# HPE ProLiant BL490c G7 Server Blade - Parts Support Guide

Part Number: Internal
Published: 2020
Edition: 1

# HPE ProLiant BL490c G7 Server Blade - Parts Support Guide

**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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# Table of contents


Part Locator

- Front view 5
  - Access panel 5
  - Front bezel 6
- Back view 7
- Internal view 8
  - DIMM baffle 8
  - DIMMs 9
  - SD card module 9
  - Release button 10
  - Server blade handle 10
  - Battery tray 10
  - System battery 11
  - Mezzanine card 11
  - Heatsink 11
  - Solid state hard drive 12
  - Processor 12
  - System board 12

Remove/Replace

- References
  - Precautions 13
  - Tools And Materials 14
  - Safety Considerations 14
  - Symbols On Equipment 15
  - System Battery Warnings And Cautions 17
  - Power Down The Server Blade 17
  - Remove The Server Blade From The Enclosure 19
- Procedures
  - Front Bezel 19
  - Access Panel 20
  - Solid State Drive 20
  - DIMM Baffle 21
  - DIMMs 22
  - Mezzanine Card 22

System Battery....23
Battery Tray....23
SD Card Module....24
Heatsink....24
Processor....26
System Board....27
Server Blade Handle....28
Release Button....28

## Front view



## Access panel



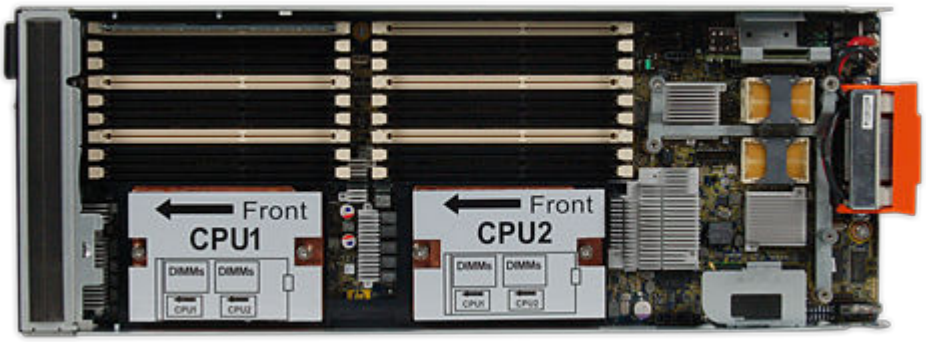
## Front bezel



## Back view



## Internal view




## DIMM baffle



## DIMMs



## SD card module



## Release button



## Server blade handle



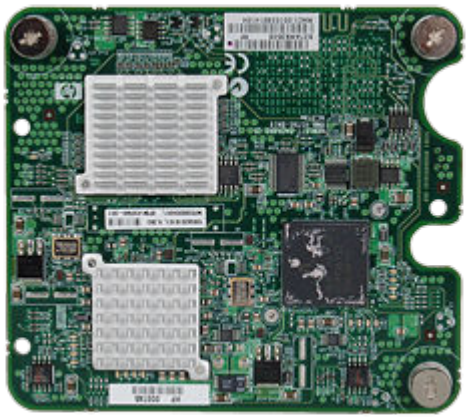
## Battery tray



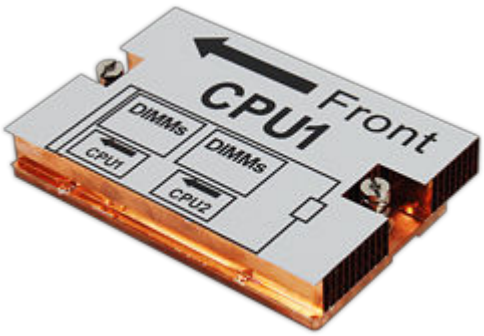
## System battery




## Mezzanine card



## Heatsink



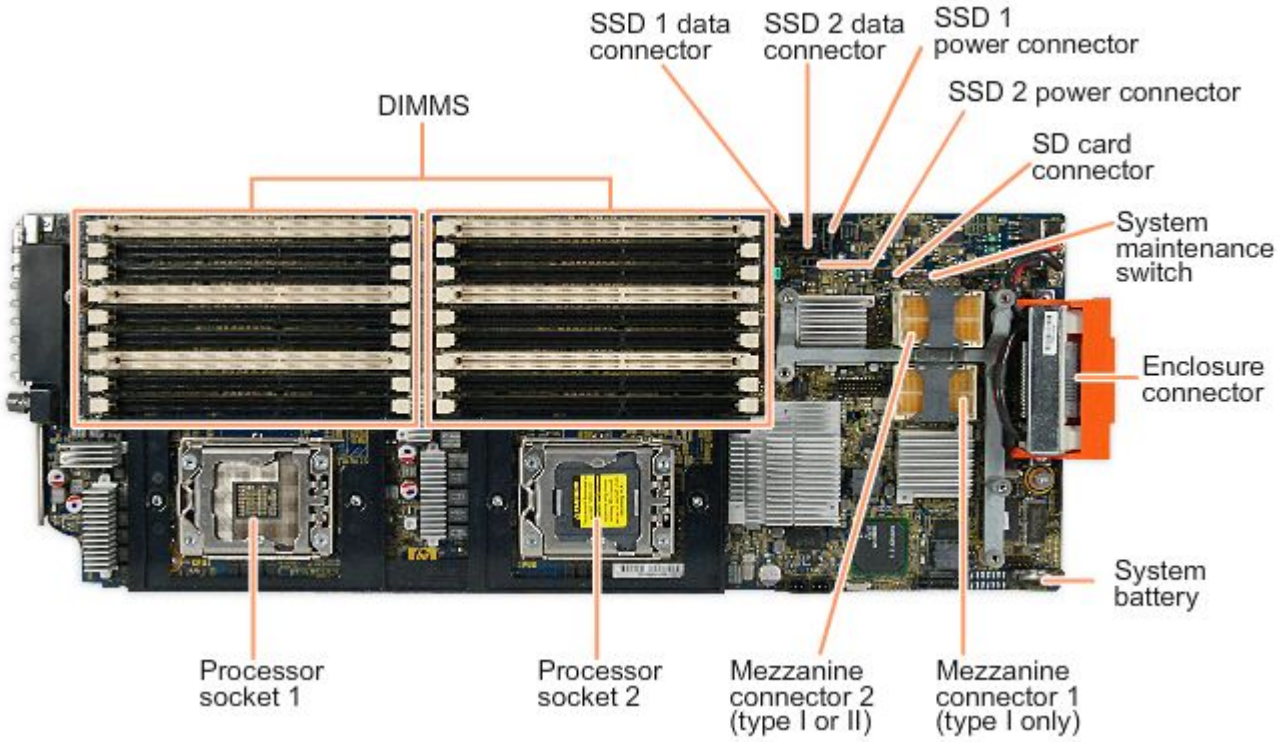
## Solid state hard drive



## Processor



## System board




## Precautions

To prevent damage to the unit, protect data, and avoid personal injury, review and follow these precautions.

### Before you begin

1. Review static electricity, disassembly, and safety considerations.
2. Power down the server blade using one of the three methods detailed below.
3. Put on your electrostatic discharge (ESD) wrist strap to avoid damaging any circuitry.
4. Remove the server blade from its enclosure and place on a flat, level surface.

### Static electricity

Static electricity can damage electrical components. Before removing or replacing a component, observe the following precautions to prevent damage to electric components and accessories:

- To avoid hand contact, transport products in static-safe containers such as tubes, bags, or boxes.
- Protect all electrostatic parts and assemblies with conductive or approved containers or packaging.

- Keep electrostatic-sensitive parts in their containers until they arrive at static-free stations.
- Place items on a grounded surface before removing them from their container.
- Always be properly grounded when touching a sensitive component or assembly.
- Avoid contact with pins, leads, or circuitry.
- Place reusable electrostatic-sensitive parts from assemblies in protective packaging or conductive foam.

**Disassembly**

- During disassembly, label each cable as you remove it, noting its position and routing. This will make the replacement of the cables much easier, and will ensure that the cables are rerouted properly to protect the cables.
- Keep all screws with the units removed. The screws used in the server blade may be of different thread sizes and lengths; using the wrong screw in a component could damage the unit.

## Tools And Materials

**Tools and materials**

- Torx T15 screwdriver (provided inside the access panel)
- Flat-blade screwdriver

## Safety Considerations

**Preventing electrostatic discharge**

To prevent damaging the system, be aware of the precautions you need to follow when setting up thesystem or handling parts. A discharge of static electricity from a finger or other conductor may damagesystem boards or other static-sensitive devices. This type of damage may reduce the life expectancy of thedevice.To prevent electrostatic damage:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

**Server blade warnings and cautions**

**WARNING : To reduce the risk of shock or injury from high-current electrical energy, do not remove the server blade access panel and then install the server blade into the enclosure.**

**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 blade with the access panel removed. Operating the server blade in this manner results in improper airflow and improper cooling that can lead to** thermal damage.

**CAUTION: When performing non-hot-plug operations, you must power down the server blade and/or the system. However, it may be necessary to leave the server blade powered up when performing other operations, such as hot-plug installations or troubleshooting.**

## Symbols On Equipment

**Symbols on equipment**

The following symbols may be placed on equipment to indicate the presence of potentially hazardous conditions:



This symbol indicates the presence of hazardous energy circuits or electric sh ock hazards. Refer all servicing to qualified personnel.

**WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qua lified personnel.**







This symbol indicates the presence of electric shock hazards. The area contain s no user or field serviceable parts. Do not open for any reason.

**WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure.**





This symbol on an RJ-45 receptacle indicates a network interface connection.

**WARNING: To reduce the risk of electric shock, fire, or damage to the equ ipment, do not plug telephone or telecommunications connectors into this receptacle.**





This symbol indicates the presence of a hot surface or a hot component. If this surface is touched, the potential for injury exists.

**WARNING: To reduce the risk of injury from a hot component, allow the su rface to cool before touching.**

This symbol indicates that the component exceeds the recommended weight for one individual to handle safely.



**WARNING : To reduce the risk of personal injury or damage to the equipme nt, observe local occupational health and safety requirements and guidelin es for manual material handling.**



weight1_kgweight1_lb



These symbols, on power supplies or systems, indicate that the equipment is s upplied by multiple sources of power.

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

## System Battery Warnings And Cautions

**System battery warnings and cautions**

If the server blade no longer automatically displays the correct date and time, you may need to replace the battery that provides power to the real-time clock. Under normal use, battery life is 5 to 10 years.

**WARNING: The computer contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery pack. A risk of fire and burns exists if the battery pack is not properly handled. To reduce the risk of personal injury:**

- Do not attempt to recharge the battery.
- Do not expose the battery to temperatures higher than 60°C (140°F).
- Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.

## Power Down The Server Blade

**Power down the server blade**

- Identify the proper server blade.
- Before powering down the server blade for any upgrade or maintenance procedures, perform a backup of critical server blade data and programs.
- Depending on the Onboard Administrator configuration, use one of the following methods to power down the server blade:
- Use a virtual power button selection through iLO 3.This method initiates a controlled remote shutdown of applications and the OS before the server blade enters standby mode.
- Press and release the Power On/Standby button.This method initiates a controlled shutdown of applications and the OS before the server blade enters standby mode.
- Press and hold the Power On/Standby button for more than 4 seconds to force the server blade to shut down.This method forces the server blade to enter standby mode without properly exiting applications andthe OS. It provides an emergency shutdown method in the event of a hung application.
- Execute one of the following commands using the enclosure CLI:

  ```
  poweroff server all
  ```

  Or

  ```
  poweroff server all force
  ```

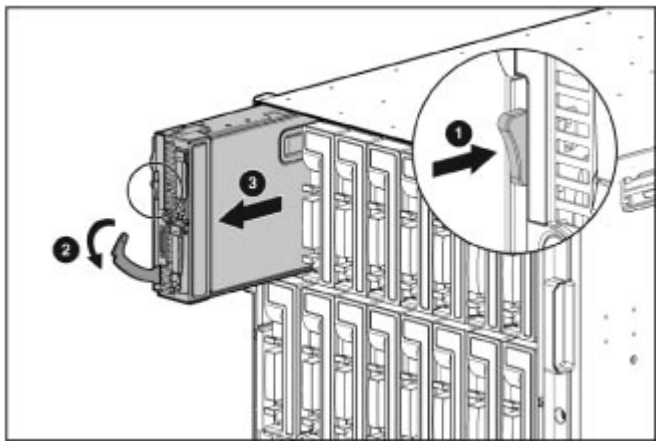
  The first command initiates a controlled shutdown of applications and the OS before the server blade enter standby mode. The second form of the command forces the server blade to enter standby mode without exiting applications and the OS. This is an emergency method to force a shutdown in the event of a hung application.
- Use the enclosure GUI to initiate a shutdown:
-
  - Select the Enclosure Information tab, then select the Overall checkbox in the Device Bays item.
  - Initiate a shutdown from the Virtual Power menu:
- Select Momentary Press to initiate a controlled shutdown of applications and the OS.
- Select Press and Hold to initiate an emergency shutdown of applications and the OS.

**IMPORTANT:** When the server blade is in standby mode, auxiliary power is still being provided. To remove all power from the server blade, remove the server blade from the enclosure.After initiating a virtual power down command, be sure that the server blade goes into standby mode by observing that the system power LED is amber.

# Remove The Server Blade From The Enclosure

### Remove the server blade from the enclosure

1. Press the ejector button in.
2. Grasp the handle.
3. Slide the server blade out of the enclosure and place it on a flat, level work surface.




# Front Bezel

https://support.hpe.com/hpesc/public/videoDisplay?videoId=vpsg00000963en_us&noframe

### Front bezel removal

**Before you begin:** Review Safety considerations . Power down the server blade and remove it from the enclosure.

1. Remove the two 6mm Torx T15 screws that secure the front bezel to the server blade chassis.
2. Slide the front bezel forward and out of the server blade chassis.

### Front bezel replacement

1. Extend the server blade serial pull tab partially to prevent it from being pinched.

2. Align and slide the front bezel into the chassis.
3. Replace the two 6mm Torx T15 screws to secure the front bezel to the server blade chassis.
4. Insert the server blade serial pull tab completely.

## Access Panel

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### Access panel removal

**Before you begin:** Review Safety considerations . Power down the server blade and remove it from the enclosure.

1. Press and hold the hood release button.
2. Slide the access panel towards the rear of the server blade until it stops.
3. Lift the access panel up and off of the server blade chassis.

### Access panel replacement

1. Align the access panel guide pins with the slots on the chassis and lower the access panel into place.
2. Slide the access panel forward until the access panel clicks into place.

## Solid State Drive

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### Solid state drive removal

**Before you begin:** Review Safety considerations . Back up all server data on the solid state drive. Power down the server blade and remove it from the enclosure. Remove the access panel.

1. Disconnect the cables from the solid state drive.
2. Lift and remove the solid state drive out of its designated space in the top of the DIMM baffle.

### Solid state drive replacement

1. Place the solid state drive into its designate space in the top of the DIMM baffle; SSD 1 for the first drive, SSD 2 for the second drive.
2. Connect the cables to the solid state drive.

## DIMM Baffle

https://support.hpe.com/hpesc/public/videoDisplay?videoId=vpsg00000966en_us&noframe

### DIMM baffle removal

**Before you begin:** Review Safety considerations . Power down the server blade and remove it from the enclosure. Remove the access panel.

1. Disconnect the solid state drive data and power cables from the system board.
2. Grasp the DIMM baffle and lift it up and out of the server blade chassis.
   **NOTE: If replacing the DIMM baffle, remove the solid state hard drives and cables form the top of the DIMM baffle.**

### DIMM baffle replacement

1. Make sure that all of the DIMM slot latches are in the closed position.
2. Carefully align and lower the DIMM baffle into position over the DIMM slots and processor heat sinks.
3. If necessary, replace the solid state drives into their designated spaces in the top of the DIMM baffle; SSD 1 for the first drive, SSD 2 for the second drive.
4. Route the solid state drive cables under the cable guides in the top of the DIMM baffle.
5. Trace the solid state drive data and power cables from the drives and connect them to the appropriate data and power connectors on the system board, from the SSD1 drive to the SSD1 connectors, and from the SSD2 drive to SSD2 connectors.

# DIMMs

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### DIMMs removal

**Before you begin:** Review Safety considerations . Power down the server blade and remove it from the enclosure. Remove the access panel and the DIMM baffle.

1. Open the DIMM slot latches.
2. Lift the DIMM up and out of the DIMM slot.

### DIMMs replacement

1. Ensure that the DIMM slot latches are open.
2. Locate the alignment notch on the DIMM and align it with the key in the DIMM slot.
3. Push the DIMM down firmly into the slot until the DIMM slot latches snap into place.
4. Ensure that the DIMM is fully inserted and properly seated in the slot.

# Mezzanine Card

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### Mezzanine card removal

**Before you begin:** Review Safety considerations . Power down the server blade and remove it from the enclosure. Remove the access panel.

1. If necessary, remove the battery tray.
2. Loosen the three captive Torx T15 screws that secure the mezzanine card to the system board.
3. Lift the mezzanine card straight up to disconnect it from the mezzanine card connector.

### Mezzanine card replacement

**NOTE: Type 1 mezzanine cards can connect to either the mezzanine connector 1 or 2, lower or upper. Type 2 mezzanine cards can only connect to the mezzanine connector 2, the upper one.**

1. If necessary, remove the mezzanine connector cover.
2. Align the mezzanine card with the mezzanine card connector and the three standoffs.
3. Press down firmly to fully connect the mezzanine card.
4. Tighten the three captive Torx T15 screws.
5. If removed earlier, replace the battery tray.

## System Battery

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### System battery removal

**Before you begin:** Review Safety considerations , System battery warnings and cautions . Power down the server blade and remove it from the enclosure. Remove the access panel.

1. Pull the release lever back just enough to allow the system battery to be removed.
2. Lift the system battery up and out of its holder.

### System battery replacement

1. With the plus (+) side of the system battery facing the server blade chassis, press the system battery into its holder.
2. Confirm that the system battery is firmly seated and the release latch is securing the system battery.
   **IMPORTANT: Replacing the system battery resets the system ROM to its default configuration. After replacing the battery, reconfigure the system through RBSU.**

## Battery Tray

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### Battery tray removal

**Before you begin:** Review Safety considerations . Power down the server blade and remove it from the enclosure. Remove the access panel.

1. Lift the battery tray up and out of the server blade chassis.

### Battery tray replacement

1. Align and lower the battery tray over the two guide pins on the side of the server blade chassis until it is seated.

## SD Card Module

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### SD card module removal

**Before you begin:** Review Safety considerations . Power down the server blade and remove it from the enclosure. Remove the access panel.

1. Carefully lift the SD card module up to disconnect it from the system board and off of the two guide pins on the side of the server blade chassis.
2. Remove the SD card module from the server blade chassis.

### SD card module replacement

1. Align the SD card module with its connector on the system board and over the two guide pins on the side of the server blade chassis.
2. Press the SD card module down until it is fully seated on the system board.

## Heatsink

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### Heatsink removal

**Before you begin:** Review Safety considerations . Power down the server blade and remove it from the enclosure. Remove the access panel and the DIMM baffle.

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

1. Fully loosen each of two Torx T15 retaining screws to free the heatsink from the heatsink bracket on the system board.
2. Lift the heatsink straight up and out of the chassis, being careful not to touch or spread the remaining thermal grease on the bottom.
   **CAUTION:** The heatsink thermal interface media is not reusable and must be replaced if the heatsink is removed from the processor after it has been installed.

### Heatsink replacement

1. If you are reinstalling the old heatsink, use an alcohol wipe to clean off the old thermal grease from the heatsink and processor. Allow the alcohol to evaporate before you continue.
2. Apply thermal grease in an 'S' pattern on the processor.
   **NOTE : A thermal grease pattern of five big dots is also acceptable.**

   **NOTE : If you are installing a new heatsink, you may need to remove a cover from the bottom which protects a factory-applied layer of thermal interface media.**

   **CAUTION:** After the cover is removed, do not touch the thermal interface media.

   **CAUTION:** The heatsink thermal interface media is not reusable and must be replaced if the heatsink is removed from the processor after it has been installed.
3. Align the heatsink according to the diagram on the top of the heatsink and the two captive screws aligning with the system board bracket screw holes.
4. Alternate tightening of the two captive retaining screws to evenly distribute thermal grease between the heatsink and the processor, until both screws are firmly tightened.
   **CAUTION:** Do not over tighten the screws as this can damage the board, connectors, or screws. Use the Torx T15 tool supplied with the system, on top of the DIMM baffle, to reduce the possibility of over tightening the screws.

# Processor

https://support.hpe.com/hpesc/public/videoDisplay?videoId=vpsg00000973en_us&noframe

### 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.

**Before you begin:** Review Safety considerations . Power down the server blade and remove it from the enclosure. Remove the access panel, DIMM baffle and the heat sink.

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

1. Open the processor locking lever and the processor socket retaining bracket.
2. Align the processor installation tool over the processor with the locking lever graphic correctly oriented.
3. Press in on the release tabs on the side of the tool and lower it onto the processor.
4. With the processor in place, release the tabs to firmly grasp the processor into the mouth of the tool.
5. Lift the processor straight up and out of the socket.
6. 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.

### Processor replacement

**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.

   **CAUTION:** To avoid severely damaging the processor, be sure to apply thermal grease before replacing the heat sink.

## System Board

https://support.hpe.com/hpesc/public/videoDisplay?videoId=vpsg00000974en_us&noframe

### System board removal

**Before you begin:** Review Safety considerations . Power down the server blade and remove it from the enclosure. Remove the access panel, DIMM baffle, DIMMs, heatsinks, processors, battery tray, SD card module, and if installed, any mezzanine cards.

1. Loosen the two captive Torx T15 thumbscrews that secure the system board to the chassis.

2. Lift the system board slightly and slide the system board all the way out of the rear of the chassis.

### System board replacement

1. Carefully slide the system board in from the rear of the chassis forward to fully engage the chassis guide hooks underneath.

2. Tighten the two captive Torx T15 thumbscrews to secure the system board to the chassis.

3. Transfer processors, heatsinks, DIMMs and if previously installed, any mezzanine cards from the old system board to the new system board.

**IMPORTANT:** After replacing all of the components removed during the process, power up the server blade and run the procedure to re-enter the server blade serial number and product ID. Refer the service manual for this procedure.

# Server Blade Handle

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### Server blade handle removal

**Before you begin:** Review Safety considerations . Power down the server blade and remove it from the enclosure. Remove the front bezel and access panel.

1. Press the release button to open the server blade handle.
2. Carefully pull off the server blade handle spring from its holding pin on the server blade handle.
3. Remove the slotted screw that holds the server blade handle in place.
4. Lift the server blade handle out of the chassis.

### Server blade handle replacement

1. Align the server blade handle on the chassis standoff.
2. Insert and tighten the slotted screw that holds the server blade handle in place.
3. Carefully replace the server blade handle spring on its holding pin.
4. Close the server blade handle.

# Release Button

https://support.hpe.com/hpesc/public/videoDisplay?videoId=vpsg00000976en_us&noframe

### Release button removal

**Before you begin:** Review Safety considerations . Power down the server blade and remove it from the enclosure.

1. Loosen the two captive Torx T15 thumbscrews that secure the system board to the chassis.
2. Slide and slightly lift the system board back just enough to fully reveal the release button.
3. Press the release button to open the server blade handle out of the way.
4. Squeeze the two small locking tabs on the release button trunk and slide the release button back.

5. Lift the release button up and out of the chassis.

### Release button replacement

1. Align the release button trunk with chassis cutouts.
2. Slide the release button forward until it locks into position with chassis cutouts and its own alignment tab.
3. Close the server blade handle.
4. Slide the system board forward to fully engage the chassis guide hooks underneath.
5. Tighten the two captive Torx T15 thumbscrews to secure the system board to the chassis.