HPE ProLiant DL180 G6 Server - Parts Support Guide

Part Number: Internal
Published: 2020
Edition: 1

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Abstract
This document will help you identify parts of the product and also gives a step-by-step instruction on how to remove and replace the components.

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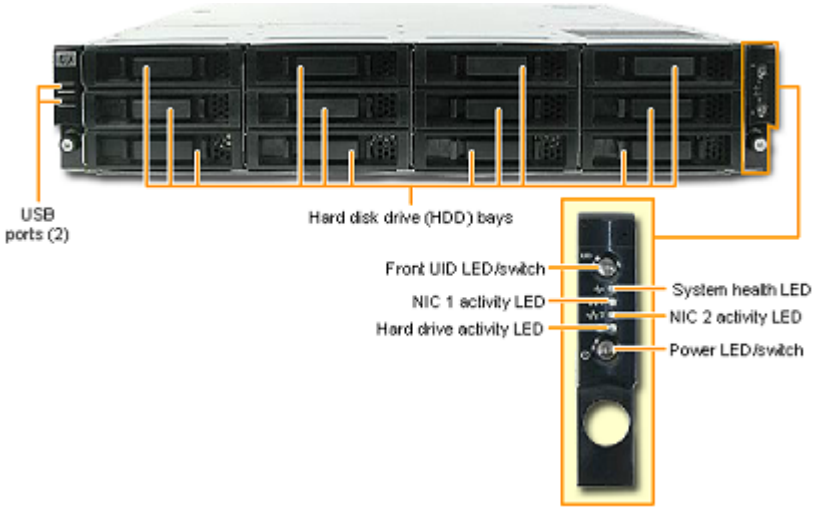
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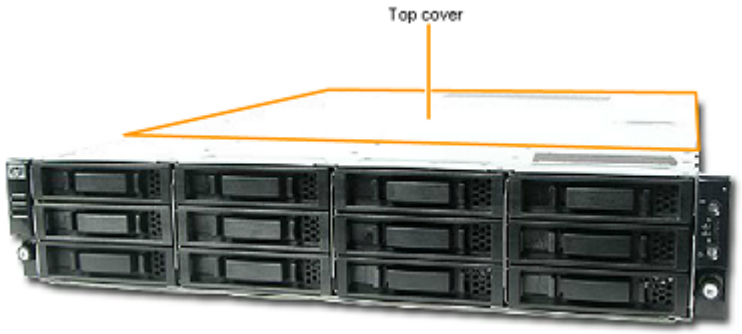
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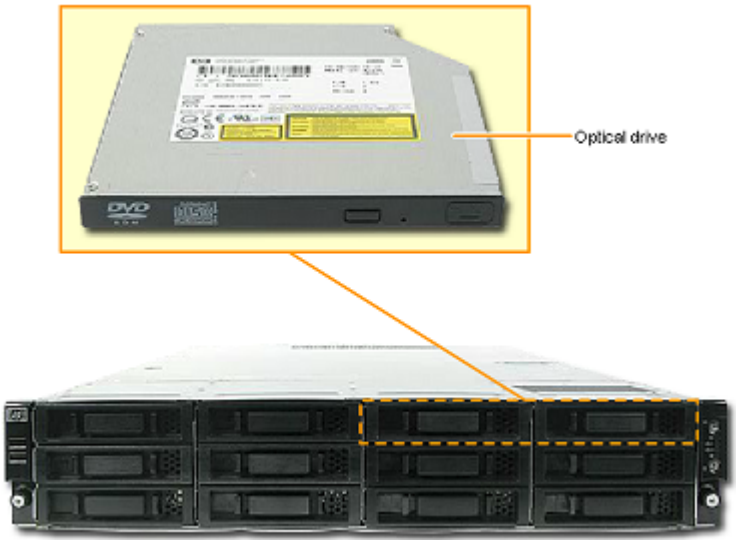
Front View



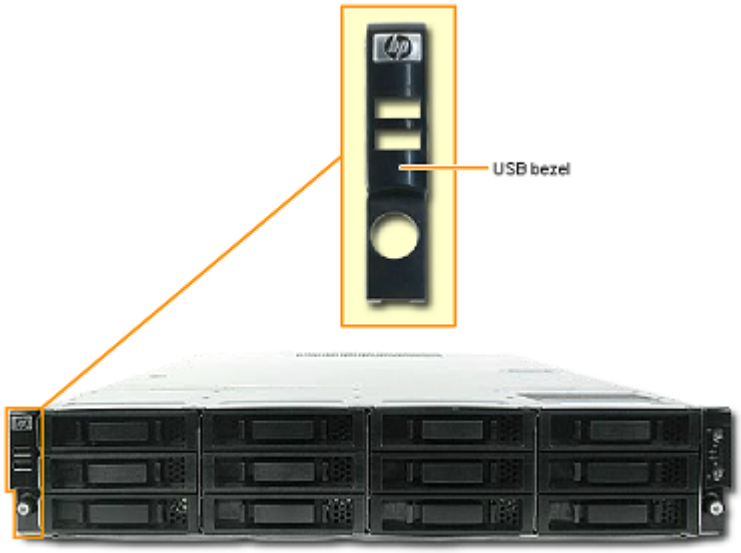
Top Cover



Optical Drive



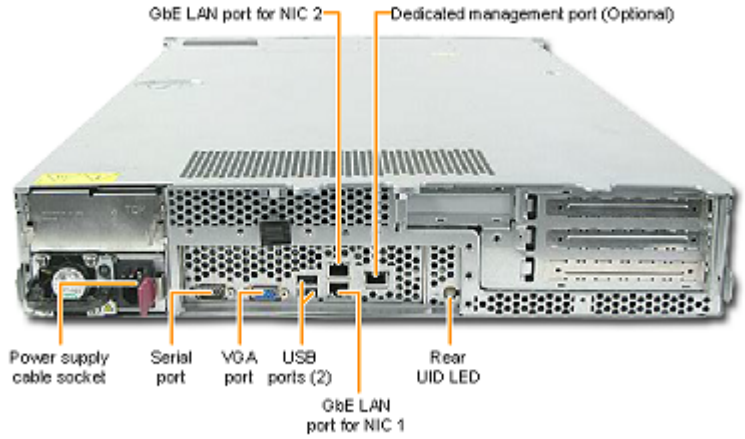
USB Bezel



Hard Drives



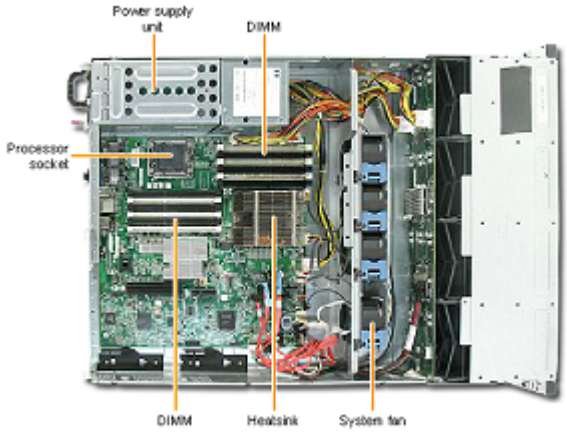
Back View



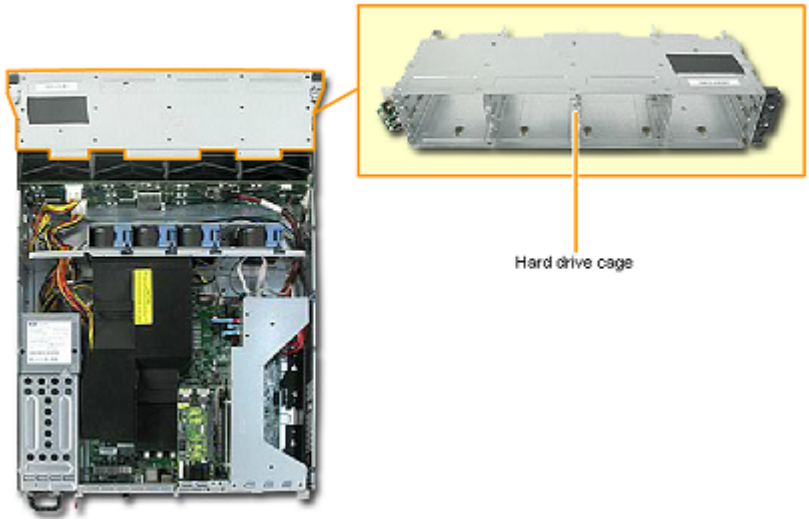
Top View



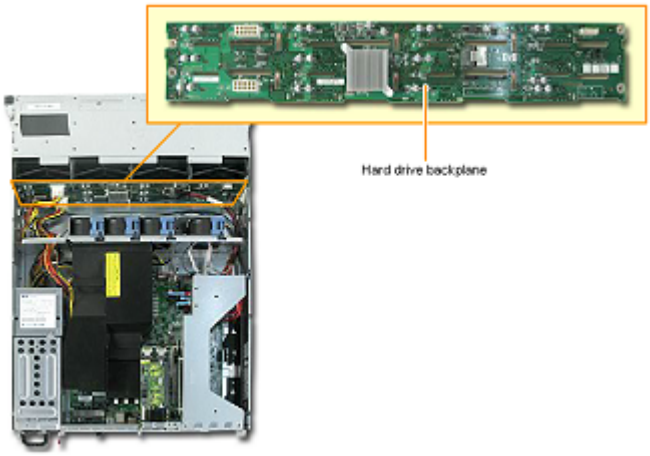
Internal View



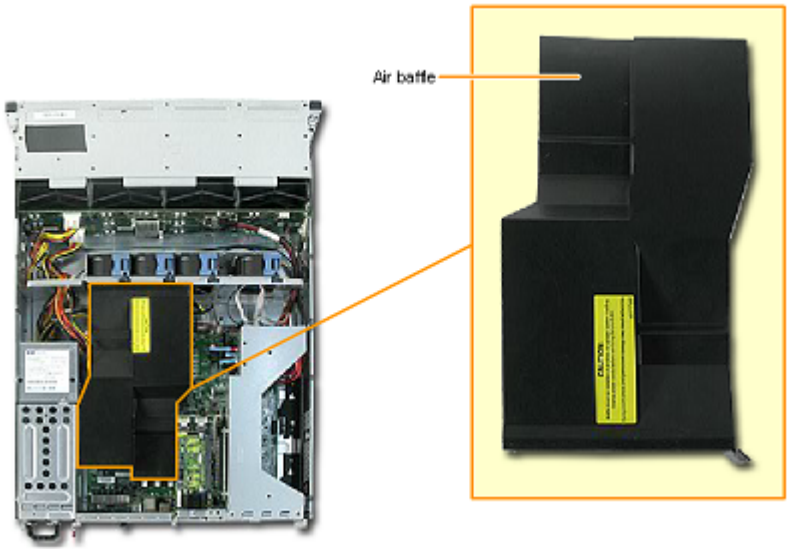
Hard Drive Cage



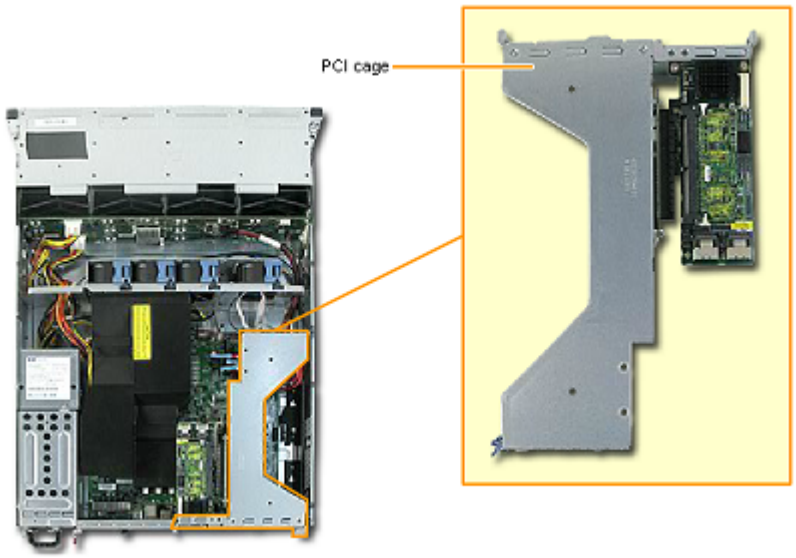
Hard Drive Backplane



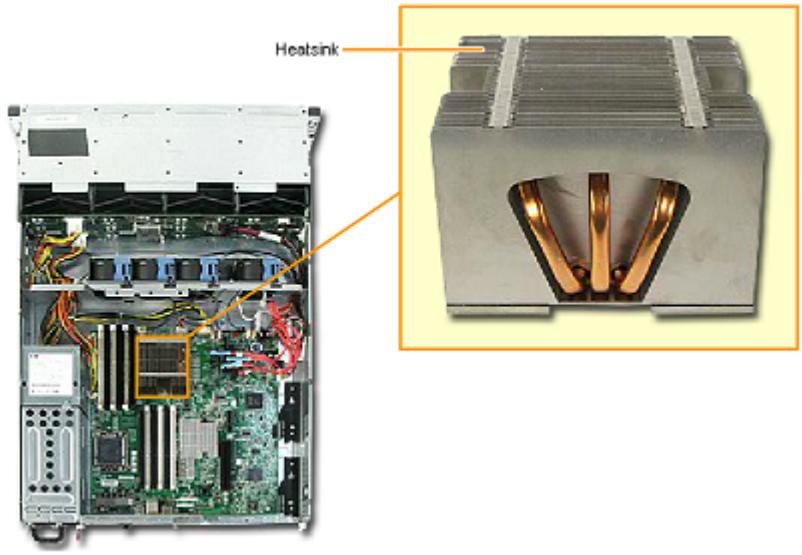
Air Baffle



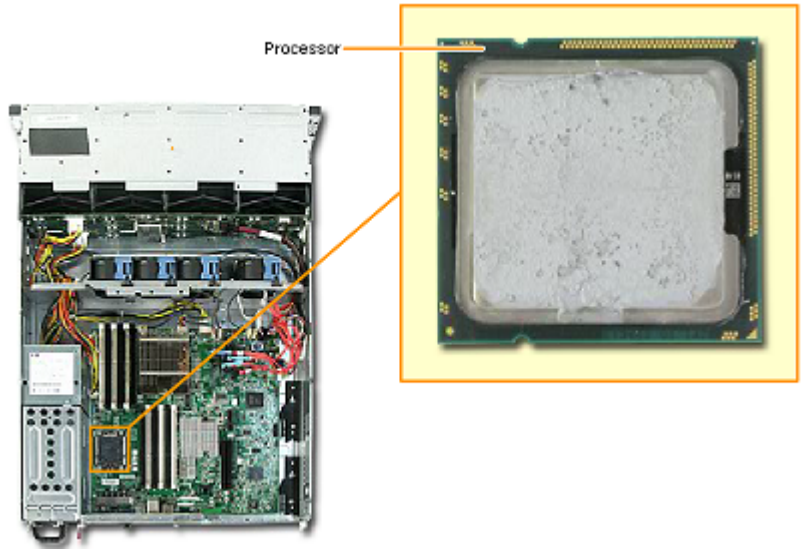
PCI Cage



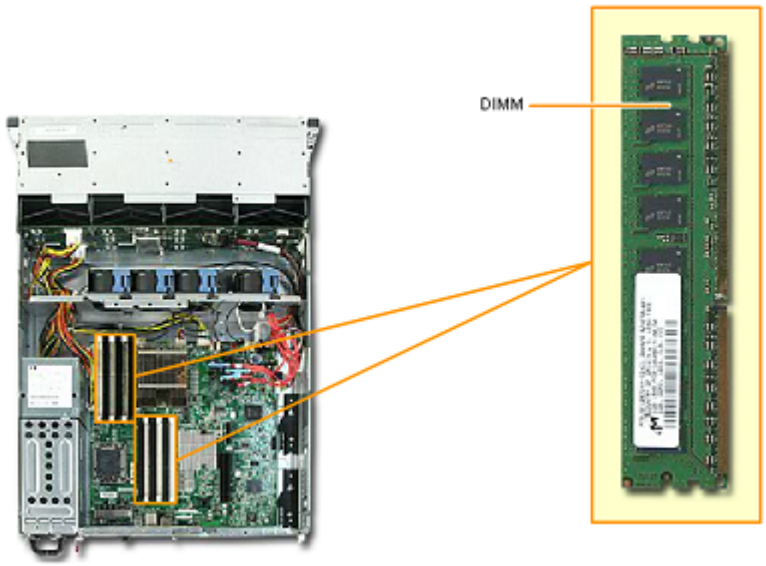
Heatsink



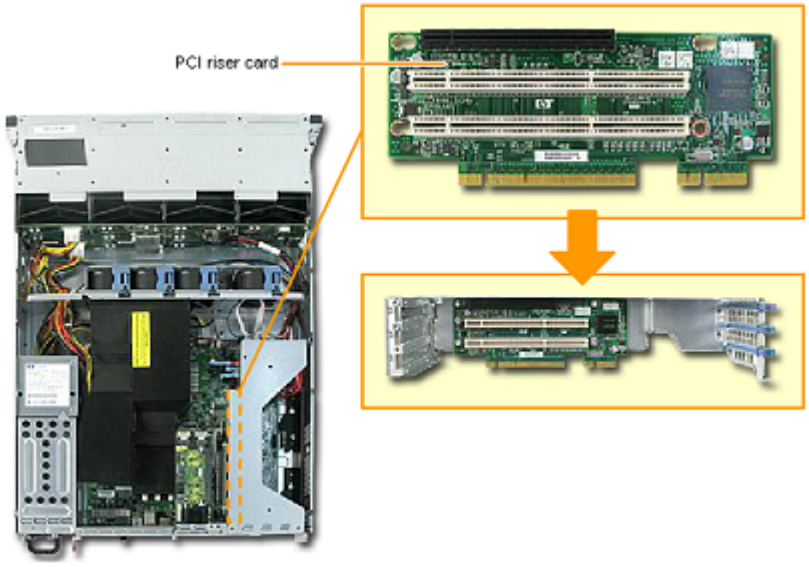
Processor



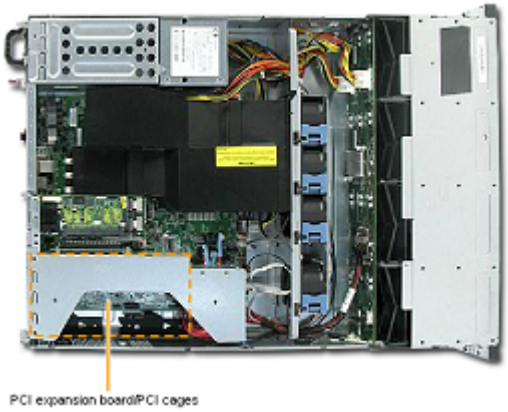
DIMM



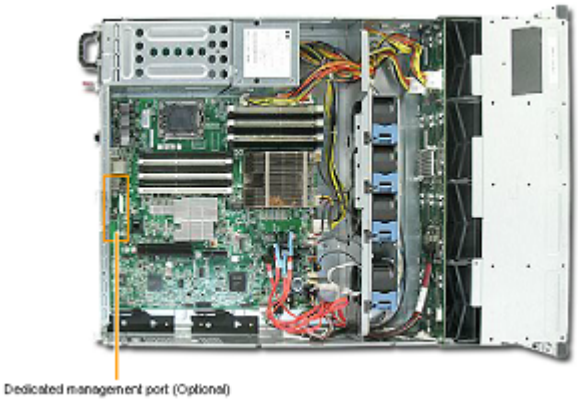
PCI Rise Card



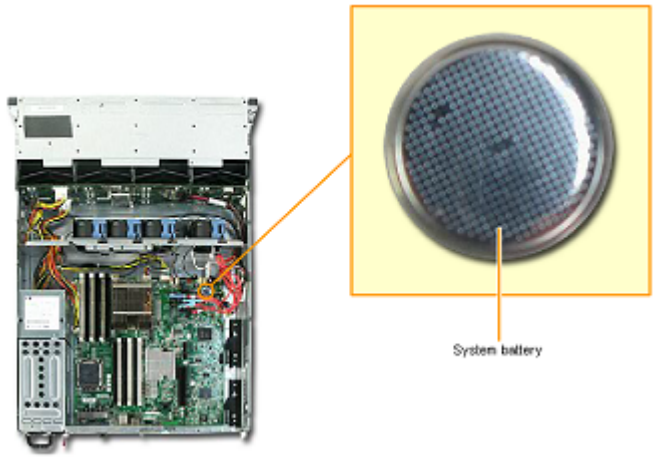
PCI Expansion Board PCI Cages



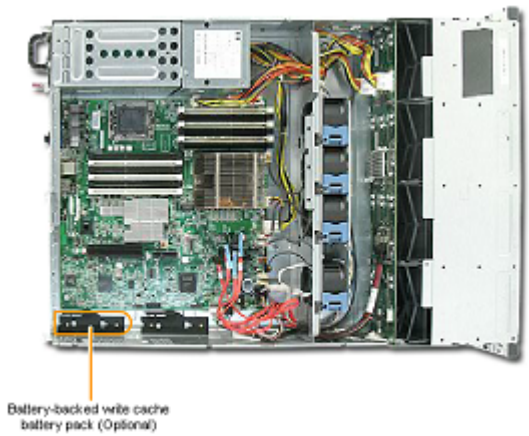
Dedicated Management Port (Optional)



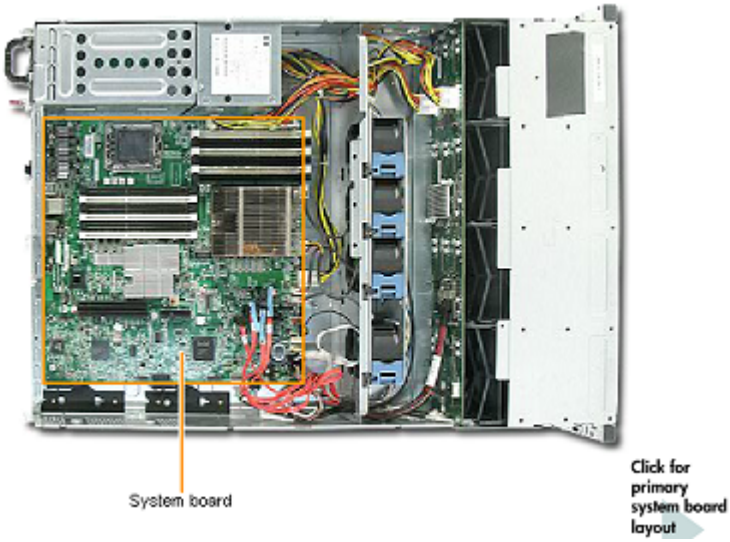
System Battery



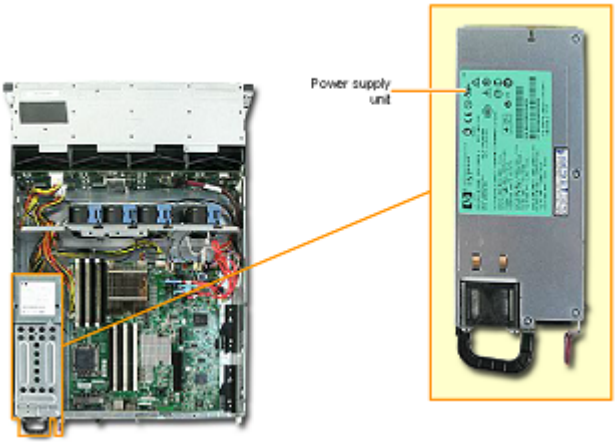
Battery Backed Write Cache Battery Pack (Optional)



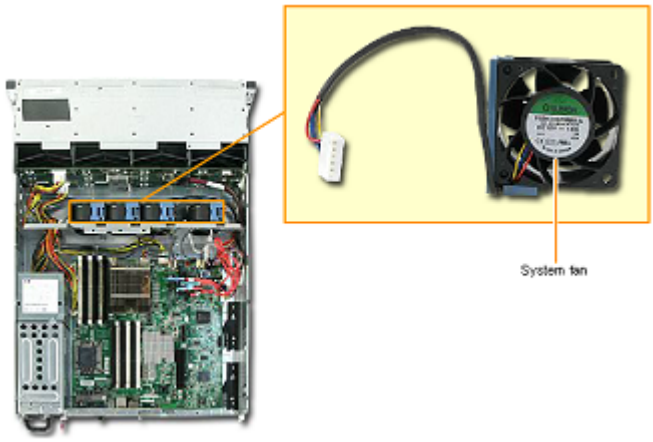
System Board



Power Supply Unit



System Fan



Required Tools

You need the following items for certain procedures:

- T10/T15 Torx screwdriver
- Alcohol swab
- Thermal grease

Safety Considerations

Before performing service procedures, review all the safety information.

Preventing electrostatic discharge

An electrostatic discharge (ESD) can damage static-sensitive devices or micro circuitry. Proper packaging and grounding techniques are necessary precautions to prevent damage. To prevent electrostatic damage, observe the following precautions:

- Transport products in static-safe containers such as conductive tubes, bags, or boxes.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free stations.
- Cover workstations with approved static-dissipating material. Use a wrist strap connected to the work surface, and properly grounded (earthed) tools and equipment.
- Keep work area free of nonconductive materials, such as ordinary plastic assembly aids and foam packing.

- Make sure that you are always properly grounded (earthed) when touching a static-sensitive component or assembly.
- Avoid touching pins, leads, or circuitry.
- Always place drives with the Printed Circuit Board (PCB) assembly-side down.
- Use conductive field service tools.

Server warnings and cautions

Before installing a server, be sure that you understand the following warnings and cautions.

WARNING! To reduce the risk of electric shock or damage to the equipment:

- **Do not disable the power cord grounding plug. The grounding plug is an important safety feature.**
- **Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.**
- **Unplug the power cord from the power supply to disconnect power to the equipment.**
- **Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electrical outlet, and the point where the cord extends from the server.**

WARNING! To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

Caution! Do not operate the server for long periods with the system cover open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

WARNING! To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.

Pre-Installation Procedure

Perform the steps below before you open the server or before you remove or replace any component.

WARNING! Failure to properly turn off the server before you open the server or before your start installing and removing components may cause serious damage as well as bodily harm.

1. **Turn off the server and all the peripherals connected to it.**
2. **Unplug all cables from the power outlet(s) to avoid exposure to high energy levels that may cause burns when parts are short-circuited by metal objects such as tools or jewelry. If necessary, label each one to expedite reassembly.**

3. **Disconnect telecommunication cables to avoid exposure to shock hazard from ringing voltages.**
4. **If server is installed in a rack, remove server and place it on a flat surface.**
5. **Remove the top cover.**
6. **Follow the ESD precautions.**

Important! To streamline the configuration process, read through the entire installation and removal procedures first and make sure you understand them before you begin.

Powering Down The Server

The server does not completely power down when the power button on the front panel is pressed. The button toggles between On and Standby. The standby position removes power from most electronics and the drives, but some internal circuitry remains active. To completely remove all power from the system, disconnect all power cords from the server.

To power down the server:

1. Shut down the server as directed by the operating system documentation.
2. Press the power button to toggle to Standby. This places the server in Standby mode changing the power LED indicator to amber. In this mode, the main power supply output is disabled. Standby does not completely disable or remove power from the system.
3. Disconnect the AC power cord(s) from the power outlet(s) and then from the server.
4. Be sure that the power LED indicator is turned off and that the fan noise has stopped.
5. Disconnect all peripheral devices from the server.

Top Cover

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Top cover removal

To remove the top cover:

1. Loosen the screw on the top cover with a T10 screwdriver.
2. Press the latch on the top cover.

3. Slide the cover toward the rear of the server and then lift the top cover to remove it from the chassis. Lift the top cover away from the chassis.

Top cover replacement

To replace the top cover:

1. Align the top cover to the chassis and then slide it towards the front panel to position it into place.
2. Once the cover is attached to the chassis, tighten the screw on the top cover with a T10 screwdriver.

Optical Drive

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Optical drive removal

To remove the optical drive:

1. Remove the top cover.
2. Unplug the SATA and power cables.
3. Loosen the screws.
4. Push the optical drive toward the front of the unit.
5. Pull the optical drive out of the chassis.

Important! If you remove an optical drive without plans of installing a new one, you must reinstall the blank to maintain proper system airflow.

Optical drive replacement

To install the optical drive:

1. Slide the optical drive into the chassis.
2. Secure the optical drive to the chassis with the two screws.
3. Connect the SATA and power cables to their corresponding connectors on the optical drive.

USB Bezel

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USB bezel removal

To remove the bezel:

1. Remove the three screws from the rear of the bezel.
2. Remove the bezel.

Caution! Do not discard the bezel blank. If the optical drive is removed in the future, you must reinstall the bezel blank to maintain proper system function.

Hard Drives

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Hard drives removal

Note: For servers with eight hard disk drives, the hard drives installed in the server are labeled from Device 1 to Device 8, from top to bottom, left to right, when viewed from the front of the server. For servers with 12 hard disk drives, the hard drives installed in the server are labeled from Device 1 to Device 12, from top to bottom, left to right, when viewed from the front of the server.

To remove the hard drive:

1. Press the hard disk release button to release the release lever.
2. Use the hard disk drive lever to pull the drive out of the cage.

Hard drives replacement

To install the hard drive:

1. Pull the hard drive blank out of the chassis.**Important! Do not discard the hard drive blank. If the drive is removed in the future, you must reinstall the hard drive blank to maintain proper system airflow.**
2. Push in the release button to open the release lever.
3. Push the hard drive assembly into the drive bay until it stops.

4. Press the hard disk drive carrier latch inward until it clicks.

Hard Drive Cage

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Hard drive cage removal

To remove the hard drive cage:

1. Remove the top cover.
2. Remove the air baffle.
3. Remove the PCI cage.
4. Unplug the USB cable and UID LED cable from the system board.
5. Loosen the two screws that secure the two front panels to the chassis.
6. Loosen all screws that secure the hard drive cage to the chassis.
7. Remove all cables connected to the backplane.
8. Slide the hard drive cage out and then lift it up.

Hard drive cage replacement

To replace the component, reverse the removal procedures.

Hard Drive Backplane

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Hard drive backplane removal

To remove the backplane:

1. Remove all drives out of the drive bays.

2. Remove the top cover.
3. Remove the air baffle.
4. Remove the PCI cage.
5. Remove the hard drive cage from the chassis.
6. Remove the screws that secure the backplane to the hard drive cage.
7. Pull the backplane up and out to release it from the hard drive cage.

Hard drive backplane replacement

To reinstall the backplane, reverse the removal procedure.

Air Baffle

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Air baffle removal

To remove the air baffle:

1. Remove the top cover.
2. Lift the air baffle from the system board.

Air baffle replacement

To replace the air baffle, reverse the removal procedures.

PCI Cage

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PCI cage removal

To remove the PCI cage:

1. Remove the top cover.**Note: Disconnect all cables connecting an existing expansion board to the system board.**
2. Loosen the screw that secures the PCI cage to the chassis.
3. Unplug the SAS cable from the PCI card.
4. Remove the BBWC cable if installed.
5. Lift the PCI cage away from the system board.

PCI cage replacement

To replace the PCI cage, reverse the removal procedure.

Heat Sink

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Heat sink removal

To remove the heat sink:

1. Remove the top cover.
2. Remove the air baffle.
3. Loosen the two spring-loaded screws.
4. Lift the heat sink away from the system board.

Heat sink replacement

To replace the heat sink:

1. Clean the old thermal grease from the processor with the alchol swab. Allow the alchol to evaporate before continuing.

2. Apply the thermal grease compound to the processor in an "S" pattern to ensure even distribution.**Caution! Place the heat sink down in an upright position with the thermal patch facing upward. Do not let the thermal patch touch the work surface.**
3. Properly align the heat sink spring-loaded screws to the system board mounting holes.
4. Tighten the spring-loaded screws clockwise to secure the heat sink connection to the system board.

Processor

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Processor removal

Caution ! To avoid damage to the processor: Handle the processor only by the edges. Do not touch the bottom of the processor, especially the contact area.

Caution ! THE PINS ON THE SYSTEM BOARD ARE VERY FRAGILE AND EASILY DAMAGED. To avoid damage to the system board: - Never install or remove a processor without using the processor installation tool.- Do not touch the processor socket contacts.- Do not tilt or slide the processor when lowering the processor into the socket.- Your processor installation tool may differ from the one shown here. The general procedures and cautions for removal and replacement still apply.

To remove the processor:

1. Remove the top cover.
2. Remove the air baffle.
3. Remove the heat sink.
4. Open the processor locking lever and the processor socket retaining bracket.
5. Align the processor installation tool over the processor with the locking lever graphic correctly oriented.
6. Press in on the release tabs on the side of the tool and lower it onto the processor.
7. With the processor in place, release the tabs to firmly grasp the processor into the mouth of the tool.
8. Lift the processor straight up and out of the socket.
9. To help ensure that the processor remains in the tool, carefully rotate the tool, and then push in and release the tabs to secure the processor in the tool.

Caution! The pins of the socket are very fragile. Do not bend or damage them.

Caution! Place the processor on a static-dissipating work surface or in an anti-static bag.

Caution! To allow heat sink to draw as much heat as possible from the processor base, there must be good contact between the heat sink base and the top of the processor. To ensure good contact, you must apply thermal grease compound.

Processor replacement

To install the new processor:

Caution! Failure to completely open the processor locking lever prevents the processor from seating during installation, leading to hardware damage.

1. Insert the processor into the processor installation tool. Handle the processor by the edges only, and do not touch the bottom of the processor, especially the contact area.**Caution! Ensure that the alignment pins on the tool are aligned with the cutouts on the processor. If the processor is not inserted correctly, it may be destroyed.Important! Be sure the processor remains inside the processor installation tool.**
2. Align the processor installation tool with the socket, and then install the processor.
3. Press the tabs on the processor installation tool to separate it from the processor, and then remove the tool.
4. Close the processor socket retaining bracket and the processor locking lever.**Caution! Be sure to close the processor socket retaining bracket before closing the processor locking lever. The lever should close without resistance. Forcing the lever closed can damage the processor and socket, requiring system board replacement.**
5. Use a clean cloth dipped in rubbing alcohol to clean the contact surface on the heat sink and the new processor. Wipe the contact surfaces several times to make sure that no particles or dust contaminants are evident.
6. Apply thermal grease in an pattern of five big dots on the surface of the processor.
7. Replace the heat sink.

Memory

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Memory removal

Note: The system board has 12 DIMM slots that support up to 96 GB maximum system memory (8 GB in each of the 12 DIMM slots). You must adhere to the certain guidelines when adding or replacing memory modules. Refer to the server documentation for these guidelines.

To remove the memory module:

1. Remove the top cover.
2. Remove the air baffle.
3. Completely open the holding clips securing the memory module.
4. Gently pull the memory module upward to remove it from the slot.**Caution! Place the memory module on a static-dissipating work surface or inside an anti-static bag.**

Memory replacement

To install the memory module, reverse the removal procedure.

PCIe Riser Card

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PCIe riser card removal

To remove the PCIe riser card:

1. Remove the top cover.
2. Remove the PCI cage.
3. Remove the PCI expansion board.
4. Loosen the screw securing the riser card to the PCI cage.
5. Remove the riser card from the PCI cage.

PCIe riser card replacement

To install the PCIe riser card, reverse the removal procedures.

PCI Expansion Board/PCI Cages

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PCI expansion board/PCI cages

To install the PCI expansion board:

1. Remove top cover.
2. Remove the air baffle.
3. Remove the PCI cage.
4. Remove the screw near the slot cover on the PCI cage.
5. Remove the slot cover from the PCI cage.
6. Slide the expansion board into the slot, aligning the board with its matching connector. Firmly press the board to seat it properly on the slot.
7. Tighten the screw that secures the expansion board to the PCI cage.

To reinstall the PCI cage:

1. Install the PCI expansion board into the PCI cage.
   a. Align the PCI expansion board with the open expansion slot.
   b. Press the PCI expansion board into the expansion slot on the riser card.
   c. Tighten the screw that secures the expansion board to the PCI cage.
2. Align the PCI cage assembly to the system board expansion slot, and then press it down to ensure full connection to the system board.
3. Tighten the thumbscrews to secure the PCI cage assembly to the system board and secure the screw on the rear panel of the chassis.
4. Connect the necessary cable(s) to the system board.

To install the hard disk drive PCI cage:

1. Loosen the thumbscrew and screws that secure the hard disk drive PCI cage to the system board.
2. Lift the hard disk drive PCI cage assembly away from the system board.
3. Align the four backplane holes to the corresponding standoffs on the hard disk drive PCI cage, and then push the card down.

4. Tighten the screw that secures the backplane to the hard disk drive PCI cage.
5. Align the hard disk drive PCI cage assembly to the system board expansion slot, and then press it down to ensure full connection to the system board.
6. Tighten the thumbscrew to secure the hard disk drive PCI cage assembly to the system board and secure the screws on the side and the rear panel of the chassis.
7. Pull the rear hard drive blank out of the hard disk drive PCI cage assembly.
8. Push the hard dive assembly into the drive bay until it stops.
9. Press the hard disk drive carrier latch inward until it clicks.

To install the DVD-ROM PCI cage:

1. Loosen the thumbscrews that secure the DVD PCI cage to the system board and remove thescrew on the rear panel of the chassis.
2. Lift the DVD PCI cage away from the system board.
3. Push the DVD ROM into the DVD PCI cage.
4. Tighten the screw that secures the DVD-ROM to the DVD PCI cage.
5. Align the DVD PCI cage assembly to the system board expansion slot, and then press it down to ensure full connection to the system board.
6. Tighten the thumbscrews that secure the DVD PCI cage assembly to the system board and secure the screw on the rear panel of the chassis.

Dedicated Management Port (Optional)

https://support.hpe.com/hpesc/public/videoDisplay?videoId=vpsg00001367en_us&noframe

Dedicated management port (Optional) removal

To remove the dedicated management port:

1. Remove the top cover.
2. Remove the air baffle.
3. Remove the PCI cage assembly out of the chassis.
4. Loosen the screw.

5. Pull the dedicated management port upwards, and then remove the dedicated management port from the dedicated management port connector.

Dedicated management port (Optional) replacement

To reinstall the dedicated management port, reverse the removal procedure.

System Battery

https://support.hpe.com/hpesc/public/videoDisplay?videoId=vpsg00001368en_us&noframe

System battery removal

To remove the system battery:

1. Remove the top cover.
2. Remove the air baffle.
3. If the expansion board is installed to the PCI cage, remove the PCI cage before releasing the battery.
4. Release the battery from its holder by squeezing the metal clamp that extends above one edge of the battery. When the battery pops up, lift it out.

System battery replacement

To replace the battery, reverse the removal procedures.

BBWC (Optional)

https://support.hpe.com/hpesc/public/videoDisplay?videoId=vpsg00001369en_us&noframe

BBWC (Optional) removal

To remove the BBWC:

1. Remove the top cover.

2. Remove the air baffle.
3. Remove the PCI cage.
4. Pull the BBWC retaining latch.
5. Slide the BBWC back, up and out of the tray.

BBWC (Optional) replacement

To reinstall the BBWC, reverse the removal procedures.

System Board

https://support.hpe.com/hpesc/public/videoDisplay?videoId=vpsg00001370en_us&noframe

System board removal

To remove the system board:

1. Remove the top cover.
2. Remove the air baffle.
3. Remove the PCI cage.
4. Remove all DIMMs.
5. Remove the heat sink.
6. Remove the processor.
7. Unplug all cables from the system board.
8. Loosen the eight screws that secure the system board to the chassis.
9. Slide the system board back, up and out of the chassis to remove the system board from the chassis.

System board replacement

To reinstall the system board, reverse the removal procedures.

Caution! Make sure the cables do not get caught under the system board when reinstalling.

Power Supply Unit (PSU)

https://support.hpe.com/hpesc/public/videoDisplay?videoId=vpsg00001371en_us&noframe

Power supply unit (PSU) removal

To remove the power supply:

1. Press the port wine colored tab.
2. Slide the hot-plug power supply out of the power supply bay.

Power supply unit (PSU) replacement

To replace the power supply, reverse the removal procedures.

System Fan

https://support.hpe.com/hpesc/public/videoDisplay?videoId=vpsg00001372en_us&noframe

System fan removal

To remove the system fan:

1. Remove the top cover.
2. Remove the air baffle.
3. Disconnect the system fan cable from its corresponding board connector.
4. Release the fan cable from the cable clip securing it to the chassis partition wall.
5. Squeeze the release tab on the system fan to release it from the chassis.
6. Lift the system fan away from the chassis, ensuring the cable comes through the cable opening on the chasis.

System fan replacement

To reinstall the system fan, reverse the removal procedures.