



Servicing the Blade Server

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Drive Replacement

You can remove and install a drive 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. Currently supported drives are listed 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 when replacing a drive.

Removing an SSD Drive

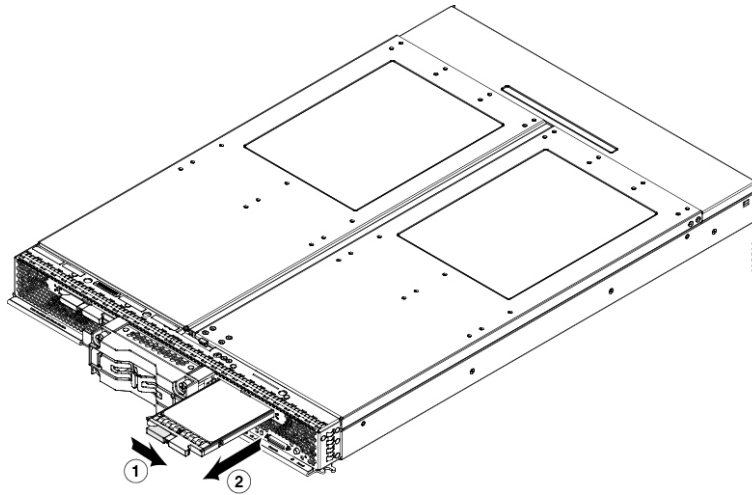
To remove a drive from a blade server, follow these steps:

Procedure

Step 1 Press the latch inward on the drive front panel. See callout 1 in the following figure.

Step 2 Pull the drive from the slot. See callout 2 in the following figure.

Figure 1: Removing an SSD



Step 3 Place the drive on an antistatic mat or antistatic foam if you are not immediately reinstalling it in another blade server.

Step 4 Install a blanking panel (N20-BBLKD-7MM) if the slot will remain empty.

Installing an SSD Drive

To install an SSD drive in the blade server, follow these steps:

Procedure

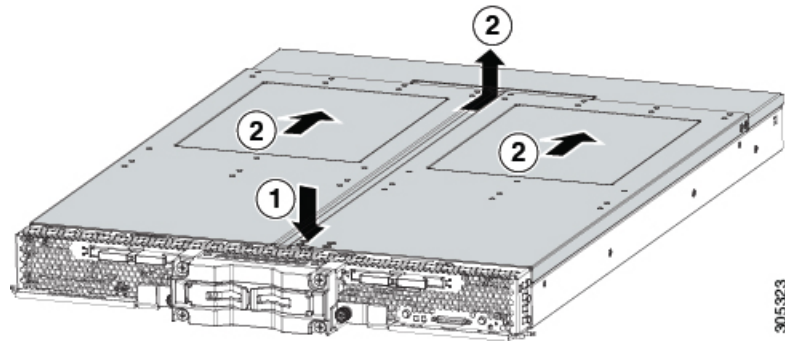
- Step 1** Remove the blanking panel, if necessary.
 - Step 2** With the drive label face up, align the drive with the desired drive bay and insert.
 - Step 3** Gently slide the drive into the opening in the blade server until the SSD clicks into place and the latch fully engages.
 - Step 4** Check the LEDs on the blade server to make sure the drive is functioning as expected.
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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.

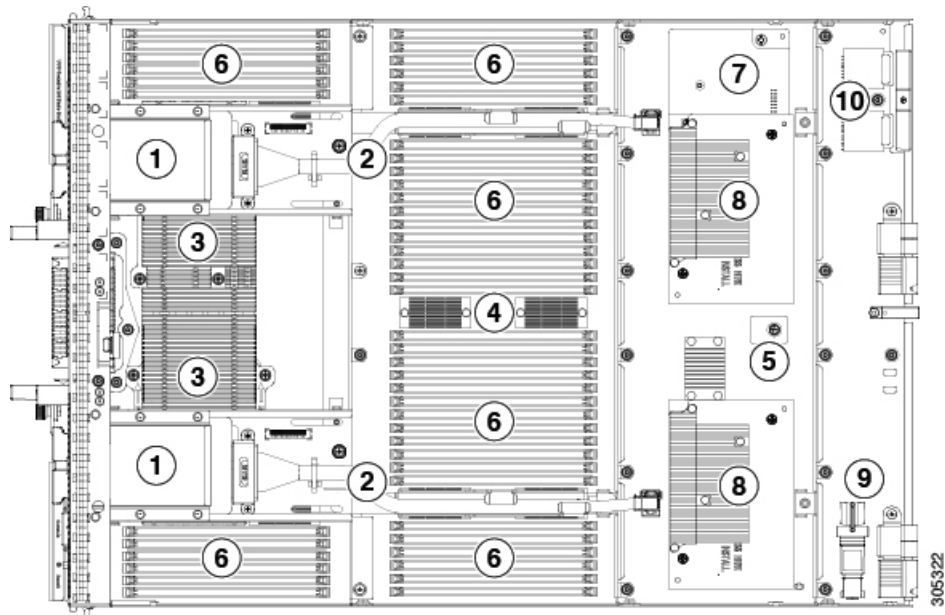
Figure 2: Opening a B260 M4 Blade Server



Internal Components

The UCS B260 M4 Blade Module has the internal components shown in the following figure.

Figure 3: Inside View of the Blade Server



1	Drive bay	6	DIMM slots
2	SSD cable	7	mLOM card
3	Heat sinks covering CPU 1 on the left (facing the server) and CPU 2 on the right (facing the server)	8	Adapter cards

4	Memory buffers	9	USB memory
5	Trusted Platform Module (TPM)	10	SD card slots

**Note**

- A squeeze-to-remove retaining clip is provided to secure the internal USB flash memory. The clip must always be securely fastened when the flash memory is in use. Memory that does not fit in the clip should not be used.
- Use of this server may require an upgrade to the FEX in the chassis. The Cisco 2104XP fabric extender is not compatible when any Cisco-certified adapter is installed in slot 1 or slot 2. If a Cisco VIC 1240 modular LOM card is installed, you will have connectivity through the mLOM but other adapters will not be recognized.

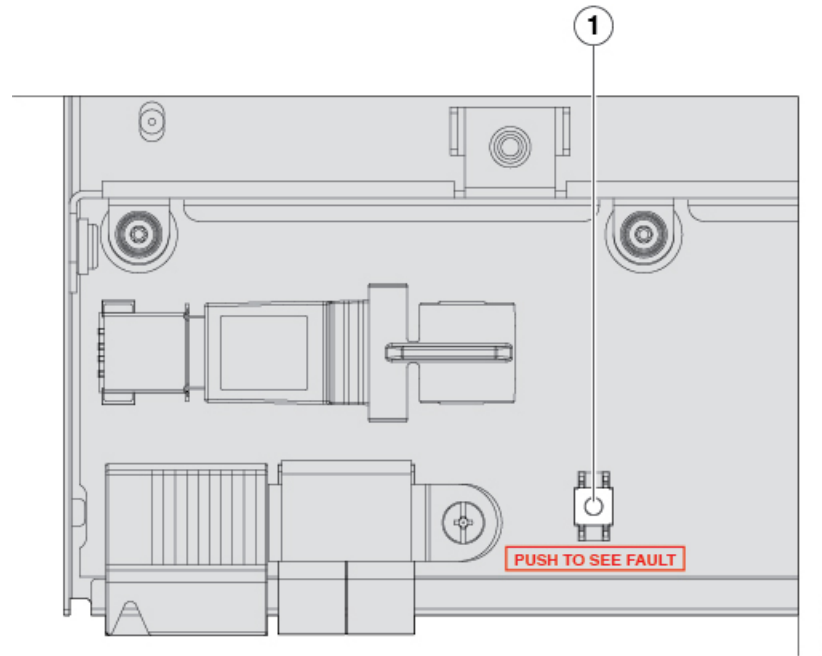
Diagnostics Button and LEDs

At blade start-up, POST diagnostics test the CPUs, DIMMs, HDDs, and rear mezzanine modules, and any failure notifications are sent to Cisco 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.

The following figure shows the LED diagnostics button on the Cisco UCS B260 Blade Server.

Figure 4: LED Diagnostics Button



1	LED diagnostics button on the server motherboard
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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 rear mezzanine modules also cause the server health LED to light solid amber for minor error conditions or blinking amber for critical error conditions.

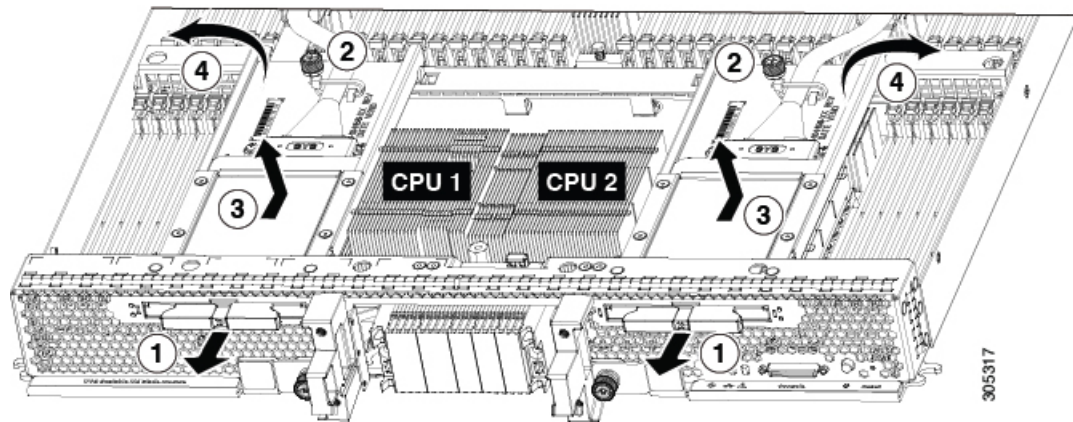
Removing a CPU and Heat Sink

Use the following procedures to remove, replace, or upgrade a CPU.

Procedure

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- Step 1** Remove any SSDs or blanking panels by squeezing the slide latch and pulling outward. See callout 1 in the following figure.
 - Step 2** Unscrew one captive screw on each SSD cage. See callout 2.
 - Step 3** Slide the SSD cage back and upward to fully remove it. See callout 3.
 - Step 4** Place the SSD cages next to the sides of the base, keeping all cables connected. See callout 4.

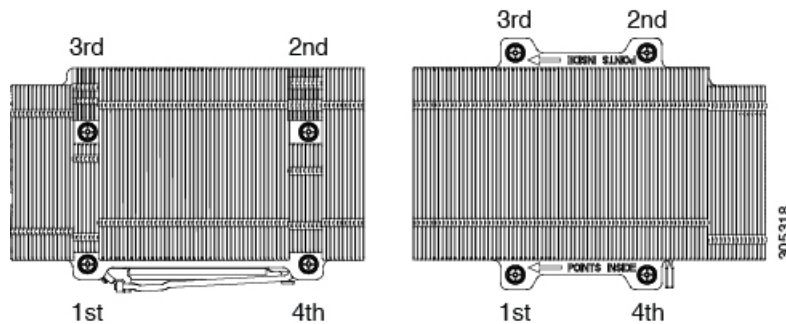
Figure 5: Removing an SSD Cage



Step 5 Unscrew the four heat sink captive screws in the order shown in the following figure.

Note There are left and right versions of the heat sinks and CPUs. The left heat sink, shown in the following figure, is for CPU1 and the right heat sink, shown in the following figure, is for CPU 2.

Figure 6: Unscrewing the Heat Sink Captive Screws

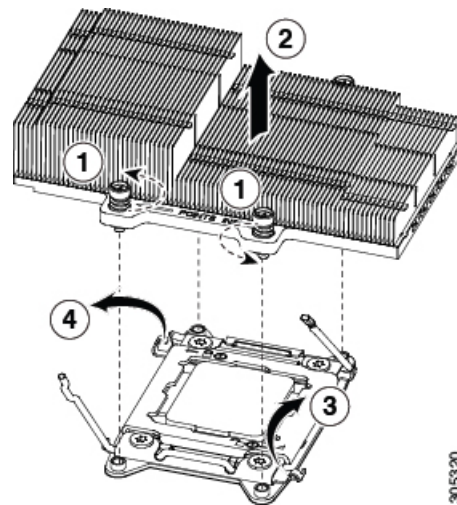


Step 6 Unscrew the captive screw. See callout 1 in the following figure.

Step 7 Remove the heat sink. See callout 2.

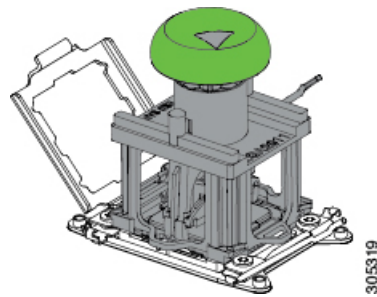
Step 8 Unlock the first socket hook that has the following icon: ☐. See callout 3.

Step 9 Unlock the second socket hook that has the following icon: ☐. See callout 4.

Figure 7: Removing the Heat Sink

Step 10 Open the socket latch.

Step 11 Remove the old CPU using the CPU alignment tool. See the following figure.

Figure 8: CPU Alignment Tool

Installing a New CPU and Heat Sink

Before installing a new CPU, verify the following:

- The CPU is supported for the server. Refer to the Specification Sheet for the server to see the list of supported CPUs. The specifications sheets are available at this URL: <http://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-b-series-blade-servers/datasheet-listing.html>.
- 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.

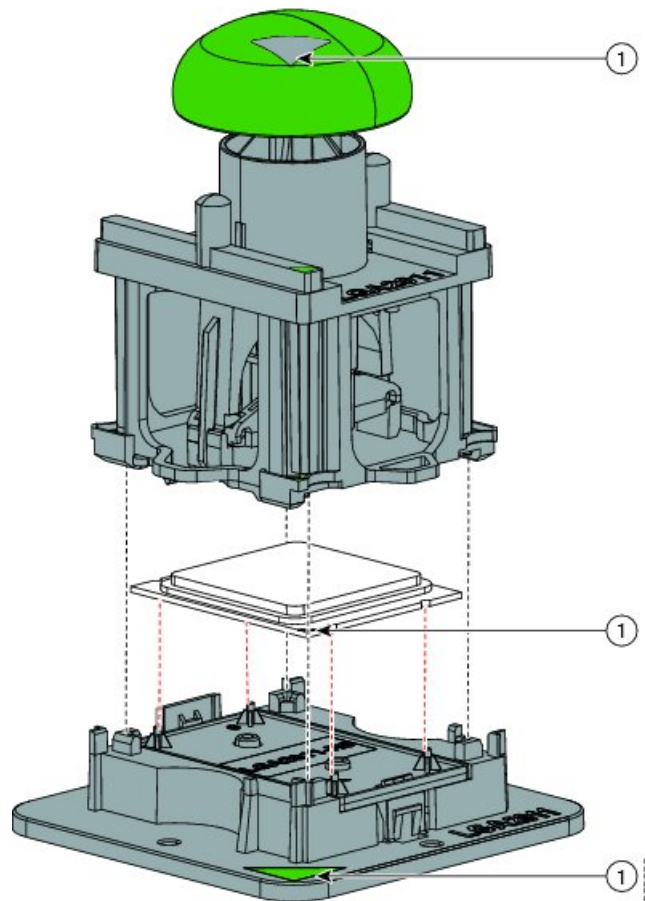
Procedure

Step 1

Remove the CPU from the packaging and load it in the CPU alignment tool, as follows:

- Confirm that the pedestal is set up correctly for the CPU. The pedestal ships configured with the markings "LGA2011-R1" facing upwards, which is the correct orientation.
- Place the CPU on the pedestal. The CPU corners should fit snugly at the pedestal corners and the notches should meet the pegs perfectly.
- Place the CPU alignment tool on the CPU pedestal with the tool aligned with the A1 arrow pointing to the A1 registration mark on the pedestal.
- Press the button/handle on the tool to grasp the CPU.
- Lift the tool and CPU straight up off the pedestal as shown in the following figure:


Figure 9: Loading the CPU Into the CPU Alignment Tool



1	Alignment mark on the CPU alignment tool, CPU, and pedestal
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Step 2 To ensure proper seating and prevent pin damage, place the CPU alignment tool with the registration marks aligned, and press the green button on the tool to release the CPU in place.

Step 3 Close the socket latch.

Step 4 Secure the first hook, which has the following icon: 


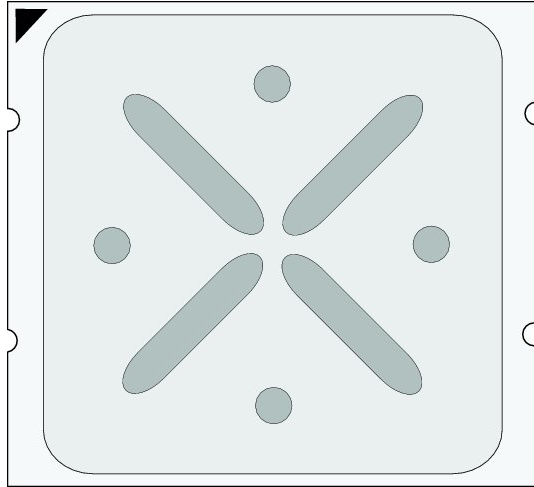
- Step 5** Secure the second hook, which has the following icon: 
- Step 6** If reusing the heat sink, clean off the old thermal compound from the heat sink and CPU.
- Step 7** Use the syringe of thermal grease to apply 2 cubic centimeters of the thermal grease (about half of the contents of the syringe) to the top of the CPU where it will contact the heat sink. Use the pattern shown in the following figure:

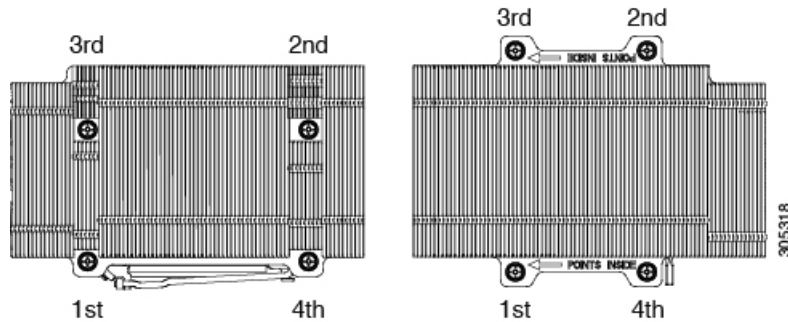
Figure 10: Thermal Grease Application Pattern



Note CPUs come with two syringes of thermal grease; one with a blue cap and one with a red cap. Use the syringe with the blue cap. This thermal grease has very specific properties. Thermal grease from any other sources should not be used because it may lead to damage.

- Step 8** Replace the heat sinks and tighten the screws in the order shown in the following figure.

Figure 11: Tightening the Heat Sink Screws



Caution Left and right heat sinks are different and are not interchangeable. They must be installed in the correct position.

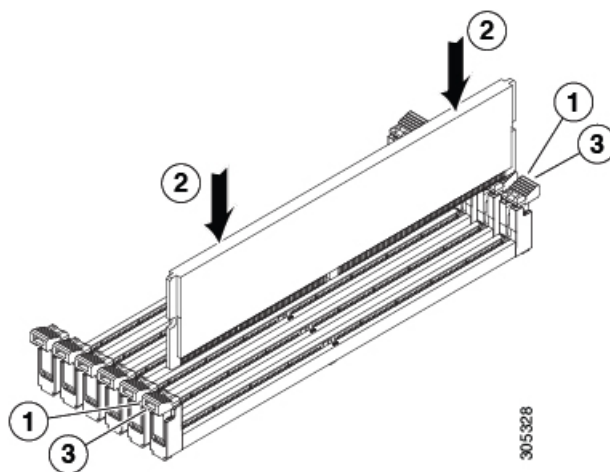
Installing Memory

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

Procedure

- Step 1** Open the DIMM connector latches. See callout 1 in the following figure.
- Step 2** Press the DIMM into its slot, evenly applying pressure on both ends until it clicks. See callout 2.
- Step 3** Close the DIMM connector latches. See callout 3.

Figure 12: Installing a DIMM



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 down time.

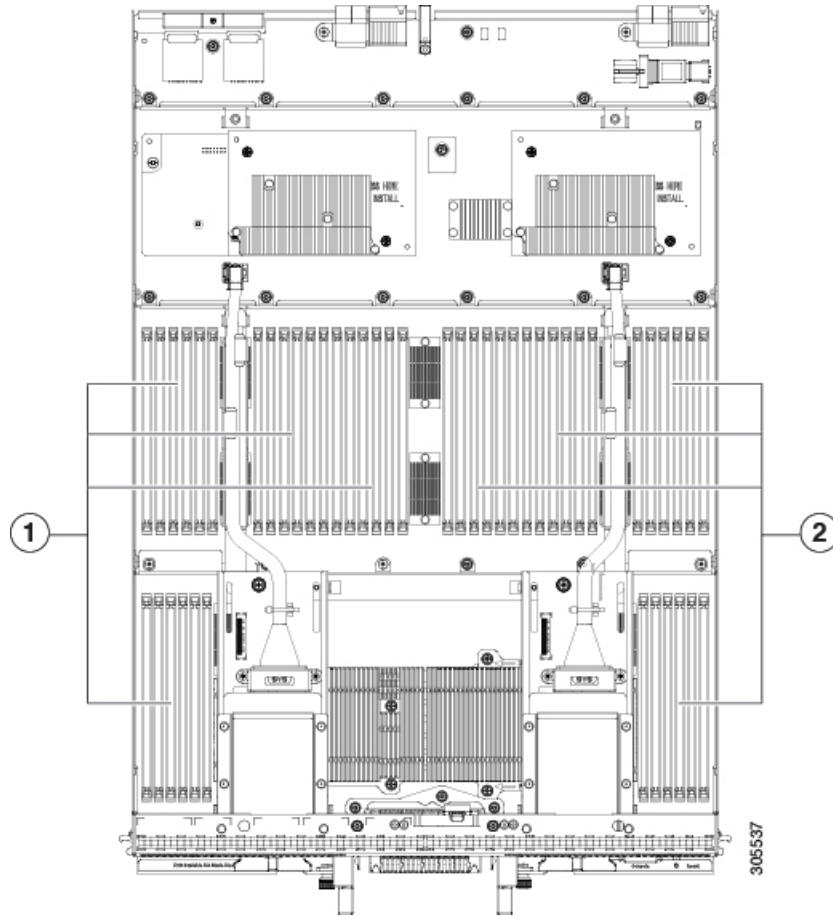
Memory Arrangement

Each UCS B260 M4 blade module has 48 slots for installing DIMMs—24 for each CPU. Each CPU has 24 DIMM slots spread over 8 channels. This blade server needs at least one DIMM attached to all populated CPUs. DIMMs installed in slots for an absent CPU will not be recognized. For optimal performance, distribute DIMMs evenly across all CPUs. DIMM connector latches are color coded blue, black, and white/ivory, and we recommend that you install the DIMMs in that order.



Note An absent CPU is not a supported configuration.

Figure 13: Memory Slots Within the Blade Server



1	DIMMs for CPU 1	2	DIMMs for CPU 2
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Channels

Each CPU has 8 channels, consisting of 3 DIMMs. Each channel is identified by a letter. Each channel member is identified by numbers, 1, 2, or 3.

Install DIMMs according to the configuration in the following table.

Table 1: DIMM Configuration Order

DIMMs per CPU	CPU 1 DIMMs	CPU 2 DIMMs
1	(A1) - blue slot	(O1) - blue slot

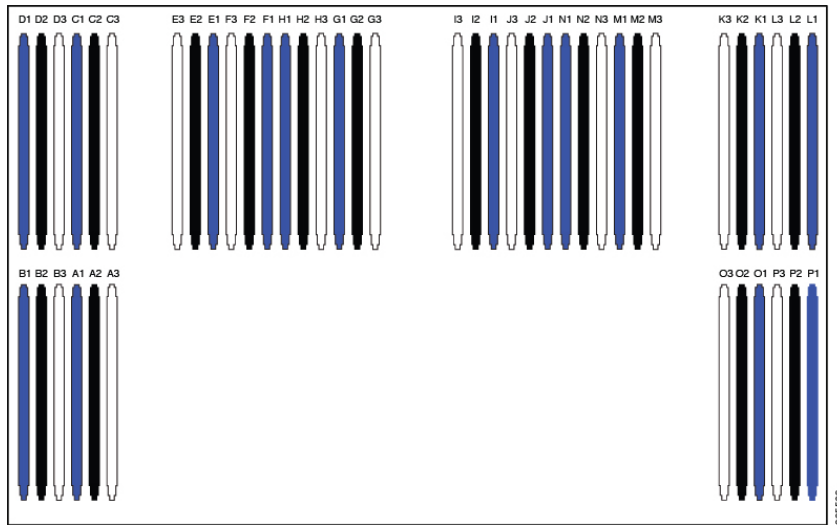
DIMMs per CPU	CPU 1 DIMMs	CPU 2 DIMMs
2	(A1, B1) - blue slots	(O1, P1) - blue slots
3	(A1, B1) (C1) - blue slots	(O1, P1) (L1) - blue slots
4	(A1, B1) (C1, D1) - blue slots	(O1, P1) (L1, K1) - blue slots
5	(A1, B1) (C1, D1) (E1) - blue slots	(O1, P1) (L1, K1) (M1) - blue slots
6	(A1, B1) (C1, D1) (E1, F1) - blue slots	(O1, P1) (L1, K1) (M1, N1) - blue slots
7	(A1, B1) (C1, D1) (E1, F1) (G1) - blue slots	(O1, P1) (L1, K1) (M1, N1) (J1) - blue slots
8	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots
9	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2) - black slot	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2) - black slot
10	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2, B2) - black slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2, P2) - black slots
11	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2, B2) (C2) - black slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2, P2) (L2) - black slots
12	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2, B2) (C2, D2) - black slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2, P2) (L2, K2) - black slots
13	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2, B2) (C2, D2) (E2) - black slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2, P2) (L2, K2) (M2) - black slots
14	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2, B2) (C2, D2) (E2, F2) - black slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2, P2) (L2, K2) (M2, N2) - black slots
15	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2, B2) (C2, D2) (E2, F2) (G2) - black slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2, P2) (L2, K2) (M2, N2) (J2) - black slots

DIMMs per CPU	CPU 1 DIMMs	CPU 2 DIMMs
16	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2, B2) (C2, D2) (E2, F2) (G2, H2)- black slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2, P2) (L2, K2) (M2, N2) (J2, I2)- black slots
17	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2, B2) (C2, D2) (E2, F2) (G2, H2)- black slots (A3) - white or ivory slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2, P2) (L2, K2) (M2, N2) (J2, I2)- black slots (O3) - white or ivory slots
18	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2, B2) (C2, D2) (E2, F2) (G2, H2)- black slots (A3, B3) - white or ivory slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2, P2) (L2, K2) (M2, N2) (J2, I2)- black slots (O3, P3) - white or ivory slots
19	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2, B2) (C2, D2) (E2, F2) (G2, H2)- black slots (A3, B3) (C3)- white or ivory slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2, P2) (L2, K2) (M2, N2) (J2, I2) - black slots (O3, P3) (L3)- white or ivory slots
20	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2, B2) (C2, D2) (E2, F2) (G2, H2)- black slots (A3, B3) (C3, D3)- white or ivory slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2, P2) (L2, K2) (M2, N2) (J2, I2) - black slots (O3, P3) (L3, K3)- white or ivory slots
21	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2, B2) (C2, D2) (E2, F2) (G2, H2)- black slots (A3, B3) (C3, D3) (E3) - white or ivory slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2, P2) (L2, K2) (M2, N2) (J2, I2) - black slots (O3, P3) (L3, K3) (M3) - white or ivory slots
22	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2, B2) (C2, D2) (E2, F2) (G2, H2)- black slots (A3, B3) (C3, D3) (E3, F3) - white or ivory slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2, P2) (L2, K2) (M2, N2) (J2, I2) - black slots (O3, P3) (L3, K3) (M3, N3) - white or ivory slots

DIMMs per CPU	CPU 1 DIMMs	CPU 2 DIMMs
23	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2, B2) (C2, D2) (E2, F2) (G2, H2)- black slots (A3, B3) (C3, D3) (E3, F3) (G3) - white or ivory slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2, P2) (L2, K2) (M2, N2) (J2, I2) - black slots (O3, P3) (L3, K3) (M3, N3) (J3) - white or ivory slots
24	(A1, B1) (C1, D1) (E1, F1) (G1, H1) - blue slots (A2, B2) (C2, D2) (E2, F2) (G2, H2)- black slots (A3, B3) (C3, D3) (E3, F3) (G3, H3) - white or ivory slots	(O1, P1) (L1, K1) (M1, N1) (J1, I1) - blue slots (O2, P2) (L2, K2) (M2, N2) (J2, I2) - black slots (O3, P3) (L3, K3) (M3, N3) (J3, I3) - white or ivory slots

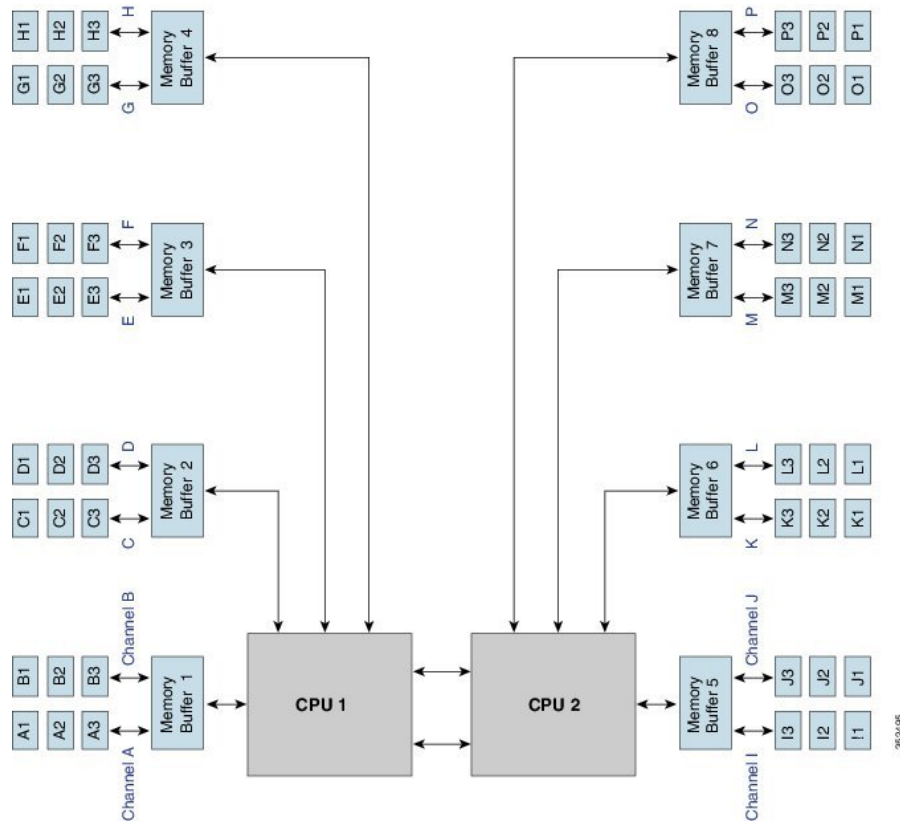
The following figure shows the physical representation of DIMMs in a UCS B260 M4 with E7 v4 CPUs.

Figure 14: Physical Representation of DIMMs



The following figure shows the logical representation of the channels.

Figure 15: Logical Representation of Channels



Memory Performance

When configuring your server, consider the following:

- DIMMs within the blade can be of different speeds, but all DIMMs will run at the speed of the DIMM with the lowest speed.
- No mixing of DIMM type (LRDIMM, RDIMM, TSV-RDIMM) is allowed.
- Your selected CPU(s) can have some affect on performance. CPUs used must be of the same type.
- Mixing DIMM ranks and densities can lower performance.
- Unevenly populating DIMMs between CPUs can lower performance.

Installing a Virtual Interface Card Adapter

The Cisco UCS B260 M4 Blade Server and UCS 460 M4 Blade Server support the Cisco VIC 1300 Series (VIC 1340 and VIC 1380). The Cisco VIC 1300 Series is compatible with UCS 6200 Series Fabric Interconnects and the UCS 6300 Series Fabric Interconnects.

The VIC 1340 is a specialized adapter that provides 2 x 40-Gb Ethernet or Fibre Channel over Ethernet (FCoE) connectivity to the blade server. It plugs into the dedicated VIC connector and is the only adapter that can be plugged into the slot 1 connector.



Note You must remove the adapter card to service it.

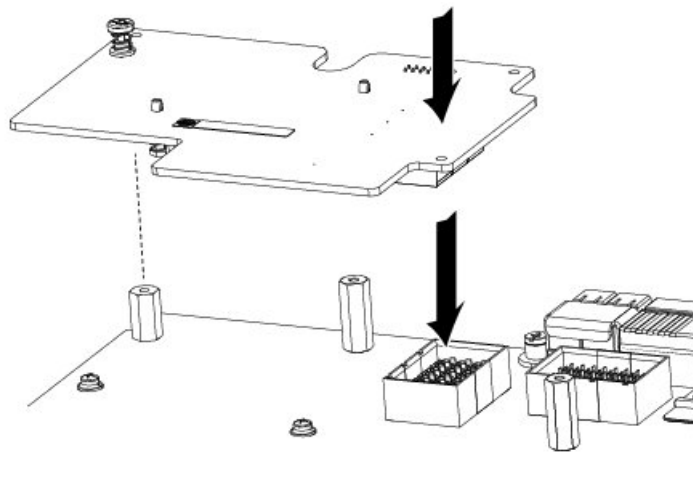
To install a Cisco VIC 1340 in the blade server, follow these steps:

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 16: Installing a VIC Adapter



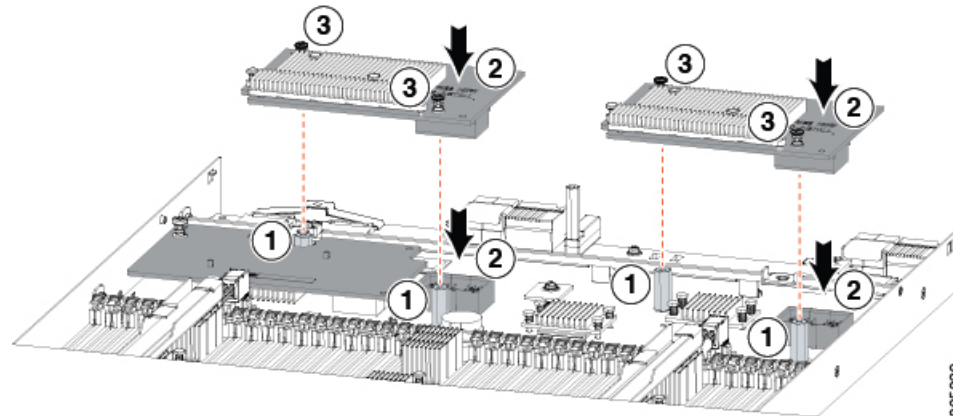
Installing an Adapter Card

All the supported mezzanine cards have a common installation process. These cards are updated frequently. Currently supported cards and the available models for this server are listed 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>

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.

Figure 17: Installing an Adapter Card



Procedure

-
- Step 1** Position the adapter board connector above the motherboard connector and align the two adapter captive screws to the standoff posts (see callout 1) on the motherboard.
- Step 2** Firmly press the adapter connector into the motherboard connector (see callout 2).
- Step 3** Tighten the two captive screws (see 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.
-

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.

Table 2: TPM Support by Intel CPU Version

Intel CPU	TPM Version Supported	Minimum UCS Manager (UCSM) Version
Intel Xeon E7 v4	TPM 1.2	Release 2.2(8) or Release 3.1(2)
	TPM 2.0	Release 2.2(8) or Release 3.1(2)

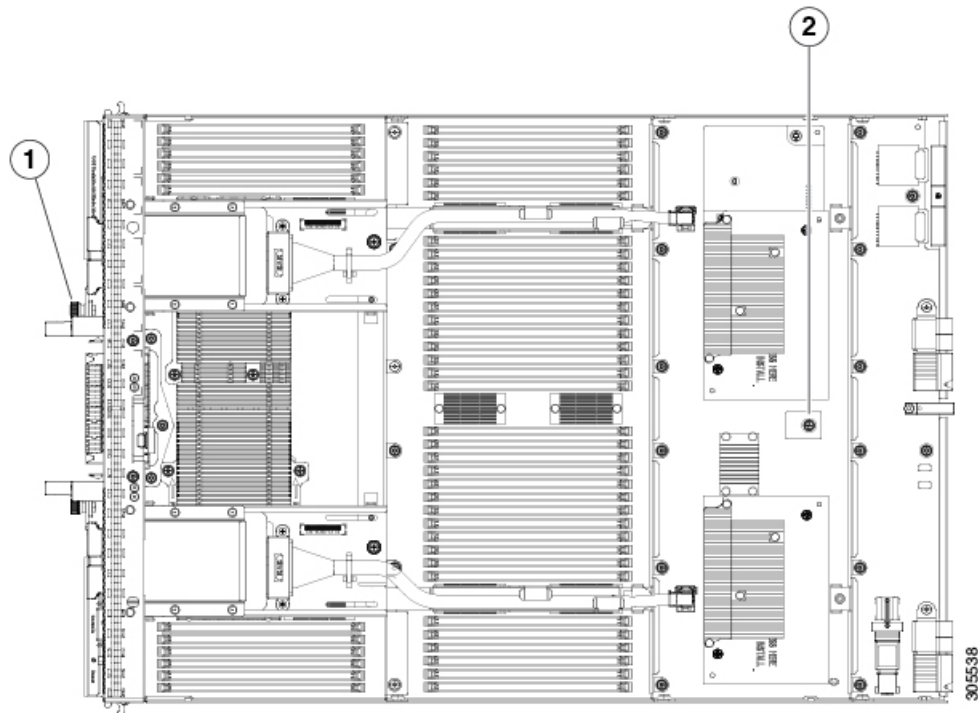
Procedure

Step 1

Install the TPM hardware.

- a) 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 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 18: TPM Socket Location



1	Front of server	2	TPM socket on motherboard
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Step 2

Enable TPM Support in the BIOS.

TPM 2.0 support is enabled by default in Cisco UCS Manager Release 3.1(2) and Release 2.2(8) and later BIOS policy. If your Cisco UCS Manager Release 3.1(2) or Release 2.2(8) and later BIOS policy is using the default setting and TPM 2.0 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.

Follow the procedures in the [Cisco UCS Manager Configuration Guide](#) for the release that is running on the server.
