Cisco UCS B200 M4 Blade Server Installation and Service Note

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Audience

To use this installation guide, you must be familiar with electronic circuitry and wiring practices and preferably be an electronic or electromechanical technician who has experience with electronic and electromechanical equipment.

Only trained and qualified service personnel (as defined in IEC 60950-1 and AS/NZS60950) should install, replace, or service the equipment. Install the system in accordance with the U.S. National Electric Code if you are in the United States.

Conventions

Text Type	Indication
GUI elements	GUI elements such as tab titles, area names, and field labels appear in **this font**. Main titles such as window, dialog box, and wizard titles appear in **this font**.
Document titles	Document titles appear in *this font*.
TUI elements	In a Text-based User Interface, text the system displays appears in `this font`.
System output	Terminal sessions and information that the system displays appear in `this font`.
CLI commands	CLI command keywords appear in **this font**. Variables in a CLI command appear in *this font*.

Text Type	Indication
[ ]	Elements in square brackets are optional.
{x | y | z}	Required alternative keywords are grouped in braces and separated by vertical bars.
[x | y | z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
< >	Nonprinting characters such as passwords are in angle brackets.
[ ]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

Note Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the document.

Tip Means *the following information will help you solve a problem*. The tips information might not be troubleshooting or even an action, but could be useful information, similar to a Timesaver.

Caution Means *reader be careful*. In this situation, you might perform an action that could result in equipment damage or loss of data.

Timesaver Means *the described action saves time*. You can save time by performing the action described in the paragraph.

Warning IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

Related Cisco UCS Documentation

Documentation Roadmaps

For a complete list of all B-Series documentation, see the *Cisco UCS B-Series Servers Documentation Roadmap* available at the following URL: http://www.cisco.com/go/unifiedcomputing/b-series-doc.

For a complete list of all C-Series documentation, see the *Cisco UCS C-Series Servers Documentation Roadmap* available at the following URL: http://www.cisco.com/go/unifiedcomputing/c-series-doc.

For information on supported firmware versions and supported UCS Manager versions for the rack servers that are integrated with the UCS Manager for management, refer to Release Bundle Contents for Cisco UCS Software.

Other Documentation Resources

Follow Cisco UCS Docs on Twitter to receive document update notifications.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly What's New in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation.

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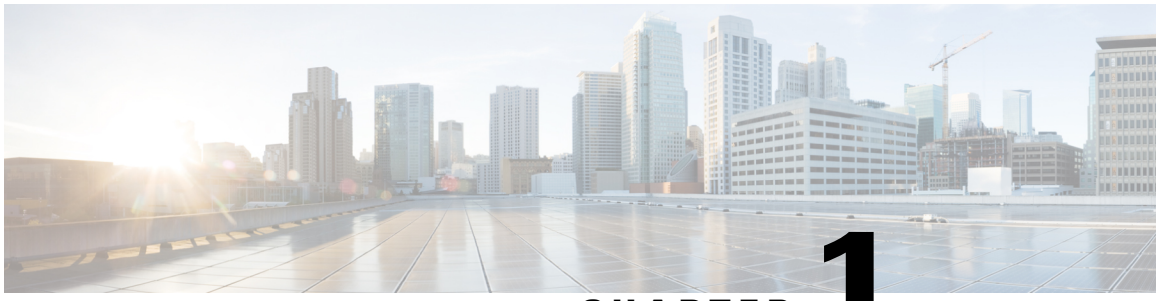
Follow Cisco UCS Docs on Twitter to receive document update notifications.



CHAPTER 1

Overview

This chapter contains the following sections:

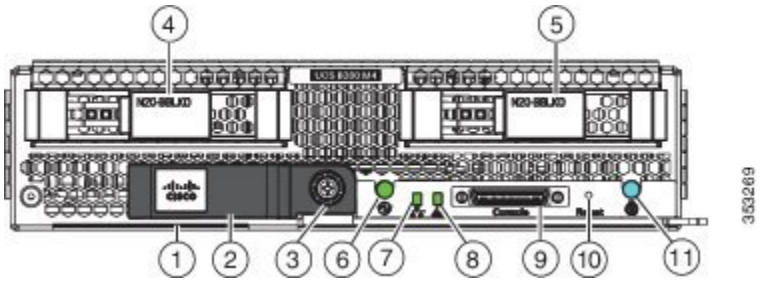
- Cisco UCS B200 M4 Blade Server, page 1
- External Features Overview, page 2
- Storage Module, page 5

Cisco UCS B200 M4 Blade Server

The Cisco UCS B200 M4 is a density-optimized, half-width blade server that supports two CPU sockets for Intel E5-2600 v3 series CPUs and up to 24 DDR4 DIMMs. It supports one modular LOM (dedicated slot for Cisco's Virtual Interface Card) and one mezzanine adapter. In addition, the UCS B200 M4 supports an optional storage module that supports up to 2 SAS or SATA hard drives or solid state disks (SSDs) . You can install up to eight UCS B200 blade servers in a UCS chassis, mixing with other models or Cisco UCS blade servers in the chassis if desired.

The UCS B200 M3 blade server is still available and is documented in separately.

Figure 1: Cisco UCS B200 M4 Front Panel



1	Asset pull tag Each server has a blank plastic tag that pulls out of the front panel which is provided so that you can add your own asset tracking label without interfering with the intended air flow.	**2**	Blade ejector handle
3	Ejector captive screw	**4**	Hard drive bay 1
5	Hard drive bay 2	**6**	Power button and LED
7	Network link status LED	**8**	Blade health LED
9	Local console connector	**10**	Reset button access
11	Locator button and LED		

External Features Overview

The features of the blade server that are externally accessible are described in this section.

LEDs

Server LEDs indicate whether the blade server is in active or standby mode, the status of the network link, the overall health of the blade server, and whether the server is set to give a blinking blue locator light from the locator button.

The removable drives also have LEDs indicating hard disk access activity and disk health.

Table 1: Blade Server LEDs

LED	Color	Description
Power	Off	Power off.
	Green	Main power state. Power is supplied to all server components in normal operation.
	Amber	Standby power state. Power is supplied only to the service processor of the server so that the server can still be managed. **Note** If you press and release the front-panel power button, the server performs an orderly shutdown of the 12 V main power and goes to standby power state. You cannot shut down standby power from the front-panel power button. See the Cisco UCS Manager Configuration Guide for information about completely powering off the server from the software interface.
Link	Off	None of the network links are up.
	Green	At least one network link is up.
Health	Off	Power off.
	Green	Normal operation.
	Amber	Minor error.
	Blinking Amber	Critical error.
Blue locator button and LED	Off	Blinking is not enabled.
	Blinking blue 1 Hz	Blinking to locate a selected blade—If the LED is not blinking, the blade is not selected. You can control the blinking in UCS Manager or by using the blue locator button/LED.
Activity (Disk Drive)	Off	Inactive.
	Green	Outstanding I/O to disk drive.
	Flashing Green 4 Hz	Rebuild in progress. Health LED will flash in unison.
	Flashing Green 4 hz	Identify drive active.

LED	Color	Description
Health (Disk Drive) ⚠	Off	Can mean either no fault detected or the drive is not installed.
	Flashing Amber 4 hz	Rebuild drive active. If the Activity LED is also flashing green, a drive rebuild is in progress.
	Amber	Fault detected.

Buttons

The Reset button is recessed in the front panel of the server. You can press the button with the tip of a paper clip or a similar item. Hold the button down for five seconds, and then release it to restart the server if other methods of restarting do not work.

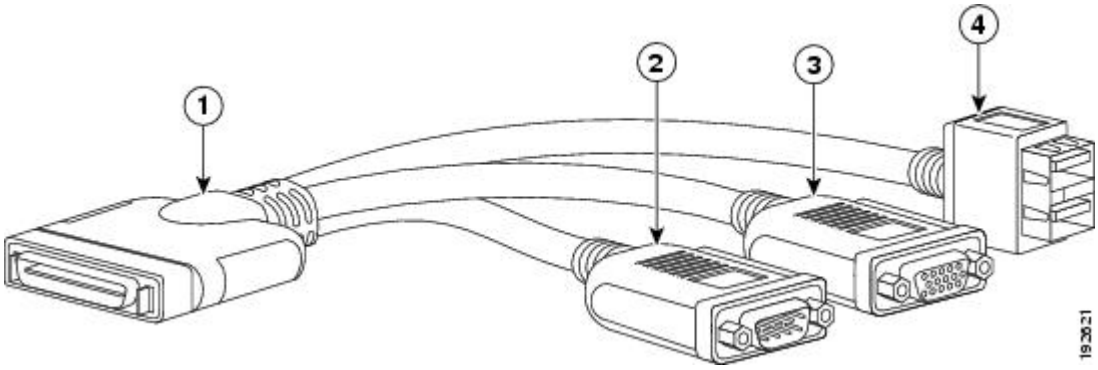
The locator function for an individual server may get turned on or off by pressing the locator button/LED.

The power button allows you to manually take a server temporarily out of service but leave it in a state where it can be restarted quickly. If the desired power state for a service profile associated with a blade server is set to "off," using the power button or Cisco UCS Manager to reset the server will cause the desired power state of the server to become out of sync with the actual power state and the server may unexpectedly shut down at a later time. To safely reboot a server from a power-down state, use the Boot Server action in Cisco UCS Manager.

Local Console Connector

The local console connector allows a direct connection to a blade server to allow operating system installation and other management tasks to be done directly rather than remotely. The port uses the KVM dongle cable that provides a connection into a Cisco UCS blade server; it has a DB9 serial connector, a VGA connector for a monitor, and dual USB ports for a keyboard and mouse. With this cable, you can create a direct connection to the operating system and the BIOS running on a blade server. A KVM cable ships standard with each blade chassis accessory kit.

Figure 2: KVM Cable for Blade Servers



1	Connector to blade server local console connector	**3**	VGA connection for a monitor
2	DB9 serial connector	**4**	2-port USB connector for a mouse and keyboard

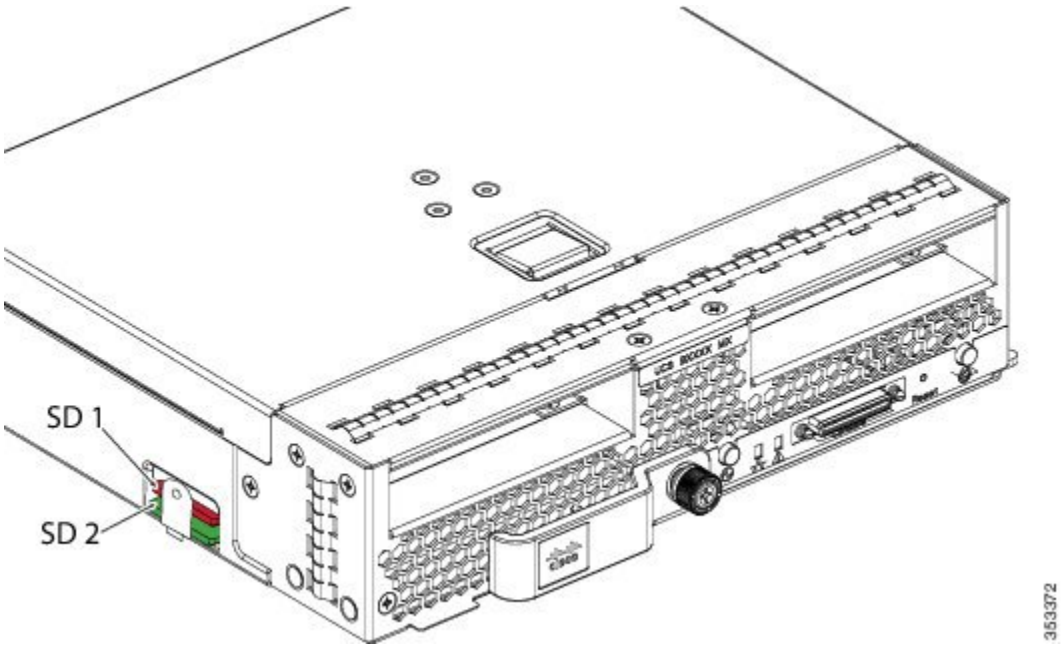
Secure Digital Cards

Secure Digital (SD) card slots are provided and one or two SD cards can be populated. If two SD cards are populated, they can be used in a mirrored mode.

Note Do not mix different capacity cards in the same server.

The SD cards can be used to store operating system boot images or other information. Once the server has been removed from the chassis, you can access the SD card slots by rotating the latch up so that it does not cover the slots. Remove or insert the SD cards as needed. Either or both slots may be used. Rotate the latch down to cover the slots before installing the server in the chassis.

Figure 3: SD Card Slot Locations

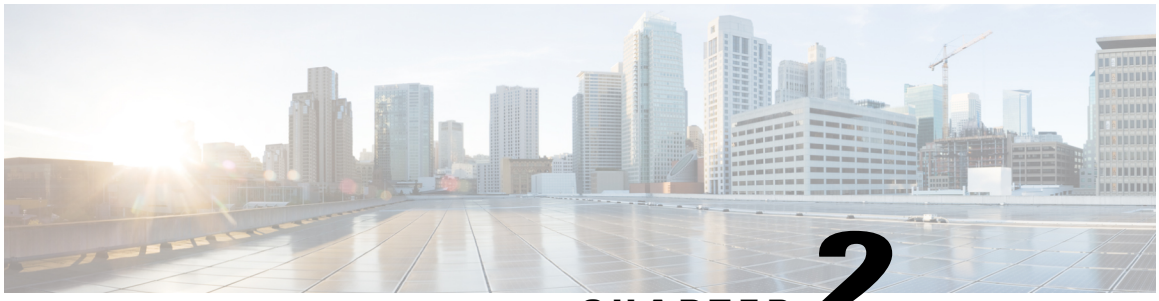


Storage Module

The Cisco UCS B200 M4 blade server has an optional storage module that can be configured with SAS or SATA hard drives or solid state disks (SSDs). Because the UCS B200 M4 can be used without disk drives,

it does not necessarily come with the storage module installed. A pair of blanking panels (two with this product ID: UCSB-LSTOR-BK) may be in place on a new UCS B200 M4 blade server.

For information on installing the storage module, see Installing the Storage Module, on page 18.



CHAPTER 2

Installing a Blade Server

This chapter contains the following sections:

- Installing a Half-width Blade Server, page 7
- Server Configuration, page 9
- Powering Off a Blade Server Using the Power Button, page 9
- Removing a Blade Server, page 9
- Server Troubleshooting, page 10

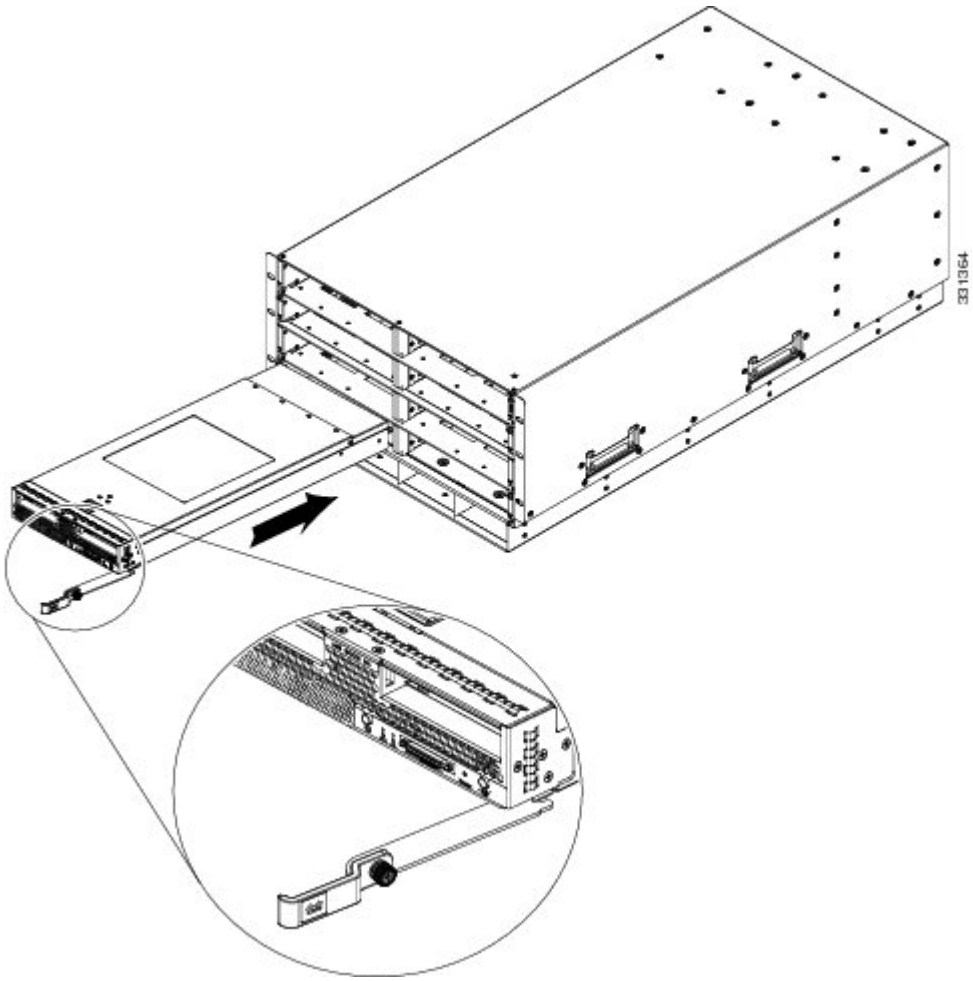
Installing a Half-width Blade Server

UCS B200 M4, UCS B200 M3, and UCS B22 M3 half-width blade servers are interoperable in a UCS chassis with any other UCS blade servers, including prior generation B200 M2 and B200 M1 servers, or other UCS B-Series blade servers. To install a half-width blade server, follow these steps:

Procedure

Step 1 Grasp the front of the blade server and place your other hand under the blade to support it.

Figure 4: Positioning a Blade Server in the Chassis



Step 2 Open the ejector lever in the front of the blade server.

Step 3 Gently slide the blade into the opening until you cannot push it any farther.

Step 4 Press the ejector lever so that it catches the edge of the chassis and presses the blade server all the way in.

Step 5 Tighten the captive screw on the front of the blade to no more than 3 in-lbs. Tightening with bare fingers only is unlikely to lead to stripped or damaged captive screws.

Step 6 Power on the server. UCS Manager automatically reacknowledges, reassociates, and recommissions the server, provided any hardware changes are allowed by the service profile.

Server Configuration

Cisco UCS blade servers should be configured and managed using Cisco UCS Manager. For details, see the *Configuration Guide* for the version of Cisco UCS Manager that you are using. The configuration guides are available at the following URL: http://www.cisco.com/en/US/products/ps10281/products_installation_and_configuration_guides_list.html

Powering Off a Blade Server Using the Power Button

Tip You can also shut down servers remotely using Cisco UCS Manager or CIMC. For details, see the *Configuration Guide* for the version of Cisco UCS Manager that you are using. The configuration guides are available at the following URL: http://www.cisco.com/en/US/products/ps10281/products_installation_and_configuration_guides_list.html

Procedure

Step 1 If you are local to the server, check the color of the **Power Status** LED for each server in the chassis that you want to power off.

- Green indicates that the server is running and must be shut down before it can be safely powered off. Go to Step 2.
- Amber indicates that the server is already in standby mode and can be safely powered off. Go to Step 3.

Step 2 Press and release the **Power** button, then wait until the **Power Status** LED changes to amber.
The operating system performs a graceful shutdown and the server goes to standby mode.

Caution To avoid data loss or damage to your operating system, you should always invoke a graceful shutdown of the operating system.

Step 3 (Optional) If you are shutting down all blade servers in a chassis, disconnect the power cords from the chassis to completely power off the servers.

Step 4 Remove the appropriate servers from the chassis.

Removing a Blade Server

Using UCS Manager, decommission the server before physically removing the server. To remove a blade server from the chassis, follow these steps:

Procedure

Step 1 Loosen the captive screw on the front of the blade.

Step 2 Remove the blade from the chassis by pulling the ejector lever on the blade until it unseats the blade server.

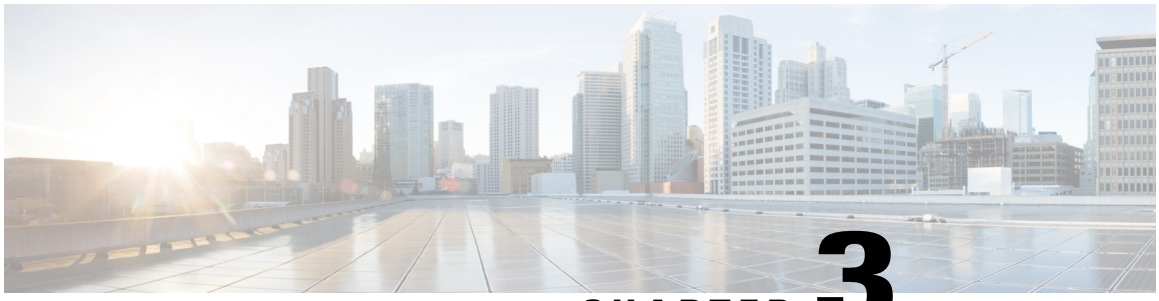
Step 3 Slide the blade part of the way out of the chassis, and place your other hand under the blade to support its weight.

Step 4 Once removed, place the blade on an antistatic mat or antistatic foam if you are not immediately reinstalling it into another slot.

Step 5 If the slot is to remain empty, install a blank faceplate (N20-CBLKB1) to keep dust out of the chassis.

Server Troubleshooting

For general troubleshooting information, see the see the Cisco UCS Manager B-Series Troubleshooting Guide.



CHAPTER 3

Servicing a Blade Server

This chapter contains the following sections:

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- Removing a Blade Server Cover, page 13
- Air Baffles, page 14
- Internal Components, page 15
- Diagnostics Button and LEDs, page 16
- Installing a CMOS Battery, page 16
- Installing the Storage Module, page 18
- Removing a Heat Sink and CPU, page 19
- Installing a New CPU and Heat Sink, page 20
- Installing Memory, page 22
- Installing an mLOM Adapter, page 27
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Drive Replacement

The modular storage system has two front-accessible drive bays that support hot-swappable, 2.5 inch drives. If you purchased the UCS B200 M4 blade server without the modular storage system configured as a part of the system, a pair of blanking panels may be in place. These panels should be removed before installing hard drives, but should remain in place to ensure proper cooling and ventilation if the drive bays are unused.

You can remove and install hard drives without removing the blade server from the chassis.

The drives supported in this blade server come with the drive sled attached. Spare drive sleds are not available. A list of currently supported drives is in the specification sheets at this URL:http://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-b-series-blade-servers/datasheet-listing.html

Before upgrading or adding a drive to a running system, check the service profile in Cisco UCS Manager and make sure the new hardware configuration will be within the parameters allowed by the service profile.

Caution To prevent ESD damage, wear grounding wrist straps during these procedures.

Removing a Blade Server Hard Drive

To remove a hard drive from a blade server, follow these steps:

Procedure

Step 1 Push the button to release the ejector, and then pull the hard drive from its slot.

Step 2 Place the hard drive on an antistatic mat or antistatic foam if you are not immediately reinstalling it in another server.

Step 3 Install a hard disk drive blank faceplate to keep dust out of the blade server if the slot will remain empty.

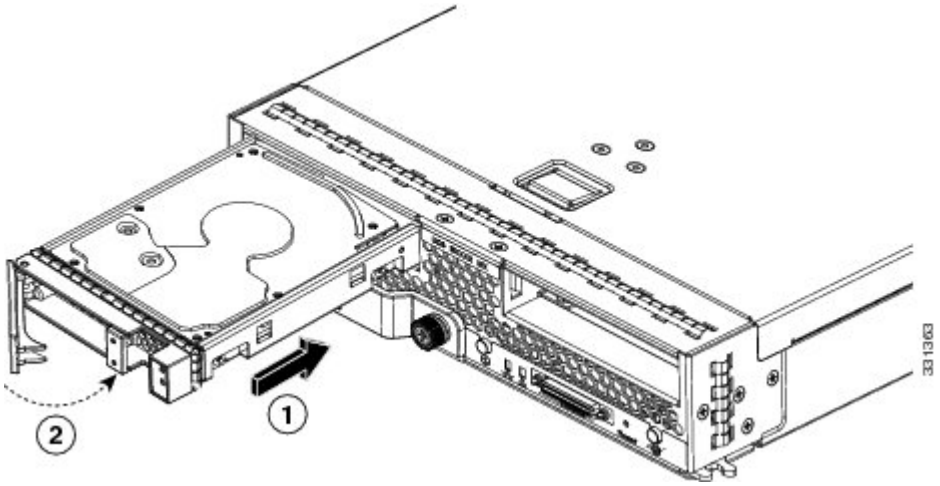
Installing a Blade Server Hard Drive

To install a hard drive in a blade server, follow these steps:

Procedure

Step 1 Place the hard drive lever into the open position by pushing the release button.

Figure 5: Installing a Hard Drive in a Blade Server



Step 2 Gently slide the hard drive into the opening in the blade server until it seats into place.

Step 3 Push the hard drive lever into the closed position.
You can use Cisco UCS Manager to format and configure RAID services. For details, see the *Configuration Guide* for the version of Cisco UCS Manager that you are using. The configuration guides are available at the following URL: http://www.cisco.com/en/US/products/ps10281/products_installation_and_configuration_guides_list.html

If you need to move a RAID cluster, see the Cisco UCS Manager B-Series Troubleshooting Guide.

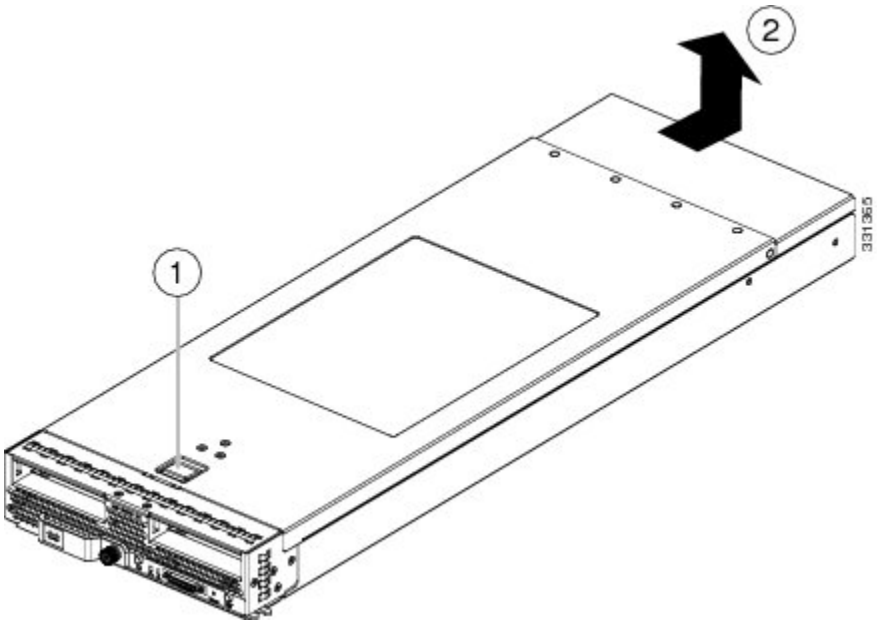
Removing a Blade Server Cover

Procedure

Step 1 Press and hold the button down as shown in the figure below.

Step 2 While holding the back end of the cover, pull the cover back and then up.

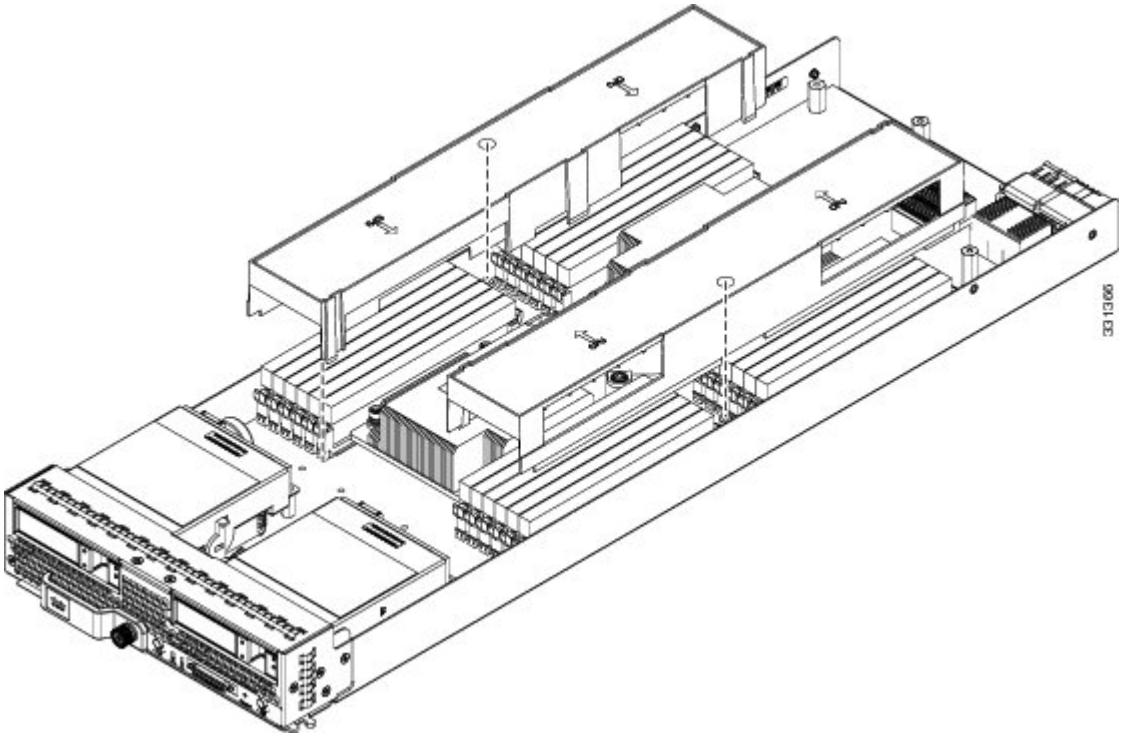
Figure 6: Opening a Cisco UCS B200 M4 Blade Server



Air Baffles

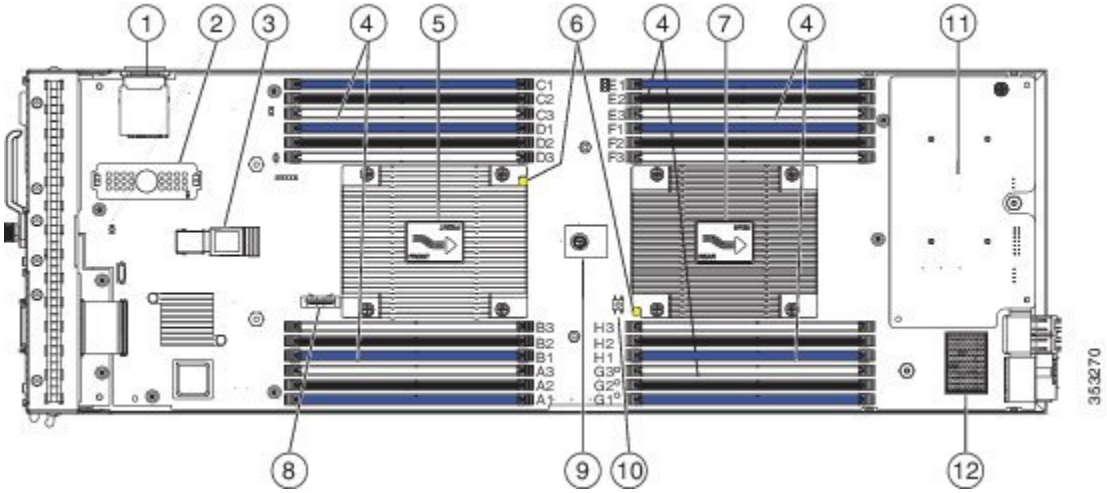
The air baffles direct and improve air flow for the server components. Two identical baffles ship with each B200 M4 server. No tools are necessary to install them, just place them over the DIMMs as shown, with the holes in the center of the baffles aligned with the corresponding motherboard standoffs.

Figure 7: Cisco UCS B200 M4 Air Baffles



Internal Components

Figure 8: Inside View of the UCS B200 M4 Blade Server



1	SD card slots	**2**	Modular storage subsystem connector
3	USB connector An internal USB 2.0 port is supported. A 16 GB USB drive (UCS-USBFLSHB-16GB) is available from Cisco. A clearance of 0.950 inches (24.1 mm) is required for the USB device to be inserted and removed.	**4**	DIMM slots
5	Front heat sink and CPU 1	**6**	CPU heat sink install guide pins
7	Rear heat sink and CPU 2	**8**	CMOS battery
9	Trusted Platform Module (TPM)	**10**	DIMM diagnostic LED button
11	Adapter slot 1	**12**	Adapter slot 2

Note When the storage module is installed, the USB connector is underneath it. Use the small cutout opening in the storage module to visually determine the location of the USB connector when you need to insert it.

Diagnostics Button and LEDs

At blade start-up, POST diagnostics test the CPUs, DIMMs, HDDs, and adapter cards, and any failure notifications are sent to UCS Manager. You can view these notifications in the Cisco UCS Manager System Error Log or in the output of the **show tech-support** command. If errors are found, an amber diagnostic LED also lights up next to the failed component. During run time, the blade BIOS and component drivers monitor for hardware faults and will light up the amber diagnostic LED as needed.

LED states are saved, and if you remove the blade from the chassis the LED values will persist for up to 10 minutes. Pressing the LED diagnostics button on the motherboard causes the LEDs that currently show a component fault to light for up to 30 seconds for easier component identification. LED fault values are reset when the blade is reinserted into the chassis and booted, and the process begins from its start.

If DIMM insertion errors are detected, they may cause the blade discovery process to fail and errors will be reported in the server POST information, which is viewable using the UCS Manager GUI or CLI. DIMMs must be populated according to specific rules. The rules depend on the blade server model. Refer to the documentation for a specific blade server for those rules.

Faults on the DIMMs or adapter cards also cause the server health LED to light solid amber for minor error conditions or blinking amber for critical error conditions.

Installing a CMOS Battery

All Cisco UCS blade servers use a CR2032 battery to preserve BIOS settings while the server is not installed in a powered-on chassis. Cisco supports the industry standard CR2032 battery that is available at most electronics stores.

Warning There is danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

To install or replace the battery, follow these steps:

Procedure

Step 1 Remove the existing battery:

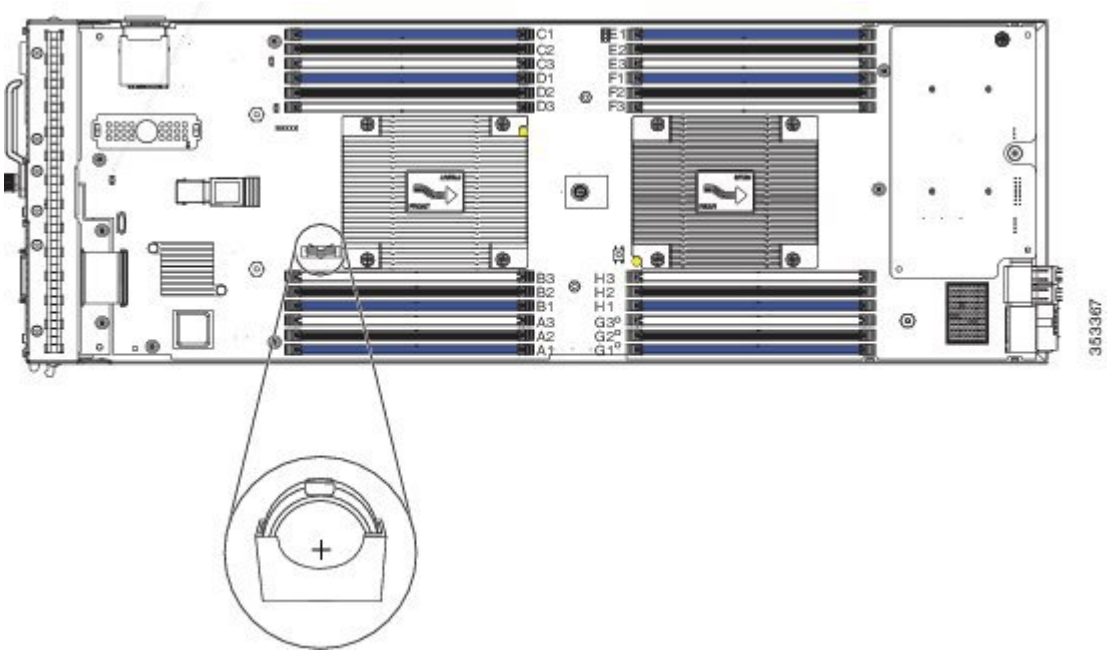
a) Power off the blade, remove it from the chassis, and remove the top cover.
b) Push the battery socket retaining clip away from the battery.
c) Lift the battery from the socket. Use needle-nose pliers to grasp the battery if there is not enough clearance for your fingers.

Step 2 Install the replacement battery:

a) Push the battery socket retaining clip away from where the battery fits in the housing.
b) Insert the new battery into the socket with the battery's positive (+) marking facing away from the retaining clip. Ensure that the retaining clip can click over the top of the battery to secure it in the housing.
c) Replace the top cover.

d) Replace the server in the chassis and power on the blade by pressing the **Power** button.

Figure 9: Location of the Motherboard CMOS Battery



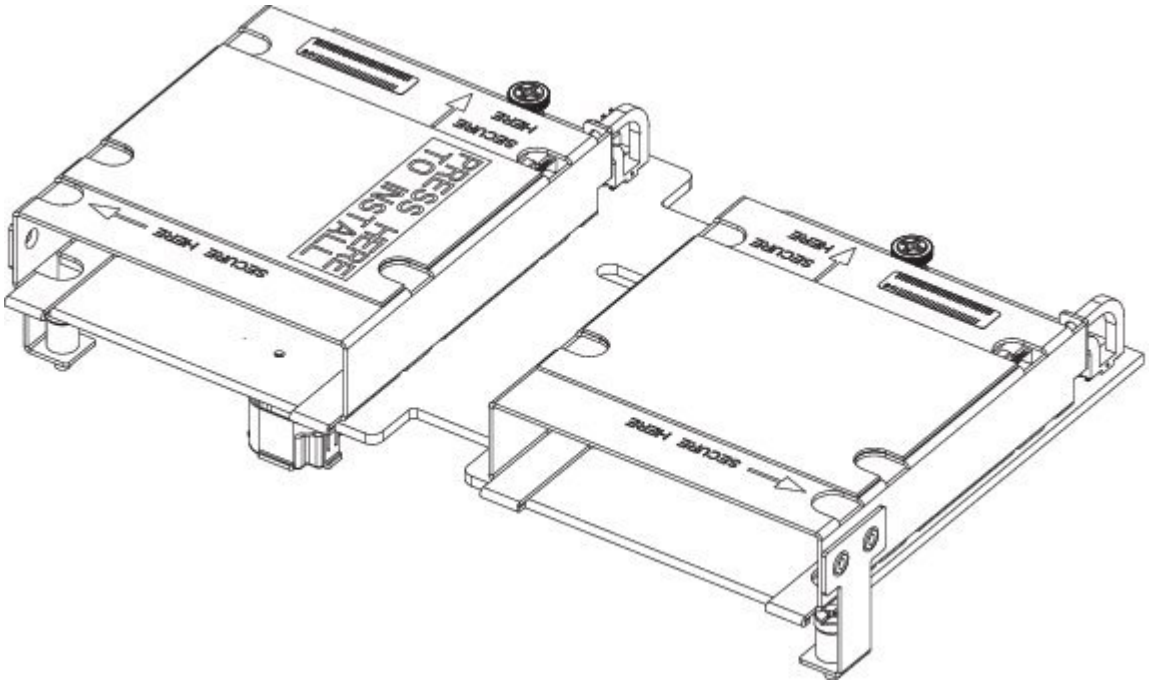
Installing the Storage Module

Procedure

Step 1 Place the storage module over the two standoff posts on the motherboard at the front of the server.

Step 2 Press down on the drive bay cage where it is labeled "Press Here to Install" until the storage module clicks into place.

Figure 10: Storage Module



Step 3 Using a Phillips-head screwdriver, tighten the four screws to secure the storage module. The locations of the screws are labeled "Secure Here."

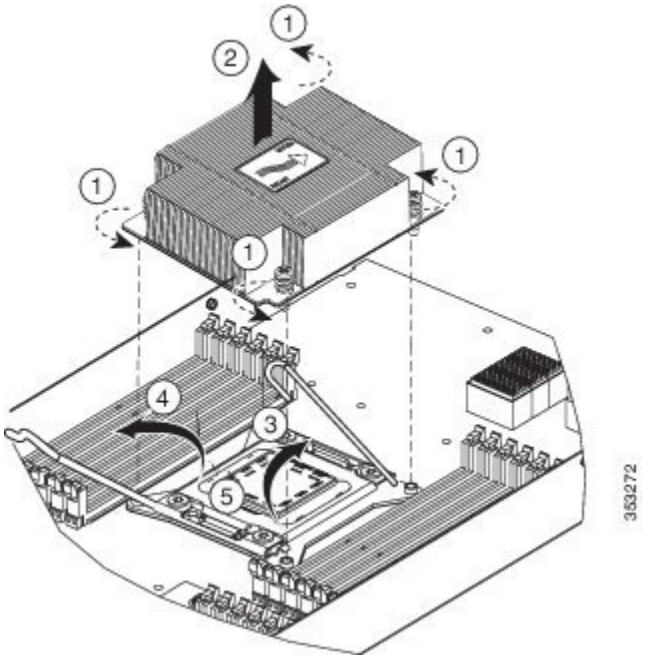
Removing a Heat Sink and CPU

Procedure

Step 1 Unscrew the four captive screws.

Step 2 Remove the heat sink.

Figure 11: Removing the Heat Sink and CPU

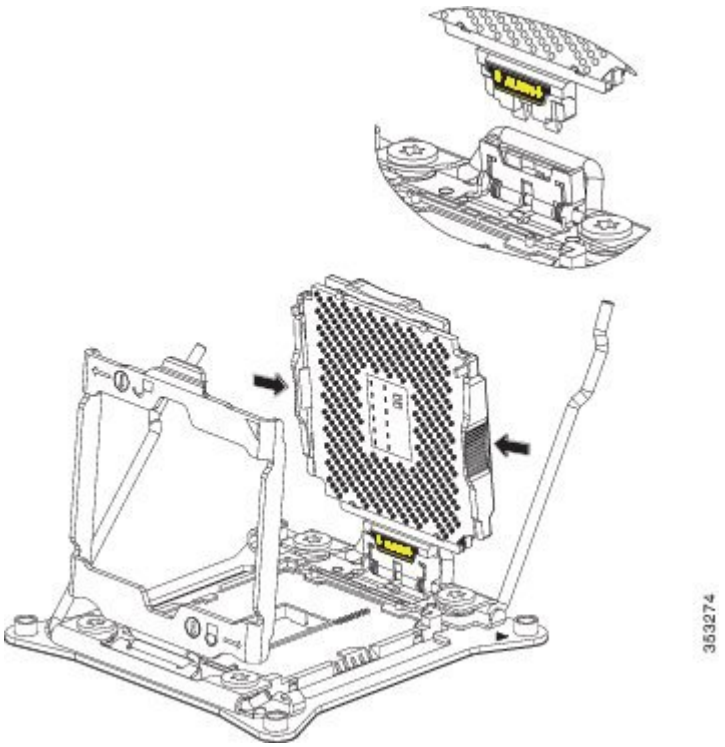


Step 3 Unhook the self-loading socket (SLS) lever.

Step 4 Unhook the SLS lever.

Step 5 Grasp the sides of the CPU carrier (indicated by the arrows in the illustration) and swing it into a standing position in the SLS plug seat.

Figure 12: CPU Carrier and SLS Plug Seat



Step 6 Pull the CPU carrier up and out of the SLS plug seat.

Installing a New CPU and Heat Sink

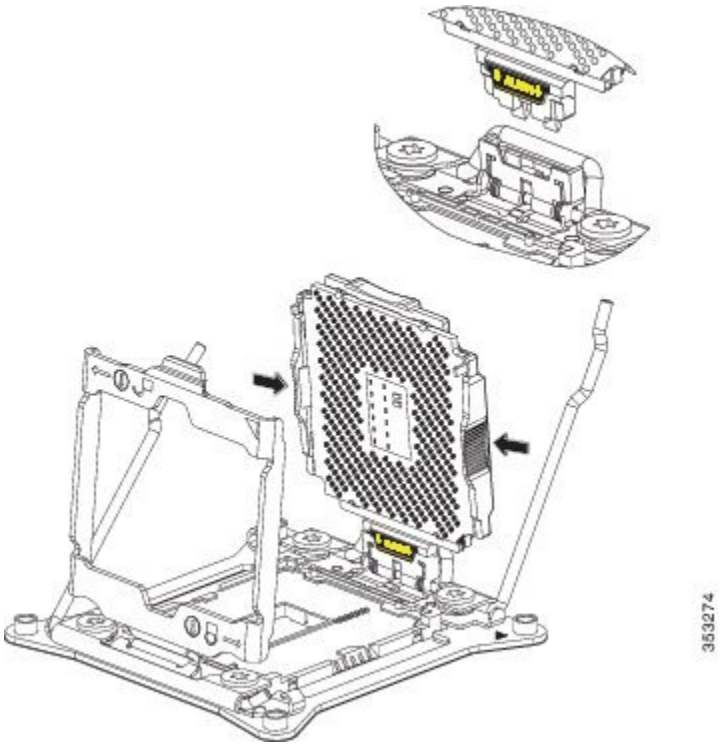
Before installing a new CPU in a server, verify the following:

- The CPU is supported for that given server model. This may be verified through the server Technical Specifications ordering guides or by the relevant release of the Cisco UCS Capability Catalog.
- A BIOS update is available and installed that supports the CPU and the given server configuration.
- If the server will be managed by Cisco UCS Manager, the service profile for this server in Cisco UCS Manager will recognize and allow the new CPU.
- The CPUs and heat sinks are different and must be installed in the correct location. The front heat sink and CPU 1 can only be installed in the front of the blade server and the rear heat sink and CPU 2 can only be installed in the rear of the blade server.

Procedure

Step 1 Hold the CPU carrier by its sides (indicated b the arrows). Insert and align the two CPU carrier pegs into the self-loading socket (SLS) plug seat. To ensure proper seating, verify that the horizontal yellow line below the word ALIGN is straight.

Figure 13: Inserting the CPU Carrier



Step 2 Press gently on the top of the CPU carrier from the exterior side until it snaps into place.

Step 3 Close the socket latch.

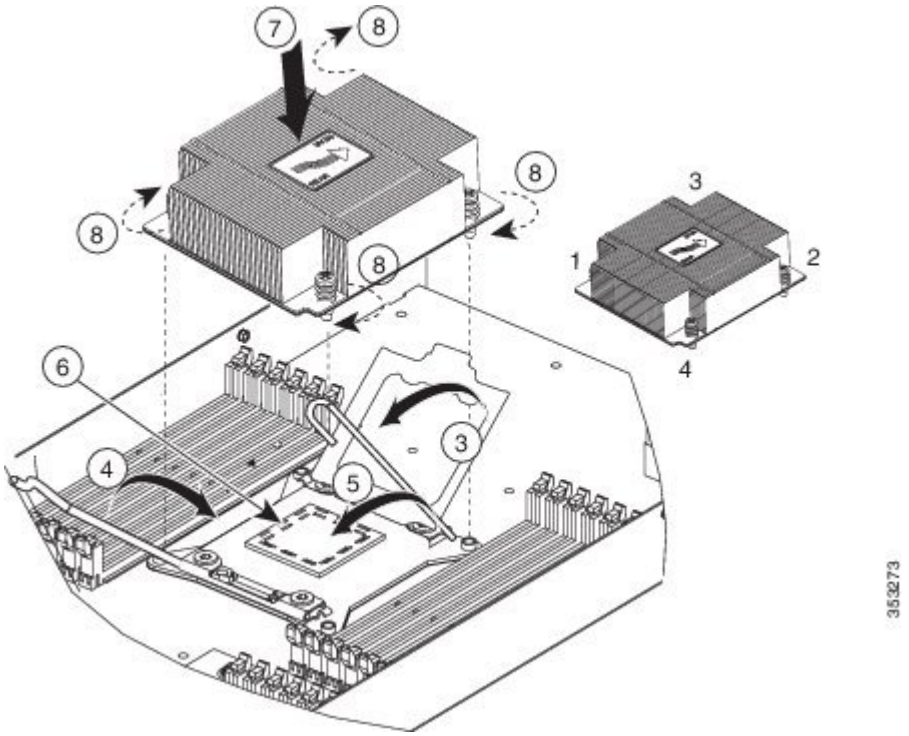
Step 4 Hook the self-loading socket (SLS) lever.

Step 5 Hook the SLS lever.

Step 6 Thermally bond the CPU and heat sink using the thermal grease provided.

Step 7 Replace the heat sink. The yellow CPU heat sink install guide pins that are attached to the motherboard must align with the cutout on the heat sink to ensure proper installation of the heat sink.

Figure 14: Replacing the Heat Sink



Step 8 Tighten the four captive screws in the order shown.

Installing Memory

To install a DIMM into the blade server, follow these steps:

Procedure

Step 1 Open both DIMM connector latches.

Step 2 Press the DIMM into its slot evenly on both ends until it clicks into place.
DIMMs are keyed. If a gentle force is not sufficient, make sure the notch on the DIMM is correctly aligned.

Note Be sure that the notch in the DIMM aligns with the slot. If the notch is misaligned you may damage the DIMM, the slot, or both.

Step 3 Press the DIMM connector latches inward slightly to seat them fully.

Supported DIMMs

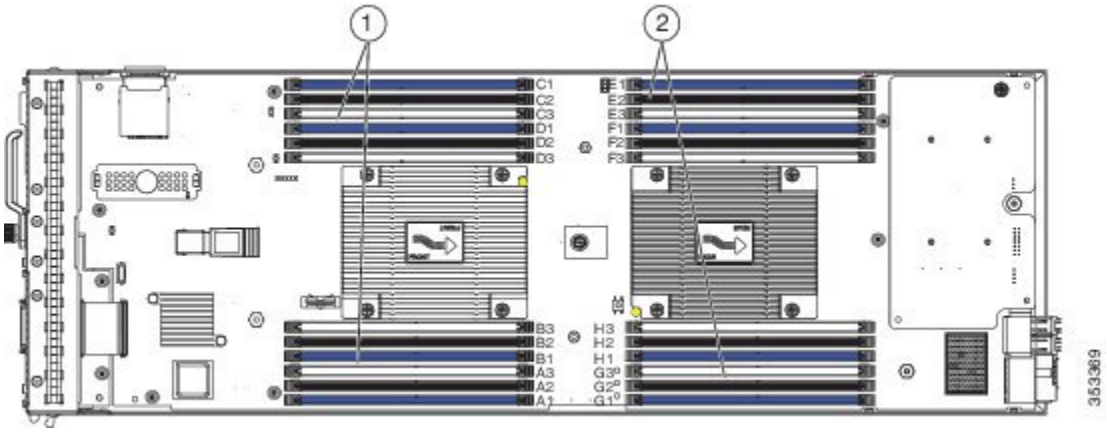
The DIMMs supported in this blade server are constantly being updated. A list of currently supported and available DIMMs is in the specification sheets at:

http://www.cisco.com/en/US/products/ps10280/products_data_sheets_list.html
Do not use any memory DIMMs other than those listed in the specification sheet. Doing so may irreparably damage the server and require an RMA and down time.

Memory Arrangement

The blade server contains 24 DIMM slots—12 for each CPU. Each set of 12 DIMM slots is arranged into four channels, where each channel has three DIMMs.

Figure 15: Memory Slots In the Blade Server



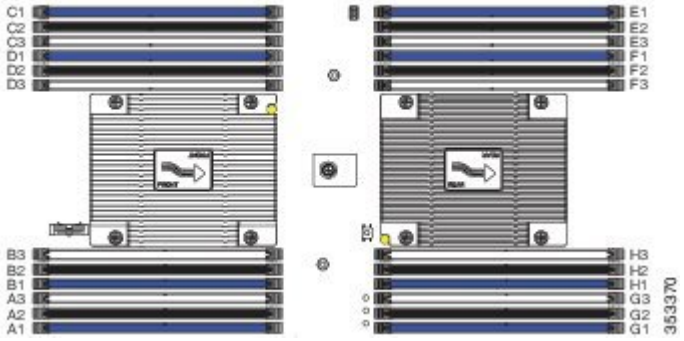
1	Channels A-D for CPU 1	**2**	Channels E-H for CPU 2

DIMMs and Channels

Each channel is identified by a letter—A, B, C, D for CPU1, and E, F, G, H for CPU 2. Each DIMM slot is numbered 1, 2, or 3. Note that each DIMM slot 1 is blue, each slot 2 is black, and each slot 3 is off-white or beige.

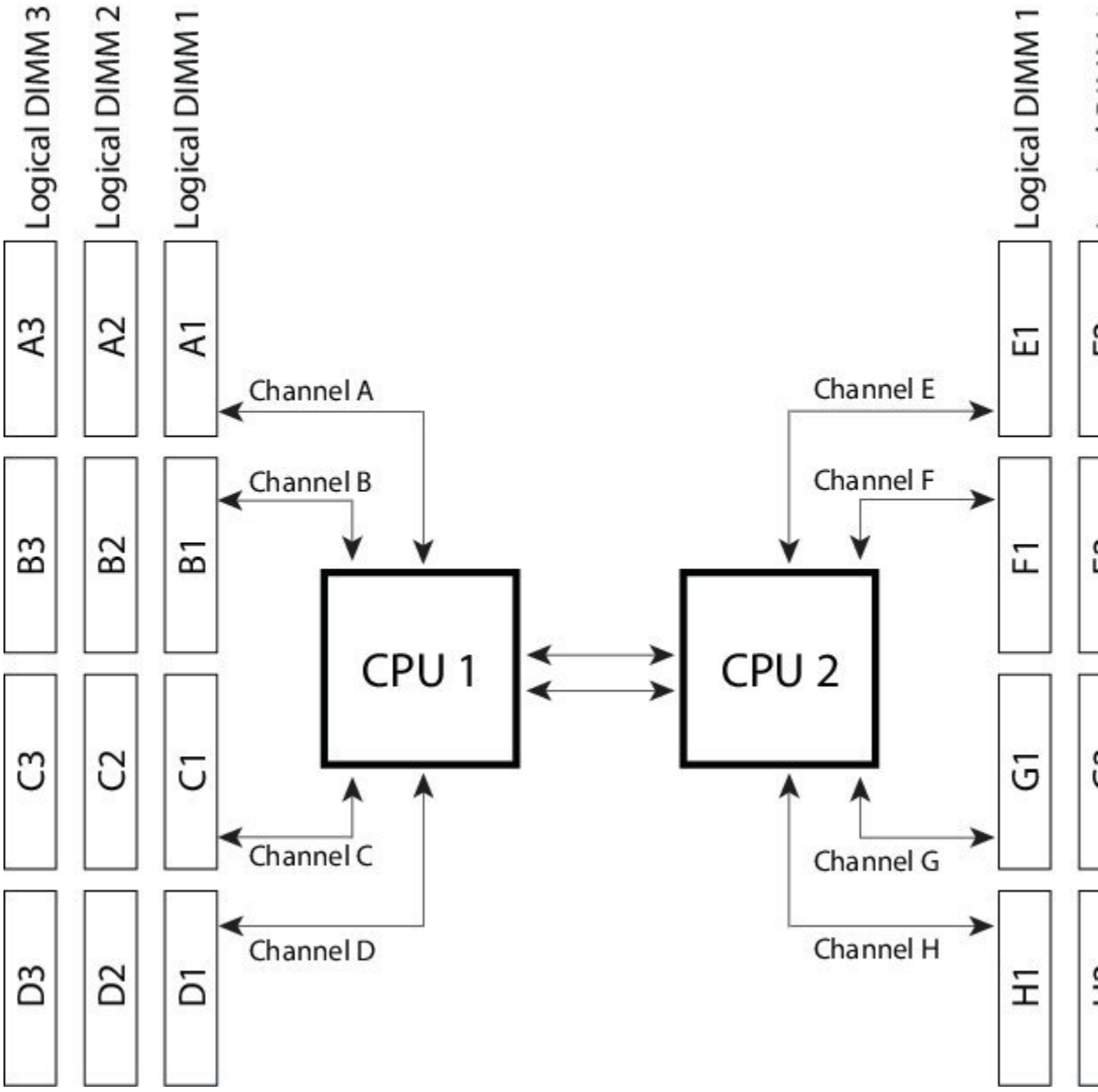
The figure below shows how DIMMs and channels are physically laid out on the blade server. The DIMM slots in the upper and lower right are associated with the second CPU (CPU shown on right in the diagram), while the DIMM slots in the upper and lower left are associated with the first CPU (CPU shown on left).

Figure 16: Physical Representation of DIMMs and Channels



The figure below shows a logical view of the DIMMs and channels.

Figure 17: Logical Representation of DIMMs and Channels



DIMMs can be used in the blade server in a one DIMM per Channel (1DPC) configuration, in a two DIMMs per Channel (2DPC) configuration, or a three DIMMs per Channel (3DPC) configuration.

Each CPU in a Cisco UCS B200 M4 blade server supports four channels of three memory slots each. In a 1 DPC configuration, DIMMs are in slot 1 only. In a 2 DPC configuration, DIMMs are in both slot 1 and slot 2. In a 3 DPC configuration, DIMMs are in slot 1, slot 2, and slot 3.

Table 2: Supported DIMM Population Order

DIMMs per CPU	CPU 1 installed slots	CPU 2 installed slots
1	A1	E1
2	A1, B1	E1, F1
3	A1, B1, C1	E1, F1, G1
4 (Blue slots)	A1, B1, C1, D1	E1, F1, G1, H1
5	A1, B1, C1, D1, A2	E1, F1, G1, H1, E2
6	A1, B1, C1, D1, A2, C2	E1, F1, G1, H1, E2, G2
7	A1, B1, C1, D1, A2, B2, C2	E1, F1, G1, H1, E2, F2, G2
8 (Blue and black slots)	A1, B1, C1, D1, A2, B2, C2, D2	E1, F1, G1, H1, E2, F2, G2, H2
9	A1, B1, C1, D1, A2, B2, C2, D2,A3	E1, F1, G1, H1, E2, F2, G2, H2, E3
10	A1, B1, C1, D1, A2, B2, C2, D2,A3, B3	E1, F1, G1, H1, E2, F2, G2, H2, E2, F3
11	A1, B1, C1, D1, A2, B2, C2, D2,A3, B3, C3	E1, F1, G1, H1, E2, F2, G2, H2, E3, F3, G3
12 (Blue, black and beige slots)	A1, B1, C1, D1, A2, B2, C2, D2,A3, B3, C3, D3	E1, F1, G1, H1, E2, F2, G2, H2, E3, F3, G3, H3

Memory Performance

When considering the memory configuration of your blade server, there are several things you need to consider. For example:

- When mixing DIMMs of different densities, the highest density DIMM goes in slot 1 then in descending density.
- Your selected CPU(s) can have some affect on performance.
- DIMMs can be run in a 1DPC, a 2DPC, or a 3DPC configuration. 1 DPC and 2DPC can provide the maximum rated speed that the CPU and DIMMs are rated for. 3DPC causes the DIMMs to run at a slower speed.

Memory Mirroring and RAS

The Intel CPUs within the blade server support memory mirroring only when an even number of Channels are populated with DIMMs. If one or three channels are populated with DIMMs, memory mirroring is automatically disabled. Furthermore, if memory mirroring is used, DRAM size is reduced by 50 percent for reasons of reliability.

Installing an mLOM Adapter

The Cisco VIC 1340 and VIC 1240 are specialized modular LAN on Motherboard (mLOM) adapters that provide dual 2 x 10 Gb of Ethernet/ or Fiber Channel over Ethernet (FCoE) connectivity to each chassis. They plug into the dedicated mLOM connector only, and they are the only adapters that can be plugged into the mLOM connector. They provide connectivity through Cisco UCS 6100 and 6200 Series Fabric Interconnects. The Cisco VIC 1200 Series (1240 and 1280) is compatible in UCS domains that implement both UCS 6100 and 6200 Series Fabric Interconnects. However, the Cisco VIC 1300 Series (1340 and 1380) is compatible only with the UCS 6200 Series Fabric Interconnects.

Note You must remove the adapter card to service it.

To install a Cisco VIC 1240 or VIC 1340 in the blade server, follow these steps:

Procedure

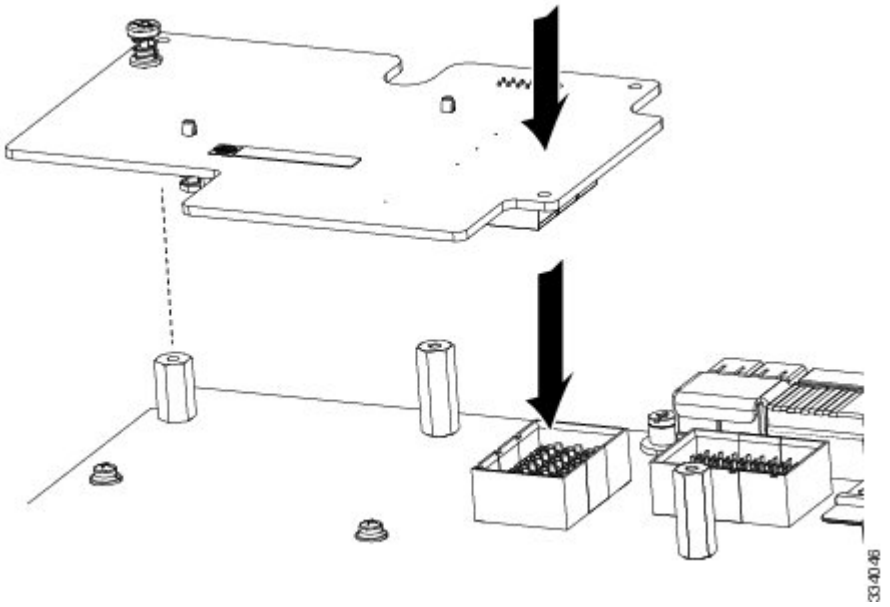
Step 1 Position the VIC board connector above the motherboard connector and align the captive screw to the standoff post on the motherboard.

Step 2 Firmly press the VIC board connector into the motherboard connector.

Step 3 Tighten the captive screw.

Tip To remove a VIC, reverse the above procedure. You might find it helpful when removing the connector from the motherboard to gently rock the board along the length of the connector until it loosens.

Figure 18: Installing an mLOM Adapter



Installing an Adapter Card

All supported adapter cards have a shared installation process. A list of currently supported and available models for this server is in the specification sheets at this URL:

http://www.cisco.com/en/US/products/ps10280/products_data_sheets_list.html

The UCS B200 M4 blade server has two adapter slots (Slots 1 and 2) that support the following VIC cards:

- VIC 1340 and VIC 1380
- VIC 1240 and VIC 1280

Slot 1 is for the VIC 1340 or VIC 1240 cards. Slot 2 is for the VIC 1380 and VIC 1280 cards, and can also be used for the VIC port expander, the Intel Crypto mezzanine card, and non-I/O mezzanine cards, such as Fusion IO.

Note When the Cisco Nexus 2104XP Fabric Extender (FEX) module is used, the VIC 1280 and the VIC port expander cards are ignored because there are no traces on the Cisco 2104XP to connect to any VIC or IO card installed in Slot 2.

The VIC 1340 and VIC 1380 require a Cisco UCS 6200 Series Fabric Interconnect, and they support the Cisco Nexus 2208XP and 2204XP FEX modules.

The VIC 1240 and VIC 1280 support Cisco UCS 6200 and 6100 Series Fabric Interconnects, and they support the Cisco Nexus 2208XP, 2204XP, and 2104XP FEX modules. When a VIC 1240 or 1280 is used with a UCS 6100 Series Fabric Interconnect, the UCS B200 M4 blade server requires a maximum software release of 2.2(x) for Cisco UCS Manager.

If you are switching from one type of adapter card to another, before you physically perform the switch make sure that you download the latest device drivers and load them into the server's operating system. For more information, see the firmware management chapter of one of the Cisco UCS Manager software configuration guides.

The Cisco Fusion-io Drive mezzanine and other non-IO adapter cards can be installed and removed using the same procedures. Using these cards in a UCS B200 M4 blade server requires the presence of a VIC 1340 or VIC 1240 mLOM to provide blade I/O. They will not work in M1 and M2 Cisco UCS servers.

Procedure

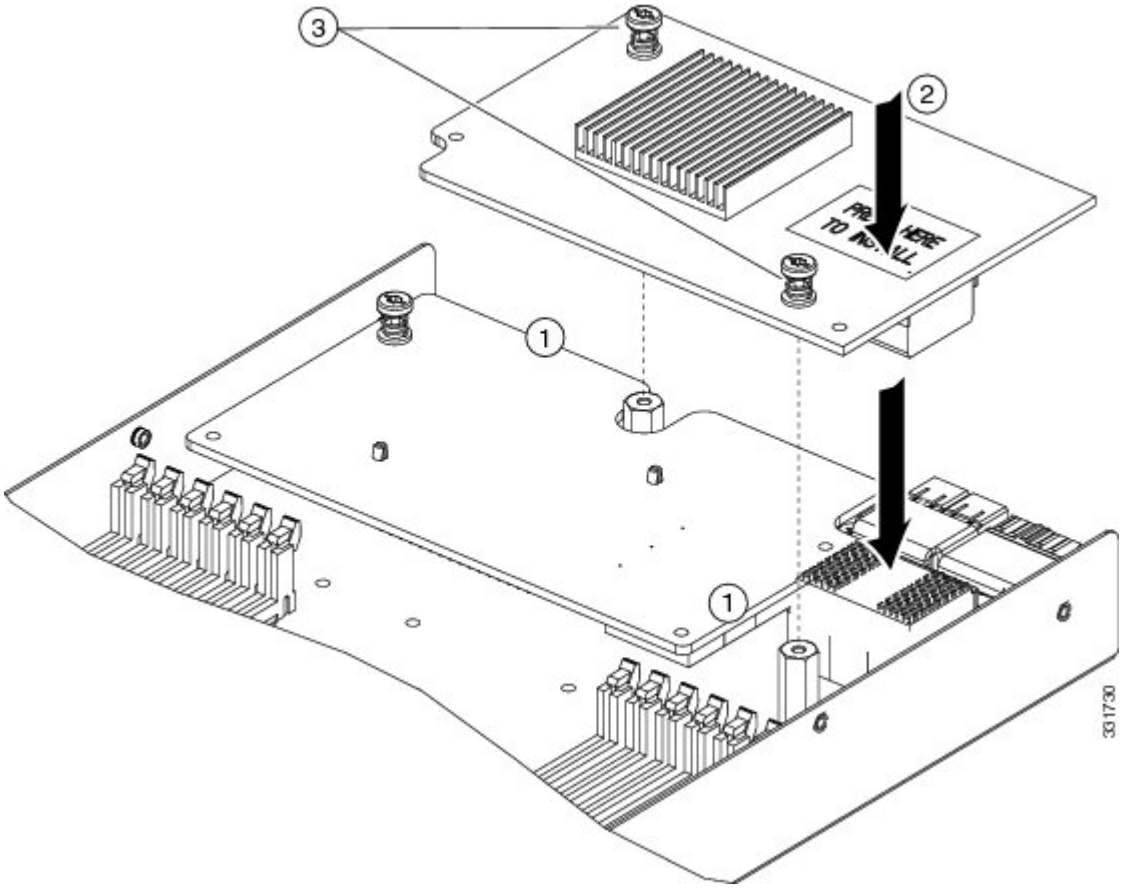
Step 1 Position the adapter board connector above the motherboard connector and align the two adapter captive screws to the standoff posts on the motherboard.

Step 2 Firmly press the adapter connector into the motherboard connector (callout 2).

Step 3 Tighten the two captive screws (callout 3).

Tip Removing an adapter card is the reverse of installing it. You might find it helpful when removing the connector from the motherboard to gently rock the board along the length of the connector until it loosens.

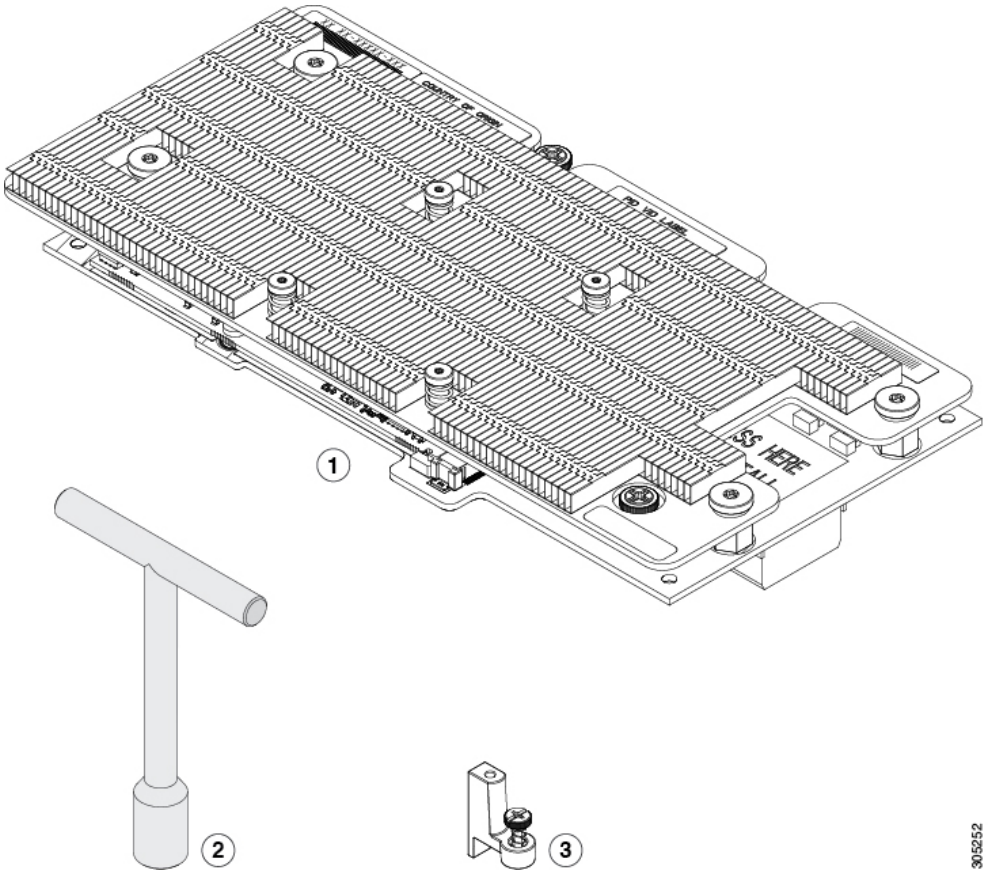
Figure 19: Installing an Adapter Card



Installing the nVidia M6 GPU

The nVidia M6 graphics processing unit (GPU) provides graphics and computing capabilities to the server. The GPU package consists of the three elements shown in the following figure.

Figure 20: nVidia M6 GPU Package



1	nVidia M6 GPU (CPU and heat sink)	**2**	T-shaped wrench
3	Custom standoff		

Before You Begin

Before installing the nVidia M6 GPU:

- Remove any adapter card, such as a VIC 1380, VIC 1280, or PT extender card from slot 2. You cannot use any other card in slot 2 when the nVidia M6 GPU is installed.
- Upgrade your Cisco UCS system to a version of Cisco UCS Manager that supports this card. Refer to the latest version of the *Release Notes for Cisco UCS Software* at the following URL for information

about supported hardware: http://www.cisco.com/c/en/us/support/servers-unified-computing/ucs-manager/products-release-notes-list.html.

Procedure

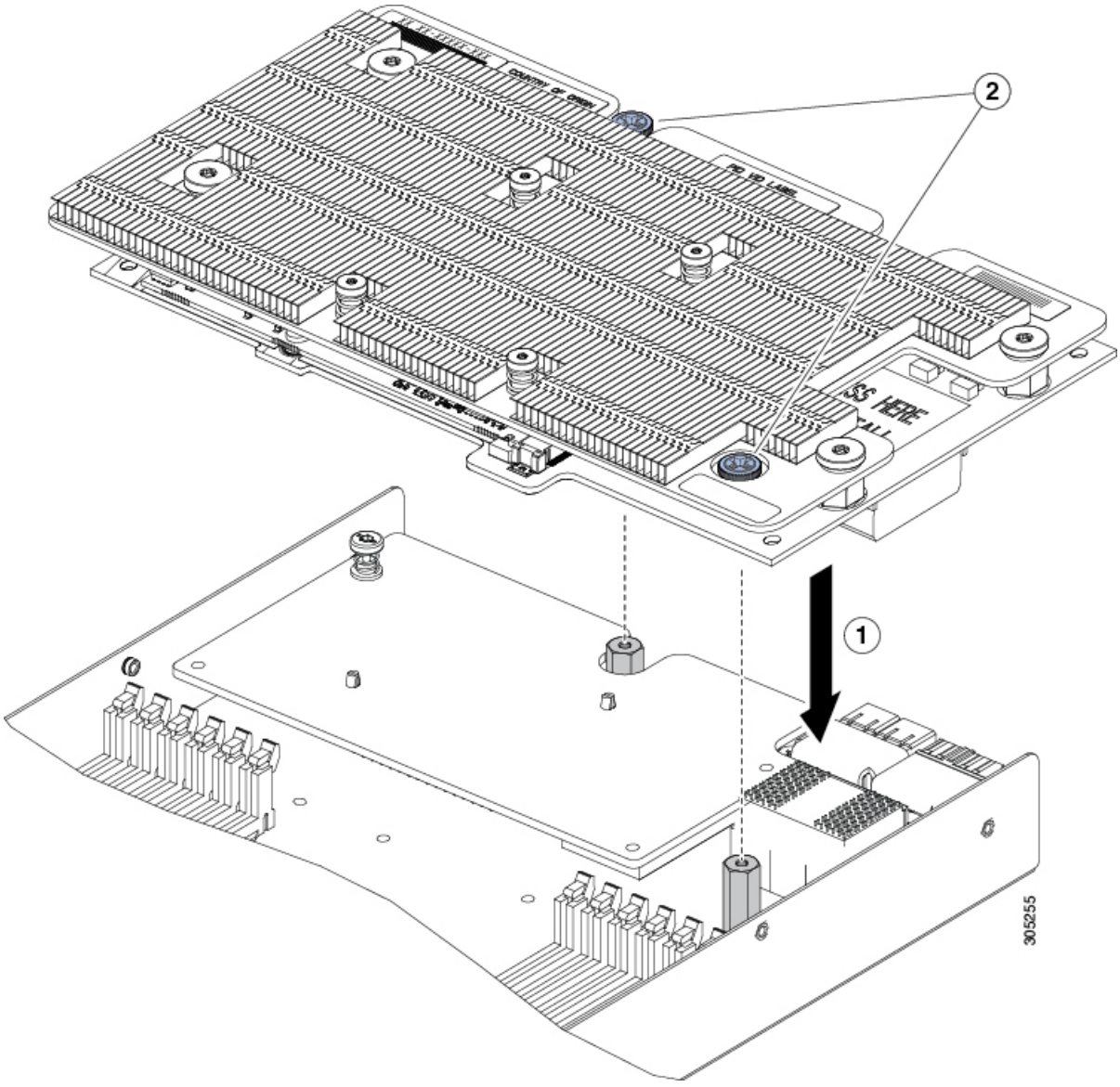
Step 1 Use the T-shaped wrench that comes with the GPU to remove the existing standoff at the back end of the motherboard.

Step 2 Install the custom standoff in the same location at the back end of the motherboard.

Step 3 Position the GPU over the connector on the motherboard and align all captive screws to the standoff posts (callout 1).

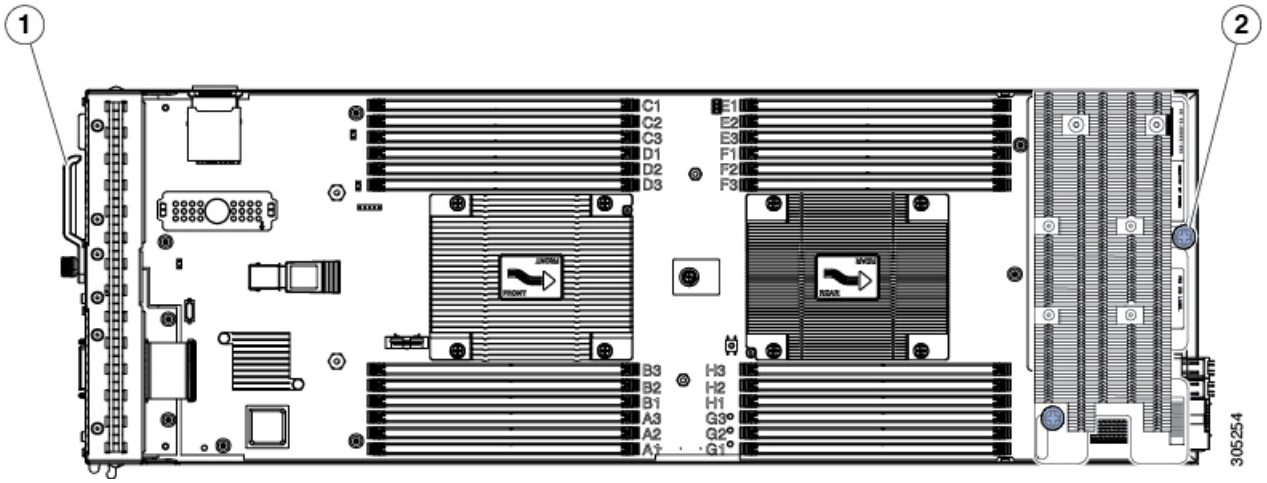
Step 4 Tighten the captive screws (callout 2).

Figure 21: Installing the nVidia M6 GPU



The following figure shows a GPU installed in a B200 M4 blade server.

Figure 22: Installed nVidia M6 GPU



1	Front of server	**2**	Custom standoff screw

Enabling the Trusted Platform Module

The Trusted Platform Module (TPM) is a component that can securely store artifacts used to authenticate the server. These artifacts can include passwords, certificates, or encryption keys. A TPM can also be used to store platform measurements that help ensure that the platform remains trustworthy. Authentication (ensuring that the platform can prove that it is what it claims to be) and attestation (a process helping to prove that a platform is trustworthy and has not been breached) are necessary steps to ensure safer computing in all environments. It is a requirement for the Intel Trusted Execution Technology (TXT) security feature, which must be enabled in the BIOS settings for a server equipped with a TPM.

Note TPM installation is supported after-factory. However, a TPM installs with a one-way screw and cannot be replaced or moved to another server. If a server with a TPM is returned, the replacement server must be ordered with a new TPM.

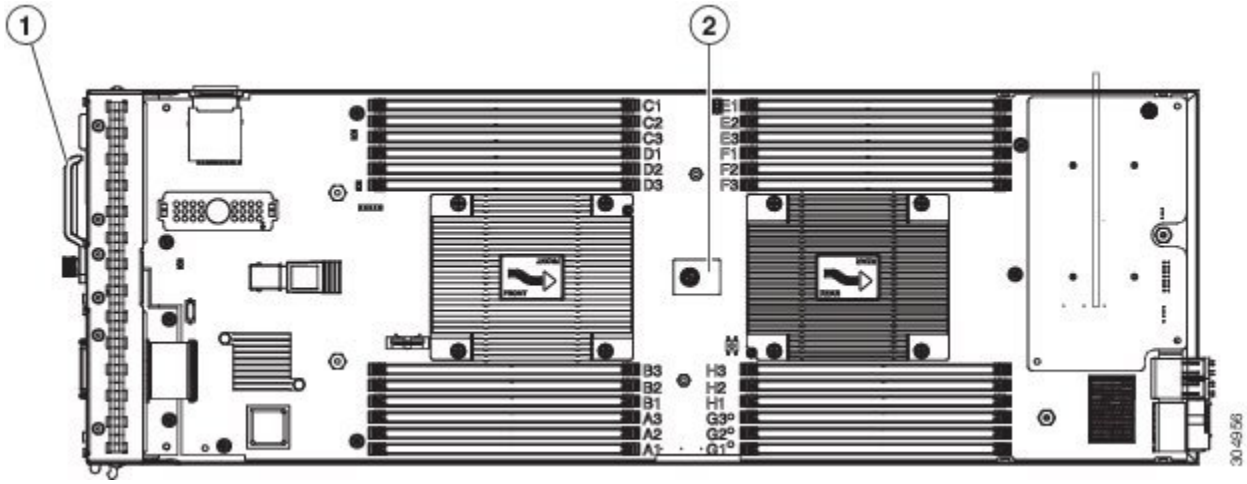
Procedure

Step 1 Install the TPM hardware.

a) Power off, decommission, and remove the blade server from the chassis.
b) Remove the blade server cover.

c) Install the TPM to the TPM socket on the server motherboard and secure it using the one-way screw that is provided. See the figure below for the location of the TPM socket.
d) Return the blade server to the chassis, power it on, and allow it to be automatically reacknowledged, reassociated, and recommissioned.
e) Continue with enabling TPM support in the server BIOS in the next step.

Figure 23: TPM Socket Location



1	Front of server	**2**	TPM socket on motherboard

Step 2 Enable TPM Support in the BIOS.

Note TPM support is enabled by default in Cisco UCS Manager Release 2.2(4) and later BIOS policy.

If your Cisco UCS Manager Release 2.2(4) and later BIOS policy is using the default and TPM support is already enabled, skip this procedure and go to the next step.

If TPM support was disabled for any reason, use the following procedure to enable it.

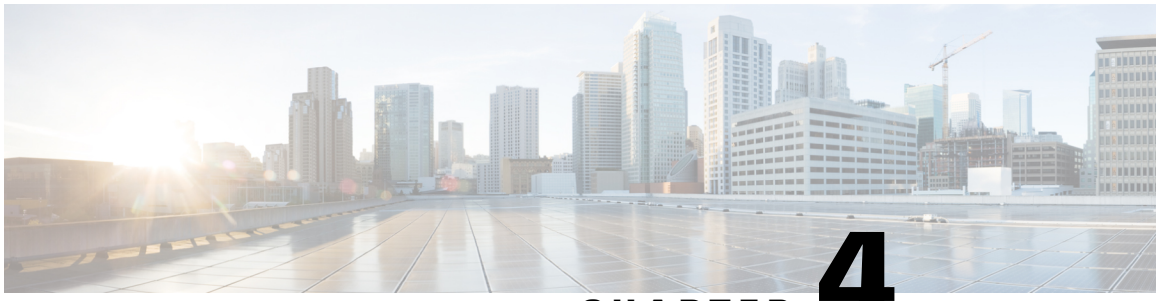
a) In the Cisco UCS Manager Navigation pane, click the **Servers** tab.
b) On the Servers tab, expand **Servers > Policies**.
c) Expand the node for the organization where you want to configure the TPM.
d) Expand BIOS Policies and select the BIOS policy for which you want to configure the TPM.
e) In the Work pane, click the **Advanced** tab.
f) Click the **Trusted Platform** sub-tab.
g) To enable TPM support, click **Enable** or **Platform Default.**
h) Click **Save Changes**.
i) Continue with the next step.

Step 3 Enable TXT Support in the BIOS Policy.

Intel Trusted Execution Technology (TXT) provides greater protection for information that is used and stored on the business server. A key aspect of that protection is the provision of an isolated execution environment and associated section of memory where operations can be conducted on sensitive data, invisibly to the rest

of the system. Intel TXT provides for a sealed portion of storage where sensitive data such as encryption keys can be kept, helping to shield them from being compromised during an attack by malicious code.

a) In the Cisco UCS Manager Navigation pane, click the **Servers** tab.
b) On the Servers tab, expand **Servers > Policies**.
c) Expand the node for the organization where you want to configure the TPM.
d) Expand BIOS Policies and select the BIOS policy for which you want to configure the TPM.
e) I the Work pane, click the **Advanced** tab.
f) Click the **Trusted Platform** sub-tab.
g) To enable TXT support, click **Enable.**
h) Click **Save Changes**.



CHAPTER 4

Technical Specifications

This chapter contains the following section:

- Physical Specifications for the Cisco UCS B200 M4 Blade Server, page 37

Physical Specifications for the Cisco UCS B200 M4 Blade Server

Specification	Value
Height	1.95 inches (50 mm)
Width	8.00 inches (203 mm)
Depth	24.4 inches (620 mm)
Weight	Base server weight = 9.51 lbs (4.31 kg) (no HDDs, no CPUs, no DIMMs, no mezzanine adapters or memory) Minimally configured server = 11.29 lbs (5.12 kg) (no HDDs, 1 CPU, 8 DIMMs, VIC 1340/1240 but no mezzanine adapter) Fully configured server = 15.98 lbs (7.25 kg) (2 HDDs, 2 CPUs, 24 DIMMs, VIC 1340/1240 and mezzanine adapter both populated)