or **CPU Core Func x**, where *x* is 13 - 24?

If	Then
Yes:	Continue with the next step.
No:	Go to “Contacting IBM service and support” on page 110. This ends the procedure.

7. Replace the following items one at a time until the problem is resolved:

Note: Go to “8335-GTB locations” on page 121 to identify the physical location and the removal and replacement procedure.

- a. CPU 2
- b. GPU 4
- c. GPU 3
- d. System backplane

This ends the procedure.

Verifying a repair

Learn how to verify hardware operation after you make repairs to the system.

1. Power on the system.
2. Did you replace a graphics processing unit (GPU), PCIe adapter, disk drive, or solid-state drive?

If	Then
Yes:	Go to step 5.
No:	Continue with the next step.

3. Scan the system event logs (SELs) for serviceable events that occurred after system hardware was replaced. For information about SELs that require a service action, see “Identifying a service action by using system event logs” on page 27.
4. Did any serviceable SEL events occur after hardware was replaced?

If	Then
Yes:	The problem is not resolved. Go to “Identifying a service action by using system event logs” on page 27 and complete the service actions indicated. This ends the procedure.
No:	The problem is resolved. This ends the procedure.

5. Use the following table to determine the verification action to complete:

Table 30. Determining a verification action for GPUs, PCIe adapters, and devices

Adapter type	Verification action
Devices that are controlled by a RAID adapter	Complete the following steps: <ol style="list-style-type: none"> 1. Install the arccconf utility for the RAID adapter. 2. Type ARCCONF GETSMARTSTATS 1 at the command prompt and press Enter. 3. Verify that the self-monitoring, analysis and reporting technology system (SMART) health assessment for the device passed.
Devices that are not controlled by a RAID adapter	Complete the following steps: <ol style="list-style-type: none"> 1. Install the smartmontools utility. 2. Type apt-get install smartmontools at the command prompt and press Enter. 3. At the command prompt, type smartctl --all /dev/sdx, where <i>x</i> is the letter that is associated with the drive. 4. Verify that the SMART health assessment passed.
GPU	Complete the following steps: <ol style="list-style-type: none"> 1. Type nvidia-smi -L at the command prompt and press Enter. Verify that the GPU is listed. 2. Type nvidia-smi -q at the command prompt and press Enter. Verify that no errors are listed.
Network adapter	Complete the following steps: <ol style="list-style-type: none"> 1. At the command prompt, type ethtool ethx, where <i>x</i> is the number of the physical port that you are testing. Verify that the connection speed that is indicated in the output is correct. 2. Perform a ping test to verify the network connectivity.
RAID adapter	Complete the following steps: <ol style="list-style-type: none"> 1. Install the arccconf utility for the RAID adapter. 2. Type ARCCONF GETLOGS 1 STATS at the command prompt and press Enter. 3. Verify that usage statistics are returned. The presence of usage statistics indicates that the adapter is functioning properly.

Collecting diagnostic data

Learn how to collect diagnostic data to send to IBM service and support.

To collect diagnostic data, complete the following steps:

1. Is the operating system available?

If	Then
Yes:	Continue with step 2.
No:	Continue with step 3 on page 110.

2. To collect diagnostic data from the operating system, complete the following steps:
 - a. Log in as root user.

- b. At the command prompt, type `sosreport` and press Enter.
 - c. You are prompted for additional information. When the command is complete, the location of the output file is displayed. Note the location of the output file. Then, continue with the next step.
3. To collect system event logs, complete the following steps:
 - a. Go to the IBM Support Portal (<http://www.ibm.com/support/entry/portal/support>).
 - b. In the search field, enter your machine type and model. Then, click the correct product support entry for your system.
 - c. From the **Downloads** list, click **Scale-out LC system event log collection tool**.
 - d. Follow the instructions to install and run the system event log collection tool. Then, continue with the next step.
 4. Send the data that you collected during this procedure to IBM service and support. **This ends the procedure.**

Contacting IBM service and support

You can contact IBM service and support by telephone or through the IBM Support Portal.

Before you contact IBM service and support, go to “Beginning troubleshooting and problem analysis” on page 1 and complete all of the service actions indicated. If the service actions do not resolve the problem, or if you are directed to contact support, go to “Collecting diagnostic data” on page 109. Then, use the information below to contact IBM service and support.

Customers in the United States, United States territories, or Canada can place a hardware service request online. To place a hardware service request online, go to the IBM Support Portal(http://www.ibm.com/support/entry/portal/product/power/scale-out_lc).

For up-to-date telephone contact information, go to the Directory of worldwide contacts website (www.ibm.com/planetwide/).

Table 31. Service and support contacts

Type of problem	Call
<ul style="list-style-type: none"> • Advice • Migrating • "How to" • Operating • Configuring • Ordering • Performance • General information 	<ul style="list-style-type: none"> • 1-800-IBM-CALL (1-800-426-2255) • 1-800-IBM-4YOU (1-800-426-4968)
Software: <ul style="list-style-type: none"> • Fix information • Operating system problem • IBM application program • Loop, hang, or message Hardware: <ul style="list-style-type: none"> • IBM system hardware broken • Hardware reference code • IBM input/output (I/O) problem • Upgrade 	1-800-IBM-SERV (1-800-426-7378)

Finding parts and locations

Locate physical part locations and identify parts with system diagrams.

Locate the FRU

Use the graphics and tables to locate the field-replaceable unit (FRU) and identify the FRU part number.

8335-GCA and 8335-GTA locations

Use this information to find the location of a FRU in the system unit.

Rack views

The following diagrams show field-replaceable unit (FRU) layouts in the system. Use these diagrams with the following tables.

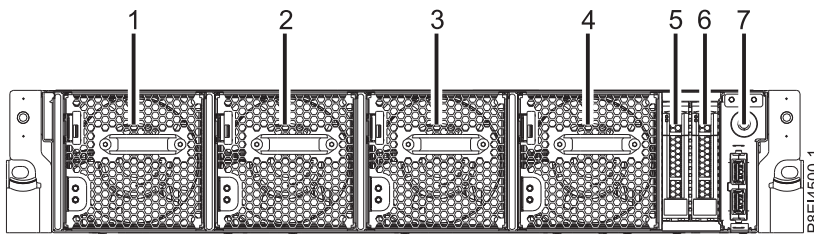


Figure 1. Front view

Table 32. Front view locations

Index number	FRU description	FRU removal and replacement procedures
1	Fan 1	See Removing and replacing a fan in the 8335-GCA or 8335-GTA.
2	Fan 2	
3	Fan 3	
4	Fan 4	
5	HDD 0	See Removing and replacing a disk drive in the 8335-GCA or 8335-GTA.
6	HDD 1	
7	Power switch and power switch cable	See Removing and replacing the power switch and cable for 8335-GCA or 8335-GTA.

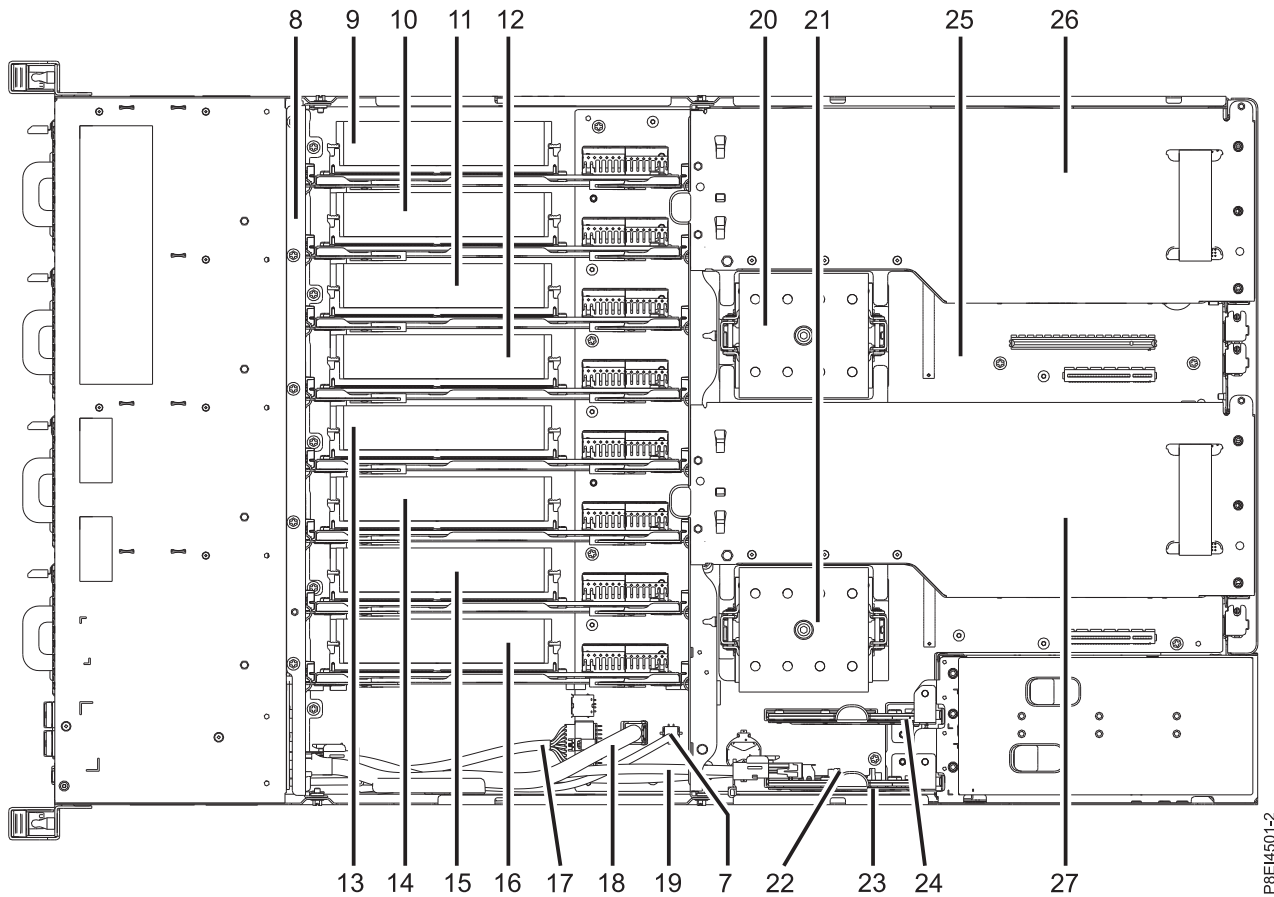


Figure 2. Top view

Table 33. Top view locations

Index number	FRU description	FRU removal and replacement procedures
7	Power switch and power switch cable	See Removing and replacing the power switch and cable for 8335-GCA or 8335-GTA.
8	Disk drive and fan card	See Removing and replacing the disk drive and fan card in the 8335-GCA or 8335-GTA.
9	Memory riser 1	See Removing and replacing memory risers in the 8335-GCA or 8335-GTA.
10	Memory riser 2	
11	Memory riser 3	
12	Memory riser 4	
13	Memory riser 5	
14	Memory riser 6	
15	Memory riser 7	
16	Memory riser 8	
17	Front USB cable with connector	See Removing and replacing the front USB cable for 8335-GCA or 8335-GTA.

Table 33. Top view locations (continued)

Index number	FRU description	FRU removal and replacement procedures
18	Disk and fan signal cable	See Removing and replacing the disk and fan signal cable in the 8335-GCA or 8335-GTA.
19	Fan power cable	See Removing and replacing the fan power cable in the 8335-GCA or 8335-GTA.
20	CPU 1	See Removing and replacing a system processor module for the 8335-GCA or 8335-GTA.
21	CPU 2	
22	Time-of-day battery	See Removing and replacing the time-of-day battery in the 8335-GCA or 8335-GTA.
23	Power riser with time-of-day battery	See Removing and replacing power risers in the 8335-GCA or 8335-GTA.
24	Power riser without time-of-day battery	
25	System backplane	See Removing and replacing the system backplane in the 8335-GCA or 8335-GTA.
26	GPU 2 or PCIe adapter 5	If the FRU is a GPU, see Removing and replacing a graphics processing unit for the 8335-GCA or 8335-GTA. If the FRU is a PCIe adapter, see Removing and replacing a PCIe adapter in a PCIe riser of the 8335-GCA or 8335-GTA.
27	GPU 1 or PCIe adapter 2	

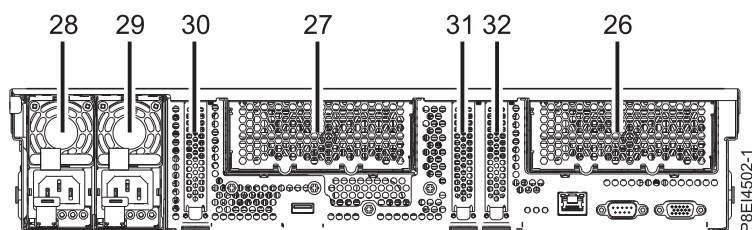


Figure 3. Rear view

Table 34. Rear view locations

Index number	FRU description	FRU removal and replacement procedures
26	GPU 2 or PCIe adapter 5	If the FRU is a GPU, see Removing and replacing a graphics processing unit for the 8335-GCA or 8335-GTA. If the FRU is a PCIe adapter, see Removing and replacing a PCIe adapter in a PCIe riser of the 8335-GCA or 8335-GTA.
27	GPU 1 or PCIe adapter 2	
28	PSU 2	See Removing and replacing a power supply in the 8335-GCA or 8335-GTA.
29	PSU 1	

Table 34. Rear view locations (continued)

Index number	FRU description	FRU removal and replacement procedures
30	PCIe adapter 1	See Removing and replacing a PCIe adapter on the system backplane of the 8335-GCA or 8335-GTA.
31	PCIe adapter 3	
32	PCIe adapter 4	

Memory locations

The following diagram shows memory riser cards and their corresponding field-replaceable unit (FRU) layouts in the system. Use this diagram with the following table.

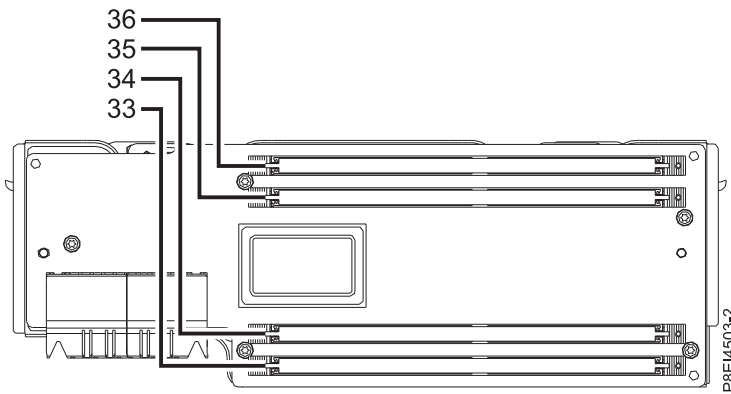


Figure 4. Memory locations on memory riser cards

The following table provides the memory locations on the memory riser cards.

Table 35. Memory locations on memory riser cards.

Index number	Memory riser card	FRU description	FRU removal and replacement procedures
33	Memory riser 1	DIMM 1	See Removing and replacing memory DIMMs in the 8335-GCA or 8335-GTA.
	Memory riser 2	DIMM 5	
	Memory riser 3	DIMM 9	
	Memory riser 4	DIMM 13	
	Memory riser 5	DIMM 17	
	Memory riser 6	DIMM 21	
	Memory riser 7	DIMM 25	
	Memory riser 8	DIMM 29	

Table 35. Memory locations on memory riser cards (continued).

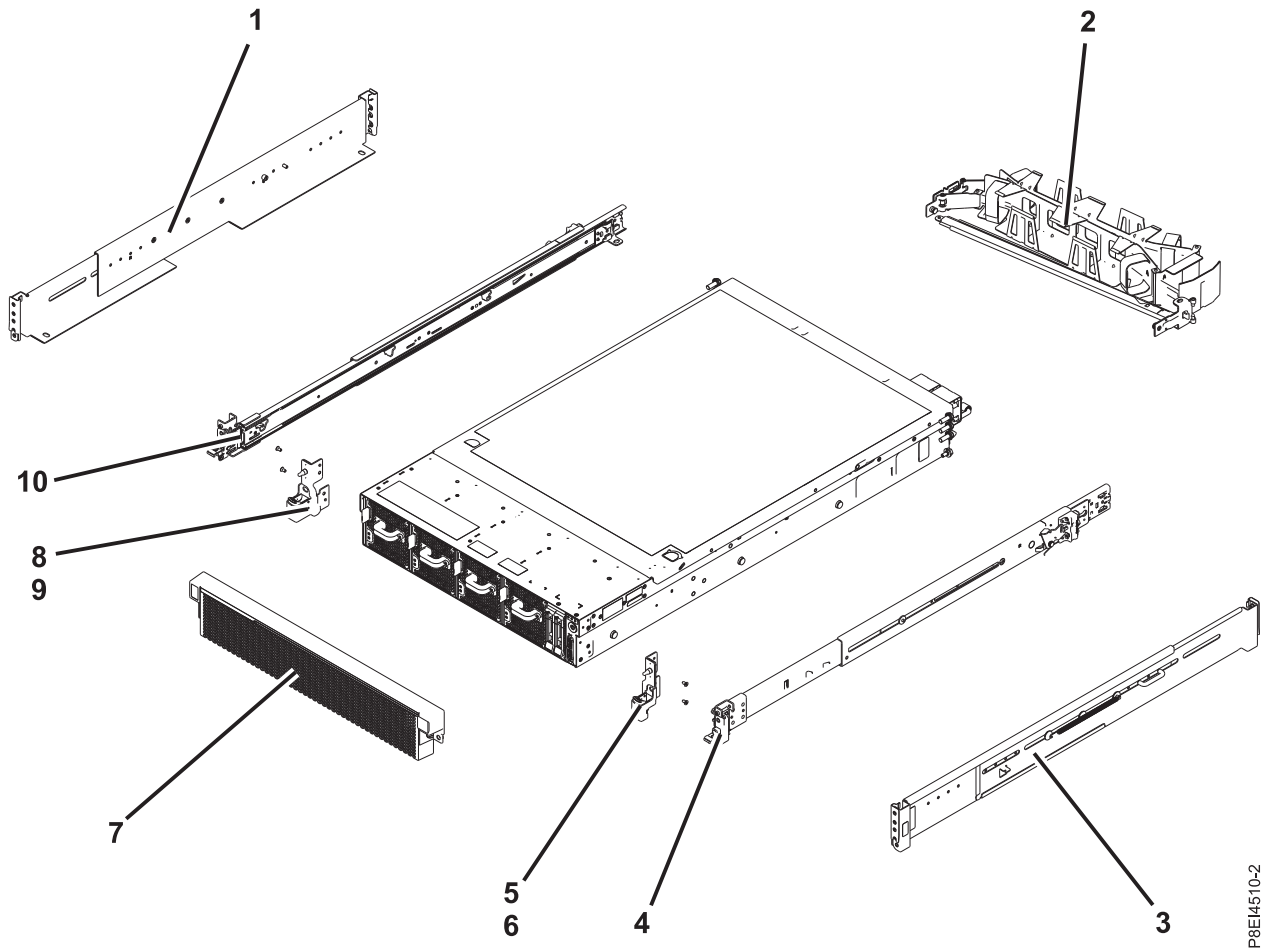
Index number	Memory riser card	FRU description	FRU removal and replacement procedures
34	Memory riser 1	DIMM 2	See Removing and replacing memory DIMMs in the 8335-GCA or 8335-GTA.
	Memory riser 2	DIMM 6	
	Memory riser 3	DIMM 10	
	Memory riser 4	DIMM 14	
	Memory riser 5	DIMM 18	
	Memory riser 6	DIMM 22	
	Memory riser 7	DIMM 26	
	Memory riser 8	DIMM 30	
35	Memory riser 1	DIMM 3	See Removing and replacing memory DIMMs in the 8335-GCA or 8335-GTA.
	Memory riser 2	DIMM 7	
	Memory riser 3	DIMM 11	
	Memory riser 4	DIMM 15	
	Memory riser 5	DIMM 19	
	Memory riser 6	DIMM 23	
	Memory riser 7	DIMM 27	
	Memory riser 8	DIMM 31	
36	Memory riser 1	DIMM 4	See Removing and replacing memory DIMMs in the 8335-GCA or 8335-GTA.
	Memory riser 2	DIMM 8	
	Memory riser 3	DIMM 12	
	Memory riser 4	DIMM 16	
	Memory riser 5	DIMM 20	
	Memory riser 6	DIMM 24	
	Memory riser 7	DIMM 28	
	Memory riser 8	DIMM 32	

8335-GCA and 8335-GTA parts

Use this information to find the field-replaceable unit (FRU) part number.

After you identify the part number of the part that you want to order, go to Advanced Part Exchange Warranty Service. Registration is required. If you are not able to identify the part number, go to Contacting IBM service and support.

Rack final assembly



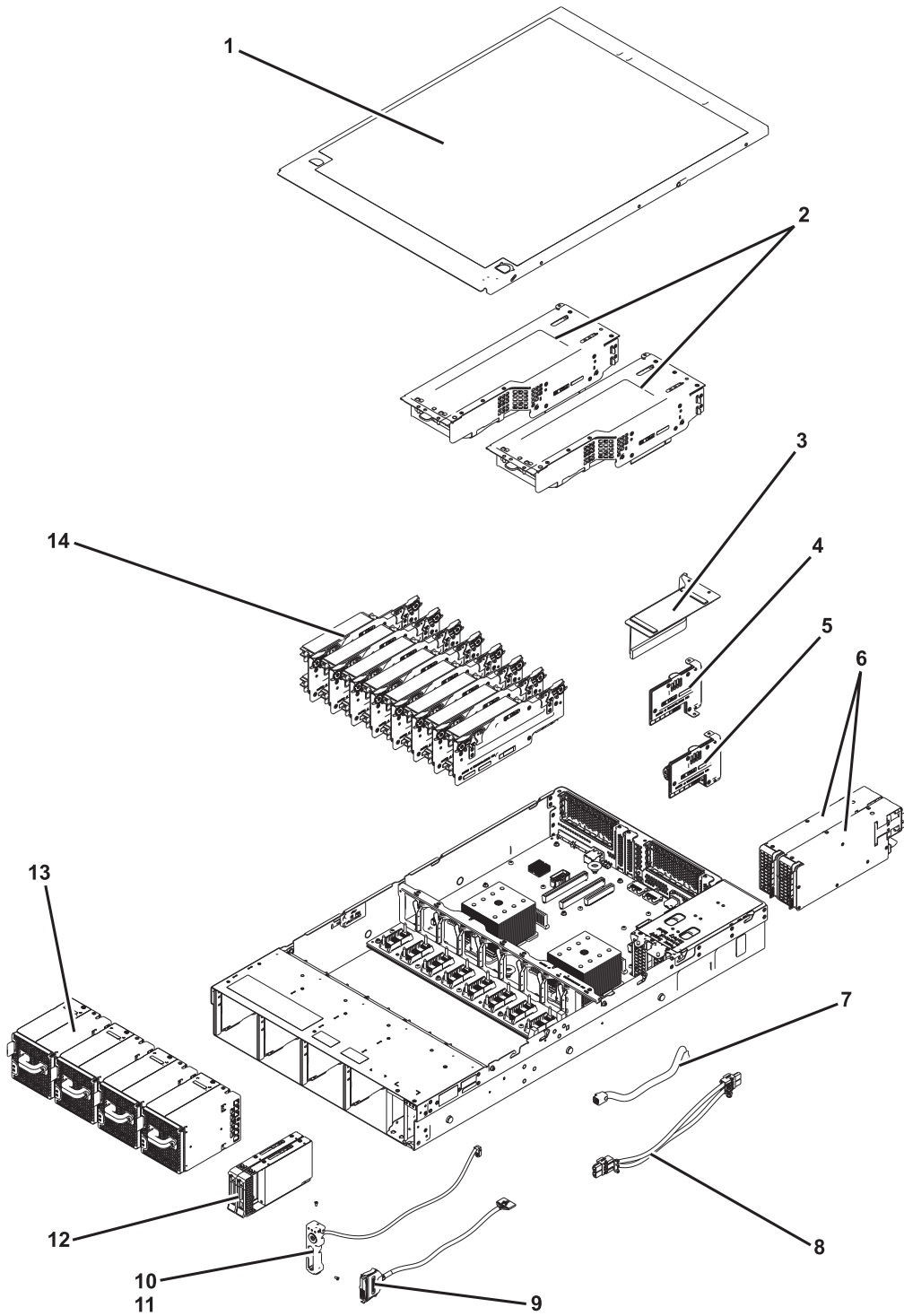
P8E14510-2

Figure 5. Rack final assembly

Table 36. Rack final assembly part numbers

Index number	Part number	Units per assembly	Description
1	45W8836	1	Fixed rail kit - contains left and right fixed rails and attaching screws
2	74Y9063	1	Cable management arm assembly
3	45W8836	1	Fixed rail kit - contains left and right fixed rails and attaching screws
4	00E4260	1	Slide rail kit - contains left and right slide rails and attaching screws
5		1	Electronic Industries Association (EIA) bracket (right side)
6		2	Attaching screw for EIA bracket (right side)
7	00E4501	1	Bezel
8		1	EIA bracket (left side)
9		2	Attaching screw for EIA bracket (left side)
10	00E4260	1	Slide rail kit - contains left and right slide rails and attaching screws

System parts



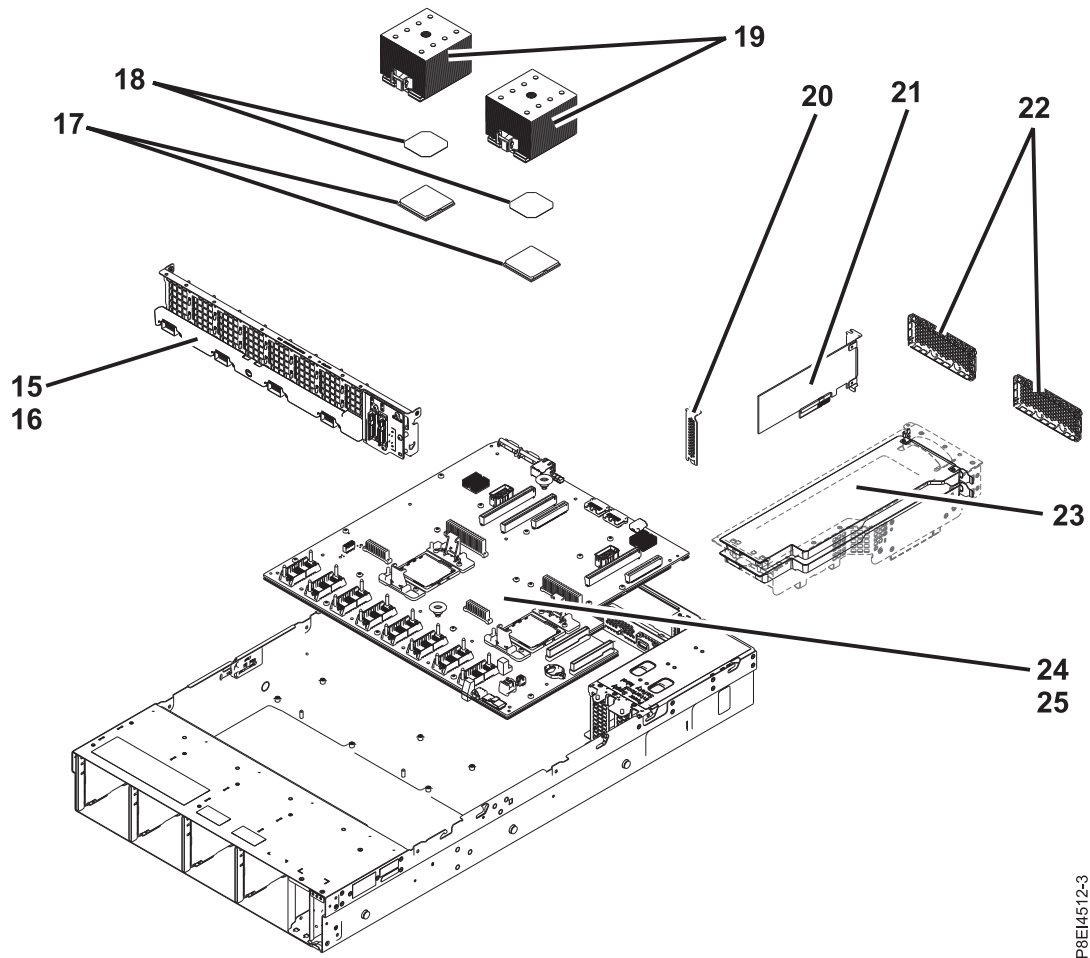
P8EK511+2

Figure 6. System parts

Table 37. System parts

Index number	Part number	Units per assembly	Description
1		1	Top access cover assembly
2	00E4485	1	Graphics processing unit (GPU) riser with GPU
	00E4484	2	GPU riser without GPU Note: Requires two riser fillers. See index 23 in Table 38 on page 119 for the riser filler part number.
	00E4475	2	PCIe riser Notes: <ul style="list-style-type: none"> • If a PCIe adapter is present, one riser filler is required. See index 21 in Table 38 on page 119 for PCIe adapter part numbers and index 23 in Table 38 on page 119 for the riser filler part number. • If a PCIe adapter is not present, two riser fillers are required. See index 23 in Table 38 on page 119 for the riser filler part number.
3		1	Power riser cover
4	00E4473	1	Power riser without time-of-day battery slot
5	00E4474	1	Power riser with time-of-day battery slot Note: The power riser part number does not include the time-of-day battery. The time-of-day battery is a CR2450N lithium battery.
6	01AF370	2	Power supply
7	00E4482	1	Disk and fan signal cable
8	00E4481	1	Fan power cable
9	00E4483	1	Front USB cable with connector
10	00E4525	1	Power switch and power switch cable
11		2	Screw
12	00E4252	2	Drive filler
	00LY266	2	1 TB disk drive
	00LY418	2	2 TB disk drive
	00LY409	2	480 GB solid-state drive
	00LY410	2	480 GB solid-state drive
	00LY411	2	960 GB solid-state drive
	00LY412	2	960 GB solid-state drive
	00LY423	2	1.92 TB solid-state drive
13	00E4256	4	Fan
14	00E4251	8	Memory riser filler
	00LY064	8	Memory riser
	78P4489	32	4 GB, 1600 Mhz DDR3 RDIMM
	78P4490	32	8 GB, 1600 Mhz DDR3 RDIMM
	78P4491	32	16 GB, 1600 Mhz DDR3 RDIMM
	78P4492	32	32 GB, 1333 Mhz DDR3 RDIMM Note: The DIMM FRU might include a heat spreader. DIMMs with heat spreaders and DIMMs without heat spreaders can be used together in the system.

Additional system parts



P8E14512-3

Figure 7. Additional system parts

Table 38. Additional system parts.

Index number	Part number	Units per assembly	Description
15	00E4472	1	Disk drive and fan card
16	00E4476	1	Screw kit Note: The screw kit includes 12 screws for the disk drive and fan card and 16 screws for the system backplane.
17	01AF287	2	8 core 3.625 GHz system processor module
	01AF288	2	10 core 3.259 GHz system processor module
18	01AF286	2	Heat sink kit (includes heat sink and thermal interface material)
19	01AF286	2	Heat sink kit (includes heat sink and thermal interface material)
20	46K5109	3	PCI filler
21		3	PCIe adapters. Use the feature type of the adapter to find the FRU part number in PCIe adapter information by feature type for the 8335-GCA or 8335-GTA.

Table 38. Additional system parts (continued).

Index number	Part number	Units per assembly	Description
22	00E4255	2	Graphics processing unit (GPU) shield
23	00E4514	2	Riser fillers for the GPU riser or the PCIe riser
24	00E4470	1	System backplane
25	00E4476	1	Screw kit Note: The screw kit includes 12 screws for the disk drive and fan card and 16 screws for the system backplane.

Finding parts and locations

Locate physical part locations and identify parts with system diagrams.

Locate the FRU

Use the graphics and tables to locate the field-replaceable unit (FRU) and identify the FRU part number.

8335-GTB locations

Use this information to find the location of a FRU in the system unit.

Rack views

The following diagrams show field-replaceable unit (FRU) layouts in the system. Use these diagrams with the following tables.

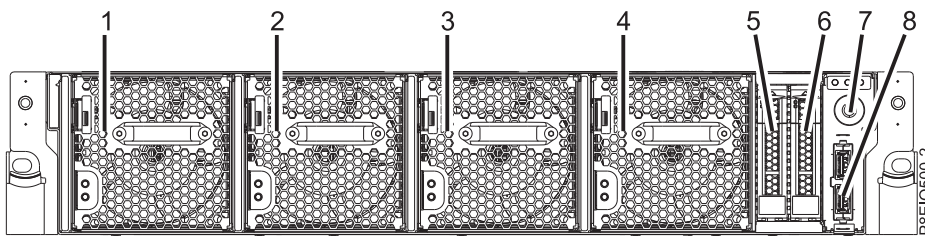
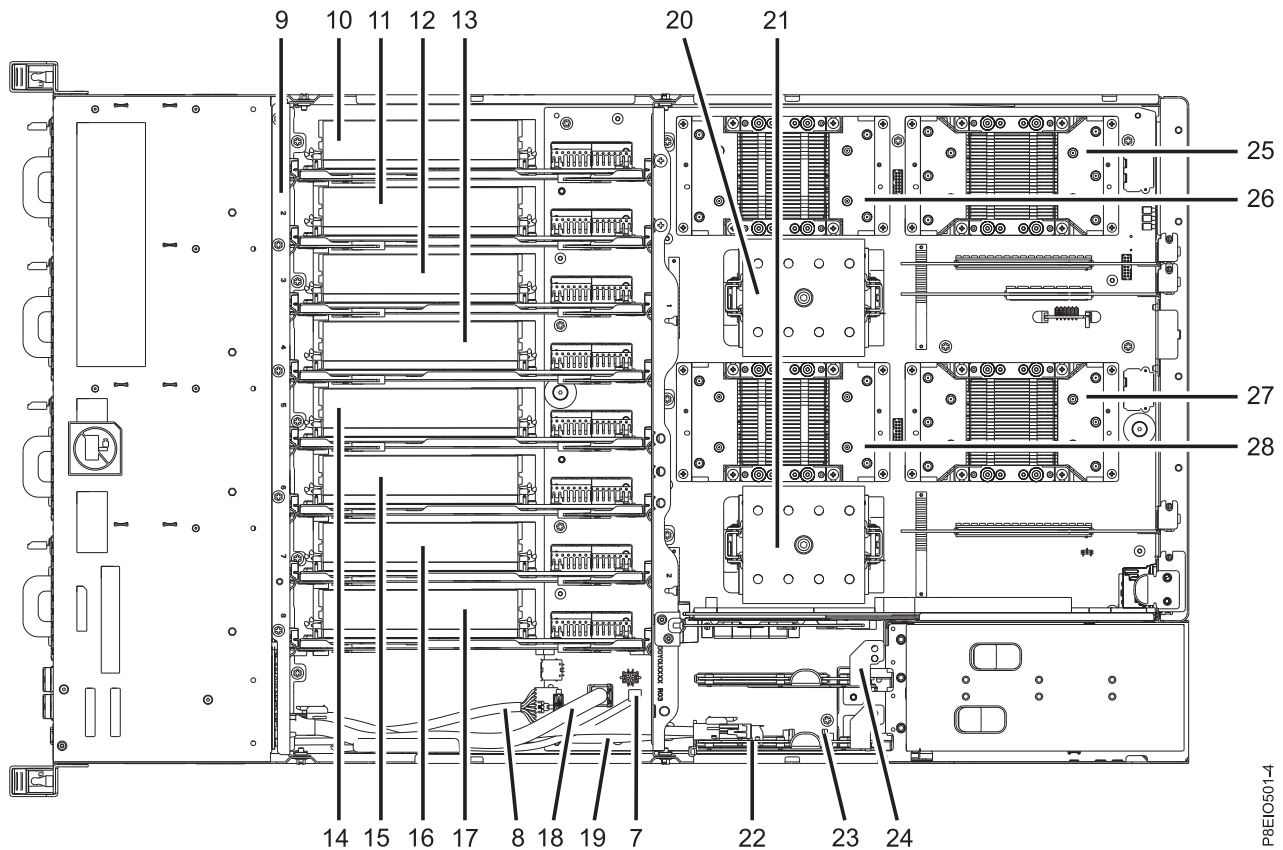


Figure 8. Front view

Table 39. Front view locations

Index number	FRU description	FRU removal and replacement procedures
1	Fan 1	See Removing and replacing fans in the 8335-GTB.
2	Fan 2	
3	Fan 3	
4	Fan 4	
5	HDD 0	See Removing and replacing a disk drive in the 8335-GTB.
6	HDD 1	
7	Power switch and cable	See Removing and replacing the power switch and cable in the 8335-GTB.
8	Front USB cable and connector	See Removing and replacing the front USB cable and connector in the 8335-GTB.



P8EIO501-4

Figure 9. Top view

Table 40. Top view locations

Index number	FRU description	FRU removal and replacement procedures
7	Power switch and cable	See Removing and replacing the power switch and cable in the 8335-GTB.
8	Front USB cable and connector	See Removing and replacing the front USB cable and connector in the 8335-GTB.
9	Disk drive and fan card	See Removing and replacing the disk drive and fan card in the 8335-GTB.
10	Memory riser 1	See Removing and replacing memory risers in the 8335-GTB.
11	Memory riser 2	
12	Memory riser 3	
13	Memory riser 4	
14	Memory riser 5	
15	Memory riser 6	
16	Memory riser 7	
17	Memory riser 8	
18	Disk and fan signal cable	See Removing and replacing the disk and fan signal cable in the 8335-GTB.

Table 40. Top view locations (continued)

Index number	FRU description	FRU removal and replacement procedures
19	Fan power cable	See Removing and replacing the fan power cable in the 8335-GTB.
20	CPU 1	See Removing and replacing a system processor module for the 8335-GTB.
21	CPU 2	
22	Time-of-day battery	See Removing and replacing the time-of-day battery in the 8335-GTB.
23	Power riser with time-of-day battery	See Removing and replacing power risers in the 8335-GTB.
24	Power riser without time-of-day battery	
25	GPU 1	See Removing and replacing a graphics processing unit in the 8335-GTB.
26	GPU 2	
27	GPU 3	
28	GPU 4	

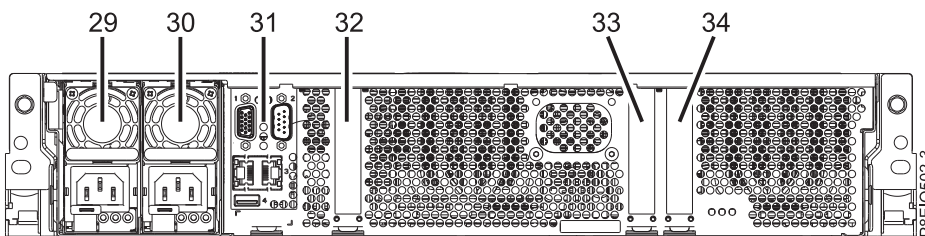


Figure 10. Rear view

Table 41. Rear view locations

Index number	FRU description	FRU removal and replacement procedures
29	PSU 2	See Removing and replacing a power supply in the 8335-GTB.
30	PSU 1	
31	Baseboard management controller (BMC) card	See Removing and replacing the BMC card in the 8335-GTB.
32	PCIe adapter 1	See Removing and replacing PCIe adapters in the 8335-GTB.
33	PCIe adapter 2	
34	PCIe adapter 3	

Memory locations

The following diagram shows memory riser cards and their corresponding field-replaceable unit (FRU) layouts in the system. Use this diagram with the following table.

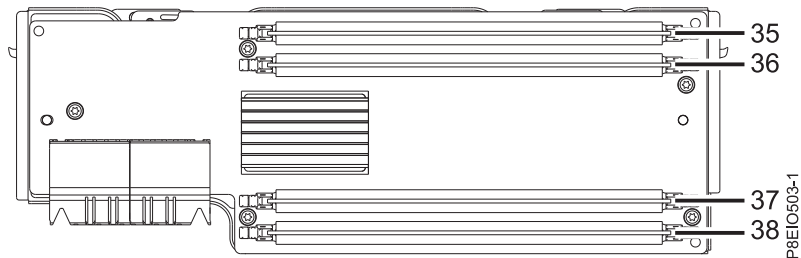


Figure 11. Memory locations on memory riser cards

The following table provides the memory locations on the memory riser cards.

Table 42. Memory locations on memory riser cards

Index number	Memory riser card	FRU description	FRU removal and replacement procedures
35	Memory riser 1	DIMM 1	See Removing and replacing memory DIMM in the 8335-GTB.
	Memory riser 2	DIMM 5	
	Memory riser 3	DIMM 9	
	Memory riser 4	DIMM 13	
	Memory riser 5	DIMM 17	
	Memory riser 6	DIMM 21	
	Memory riser 7	DIMM 25	
	Memory riser 8	DIMM 29	
36	Memory riser 1	DIMM 2	See Removing and replacing memory DIMM in the 8335-GTB.
	Memory riser 2	DIMM 6	
	Memory riser 3	DIMM 10	
	Memory riser 4	DIMM 14	
	Memory riser 5	DIMM 18	
	Memory riser 6	DIMM 22	
	Memory riser 7	DIMM 26	
	Memory riser 8	DIMM 30	
37	Memory riser 1	DIMM 3	See Removing and replacing memory DIMM in the 8335-GTB.
	Memory riser 2	DIMM 7	
	Memory riser 3	DIMM 11	
	Memory riser 4	DIMM 15	
	Memory riser 5	DIMM 19	
	Memory riser 6	DIMM 23	
	Memory riser 7	DIMM 27	
	Memory riser 8	DIMM 31	

Table 42. Memory locations on memory riser cards (continued)

Index number	Memory riser card	FRU description	FRU removal and replacement procedures
38	Memory riser 1	DIMM 4	See Removing and replacing memory DIMM in the 8335-GTB.
	Memory riser 2	DIMM 8	
	Memory riser 3	DIMM 12	
	Memory riser 4	DIMM 16	
	Memory riser 5	DIMM 20	
	Memory riser 6	DIMM 24	
	Memory riser 7	DIMM 28	
	Memory riser 8	DIMM 32	

8335-GTB parts

Use this information to find the field-replaceable unit (FRU) part number.

After you identify the part number of the part that you want to order, go to Advanced Part Exchange Warranty Service. Registration is required. If you are not able to identify the part number, go to Contacting IBM service and support.

Rack final assembly

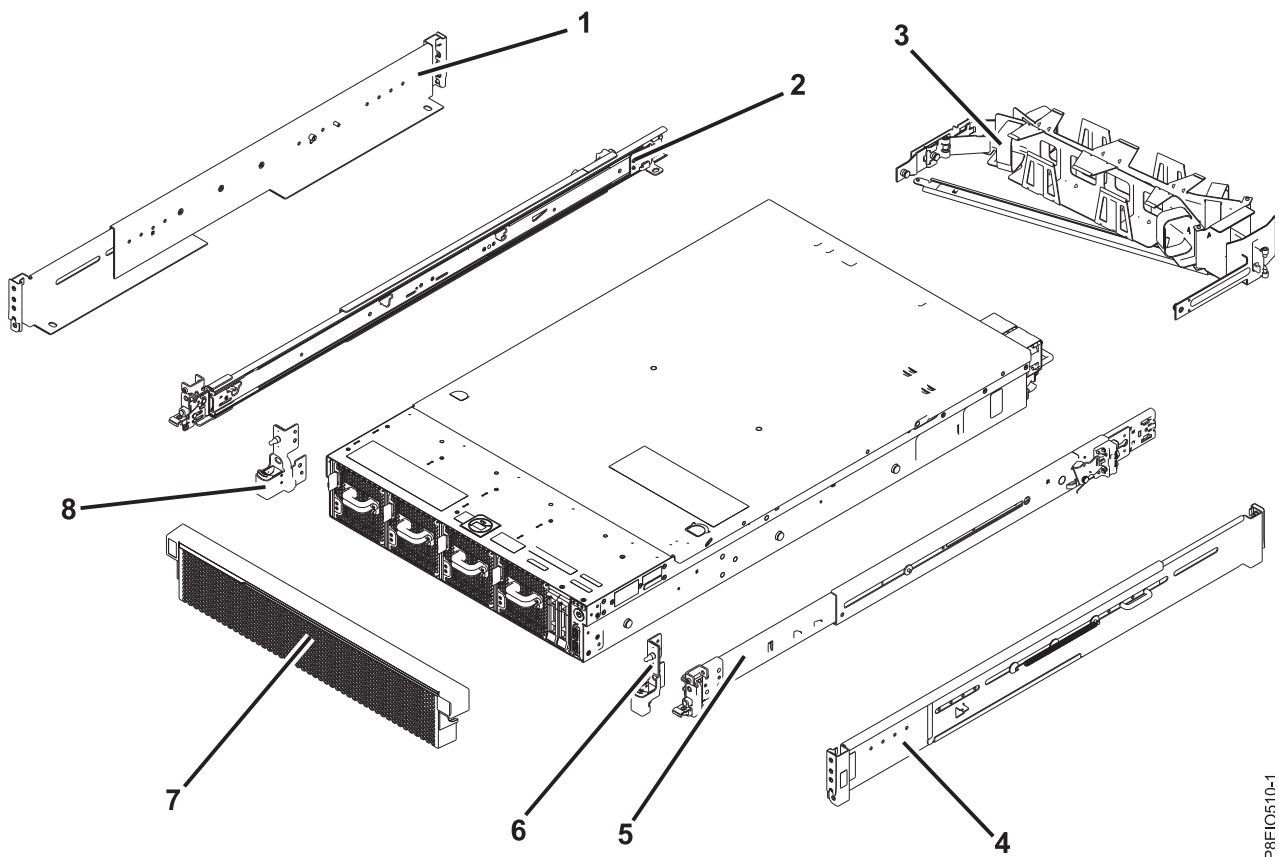


Figure 12. Rack final assembly

Table 43. Rack final assembly part numbers

Index number	Part number	Units per assembly	Description
1	45W8836	1	Fixed rail kit - contains left and right fixed rails and attaching screws
2	00E4260	1	Slide rail kit - contains left and right slide rails and attaching screws
3	74Y9063	1	Cable management arm assembly
4	45W8836	1	Fixed rail kit - contains left and right fixed rails and attaching screws
5	00E4260	1	Slide rail kit - contains left and right slide rails and attaching screws
6		1	Electronic Industries Association (EIA) bracket (right side)
7	00E4688	1	Bezel
8		1	EIA bracket (left side)

System parts (air-cooled and water-cooled systems)

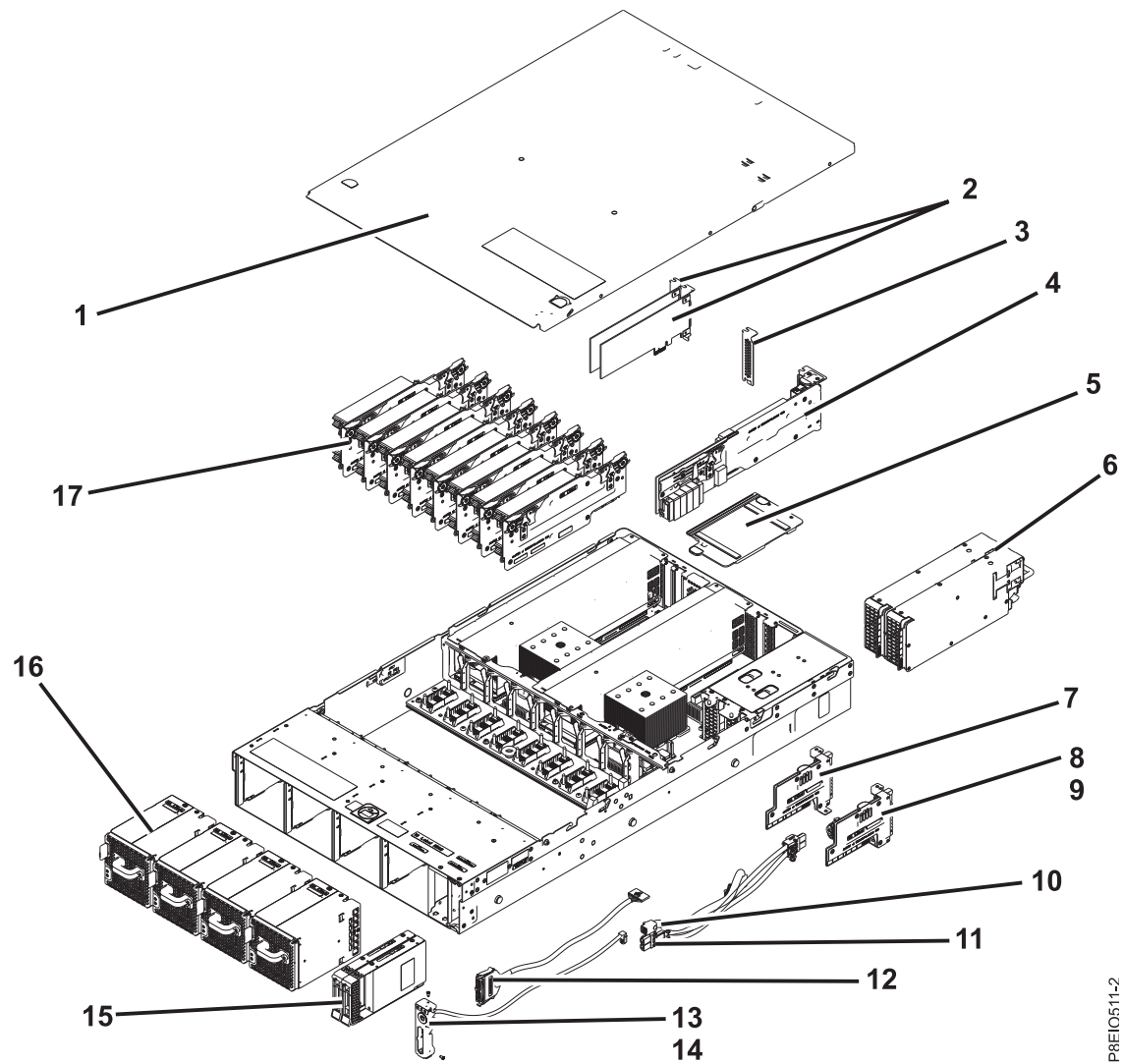


Figure 13. System parts (air-cooled and water-cooled systems)

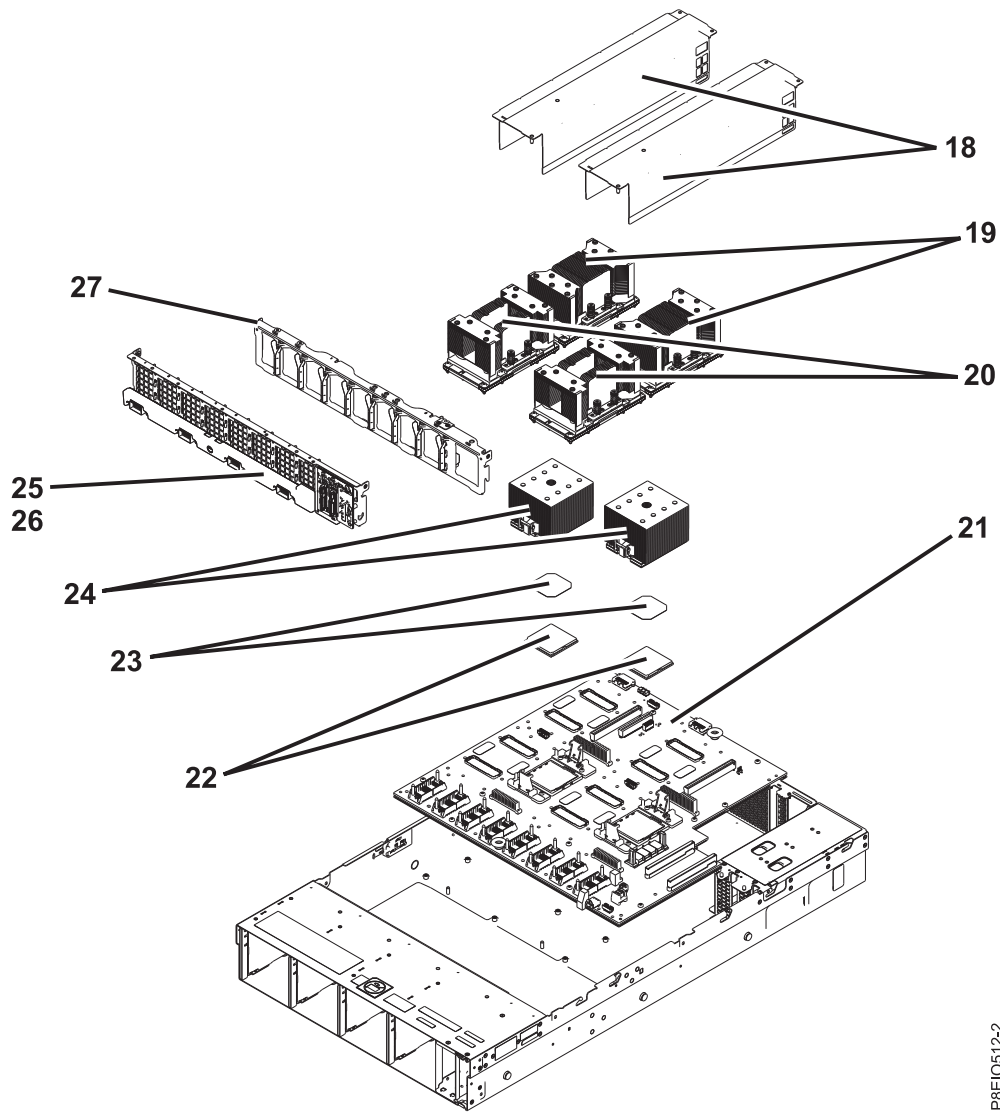
Table 44. System parts (air-cooled and water-cooled systems)

Index number	Part number	Units per assembly	Description
1		1	Top access cover assembly
2		2 - 3	PCI adapters. Use the feature type of the adapter to find the FRU number in PCIe adapters for the 8335-GTB.
3	46K5109	1 - 2	PCI filler
4	00E4574	1	Baseboard management controller (BMC) card
5		1	Power riser air baffle
6	01AF370	2	Power supply
7	00E4705	1	Power riser without time-of-day battery slot

Table 44. System parts (air-cooled and water-cooled systems) (continued)

Index number	Part number	Units per assembly	Description
8	00E4704	1	Power riser with time-of-day battery slot Note: The power riser part number does not include the time-of-day battery. The time-of-day battery is a CR2450N lithium battery.
9		1	Time-of-day battery
10	00E4482	1	Disk and fan signal cable
11	00E4481	1	Fan power cable
12	00E4550	1	Front USB cable with connector
13	00E5189	1	Power switch and power switch cable
14		2	Screw
15	00E4252	2	Drive filler
	00LY266	2	1 TB disk drive
	00LY418	2	2 TB disk drive
	00LY409	2	480 GB solid-state drive
	00LY410	2	480 GB solid-state drive
	00LY411	2	960 GB solid-state drive
	00LY412	2	960 GB solid-state drive
	00LY423	2	1.92 TB solid-state drive
16	00E4256	4	Fan
17	00E4251	8	Memory riser filler
	00E4498	8	Memory riser
	78P4618	32	4 GB, 1600 MHz DDR4 RDIMM
	78P4620	32	8 GB, 1600 MHz DDR4 RDIMM
	78P4621	32	16 GB, 1600 MHz DDR4 RDIMM
	78P4622	32	32 GB, 1600 MHz DDR4 RDIMM

Additional system parts (air-cooled system)



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Figure 14. Additional system parts (air-cooled system)

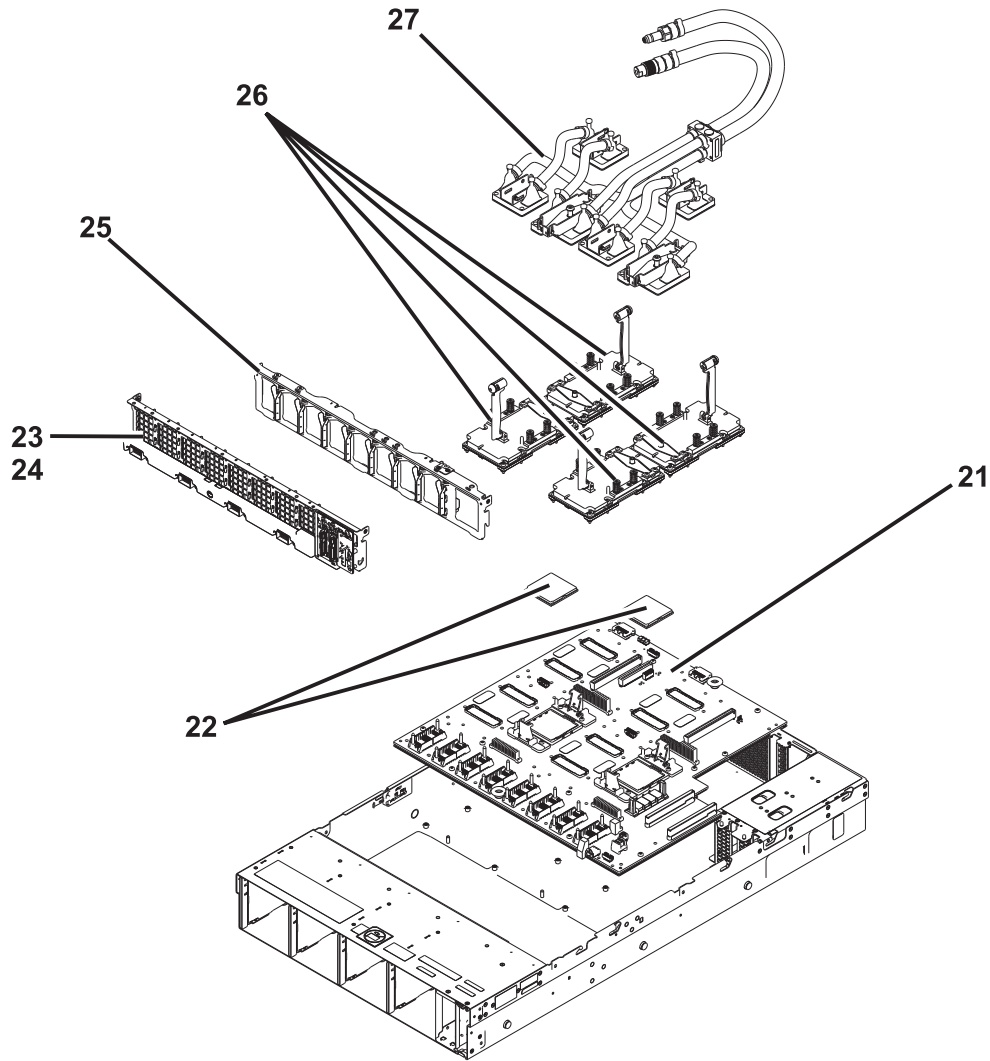
Table 45. Additional system parts (air-cooled system)

Index number	Part number	Units per assembly	Description
18		2	Graphics processing unit (GPU) air baffles
19	01EM024	2	Rear GPU kit (includes GPU card, air baffle, heat sink, and thermal interface material (TIM))
20	01EM025	2	Front GPU kit (includes GPU card, air baffle, heat sink, and TIM)
21	00E4570	1	System backplane kit (includes module removal tool, 4mm hex key, magnetic screwdriver, air pump, and lid removal tool)

Table 45. Additional system parts (air-cooled system) (continued)

Index number	Part number	Units per assembly	Description
22	00E5185	2	8 core 3.259 GHz system processor module kit (includes system processor module, processor tray, 4mm hex driver, module replacement tool, and air pump)
	00E5187	2	10 core 2.860 GHz system processor module kit (includes system processor module, processor tray, 4mm hex driver, module replacement tool, and air pump)
23	01AF286	2	System processor heat sink kit (includes heat sink and TIM)
24	01AF286	2	System processor heat sink kit (includes heat sink and TIM)
25	00E5128	1	Disk drive and fan card
26	00E4476	1	Screw kit Note: The screw kit includes 12 screws for the disk drive and fan card and 16 screws for the system backplane.
27		1	Middle support for the system backplane

Additional system parts (water-cooled system)



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Figure 15. Additional system parts (water-cooled system)

Table 46. Additional system parts (water-cooled system)

Index number	Part number	Units per assembly	Description
21	00E4570	1	System backplane kit (includes module removal tool, 4 mm hex key, magnetic screwdriver, air pump, and lid removal tool) Note: When replacing the system backplane kit in a water-cooled 8335-GTB, you also need the System processor TIM replacement kit (01EM029) and the water-cooled system backplane kit (01EM030) . The water-cooled system backplane kit (01EM030) is not needed if you already have it.

Table 46. Additional system parts (water-cooled system) (continued)

Index number	Part number	Units per assembly	Description
22	00E5185	2	8 core 3.259 GHz system processor module kit (includes system processor module, processor tray, 4mm hex driver, module replacement tool, and air pump)
	00E5187	2	10 core 2.860 GHz system processor module kit (includes system processor module, processor tray, 4mm hex driver, module replacement tool, and air pump)
23	00E5128	1	Disk drive and fan card
24	00E4476	1	Screw kit Note: The screw kit includes 12 screws for the disk drive and fan card and 16 screws for the system backplane.
25		1	Middle support for the system backplane
26	01EM027		Water-cooled GPU kit (includes spreader assembly, GPU card, air baffle, heat sink, and TIM)
27	01AF969	1	Cold plate assembly (includes cold plates, tweezers, and TIMs)

Miscellaneous parts

Table 47. Miscellaneous system parts

Description	Part number	Units per assembly
System processor TIM replacement kit (includes TIM removal tool, tweezers, and TIM)	01EM029	1
Water-cooled system backplane kit (includes cold plate and module tray)	01EM030	1

Finding parts and locations

Locate physical part locations and identify parts with system diagrams.

Locate the FRU

Use the graphics and tables to locate the field-replaceable unit (FRU) and identify the FRU part number.

8348-21C locations

Use this information to find the location of a FRU in the system unit.

Rack views

The following diagrams show field-replaceable unit (FRU) layouts in the system. Use these diagrams with the following tables.

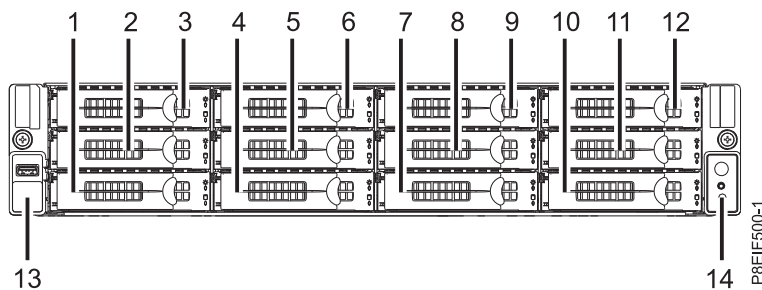


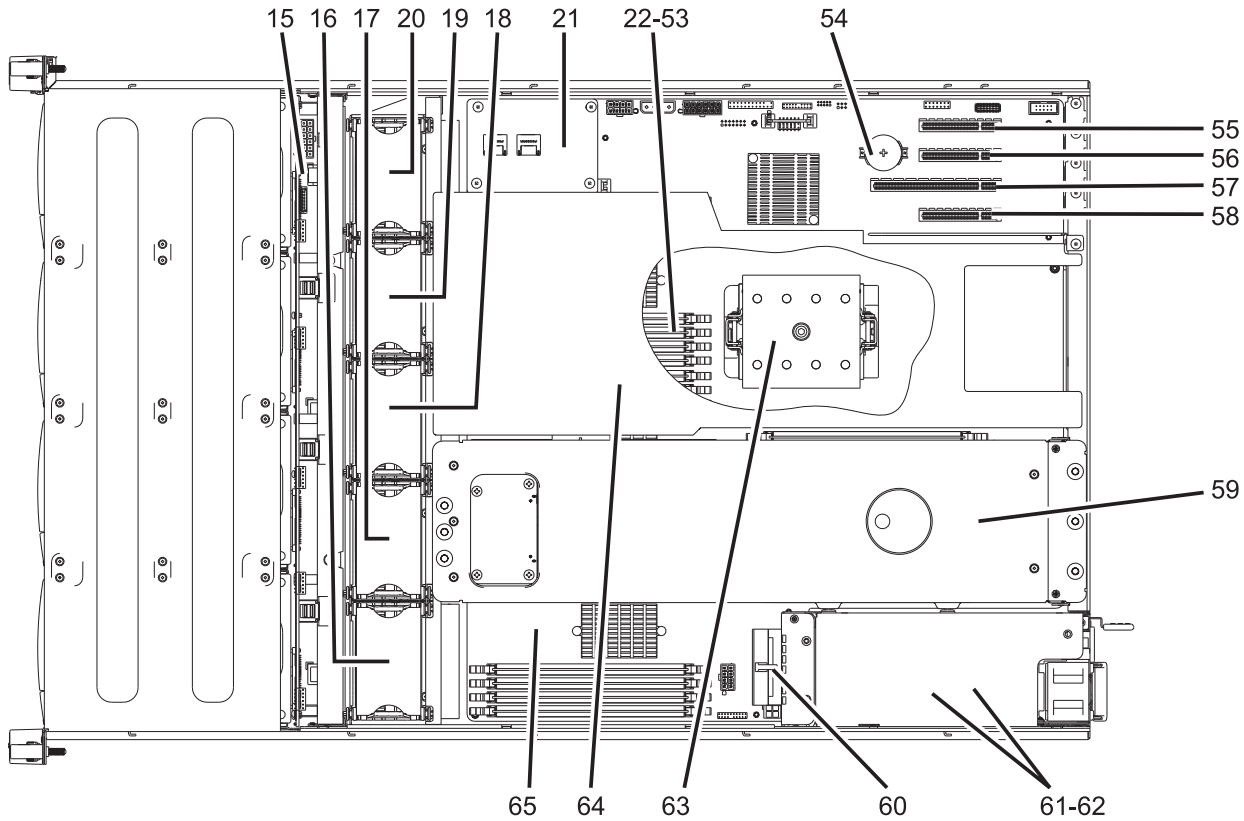
Figure 16. Front view

Table 48. Front view locations

Index number	FRU description	FRU removal and replacement procedures
1	HDD 0	See Removing and replacing a front drive in the 8348-21C.
2	HDD 1	
3	HDD 2	
4	HDD 3	
5	HDD 4	
6	HDD 5	
7	HDD 6	
8	HDD 7	
9	HDD 8	
10	HDD 9	
11	HDD 10	
12	HDD 11	
13	Front USB and cable	See Removing and replacing the front USB and cable in the 8348-21C.

Table 48. Front view locations (continued)

Index number	FRU description	FRU removal and replacement procedures
14	Power switch and cable	See Removing and replacing the power switch and cable in the 8348-21C.



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Figure 17. Top view

Table 49. Top view locations

Index number	FRU description	FRU removal and replacement procedures
15	Disk drive backplane	See Removing and replacing the disk drive backplane in the 8348-21C.
16	Fan 1	See Removing and replacing a fan in the 8348-21C.
17	Fan 2	
18	Fan 3	
19	Fan 4	
20	Fan 5	
21	Storage mezzanine card	See Removing and replacing the storage mezzanine card and cable in the 8348-21C.
22 - 53	DIMM 0 - 31 Note: For more information about DIMM locations, see table 5.	See Removing and replacing memory in the 8348-21C.

Table 49. Top view locations (continued)

Index number	FRU description	FRU removal and replacement procedures
54	Time-of-day battery	See Removing and replacing the time-of-day battery in the 8348-21C.
55	PCIe adapter 1	See Removing and replacing a PCIe adapter in the 8348-21C.
56	PCIe adapter 2	
57	PCIe adapter 3	
58	PCIe adapter 4	
59	Rear drive tray assembly Note: The rear drive tray in the rear drive tray assembly contains HDD 12 and HDD 13.	See Removing and replacing the rear drive tray assembly in the 8348-21C.
60	Power distribution board	See Removing and replacing the power distribution board and cables in the 8348-21C.
61	PSU 1	See Removing and replacing power supplies in the 8348-21C.
62	PSU 2	
63	CPU	See Removing and replacing the system processor module in the 8348-21C.
64	Processor air baffle	See Removing and replacing the processor air baffle in the 8348-21C.
65	System backplane	See Removing and replacing the system backplane in the 8348-21C.

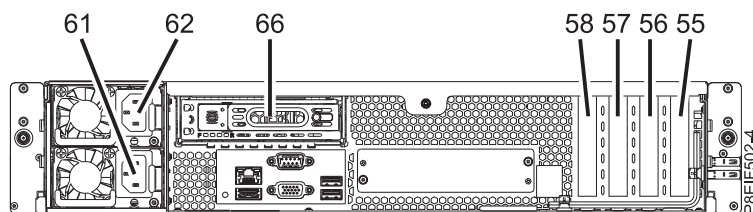
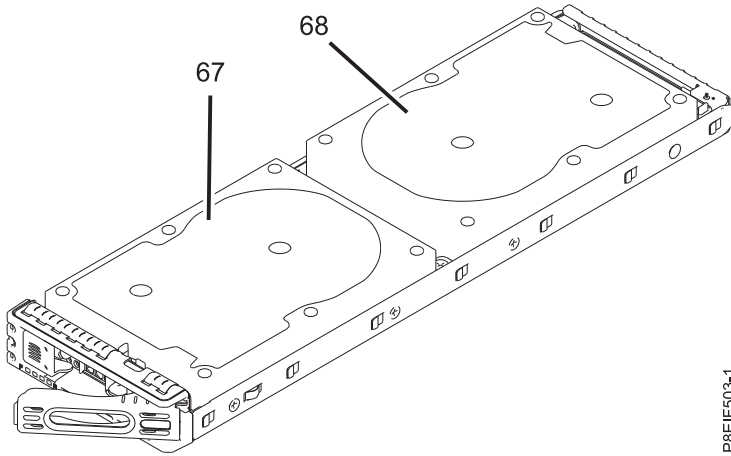


Figure 18. Rear view

Table 50. Rear view locations

Index number	FRU description	FRU removal and replacement procedures
55	PCIe adapter 1	See Removing and replacing a PCIe adapter in the 8348-21C.
56	PCIe adapter 2	
57	PCIe adapter 3	
58	PCIe adapter 4	
61	PSU 1	See Removing and replacing power supplies in the 8348-21C.
62	PSU 2	
66	Rear drive tray	See Removing and replacing a rear drive in the 8348-21C.



P8EIF503-1

Figure 19. Rear drive tray top view

Table 51. Rear drive tray top view locations

Index number	FRU description	FRU removal and replacement procedures
67	HDD 12	See Removing and replacing a rear drive in the 8348-21C.
68	HDD 13	

Memory locations

The following diagram shows memory DIMMs and their corresponding field-replaceable unit (FRU) layouts in the system. Use this diagram with the following table.

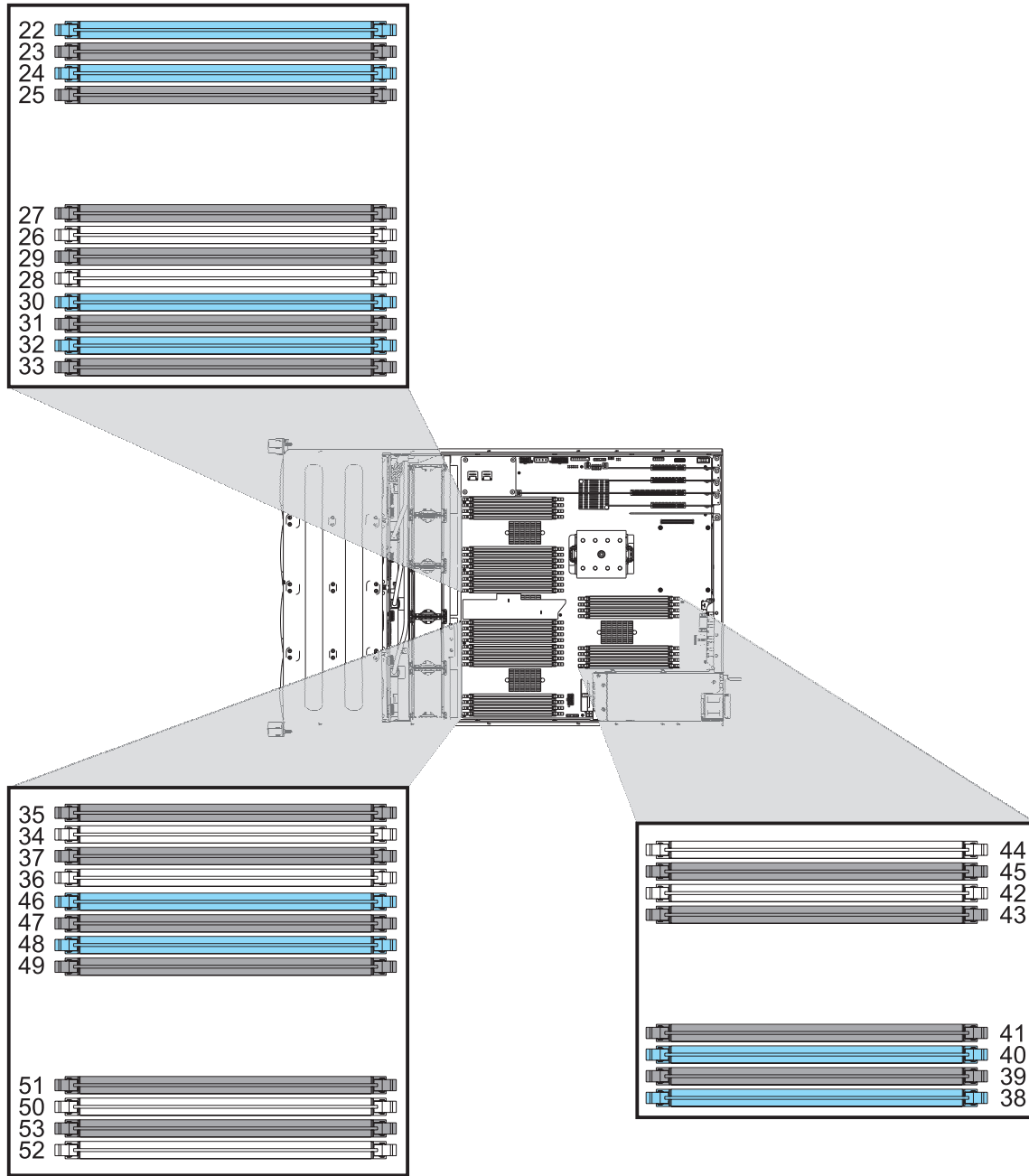


Figure 20. Memory locations on the system backplane

The following table provides the memory locations on the system backplane.

Table 52. Memory locations on the system backplane.

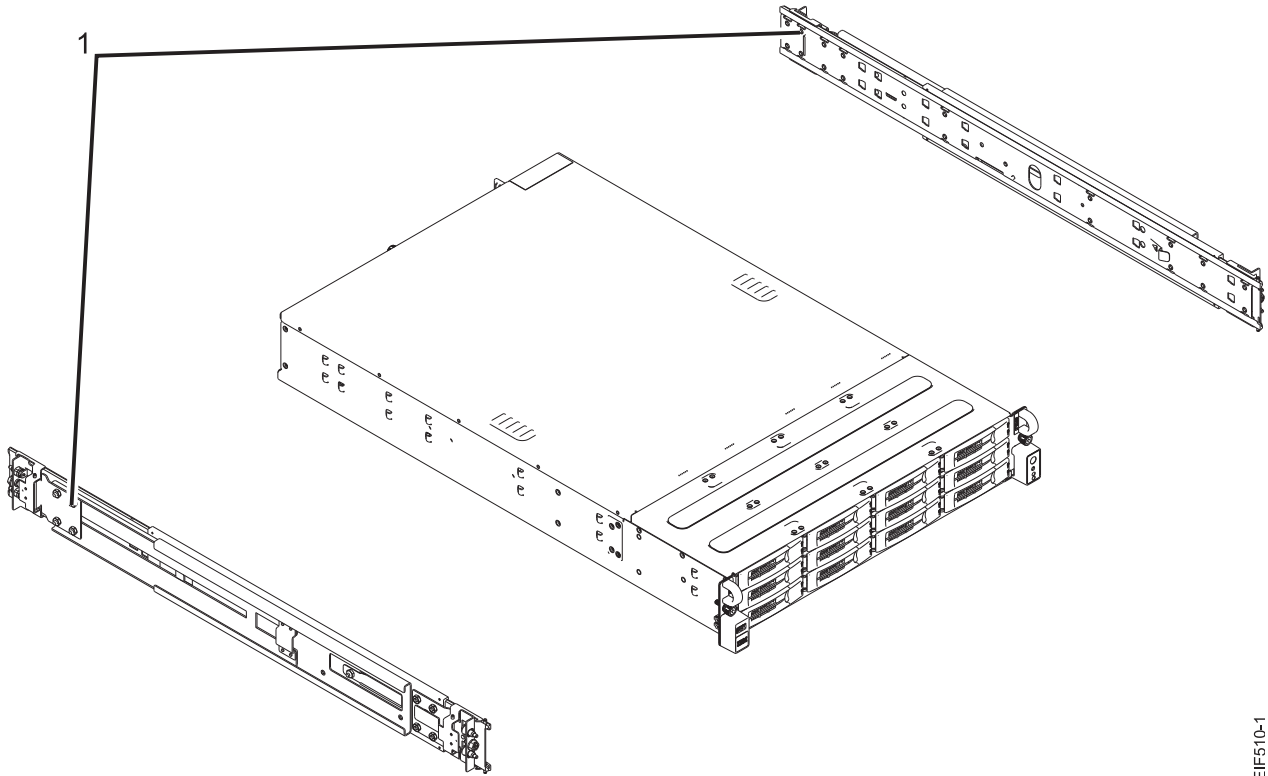
Index number	FRU description	FRU removal and replacement procedures
22	DIMM 0	See Removing and replacing memory in the 8348-21C.
23	DIMM 1	
24	DIMM 2	
25	DIMM 3	
26	DIMM 4	
27	DIMM 5	
28	DIMM 6	
29	DIMM 7	
30	DIMM 8	
31	DIMM 9	
32	DIMM 10	
33	DIMM 11	
34	DIMM 12	
35	DIMM 13	
36	DIMM 14	
37	DIMM 15	
38	DIMM 16	
39	DIMM 17	
40	DIMM 18	
41	DIMM 19	
42	DIMM 20	
43	DIMM 21	
44	DIMM 22	
45	DIMM 23	
46	DIMM 24	
47	DIMM 25	
48	DIMM 26	
49	DIMM 27	
50	DIMM 28	
51	DIMM 29	
52	DIMM 30	
53	DIMM 31	

8348-21C parts

Use this information to find the FRU part number.

After you identify the part number of the part that you want to order, go to Advanced Part Exchange Warranty Service. Registration is required. If you are not able to identify the part number, go to Contacting IBM service and support.

Rack final assembly



P8EIF510-1

Figure 21. Rack final assembly

Table 53. Rack final assembly part numbers.

Index number	Part number	Units per assembly	Description
1	01AF405	2	Slide rail kit - contains left and right slide rails and attaching screws

System parts

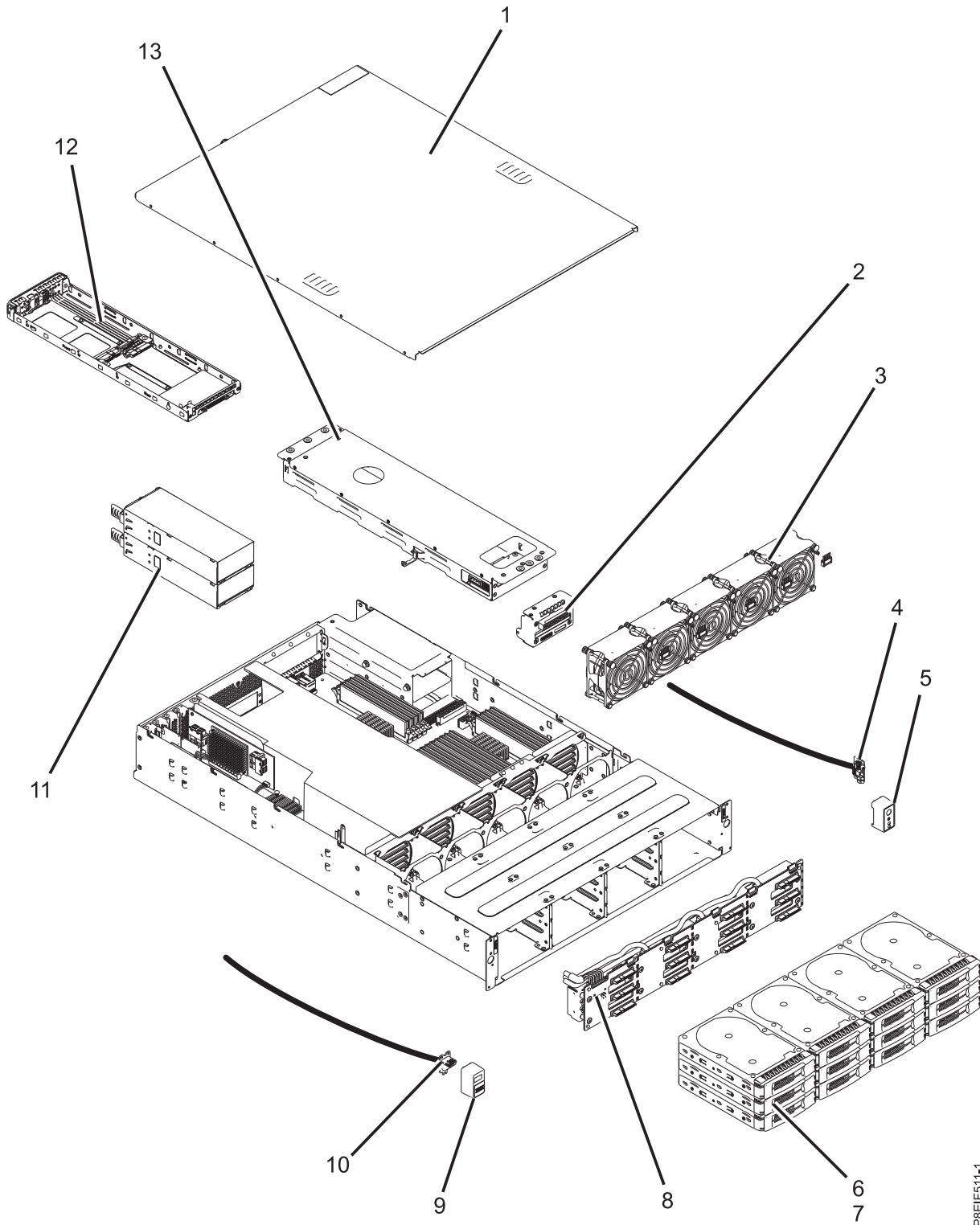


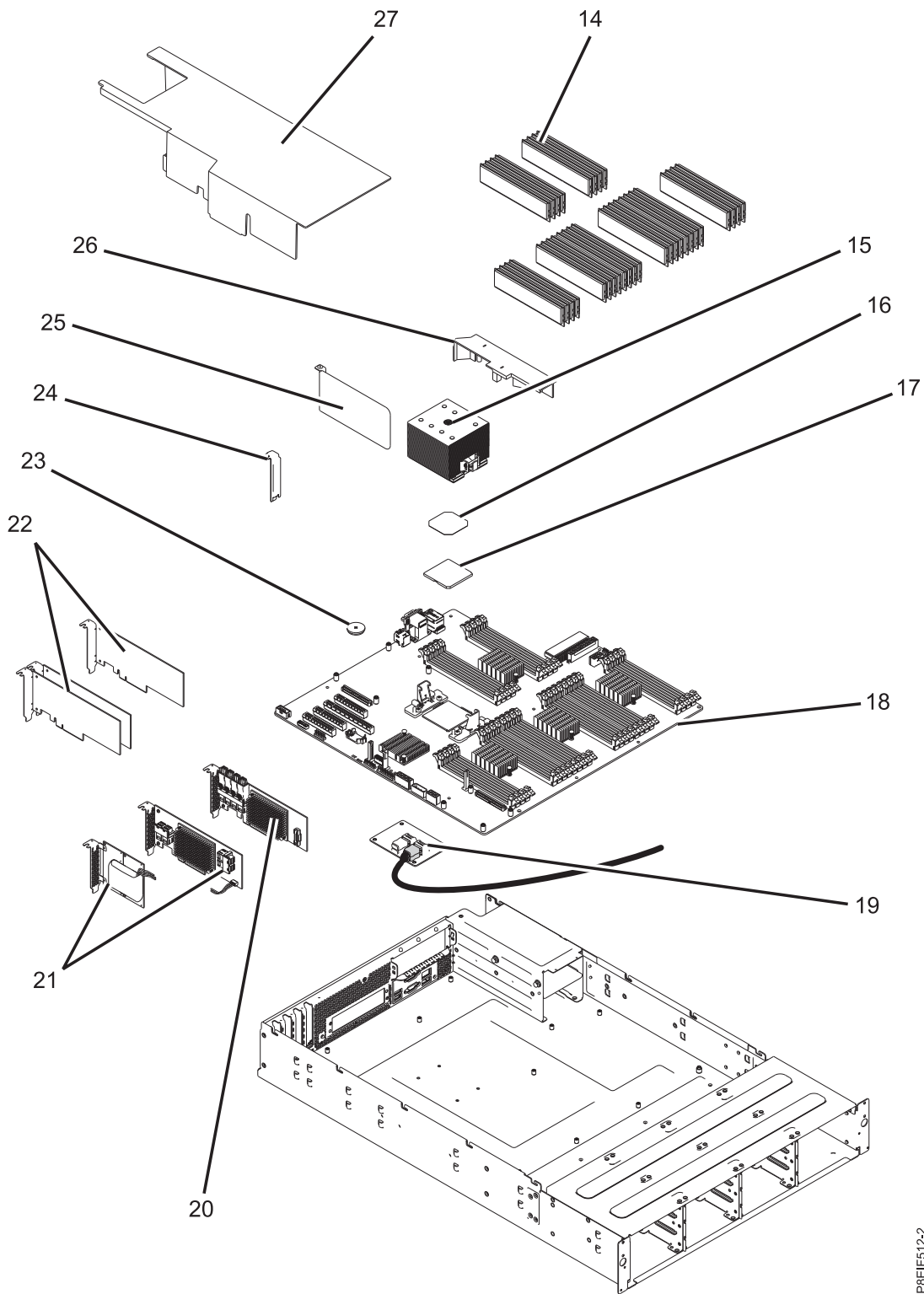
Figure 22. System parts

P8EIF511-1

Table 54. System parts.

Index number	Part number	Units per assembly	Description
1		1	Top access cover assembly
2	01AF251	1	Power distribution board, cable, and power supply control cable
3	01AF243	5	Fan
4	01AF252	1	Power switch card and cable
5		1	Power switch bezel
6	01AF246	12	Front drive carriers
7	00LY397	12	960 GB solid-state drive
	00LY423	12	1.92 TB solid-state drive
	00YL438	12	3.84 TB solid-state drive
	00LY398	12	1 TB disk drive
	00LY399	12	6 TB disk drive
8	01AF249	1	Disk drive backplane
		1	700 mm SAS cable
		1	800 mm SAS cable
		1	900 mm SAS cable
		1	Disk drive backplane power cable
		1	Fan control cable
9	01AF252	1	USB bezel
10		1	USB card and cable
11	01AF244	2	Power supply
12	01AF245		Rear drive tray
13		1	Rear drive tray assembly (includes rear drive tray, internal backplane, and internal power cable for internal backplane)

Additional system parts



P8EIF512-2

Figure 23. Additional system parts

Table 55. Additional system parts.

Index number	Part number	Units per assembly	Description
14	78P4489	32	4 GB, 1600 MHz DDR3 DIMM
	78P4490	32	8 GB, 1600 MHz DDR3 DIMM
	78P4491	32	16 GB, 1600 MHz DDR3 DIMM
	78P4492	32	32 GB, 1600 MHz DDR3 DIMM Note: The DIMM FRU might include a heat spreader. DIMMs with heat spreaders and DIMMs without heat spreaders can be used together in the system.
15	01AF286	1	Heat sink Note: The heat sink kit includes the heat sink and thermal interface material.
16		1	Thermal interface material Note: The heat sink kit includes the thermal interface material.
17	01AF287	1	8 core 3.625 GHz system processor module
	01AF288	1	10 core 3.259 GHz system processor module
18	01AF250	1	System backplane
19	01AF247	1	Storage mezzanine card and mini SAS cable
20	00WV552	1	PCIe3 low profile 6 Gb SAS/SATA RAID adapter (FC EC3Y) Note: This adapter is also known as a PMC Adaptec RAID 71605E adapter.
21	00WV554	1	PCIe3 low profile 12 Gb SAS/SATA RAID adapter with 1 GB protected write cache (FC EC3S) Notes: <ul style="list-style-type: none"> The supercapacitor module card is shipped together with the PCIe Gen3 SAS/SATA RAID adapter as a single FRU and therefore must also be removed when the SAS RAID adapter is removed. This adapter is also known as a PMC Adaptec RAID 81605Z adapter.
22		4	PCIe adapters. Use the feature type of the adapter to find the FRU part number in PCIe adapter information by feature type for the 8348-21C.
23		1	Time-of-day battery Note: The time-of-day battery is a CR2032 lithium battery.
24	01AF248	1	PCIe filler
25		1	Air divider next to PCIe adapters
26		1	Air duct under rear drive tray assembly
27	01AF241	1	Processor air baffle

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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/knowledgcenter/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.

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

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IBM Deutschland GmbH
Technical Regulations, Abteilung M456

IBM-Allee 1, 71139 Ehningen, Germany
Tel: +49 800 225 5426
email: halloibm@de.ibm.com

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

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

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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。

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