HPE ProLiant DL160 G6 Server - Parts Support Guide

Part Number: External
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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Remove/Replace

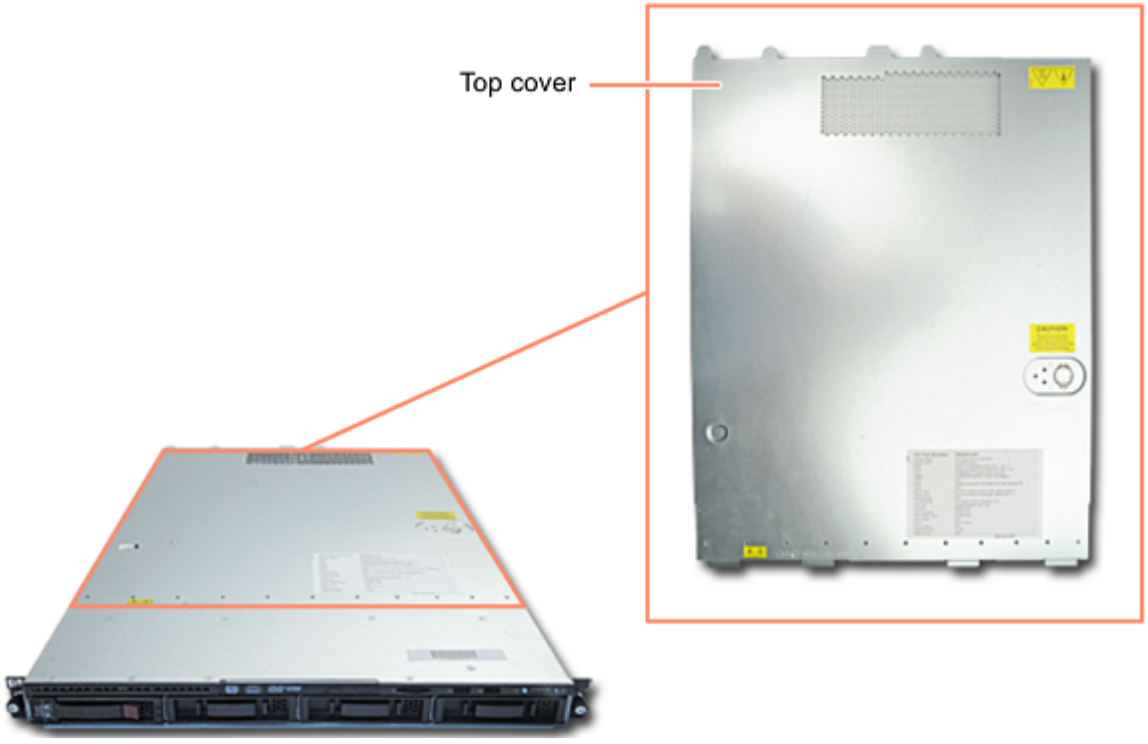
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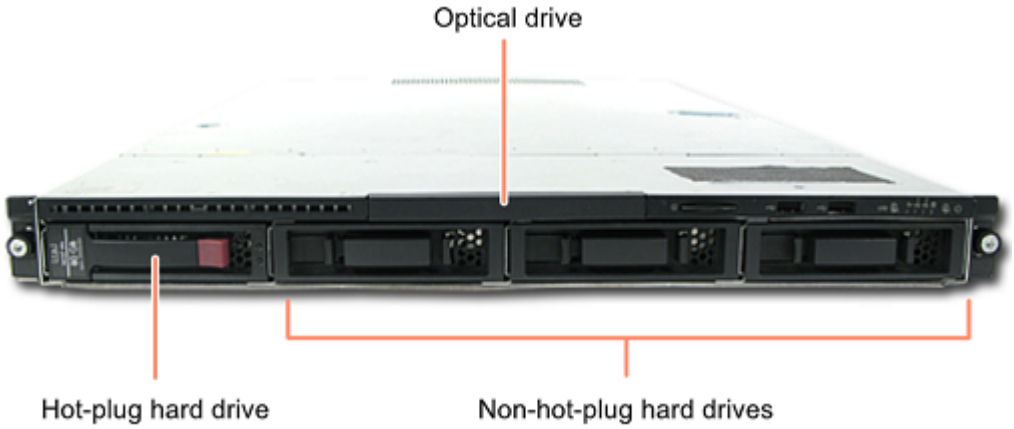
Front view 1



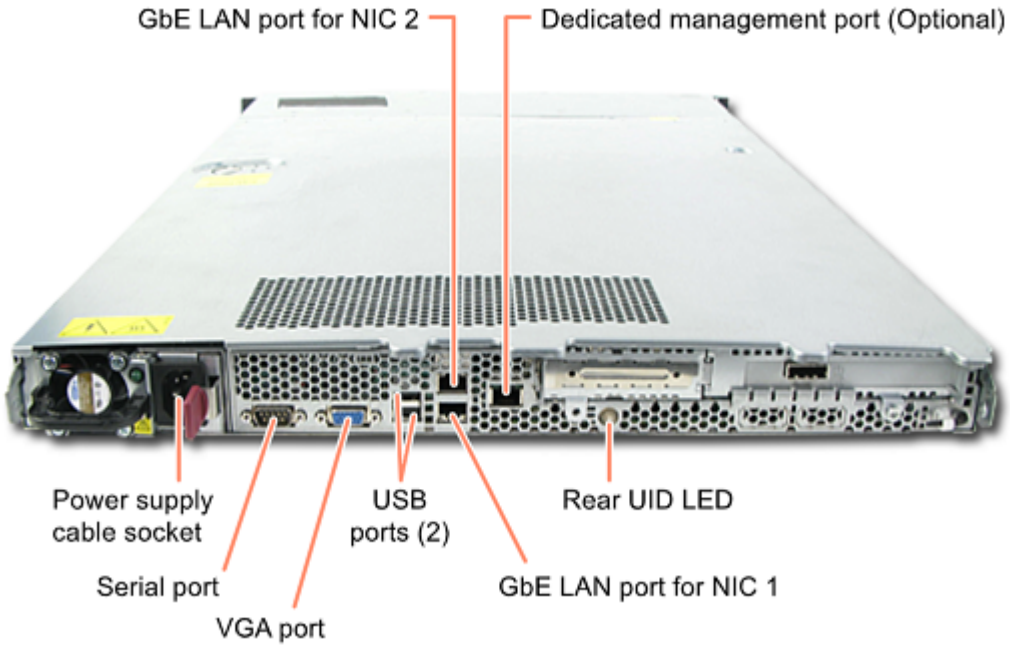
Top cover



Front view 2



Back view



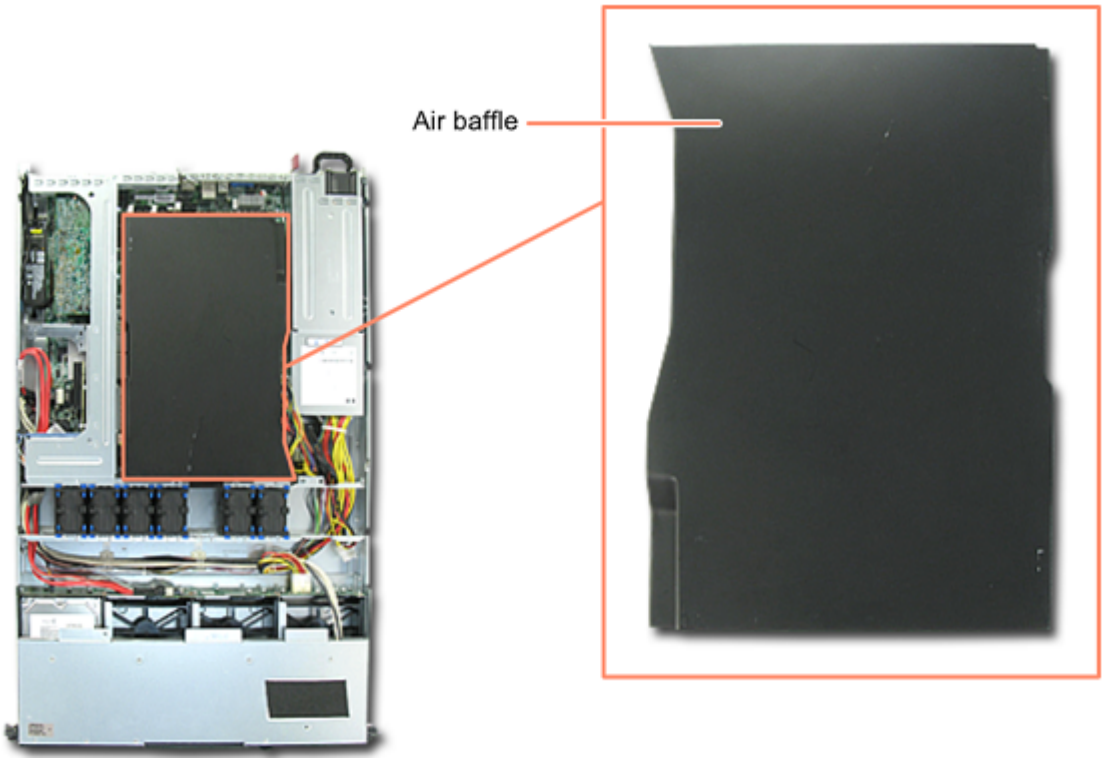
Top view



Internal view 1



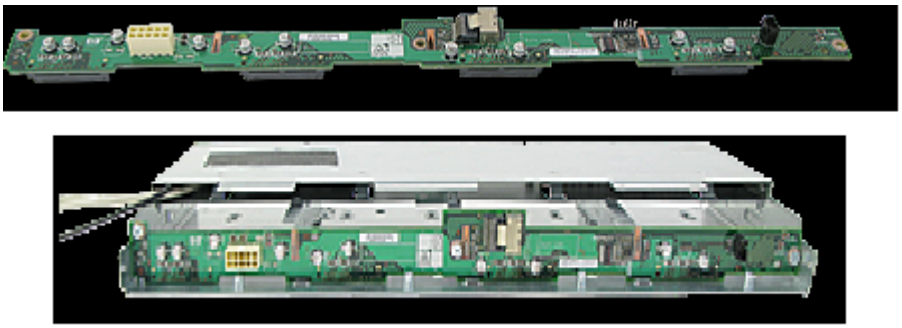
Air baffle



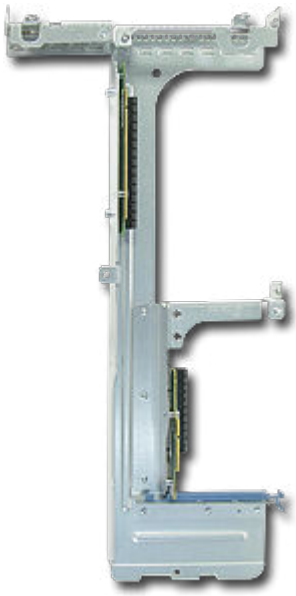
System fans



SAS/SATA HDD backplane



PCI cage



Battery- backed write cache battery pack

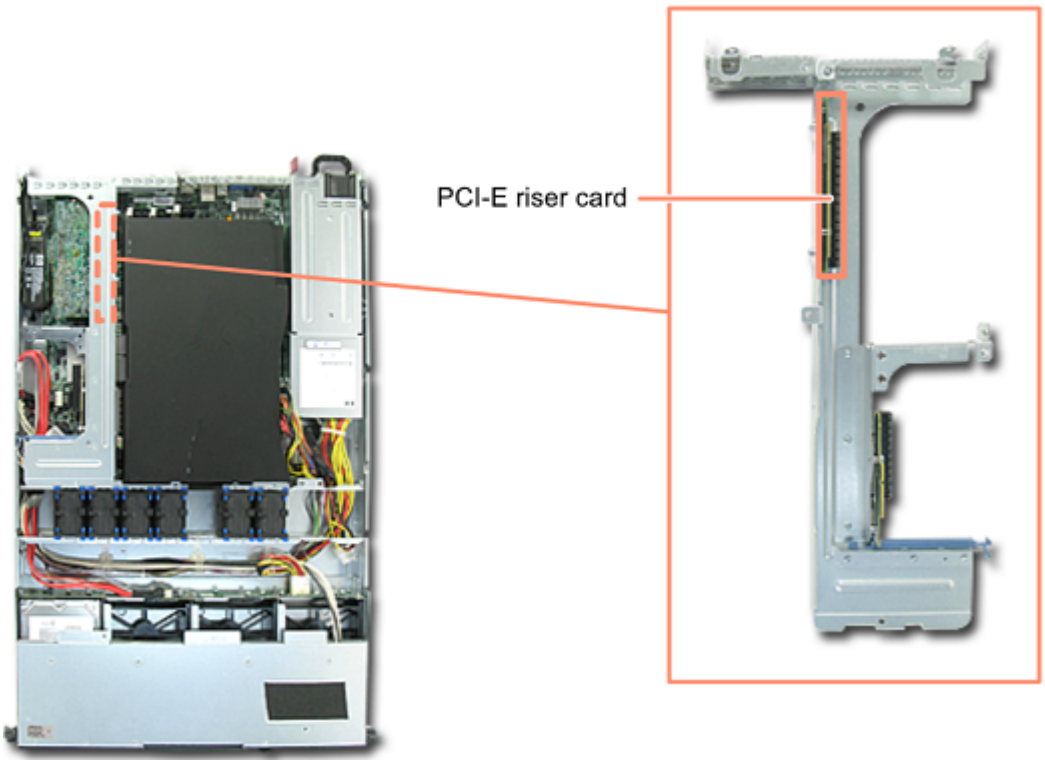


Battery-backed write cache
battery pack (optional)

PCI expansion board



PCI riser card



Hot-plug power supply



Internal view 2



DIMMs



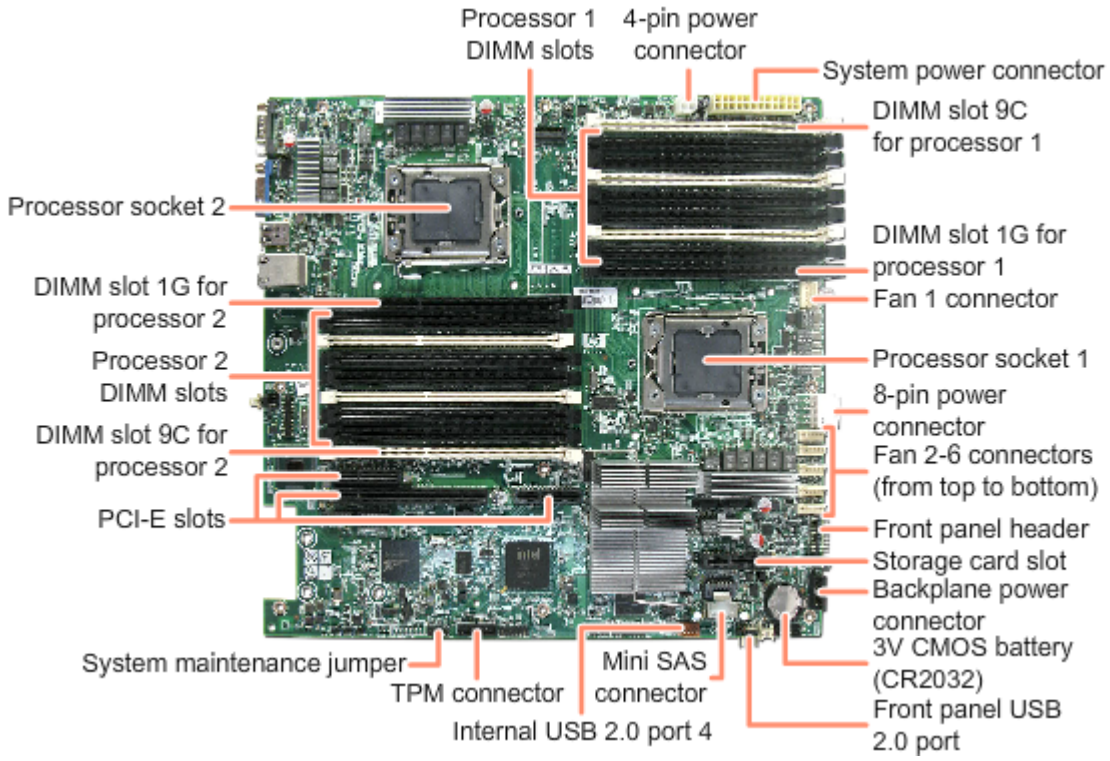
System battery



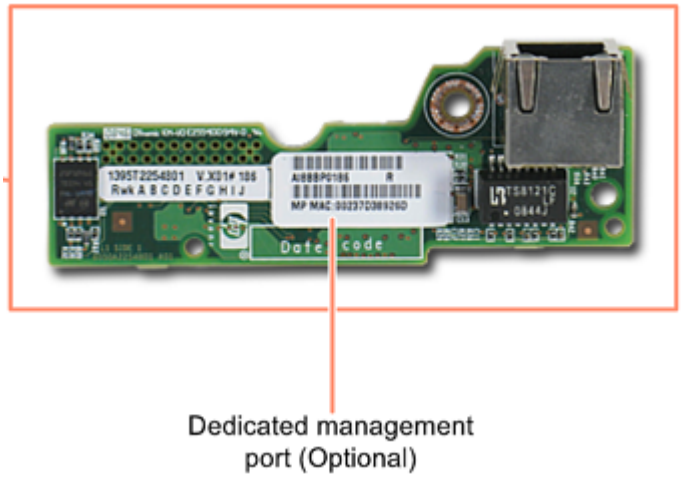
Heatsink



System board



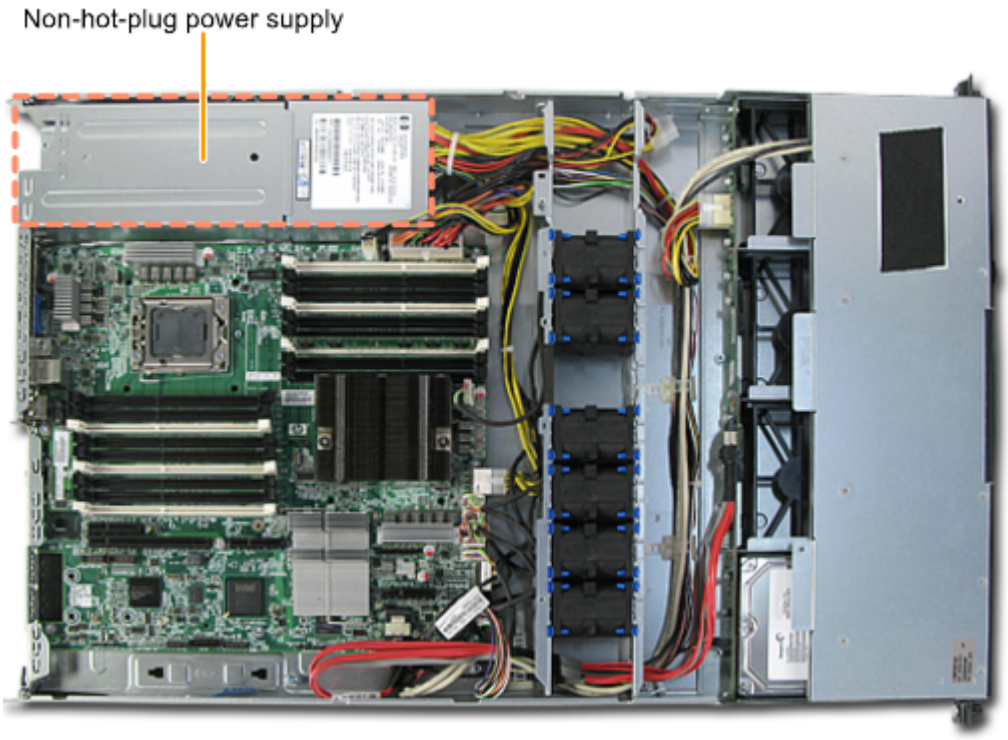
Dedicated management port



Processor



Non-hot-plug power supply



Required Tools

You need the following items for certain procedures:

- T10/T15 Torx screwdriver (included with the server)

- 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 listed previously in this chapter when handling a server component.**

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 wrench.
2. Press the latch on the top cover.
3. Slide the cover toward the rear of the server and then lift it to remove it from the chassis.

Top cover replacement

To replace the top cover, reverse the removal procedure.

Optical Media Drive

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Optical media drive removal

To remove the optical drive:

1. Remove the top cover and then unplug the SATA and power cable.

2. Loosen the screws.
3. Push the optical drive toward the front of the unit.
4. Pull the optical drive out of the chassis.

Optical media drive replacement

To replace the optical drive:

1. Slide the optical drive assembly into the chassis.
2. Remove the top cover, fasten the screws and connect the SATA and power cables to their corresponding connectors on the optical drive.

Hot-Plug Hard Drives

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Hot-plug hard drives removal

To remove the hot-plug hard drive:

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

Hot-plug hard drives replacement

To replace the hot-plug hard drive:

1. Press the release tabs, and then pull the hard drive blank out of the chassis.
2. Push in the release button to open the release lever.
3. Push in the hard drive assembly into the drive bay until it stops.
4. Press the HDD carrier latch inward until it clicks.

Non-Hot Plug Hard Drives

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Non-hot plug hard drives removal

To remove the non-hot-plug hard drive:

1. Disconnect the SATA cable and power cable.
2. Loosen the screw with the T10/T15 wrench provided.
3. Push the hard drive toward the front of the unit.
4. Pull the hard drive assembly out of the drive bay.

To remove a non-hot-plug hard drive disk from the carrier:

1. Loosen the four screws on the carrier (two on each side).
2. Lift the hard drive from the carrier.

Non-hot plug hard drives replacement

To replace a non-hot-plug hard drive into the carrier:

1. Put the non-hot-plug hard drive disk into the carrier.
2. Fasten the HDD to the carrier using the screws (two on each side).

To replace a non-hot-plug hard drive into the server:

1. Remove the hard drive blank from the front of the system if installed.
2. Push the hard drive assembly into the drive bay until it stops.
3. Fasten the screw with the T10/T15 wrench provided to secure the hard drive to the chassis.
4. Connect the cabling from the power supply to the drive using the cables provided.

Air Baffle

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Air baffle removal

To remove the air baffle:

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

Air baffle replacement

To replace the air baffle, reverse the removal procedures.

SAS/SATA HDD Backplane

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SAS/SATA HDD backplane removal

WARNING! Ensure that the system is powered off and all power sources have been disconnected from the server. Voltages are present at various locations within the server whenever an AC power source is connected. This voltage is present even when the main power switch is in the off position.

To remove the backplane:

1. Remove all drives out of the drive bays.
2. Remove the top cover.
3. Remove all cables connected to the backplane.
4. Remove the hard drive cage by loosening all screws that secure the hard drive cage to the chassis and sliding the hard drive cage out and then lifting it up. Remove the hard drive cage from the chassis.
5. Remove the backplane by removing all cables-including optical drive cables. Then remove the three screws that secure the backplane to the hard drive cage. Pull the backplane up and out to release it from the hard drive cage.

SAS/SATA HDD backplane replacement

To replace the backplane, reverse the removal procedures.

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.

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.

Important! If the heat sink has been removed for any reason on a previously installed processor, it is critical that you apply more thermal grease compound to the integrated heat spreader on the processor to ensure proper thermal bonding between the processor and the heat sink.

Caution! Do not over-tighten the spring-loaded screws to prevent them from breaking off. A maximum torque of 6 inch-lb is set for each screw. Rotate the heat sink a few degrees to the left and right to break the bonding of the thermal grease compound before removing the heat sink from the processor.

Heat sink replacement

To replace the heat sink:

1. Properly align the heat sink spring-loaded screws to the system board mounting holes.
2. Tighten the spring-loaded screws clockwise to secure the heat sink connection to the system board.

Caution! When installing two heat sinks, please keep the label on each heat sink towards the T mark guide orientation on the system board.

Caution! For proper cooling, do not operate the server without the top cover, air baffle, expansion slot covers, or blanks installed. For additional information, see the user guide. If hot-plug components are supported, minimize the amount of time the top cover is removed.

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.

Caution! It is recommended to use the processors of the same speeds or cache sizes to prevent possible server malfunction.

WARNING! To reduce the risk of personal injury from hot surfaces, allow the heat sink and the processor to cool before touching them.

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: Refer to the product maintenance and service guide for memory module configuration guidelines before attempting to remove or replace memory on this server.

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.

PCI Cage

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PCI cage removal

To remove the PCI cage:

1. Remove the top cover.
2. Remove the air baffle.
3. Loosen the four screws that secure the PCI cage to the chassis.
4. Lift the PCI cage away from the system.

PCI cage replacement

To replace the PCI cage, reverse the removal procedures.

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 air baffle.

3. Remove the PCI cage.
4. Loosen the two screws securing the riser card to the PCI cage.
5. Remove the riser card from the PCI cage.

PCIe riser card replacement

To replace the PCIe riser card:

1. Align the screw holes on the riser card to the screw holes on the PCI cage.
2. Install and tighten the two screws that secure the riser card to the PCI cage.

PCI Expansion Board

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PCI expansion board removal

To remove the PCI expansion board:

1. Remove the top cover.
2. Remove the air baffle.
3. Remove the PCI cage.
4. Remove the slot cover from the PCI cage.
5. 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.
6. Fasten the screw to secure it.

Caution! Do not discard the slot cover. If the expansion board is removed in the future, the slot cover must be reinstalled to maintain proper cooling.

PCI expansion board replacement

To replace the PCI expansion board and cage:

1. Install the PCI expansion board into the PCI cage by aligning the PCI expansion board with the open expansion slot. Press the PCI expansion board into the expansion slot on the riser card.
2. Align the PCI cage to the system board expansion slot, and then press it down to ensure full connection to the system board.
3. Tighten the four screws that secure the PCI cage to the chassis.
4. Connect the necessary cable(s) to the system board.

Dedicated Management Port (Optional)

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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 replace the dedicated management port, reverse the removal procedures.

System Battery

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System battery removal

WARNING! Note the following reminders when replacing the system battery:

- **Replace the system battery with the same type as the system battery recommended by HP. Use of another system battery may present a risk of fire or explosion.**
- **A risk of fire and chemical burn exists if the battery is not handled properly. Do not disassemble, crush, puncture, or short external contacts, or expose the system battery to temperatures higher than 60-C (140-F).**
- **Do not dispose of used system battery in water or fire. Dispose of used system batteries according to manufacturer's instructions.**

Caution! Loss of BIOS settings occur when the system battery is removed. You must reconfigure BIOS settings whenever you replace the system battery.

Note: If the server no longer automatically displays the correct day and time, you may need to replace the system battery. Under normal usage, system battery life is five to ten years.

To remove the system battery:

1. Remove the top cover.
2. Remove the air baffle.
3. Remove the PCI cage.
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=vpsg00001227en_us&noframe

BBWC (Optional) removal

To remove the BBWC assembly:

1. Remove the top cover.

2. Remove the air baffle.
3. Remove the PCI cage.
4. Push the tab that secures the BBWC assembly to the system board tray.
5. Slide the BBWC assembly, and then lift it out of the system board assembly.

BBWC (Optional) replacement

To replace the BBWC, reverse the removal procedures.

System Board

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System board removal

To remove the system board:

1. Remove the top cover.
2. Remove the air baffle and all cables from the system board.
3. Remove the PCI riser cage.
4. Loosen the eight screws that secure the system board to the chassis.
5. Slide the system board back, up and out of the chassis. Remove the system board from the chassis.

System board replacement

To replace the system board:

1. Align the system board I/O connectors to their openings and slide the system board into place. The screw holes on the tray should align with the system board.
2. Fasten the screws that secure the system board to the chassis.

Hot-Plug Power Supply Unit (PSU)

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Hot-plug power supply unit (PSU) removal

To remove the hot-plug power supply:

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

Hot-plug power supply unit (PSU) replacement

To replace the hot-plug power supply, reverse the removal procedures.

Non-Hot-Plug Power Supply

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Non-hot-plug power supply removal

To remove the non-hot-plug power supply:

1. Loosen the two screws that secure the power supply, located beneath the chassis.
2. Loosen the screws that secure the power supply to the chassis.
3. Pull and lift the power supply out of the chassis.

Non-hot-plug power supply replacement

To replace the non-hot-plug power supply:

1. Locate and push the power supply to the proper place in the chassis.
2. Fasten the power supply to the chassis using the screws previously removed.
3. Fasten the two screws which are located beneath the chassis to secure the power supply.

System Fan

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System fan removal

To remove the system fan:

1. Remove the top cover.
2. Remove the air baffle.
3. Remove the PCI riser cage.
4. Disconnect the system fan cable from its corresponding board connector.
5. Lift the system fan away from the chassis.
6. Release the fan cable from under the fan cage.

System fan replacement

To replace the system fan:

1. Put the system fan cable through the system fan cage.
2. Hold the system fan and press the system fan into the system fan bracket.
3. Connect the system fan cable to its corresponding board connector.