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# Cisco UCS B200 M4 Blade Server

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## OVERVIEW

Delivering performance, versatility and density without compromise, the Cisco UCS B200 M4 Blade Server addresses the broadest set of workloads, from IT and web infrastructure through distributed database.

The enterprise-class Cisco UCS B200 M4 blade server extends the capabilities of Cisco's Unified Computing System portfolio in a half-width blade form factor. The Cisco UCS B200 M4 harnesses the power of the latest Intel® Xeon® E5-2600 v3 Series processor family CPUs with up to 1536 GB of RAM (using 64 GB DIMMs), two solid-state drives (SSDs) or hard disk drives (HDDs), and up to 80 Gbps throughput connectivity.

Figure 1 Cisco UCS B200 M4 Blade Server

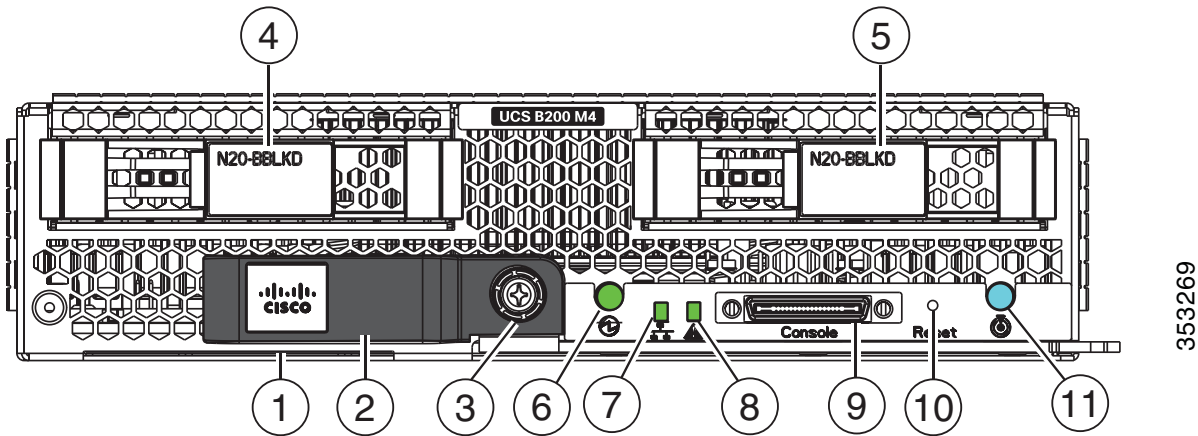


# DETAILED VIEWS

## Blade Server Front View

Figure 2 is a detailed front view of the Cisco UCS B200 M4 Blade Server.

Figure 2 Blade Server Front View



s

|   |   |    |                                |
|---|---|----|--------------------------------|
| 1 | Asset pull tag<br>Each server has a plastic tag that pulls out of the front panel. The tag contains the server serial number as well as the product ID (PID) and version ID (VID). The tag also allows you to add your own asset tracking label without interfering with the intended air flow. | 7  | Network link status LED        |
| 2 | Blade ejector handle  | 8  | Blade health LED               |
| 3 | Ejector captive screw   | 9  | Console connector <sup>1</sup> |
| 4 | Drive bay 1   | 10 | Reset button access            |
| 5 | Drive bay 2   | 11 | Beaconing LED and button       |
| 6 | Power button and LED  | —  | —                              |

Notes...

1. For information about the KVM local I/O cable that plugs into the console connector (a cable is included with every Cisco UCS 5100 Series blade server chassis accessory kit), see [ORDER OPTIONAL KVM LOCAL I/O CABLE\\*](#) on page 38.

## BASE SERVER STANDARD CAPABILITIES and FEATURES

*Table 1* lists the capabilities and features of the base server. Details about how to configure the server for a particular feature or capability (for example, number of processors, disk drives, or amount of memory) are provided in *CONFIGURING the SERVER on page 7*.



**NOTE:** NOTE: The B200 M4 blade server requires UCS Manager (UCSM) to operate as part of the UCS system.

- The B200 M4 with E5-2600 v3 CPUs requires UCSM 2.2(3a) or later.

**Table 1** Capabilities and Features


| Capability/Feature | Description  |
|--------------------|--|
| Chassis            | The UCS B200 M4 Blade Server mounts in a Cisco UCS 5100 Series blade server chassis or UCS Mini blade server chassis.  |
| CPU                | One or two Intel® E5-2600 v3 Series processor family CPUs  |
| Chipset            | Intel® C610 chipset  |
| Memory             | 24 total DIMM slots <ul style="list-style-type: none"> <li>■ Support for Advanced ECC</li> <li>■ Support for registered ECC DIMMs (RDIMMs)</li> <li>■ Support for load-reduced DIMMs (LR DIMMs)</li> <li>■ Up to 1536 GB total memory capacity (B200 M4 configured with two CPUs using 64 GB DIMMs)</li> </ul>   |
| I/O                | Mezzanine adapters: <ul style="list-style-type: none"> <li>■ One connector for Cisco's VIC 1340 or 1240 adapter, which provides Ethernet and Fibre Channel over Ethernet (FCoE)</li> </ul>   |
|                    | <div>  <p><b>NOTE:</b> The Cisco VIC 1200 Series (1240 and 1280) is compatible in UCS domains that implement both 6100 and 6200 Series Fabric Interconnects. However, the Cisco VIC 1300 Series (1340 and 1380) is compatible only with the 6200 Series Fabric Interconnects.</p> </div>  |
|                    | <ul style="list-style-type: none"> <li>■ One connector for various types of Cisco adapters and Cisco UCS Storage Accelerator adapters.</li> </ul>  |
| Storage controller | Cisco FlexStorage 12G SAS RAID controller (powered by the LSI SAS 3108 chip - see <a href="http://www.lsi.com/products/raid-on-chip/pages/lsi-sas-3108.aspx">http://www.lsi.com/products/raid-on-chip/pages/lsi-sas-3108.aspx</a> ) with drive bays, providing up to 12 Gbps SAS connectivity, offering: <ul style="list-style-type: none"> <li>■ SAS/SATA support</li> <li>■ RAID 0 and 1 and non-RAID</li> </ul> |

Table 1 Capabilities and Features (*continued*)

| Capability/Feature              | Description   |
|---------------------------------|---|
| Storage devices                 | <ul style="list-style-type: none"> <li>■ Up to two optional, front-accessible, hot-swappable 2.5-inch small form factor (SFF) SAS or SATA solid-state disks (SSDs) or hard disk drives (HDDs).</li> <li>■ An internal USB 2.0 port is also supported. A 16 GB USB drive is available from Cisco.</li> <li>■ Two SD card slots are available on the front left side of the server. 32 GB or 64 GB SD cards are available from Cisco.</li> </ul>  |
| Video                           | <p>The Cisco Integrated Management Controller (CIMC) provides video using the Matrox G200e video/graphics controller:</p> <ul style="list-style-type: none"> <li>■ Integrated 2D graphics core with hardware acceleration</li> <li>■ DDR2/3 memory interface supports up to 512 MB of addressable memory (8 MB is allocated by default to video memory)</li> <li>■ Supports display resolutions up to 1920 x 1200 16bpp @ 60Hz</li> <li>■ High-speed integrated 24-bit RAMDAC</li> <li>■ Single lane PCI-Express host interface running at Gen 1 speed</li> </ul> |
| Interfaces                      | <ul style="list-style-type: none"> <li>■ Front panel <ul style="list-style-type: none"> <li>• One console connector (see <a href="#">ORDER OPTIONAL KVM LOCAL I/O CABLE* on page 38</a>)</li> </ul> </li> </ul>   |
| Power subsystem                 | Integrated in the Cisco UCS 5100 Series blade server chassis or UCS Mini blade server chassis.  |
| Fans                            | Integrated in the Cisco UCS 5100 Series blade server chassis or UCS Mini blade server chassis.  |
| Integrated management processor | The built-in Cisco Integrated Management Controller (CIMC) GUI or CLI interface enables you to monitor the server inventory, health, and system event logs.   |

## CONFIGURING the SERVER

Follow these steps to configure the Cisco UCS B200 M4 Blade Server:

- *STEP 1 VERIFY SERVER SKU, page 8*
- *STEP 2 CHOOSE CPU(S), page 9*
- *STEP 3 CHOOSE MEMORY, page 11*
- *STEP 4 CHOOSE RAID CONTROLLER AND DISK DRIVE BAYS, page 16*
- *STEP 5 CHOOSE HARD DISK DRIVES or SOLID STATE DRIVES (OPTIONAL), page 18*
- *STEP 6 CHOOSE ADAPTERS, page 20*
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- *STEP 11 CHOOSE OPERATING SYSTEM MEDIA KIT, page 32*
- *STEP 12 CHOOSE SERVICE and SUPPORT LEVEL, page 33*

## STEP 1 VERIFY SERVER SKU

Verify the product ID (PID) of the server as shown in [Table 2](#).

Table 2 PID of the Base UCS B200 M4 Blade Server

| Product ID (PID) | Description   |
|------------------|---|
| UCSB-B200-M4     | UCS B200 M4 Blade Server without CPU, memory, drive bays, HDD, VIC adapter, or mezzanine adapters |

The base Cisco UCS B200 M4 blade server does not include the following components. They must be selected during product ordering:

- CPUs
- Memory
- Cisco FlexStorage RAID controller with drive bays (or blank, for no local drives support)
- Disk drives
- Cisco adapters (such as the VIC 1340, VIC 1380, VIC 1240, VIC 1280, or Port Expander)
- Cisco UCS Storage Accelerators (such as the Fusion-io adapter)



**NOTE:** Use the steps on the following pages to order servers with the configurable components that you want configured in your servers.



## STEP 2 CHOOSE CPU(S)

The standard CPU features are:

- Intel Xeon E5-2600 v3 series processor family CPUs
- Intel C610 series chipset
- Up to 18 cores per processor, for a total of up to 36 cores per server

Select CPUs

The available CPUs are listed in [Table 3](#).

Table 3 Available Intel CPUs: E5-2600 v3 Series Processor Family CPUs

| Product ID (PID)             | Intel Number | Clock Freq (GHz) | Power (W) | Cache Size (MB) | Cores | QPI      | Highest DDR4 DIMM Clock Support (MHz) <sup>1</sup> |
|------------------------------|--------------|------------------|-----------|-----------------|-------|----------|--|
| UCS-CPU-E52699D              | E5-2699 v3   | 2.30             | 145       | 45              | 18    | 9.6 GT/s | 2133   |
| UCS-CPU-E52698D              | E5-2698 v3   | 2.30             | 135       | 40              | 16    | 9.6 GT/s | 2133   |
| UCS-CPU-E52697D              | E5-2697 v3   | 2.60             | 145       | 35              | 14    | 9.6 GT/s | 2133   |
| UCS-CPU-E52695D              | E5-2695 v3   | 2.30             | 120       | 35              | 14    | 9.6 GT/s | 2133   |
| UCS-CPU-E52690D              | E5-2690 v3   | 2.60             | 135       | 30              | 12    | 9.6 GT/s | 2133   |
| UCS-CPU-E52683D              | E5-2683 v3   | 2.00             | 120       | 35              | 14    | 9.6 GT/s | 2133   |
| UCS-CPU-E52680D              | E5-2680 v3   | 2.50             | 120       | 30              | 12    | 9.6 GT/s | 2133   |
| UCS-CPU-E52670D              | E5-2670 v3   | 2.30             | 120       | 30              | 12    | 9.6 GT/s | 2133   |
| UCS-CPU-E52667D              | E5-2667 v3   | 3.20             | 135       | 20              | 8     | 9.6 GT/s | 2133   |
| UCS-CPU-E52660D              | E5-2660 v3   | 2.60             | 105       | 25              | 10    | 9.6 GT/s | 2133   |
| UCS-CPU-E52658D              | E5-2658 v3   | 2.20             | 105       | 30              | 12    | 9.6 GT/s | 2133   |
| UCS-CPU-E52650D              | E5-2650 v3   | 2.30             | 105       | 25              | 10    | 9.6 GT/s | 2133   |
| UCS-CPU-E52650LD             | E5-2650L v3  | 1.80             | 65        | 30              | 12    | 9.6 GT/s | 1866   |
| UCS-CPU-E52643D              | E5-2643 v3   | 3.40             | 135       | 20              | 6     | 9.6 GT/s | 2133   |
| UCS-CPU-E52640D              | E5-2640 v3   | 2.60             | 90        | 20              | 8     | 8.0 GT/s | 1866   |
| UCS-CPU-E52637D              | E5-2637 v3   | 3.50             | 135       | 15              | 4     | 9.6 GT/s | 2133   |
| UCS-CPU-E52630D              | E5-2630 v3   | 2.40             | 85        | 20              | 8     | 8.0 GT/s | 1866   |
| UCS-CPU-E52630LD             | E5-2630L v3  | 1.80             | 55        | 20              | 8     | 8.0 GT/s | 1866   |
| UCS-CPU-E52623D              | E5-2623 v3   | 3.00             | 105       | 10              | 4     | 8.0 GT/s | 1866   |
| UCS-CPU-E52620D              | E5-2620 v3   | 2.40             | 85        | 15              | 6     | 8.0 GT/s | 1866   |
| UCS-CPU-E52609D <sup>2</sup> | E5-2609 v3   | 1.90             | 85        | 15              | 6     | 6.4 GT/s | 1600   |

Notes...

1. Because all DDR4 DIMMs supported on this server run at 2133 MHz, the DIMMs will be clocked at the speed supported by the CPU.

2. The E5-2609 v3 CPU does not support Intel Hyper-Threading or Intel Turbo Boost technologies.

### Supported Configurations

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#### (1) One-CPU Configuration

- Choose one CPU from any one of the rows of [Table 3 on page 9](#).

#### (2) Two-CPU Configuration

- Choose two identical CPUs from any one of the rows of [Table 3 on page 9](#).

### Caveats

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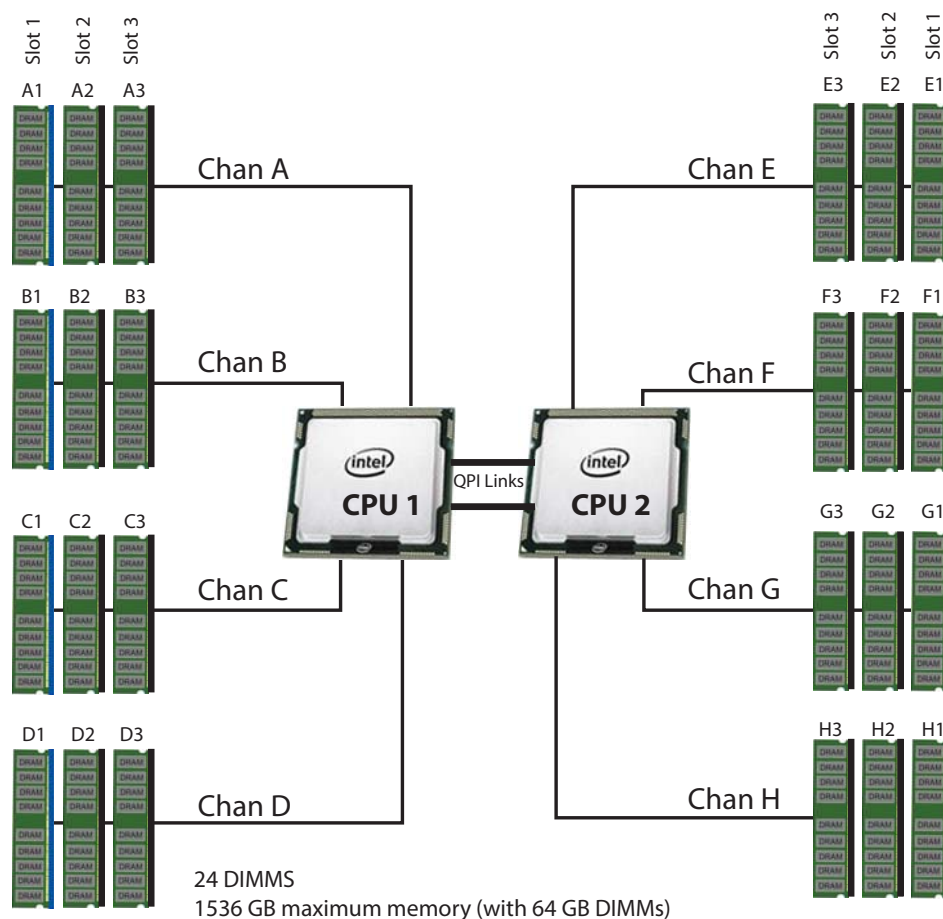
- If the mezzanine slot is either empty or contains a Port Expander Card for VIC, only 1 CPU is required, although you may install 2 CPUs.
- If the mezzanine slot contains anything but a Port Expander Card for VIC, 2 CPUs are required to make the mezzanine slot operable.
- See [Table 9 on page 23](#) for more details regarding how many CPUs are required for different I/O or mezzanine adapter card configurations. Also see [B200 M4 Configured with 1 CPU on page 52](#) and [B200 M4 Configured with 2 CPUs on page 57](#).

## STEP 3 CHOOSE MEMORY

The standard memory features are:

- DIMMs
  - Clock speed: 2133 MHz
  - Ranks per DIMM: 1, 2, or 4
  - Operational voltage: 1.2 V
  - Registered ECC DDR4 DIMMs (RDIMMs) or load-reduced ECC DDR4 DIMMs (LRDIMMs)
- Memory is organized with four memory channels per CPU, with up to three DIMMs per channel (DPC), as shown in [Figure 3](#).

Figure 3 UCS B200 M4 Memory Organization



4 memory channels per CPU,  
up to 3 DIMMs per channel

## Choose DIMMs and Memory Mirroring

Select the memory configuration and whether or not you want the memory mirroring option. The supported memory DIMMs and the mirroring option are listed in [Table 4](#).



**NOTE:** When memory mirroring is enabled, the memory subsystem simultaneously writes identical data to two adjacent channels. If a memory read from one of the channels returns incorrect data due to an uncorrectable memory error, the system automatically retrieves the data from the other channel. A transient or soft error in one channel does not affect the mirrored data, and operation continues unless there is a simultaneous error in exactly the same location on a DIMM and its mirrored DIMM. Memory mirroring reduces the amount of memory available to the operating system by 50% because only one of the two populated channels provides data.

The supported memory DIMMs in the UCS B200 M4 are listed in [Table 4](#)

Table 4 Available DDR4 DIMMs

| Product ID (PID)               | PID Description                                      | Voltage | Ranks /DIMM |
|--------------------------------|--|---------|-------------|
| <b>DIMM Options</b>            |  |         |             |
| UCS-MR-1X648RU-A <sup>1</sup>  | 64GB DDR4-2133-MHz TSV-RDIMM/PC4-17000/octal rank/x4 | 1.2 V   | 8           |
| UCS-ML-1X322RU-A               | 32GB DDR4-2133-MHz RDIMM/PC4-17000/dual rank/x4      | 1.2 V   | 2           |
| UCS-ML-1X324RU-A               | 32GB DDR4-2133-MHz LRDIMM/PC3-17000/quad rank/x4     | 1.2 V   | 4           |
| UCS-MR-1X162RU-A               | 16GB DDR4-2133-MHz RDIMM/PC3-17000/dual rank/x4      | 1.2 V   | 2           |
| UCS-MR-1X081RU-A               | 8GB DDR4-2133-MHz RDIMM/PC3-17000/single rank/x4     | 1.2 V   | 1           |
| <b>Memory Mirroring Option</b> |  |         |             |
| N01-MMIRROR                    | Memory mirroring option                              |         |             |

Notes...

1. Power capping is not supported when using 64GB TSV-RDIMMS.

## Supported Configurations

(1) 1-CPU configuration without memory mirroring:

- Select from 1 to 12 DIMMs. Refer to [DIMM Population Rules on page 41](#) for more detailed information.

## (2) 1-CPU configuration with memory mirroring:

- Select 2, 4, 8, or 12 identical DIMMs. The DIMMs will be placed by the factory as shown in the following table.

| Total Number of DIMMs | CPU 1 DIMM Placement (for identical DIMMs) |                  |                  |
|-----------------------|--|------------------|------------------|
|                       | Blue Slots                                 | Black Slots      | White Slots      |
| 2                     | (A1, B1)                                   | —                | —                |
| 4                     | (A1,B1); (C1,D1)                           | —                | —                |
| 8                     | (A1,B1); (C1,D1)                           | (A2,B2); (C2,D2) | —                |
| 12                    | (A1,B1); (C1,D1)                           | (A2,B2); (C2,D2) | (A3,B3); (C3,D3) |

- Select the memory mirroring option (N01-MMIRROR) as shown in [Table 4 on page 12](#).

## (3) 2-CPU configuration without memory mirroring:

- Select from 1 to 12 DIMMs per CPU. Refer to [DIMM Population Rules on page 41](#), for more detailed information.

## (4) 2-CPU configuration with memory mirroring:

- Select 2, 4, 8, or 12 identical DIMMs per CPU. The DIMMs will be placed by the factory as shown in the following table.

| Number of DIMMs per CPU            | CPU 1 DIMM Placement (for identical DIMMs) |                  |                    | CPU 2 DIMM Placement (for identical DIMMs) |                  |                  |
|------------------------------------|--|------------------|--------------------|--|------------------|------------------|
|                                    | Blue Slots                                 | Black Slots      | White Slots        | Blue Slots                                 | Black Slots      | White Slots      |
| 2                                  | (A1, B1)                                   | —                | —                  | (E1, F1)                                   | —                | —                |
| 4                                  | (A1,B1); (C1,D1)                           | —                | —                  | (E1,F1); (G1,H1)                           | —                | —                |
| 8 (CPU1) and 4 (CPU2) <sup>1</sup> | (A1,B1); (C1,D1)                           | (A2,B2); (C2,D2) | —                  | (E1,F1)                                    | (E2, F2)         | —                |
| 8                                  | (A1,B1); (C1,D1)                           | (A2,B2); (C2,D2) | —                  | (E1,F1); (G1,H1)                           | (E2,F2); (G2,H2) | —                |
| 12                                 | (A1,B1); (C1,D1)                           | (A2,B2); (C2,D2) | (A3, B3); (C3, D3) | (E1,F1); (G1,H1)                           | (E2,F2); (G2,H2) | (E3,F3); (G3,H3) |

Notes...

1. Not recommended (for performance reasons)

- Select the memory mirroring option (N01-MMIRROR) as shown in [Table 4 on page 12](#).



**NOTE:** System performance is optimized when the DIMM type and quantity are equal for both CPUs, and when each populated channel is filled completely equally across the CPUs in the server.

### Caveats

- System speed is dependent on how many DIMMs are populated per channel and the CPU DIMM speed support. See [Table 5](#) for details.

**Table 5** DIMM Memory Speeds with Different CPUs

| DIMM Speed             | DPC  | 1600-MHz Capable CPU |                    | 1866-MHz Capable CPU |                    | 2133-MHz Capable CPU |   |
|------------------------|------|----------------------|--------------------|----------------------|--------------------|----------------------|---|
|                        |      | LRDIMM (QR)          | RDIMM (8R, DR, SR) | LRDIMM (QR)          | RDIMM (8R, DR, SR) | LRDIMM (QR)          | RDIMM (8R, DR, SR)  |
| 2133 DIMM <sup>1</sup> | 1DPC | 1600                 | 1600               | 1866                 | 1866               | 2133                 | 2133  |
|                        | 2DPC | 1600                 | 1600               | 1866                 | 1866               | 2133                 | 2133  |
|                        | 3DPC | 1600                 | 1600               | 1600                 | 1600               | 1866                 | 1866<br>(32 GB RDIMMs and 16 GB DIMMs)<br>1600<br>(64 GB TSV RDIMMs, 8 GB RDIMMs) |

Notes...

1. 2133-MHz DIMMs are the only offered and supported DIMMs for the B200 M4 server

- The B200 M4 server supports four different memory reliability, availability, and serviceability (RAS) modes:
  - Independent Channel Mode
  - Mirrored Channel Mode
  - Lockstep Channel Mode
- Below are the system level RAS Mode combination limitations:
  - Mixing of Independent and Lockstep channel mode is not allowed per platform.
  - Mixing of Non-Mirrored and Mirrored mode is not allowed per platform.
  - Mixing of Lockstep and Mirrored mode is not allowed per platform.
- Do not mix RDIMMs with LRDIMMs
- Do not mix 64GB DDR4-2133-MHz TSV-RDIMMs with any other DIMMs
- Single-rank DIMMs can be mixed with dual-rank DIMMs in the same channel
- Do not mix quad-rank DIMMs with single- or dual-rank DIMMs in the same channel

- For best performance, observe the following:
  - DIMMs with different timing parameters can be installed on different slots within the same channel, but only timings that support the slowest DIMM will be applied to all. As a consequence, faster DIMMs will be operated at timings supported by the slowest DIMM populated.
  - When single, dual or quad rank DIMMs are populated for 2DPC or 3DPC, always populate the higher number rank DIMM first (starting from the slot farthest from the CPU). For a 3DPC example, first populate with quad-rank DIMMs in DIMM slot 1. Then dual-rank DIMMs in DIMM slot 2. Then single-rank DIMMs in DIMM slot 3.
- DIMMs for CPU 1 and CPU 2 (when populated) must always be configured identically.
- When using mirroring, DIMMs must be installed in identical pairs across paired DDR4 buses. That is, mirrored pairs in channels A and B must be identical and pairs in channels C and D must be identical. However, the DIMMs used in channels A and B can be different from those in channels C and D.
- Pairs of DIMMs (A1/B1, A2/B2, etc) must be the exact same (same PID and DIMM loading order)
- Cisco memory from previous generation servers (DDR3) is not compatible with this server

For more information regarding memory, see [CPUs and DIMMs on page 40](#).

## STEP 4 CHOOSE RAID CONTROLLER AND DISK DRIVE BAYS

The UCS B200 M4 can be ordered with or without the Cisco FlexStorage RAID controller with disk drive bays (local storage subsystem).

There is no RAID or local storage controller or drive bays included (embedded) with the B200 M4 server. Therefore, a Cisco FlexStorage RAID controller with drive bays must be purchased in order to support any (1 or 2) local hard disk drives (HDDs) or solid state drives (SSDs). Either Cisco FlexStorage RAID controller supports RAID 0 and 1 as well as non-RAID'ed configurations.

For servers that will not need any local HDDs or SSDs (for example, for booting from SAN), you can order the server without a Cisco FlexStorage RAID controller with disk drive bays; however be sure to select the Cisco FlexStorage blanking panels.

The ordering information is listed in [Table 8](#).

Table 6 Cisco UCS B-Series M4 Blade Server RAID Controller<sup>1</sup> and Drive Bay Options

| Product ID (PID)              | PID Description  |
|-------------------------------|--|
| UCSB-MRAID12G                 | Cisco FlexStorage 12G SAS RAID controller with drive bays                                    |
| UCSB-MRAID12G-HE <sup>2</sup> | Cisco FlexStorage 12G SAS RAID controller with 2 GB flash-backed write cache with drive bays |
| UCSB-LSTOR-BK                 | Cisco FlexStorage blanking panels w/o controller, w/o drive bays                             |

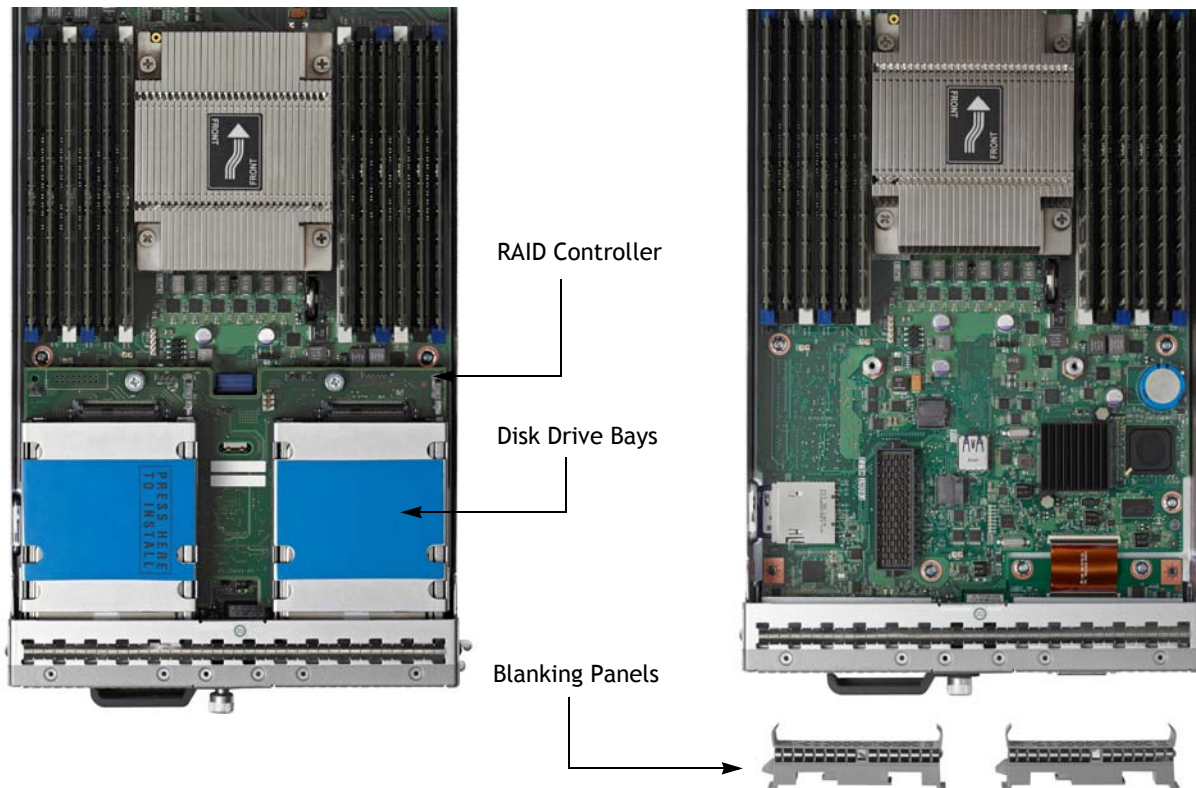
Notes...

1. Cisco FlexStorage 12G SAS RAID controller (powered by the LSI SAS 3108 chip - see <http://www.lsi.com/products/raid-on-chip/pages/lsi-sas-3108.aspx>) with drive bays, providing up to 12 Gbps SAS connectivity, offering:
  - SAS/SATA support
  - RAID 0 and 1 and non-RAID
2. The flash-backed write cache provides RAID controller cache protection using NAND flash memory and a supercapacitor. In the event of a power or server failure, cached data is automatically transferred from the RAID controller DRAM write cache to flash. Once power is restored, the data in the NAND flash is copied back into the DRAM write cache until it can be flushed to the disk drives.

See [Figure 4 on page 17](#) for a top view of the B200 M4 server with and without the Cisco FlexStorage SAS RAID controller and drive bays. See [Figure 5 on page 17](#) for a front view of these configurations. When no drive bays are installed, blanking panels must be installed.



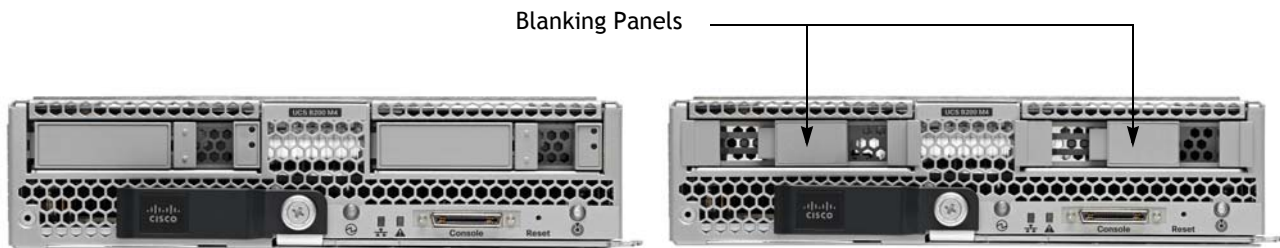
Figure 4 UCS B200 M4 With and Without RAID Controller and Drive Bays (Top View)



(a) Server with RAID Controller and drive bays

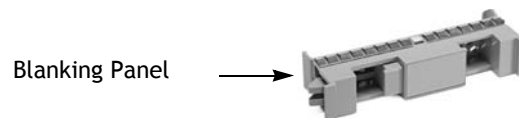
(b) Server with no RAID Controller or drive bays

Figure 5 UCS B200 M4 With and Without RAID Controller (hidden) and Drives (Front View)



(a) Server with RAID Controller and drives

(b) Server with no RAID Controller or drives



## STEP 5 CHOOSE HARD DISK DRIVES or SOLID STATE DRIVES (OPTIONAL)

The UCS B200 M4 can be ordered with or without drives. The standard disk drive features are:

- 2.5-inch small form factor
- Hot-pluggable
- Sled-mounted



NOTE: The UCS B200 M4 blade server meets the external shared storage target (SAN, NAS, and iSCSI) and storage switch certifications as described in the following link:

<http://www.cisco.com/en/US/docs/switches/datacenter/mds9000/interoperability/matrix/Matrix8.html#wp323852>

### Choose Drives

The supported drives in the UCS B200 M4 are listed in [Table 7](#).

Table 7 Supported Hot-Pluggable Sled-Mounted HDDs and SSDs

| Product ID (PID)  | PID Description                | Drive Type | Capacity |
|-------------------|--------------------------------|------------|----------|
| HDDs              |                                |            |          |
| UCS-HD12T10KS2-E  | 1.2 TB 6G SAS 10K RPM SFF HDD  | SAS        | 1.2 TB   |
| A03-D600GA2       | 600 GB 6Gb SAS 10K RPM SFF HDD | SAS        | 600 GB   |
| UCS-HD450G15KS2-E | 450 GB SAS 15K RPM SFF HDD     | SAS        | 450 GB   |
| UCS-HDD300GI2F105 | 300 GB 6Gb SAS 15K RPM SFF HDD | SAS        | 300 GB   |
| A03-D300GA2       | 300 GB 6Gb SAS 10K RPM SFF HDD | SAS        | 300 GB   |

Table 7 Supported Hot-Pluggable Sled-Mounted HDDs and SSDs *(continued)*

| Product ID (PID)  | PID Description                                    | Drive Type | Capacity |
|-------------------|--|------------|----------|
| SSDs              |  |            |          |
| UCS-SD16T12S2-EP  | 1.6 TB 2.5 inch Enterprise Performance 12G SAS SSD | SAS        | 1.6 TB   |
| UCS-SD400G12S2-EP | 400 GB 2.5 inch Enterprise Performance 12G SAS SSD | SAS        | 400 GB   |
| UCS-SD800G0KS2-EP | 800 GB 2.5 inch Enterprise Performance SAS SSD     | SAS        | 800 GB   |
| UCS-SD400G0KS2-EP | 400 GB 2.5 inch Enterprise Performance SAS SSD     | SAS        | 400 GB   |
| UCS-SD200G0KS2-EP | 200 GB 2.5 inch Enterprise Performance SAS SSD     | SAS        | 200 GB   |
| UCS-SD960G0KS2-EV | 900 GB 2.5 inch Enterprise Value 6G SATA SSD       | SATA       | 960 GB   |
| UCS-SD480G0KS2-EV | 480 GB 2.5 inch Enterprise Value 6G SATA SSD       | SATA       | 480 GB   |
| UCS-SD240G0KS2-EV | 240 GB 2.5 inch Enterprise Value 6G SATA SSD       | SATA       | 240 GB   |
| UCS-SD120G0KS2-EV | 120 GB 2.5 inch Enterprise Value 6G SATA SSD       | SATA       | 120 GB   |

#### Supported Configurations

##### (1) 1-Drive System

- Select one of the drives listed in [Table 7](#).

##### (1) 2-Drive System

- Select two drives from [Table 7](#).

#### Caveats

- For RAID'ed configurations, if you select two drives, they must be identical in type (HDD or SSD) and capacity.
- For non-RAID'ed configurations, if you select two drives, you can mix and match any combination of HDD and SSD, regardless of capacity.

## STEP 6 CHOOSE ADAPTERS

The adapter offerings are:

### ■ Cisco Virtual Interface Cards (VICs)

Cisco developed 1200 Series and 1300 Series Virtual Interface Cards (VICs) to provide flexibility to create multiple NIC and HBA devices. The VICs also support adapter Fabric Extender and Virtual Machine Fabric Extender technologies. The VIC features are listed here:

- 1200 Series VICs enable advanced networking features including Netflow for network statistics, and DPDK, USNIC for low-latency computing applications.
- 1300 Series VICs include all of the 1200 Series features plus additional enhancements including network overlay offload support for NVGRE and VXLAN, and RoCE services.
- In addition, 1300 Series VICs support PCIe Gen 3.0 for greater bandwidth than 1200 Series VICs
- Two Converged Network Adapter (CNA) ports, supporting both Ethernet and FCoE
- Delivers 80 Gbps total I/O throughput to the server
  - VIC 1240 supports dual 4 x 10 Gbps Unified I/O ports
  - VIC 1340 supports dual 4x 10 Gbps Unified I/O ports or 2x40 (native) Gbps Unified I/O ports
- Creates up to 256 fully functional unique and independent PCIe adapters and interfaces (NICs or HBAs) without requiring single-root I/O virtualization (SR-IOV) support from operating systems or hypervisors
- Provides virtual machine visibility from the physical network and a consistent network operations model for physical and virtual servers
- Supports customer requirements for a wide range of operating systems and hypervisors

### ■ Cisco UCS Storage Accelerator Adapters

Cisco UCS Storage Accelerator adapters are designed specifically for the Cisco UCS B Series M3 blade servers and integrate seamlessly to allow improvement in performance and relief of I/O bottlenecks.



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**NOTE:** For environments with 6100 Series Fabric Interconnects, you must configure only the VIC 1240/1280 adapters (1200 Series) and not 1340/1380 (1300 Series). From an I/O connectivity standpoint, configure only the VIC 1200 Series with the 6100 Series Fabric Interconnects.

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**NOTE:** There are two slots on the server. One is a dedicated slot for the VIC 1340/1240 adapter only and one accommodates Cisco adapters or Cisco Storage Accelerator adapters as well as other options. [Table 8](#) shows which adapters plug into each of the two slots. Only the VIC 1340 or 1240 adapter plugs into the VIC 1340/1240 adapter slot. All other adapters plug into the mezzanine adapter slot.

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**NOTE:** You must have a B200 M4 configured with 2 CPUs to support cards that plug into the mezzanine connector. The VIC 1340 and 1240 adapters are supported on both 1- and 2-CPU configured systems.

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## Choose a Mezzanine Adapter

The supported mezzanine adapters in the UCS B200 M4 are listed in [Table 8](#).

Table 8 Supported Mezzanine Adapters

| Product ID (PID)                        | PID Description   | Connector |
|---|---|-----------|
| Virtual Interface Cards (VICs)          |   |           |
| UCSB-MLOM-40G-03 <sup>1</sup>           | Cisco UCS VIC 1340 modular LOM for blade servers  | mLOM      |
| UCSB-VIC-M83-8P <sup>1</sup>            | Cisco UCS VIC 1380 mezzanine adapter  | Mezzanine |
| UCSB-MLOM-40G-01 <sup>2</sup>           | Cisco UCS VIC 1240 modular LOM for blade servers  | mLOM      |
| UCS-VIC-M82-8P                          | Cisco UCS VIC 1280 mezzanine adapter  | Mezzanine |
| Cisco Storage Accelerators <sup>3</sup> |   |           |
| UCSB-F-FIO-1600MS                       | UCS 1600 GB Fusion ioMemory3 SX Scale line for B-Series   | Mezzanine |
| UCSB-F-FIO-1300MP                       | UCS 1300 GB Fusion ioMemory3 PX Performance line for B-Series   | Mezzanine |
| UCSB-F-FIO-785M                         | Cisco UCS 785 GB MLC Fusion-io ioDrive2   | Mezzanine |
| UCSB-F-FIO-1300MP                       | UCS 1300GB Fusion ioMemory3 PX Performance line for B Series  | Mezzanine |
| UCSB-F-FIO-1600MS                       | UCS 1600GB Fusion ioMemory3 SX Scale line for B-Series  | Mezzanine |
| Port Expander Card for VIC Option       |   |           |
| UCSB-MLOM-PT-01                         | Cisco UCS Port Expander Card for VIC. This is a hardware option to enable an additional 4 ports of the VIC 1340 or VIC 1240, bringing the total capability of the VIC 1340 or VIC 1240 to dual 4 x 10 GbE | Mezzanine |

### Notes...

1. The VIC 1340/1380 are only supported with the 6200 Series Fabric Interconnects. They are not supported with the 6100 Series Fabric Interconnects.
2. The VIC 1240/1280 are supported with both the 6200 and 6100 Series Fabric Interconnects.
3. Do not mix Fusion io storage accelerator families. That is, do not mix “MP” or “MS” (ioMemory3) with “M” (ioDrive2) family cards.

## Supported Configurations

The supported configurations are listed in [Table 9](#). Choose one configuration. Refer to [B200 M4 Configured with 1 CPU on page 52](#) and [B200 M4 Configured with 2 CPUs on page 57](#) for more details.

Table 9 Supported B200 M4 I/O Configurations

| Adapter Configurations |                                      | Fabric Extenders Aggregate Bandwidth |            |                           | Fabric Interconnects  |          | CPU Dependency  |
|------------------------|--------------------------------------|--------------------------------------|------------|---------------------------|-----------------------|----------|-----------------|
| Adapter Slot 1         | Adapter Slot 2                       | 2 x 2208XP                           | 2 x 2204XP | 2 x 2104XP <sup>1</sup>   | 2 x 61xx <sup>1</sup> | 2 x 62xx |                 |
| VIC 1340               | not populated                        | 40 Gb/s                              | 20 Gb/s    | not supported             | not supported         | 62xx     | 1 or 2 CPUs     |
| VIC 1340               | Port Expander Card for VIC           | 80 Gb/s                              | 40 Gb/s    | not supported             | not supported         | 62xx     | 1 or 2 CPUs     |
| VIC 1340               | VIC 1380                             | 80 Gb/s                              | 40 Gb/s    | not supported             | not supported         | 62xx     | Requires 2 CPUs |
| VIC 1340               | non-IO mezz (for example, Fusion-io) | 40 Gb/s                              | 20 Gb/s    | not supported             | not supported         | 62xx     | Requires 2 CPUs |
| VIC 1240               | not populated                        | 40 Gb/s                              | 20 Gb/s    | 20 Gb/s                   | 61xx <sup>1</sup>     | 62xx     | 1 or 2 CPUs     |
| VIC 1240               | Port Expander Card for VIC           | 80 Gb/s                              | 40 Gb/s    | IO card in slot 2 ignored | 61xx <sup>1</sup>     | 62xx     | 1 or 2 CPUs     |
| VIC 1240               | VIC 1280                             | 80 Gb/s                              | 40 Gb/s    | IO card in slot 2 ignored | 61xx <sup>1</sup>     | 62xx     | Requires 2 CPUs |
| VIC 1240               | non-IO mezz (for example, Fusion-io) | 40 Gb/s                              | 20 Gb/s    | 20 Gb/s                   | 61xx <sup>1</sup>     | 62xx     | Requires 2 CPUs |

Notes...

1. Supported only through UCS Manager version 2.2(3a) and later.

To check that your operating system is compatible with the adapter you have selected, please check the Hardware Compatibility List at this URL:

[http://www.cisco.com/en/US/products/ps10477/prod\\_technical\\_reference\\_list.html](http://www.cisco.com/en/US/products/ps10477/prod_technical_reference_list.html)

### Caveats

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- You must have VIC 1340 or VIC 1240 adapter installed in order to have I/O connectivity.



## STEP 7 ORDER TRUSTED PLATFORM MODULE (OPTIONAL)

Trusted Platform Module (TPM) is a computer chip or microcontroller that can securely store artifacts used to authenticate the platform or 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. See [Figure 7 on page 39](#) for the mounting location of the TPM.

The TPM ordering information is listed in [Table 10](#).

Table 10 Trusted Platform Module

| Product ID (PID) | PID Description                                 |
|------------------|---|
| UCSX-TPM2-001    | Trusted Platform Module 1.2 for UCS (SPI-based) |



NOTE: The module used in this server conforms to TPM v1.2/1.3, as defined by the Trusted Computing Group (TCG). It is also SPI-based.

## STEP 8 ORDER SECURE DIGITAL CARDS (OPTIONAL)

Dual SDHC flash card sockets are provided on the front left side of the server.



NOTE: Dual card support (mirroring) is supported.

---

The SDHC card ordering information is listed in [Table 11](#).

Table 11 Supported Secure Digital Cards

| Product ID (PID) | PID Description                      |
|------------------|--------------------------------------|
| UCS-SD-64G-S     | 64 GB SD Card module for UCS Servers |
| UCS-SD-32G-S     | 32 GB SD Card module for UCS Servers |

### Supported Configurations

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(1) Select either one or two 64 GB SD cards or one or two 32 GB SD cards. Do not mix 64 GB SD cards with 32 GB SD cards.

## STEP 9 ORDER INTERNAL USB 2.0 DRIVE (OPTIONAL)

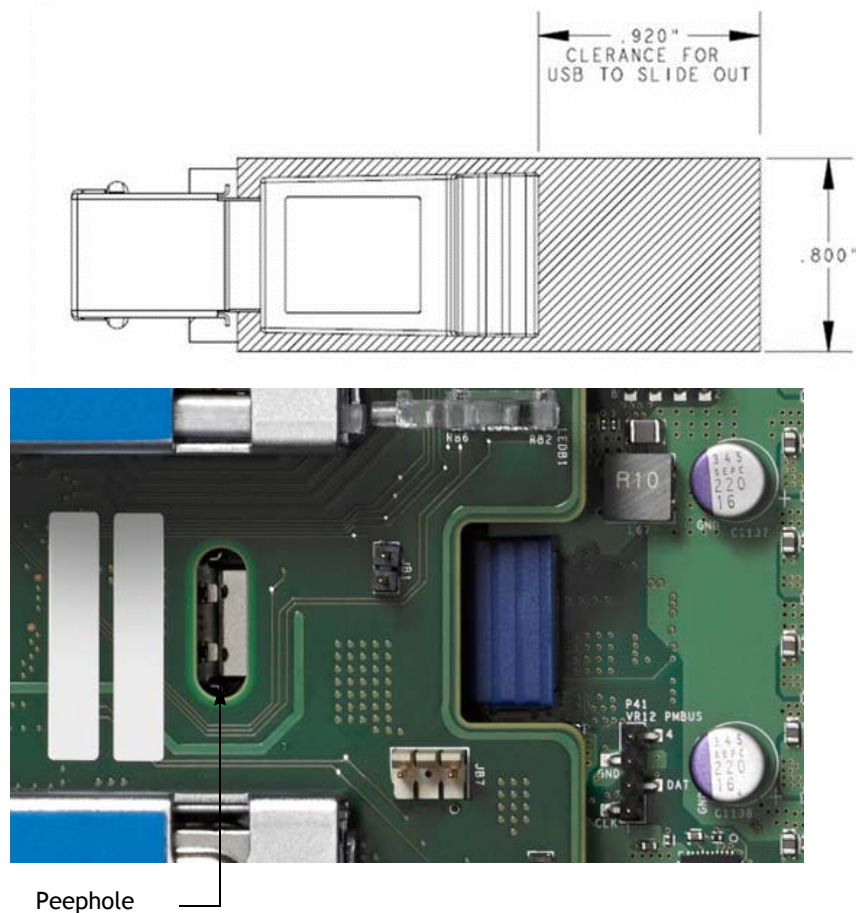
You may order one optional internal USB 2.0 drive. The USB drive ordering information is listed in [Table 12](#).

Table 12 USB 2.0 Drive

| Product ID (PID)  | PID Description                  |
|-------------------|----------------------------------|
| UCS-USBFLSHB-16GB | UCS Servers 16GB Flash USB Drive |



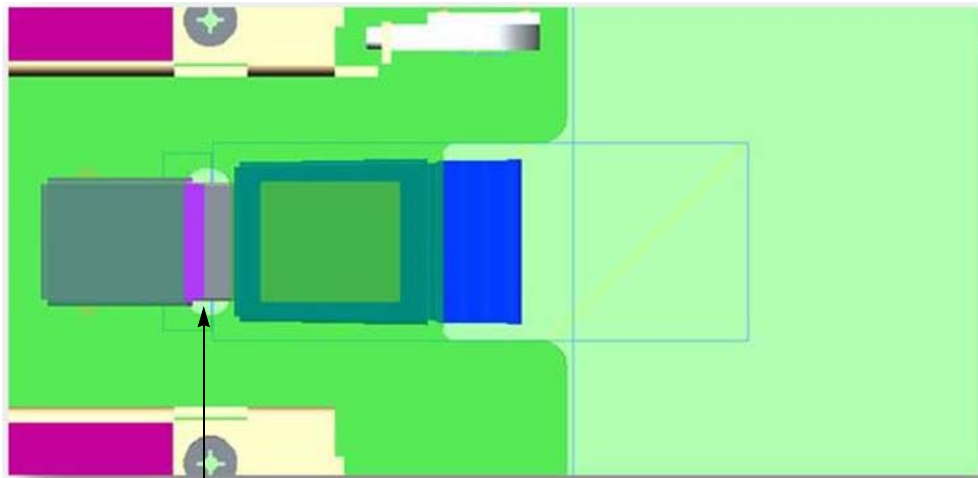
**NOTE:** A clearance of 0.950 inches (24.1 mm) is required for the USB device to be inserted and removed (see the following figures). A “peephole” is provided so you can see the connector for the USB drive (see also the figures on the following page).



See [Figure 7 on page 39](#) for the location of the USB connector on the motherboard.

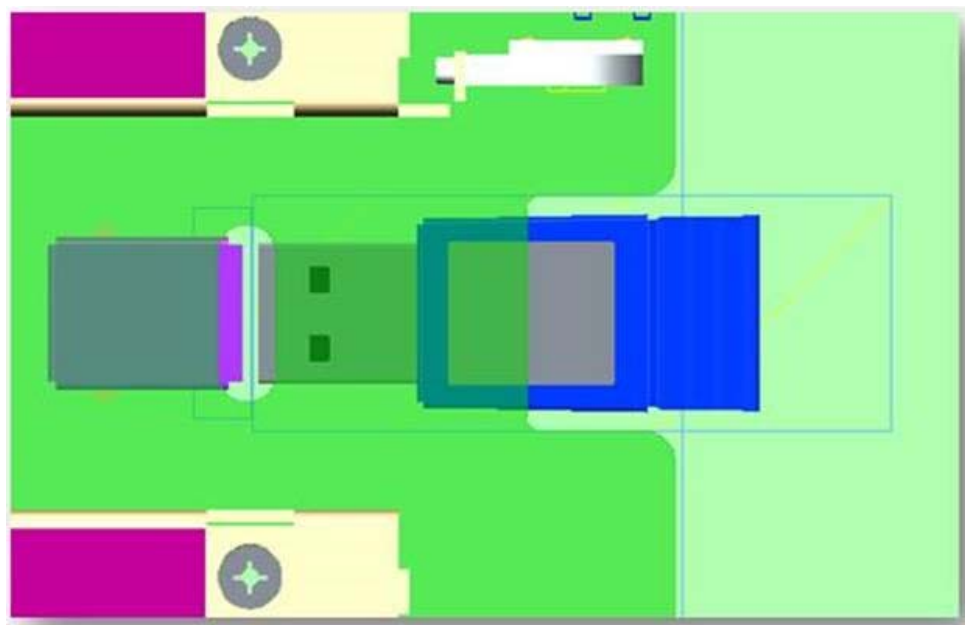


**NOTE:** The figures below show a “peephole” provided on the RAID controller board where you can look to make sure the USB drive is fully inserted into the USB connector.



Peephole

(a) USB drive plugged into connector



(b) USB drive unplugged from connector

## STEP 10 CHOOSE OPERATING SYSTEM AND VALUE-ADDED SOFTWARE

Several operating systems and value-added software programs are available. Select as desired from [Table 13](#).

Table 13 OSs and Value-Added Software (for 2-CPU servers)

| PID Description                 | Product ID (PID)   |
|---------------------------------|--|
| <b>Cisco One</b>                |  |
| C1F2PUCSK9                      | Cisco ONE Foundation Perpetual UCS                           |
| C1F2SICFBK9                     | Cisco ONE Foundation Subsr Intercloud Fabric For Business    |
| C1A1PUCSK9                      | Cisco ONE Enterprise Cloud Perpetual UCS                     |
| C1UCS-OPT-OUT                   | Cisco One Data Center Compute Opt Out Option                 |
| <b>Microsoft Windows Server</b> |  |
| MSWS-12-ST2S                    | Windows Server 2012 Standard (2 CPU/2 VMs)                   |
| MSWS-12-DC2S                    | Windows Server 2012 Datacenter (2 CPU/Unlimited VMs)         |
| MSWS-12-ST2S-NS                 | Windows Server 2012 Standard (2 CPU/2 VMs) No Cisco SVC      |
| MSWS-12-DC2S-NS                 | Windows Server 2012 Datacenter (2 CPU/Unlim VM) No Cisco SVC |
| MSWS-12R2-ST2S                  | Windows Server 2012 R2 Standard (2 CPU/2 VMs)                |
| MSWS-12R2-DC2S                  | Windows Server 2012 R2 Datacenter (2 CPU/Unlimited VMs)      |
| MSWS-12R2-ST2S-NS               | Windows Server 2012 R2 Standard (2 CPU/2 VMs) No Cisco SVC   |
| MSWS-12R2-DC2S-NS               | Windows Server 2012 R2 Datacen (2 CPU/Unlim VM) No Cisco Svc |
| <b>SUSE</b>                     |  |
| SLES-2S2V-1A                    | SUSE Linux Enterprise Svr (1-2 CPU,1 Phys);1yr Support Reqd  |
| SLES-2S2V-3A                    | SUSE Linux Enterprise Svr (1-2 CPU,1 Phys);3yr Support Reqd  |
| SLES-2S2V-5A                    | SUSE Linux Enterprise Svr (1-2 CPU,1 Phys);5yr Support Reqd  |
| SLES-2SUV-1A                    | SUSE Linux Enterprise Svr (1-2 CPU,Unl Vrt);1yr Support Reqd |
| SLES-2SUV-3A                    | SUSE Linux Enterprise Svr (1-2 CPU,Unl Vrt);3yr Support Reqd |
| SLES-2SUV-5A                    | SUSE Linux Enterprise Svr (1-2 CPU,Unl Vrt);5yr Support Reqd |
| SLES-2S-HA-1S                   | SUSE Linux High Availability Ext (1-2 CPU); 1yr Support Reqd |
| SLES-2S-HA-3A                   | SUSE Linux High Availability Ext (1-2 CPU); 3yr Support Reqd |
| SLES-2S-HA-5A                   | SUSE Linux High Availability Ext (1-2 CPU); 5yr Support Reqd |
| SLES-2S-GC-1S                   | SUSE Linux GEO Clustering for HA (1-2 CPU); 1yr Support Reqd |
| SLES-2S-GC-3S                   | SUSE Linux GEO Clustering for HA (1-2 CPU); 3yr Support Reqd |
| SLES-2S-GC-5S                   | SUSE Linux GEO Clustering for HA (1-2 CPU); 5yr Support Reqd |
| SLES-SAP-2S2V-1A                | SLES for SAP Applications (1-2 CPU,1 Phys); 1yr Support Reqd |
| SLES-SAP-2S2V-3A                | SLES for SAP Applications (1-2 CPU,1 Phys); 3yr Support Reqd |
| SLES-SAP-2S2V-5A                | SLES for SAP Applications (1-2 CPU,1 Phys); 5yr Support Reqd |
| SLES-SAP-2SUV-1A                | SLES for SAP Applications (1-2 CPU,Unl Vrt);1yr Support Reqd |
| SLES-SAP-2SUV-3A                | SLES for SAP Applications (1-2 CPU,Unl Vrt);3yr Support Reqd |
| SLES-SAP-2SUV-5A                | SLES for SAP Applications (1-2 CPU,Unl Vrt);5yr Support Reqd |

Table 13 OSs and Value-Added Software (for 2-CPU servers) *(continued)*

| PID Description                            | Product ID (PID)   |
|--|--|
| <b>Red Hat Enterprise Linux</b>            |  |
| RHEL-2S-1G-1A                              | RHEL/2 Socket/1 Guest/1Yr Svcs Required                              |
| RHEL-2S-1G-3A                              | RHEL/2 Socket/1 Guest/3Yr Svcs Required                              |
| RHEL-HA-2S-1A                              | RHEL Option/High-Availability/2 Socket/1Yr Svcs Required             |
| RHEL-HA-2S-3A                              | RHEL Option/High-Availability/2 Socket/3Yr Svcs Required             |
| RHEL-RS-2S-1A                              | RHEL Option/Resilient w/Ha /2 Socket/1 Yr Svcs Required              |
| RHEL-RS-2S-3A                              | RHEL Option/Resilient Storage w/ HA /2 Socket/3 Yr Svcs Req'd        |
| RHEL-SFS-2S-1A                             | RHEL Option/Scalable File System/2 Socket/1 Yr Svcs Required         |
| RHEL-SFS-2S-3A                             | RHEL Option/Scalable File System/2 Socket/1 Yr Svcs Required         |
| <b>Nexus 1000V for Hyper-V and vSphere</b> |  |
| N1K-VSG-UCS-BUN                            | Over half off N1K and VSG w/ purchase of UCS B/C Series              |
| N1K-VLEM-UCS-1                             | Nexus 1000V License Paper Delivery (1 CPU) for bundles               |
| VSG-VLEM-UCS-1                             | VSG License Paper Delivery (1 CPU) for bundles                       |
| <b>UCS Director</b>                        |  |
| CUIC-PHY-SERV-BM-U                         | Cisco Cloupia Resource Lic - One Phy Server node bare metal          |
| CUIC-PHY-SERV-U                            | Cisco Cloupia Resource Lic - One physical Server node                |
| CUIC-TERM                                  | Acceptance of Cisco Cloupia License Terms                            |
| <b>UCS Performance Manager</b>             |  |
| UCS-PM-IE                                  | UCS Performance Manager  |
| UCS-PM-EE                                  | UCS Performance Manager Express                                      |
| EVAL-UCS-PM-IE                             | UCS Performance Manager - 60 days evaluation                         |
| EVAL-UCS-PM-EE                             | UCS Performance Manager Express - 60 days evaluation                 |
| NFR-UCS-PM-IE                              | UCS Performance Manager - Not For Resale                             |
| NFR-UCS-PM-EE                              | CS Performance Manager Express - Not For Resale                      |
| <b>IMC Supervisor</b>                      |  |
| EVAL-CIMC-SUP                              | EVAL: IMC Supervisor-Branch Mgt SW for C/E-Series - 50 Svrs          |
| EVAL-CIMC-SUP-BAS                          | EVAL: IMC Supervisor One-time Site Installation License              |
| CIMC-SUP-B01                               | IMC Supervisor-Branch Mgt SW for C-Series & E-Series up to 100 Svrs  |
| CIMC-SUP-B02                               | IMC Supervisor- Branch Mgt SW for C-Series & E-Series up to 250 Svrs |
| CIMC-SUP-B10                               | IMC Supervisor- Branch Mgt SW for C-Series & E-Series up to 1K Svrs  |
| CIMC-SUP-BASE-K9                           | IMC Supervisor One-time Site Installation License                    |
| CIMC-SUP-TERM                              | Acceptance of Cisco IMC Supervisor License Terms                     |
| <b>VMware 5</b>                            |  |
| VMW-VS5-STD-1A                             | VMware vSphere 5 Standard for 1 Processor, 1 Year, Support Rqd       |
| VMW-VS5-STD-2A                             | VMware vSphere 5 Standard for 1 Processor, 2 Year, Support Rqd       |
| VMW-VS5-STD-3A                             | VMware vSphere 5 Standard for 1 Processor, 3 Year, Support Rqd       |
| VMW-VS5-STD-4A                             | VMware vSphere 5 Standard for 1 Processor, 4 Year, Support Rqd       |
| VMW-VS5-STD-5A                             | VMware vSphere 5 Standard for 1 Processor, 5 Year, Support Rqd       |

Table 13 OSs and Value-Added Software (for 2-CPU servers) *(continued)*

| PID Description | Product ID (PID)   |
|-----------------|--|
| VMW-VS5-ENT-1A  | VMware vSphere 5 Enterprise for 1 Processor, 1 Year Support Rqd      |
| VMW-VS5-ENT-2A  | VMware vSphere 5 Enterprise for 1 CPU, 2 Yr Support Rqd              |
| VMW-VS5-ENT-3A  | VMware vSphere 5 Enterprise for 1 CPU, 3 Yr Support Rqd              |
| VMW-VS5-ENT-4A  | VMware vSphere 5 Enterprise for 1 Processor, 4 Year Support Rqd      |
| VMW-VS5-ENT-5A  | VMware vSphere 5 Enterprise for 1 CPU, 5 Yr Support Rqd              |
| VMW-VS5-ENTP-1A | VMware vSphere 5 Enterprise Plus for 1 Processor, 1 Year Support Rqd |
| VMW-VS5-ENTP-2A | VMware vSphere 5 Enterprise Plus for 1 CPU, 2 Yr Support Rqd         |
| VMW-VS5-ENTP-3A | VMware vSphere 5 Enterprise Plus for 1 Processor, 3 Year Support Rqd |
| VMW-VS5-ENTP-4A | VMware vSphere 5 Enterprise Plus for 1 Processor, 4 Year Support Rqd |
| VMW-VC5-STD-1A  | VMware vCenter 5 Server Standard, 1 yr support required              |
| VMW-VC5-STD-2A  | VMware vCenter 5 Server Standard, 2 yr support required              |
| VMW-VC5-STD-3A  | VMware vCenter 5 Server Standard, 3 yr support required              |
| VMW-VC5-STD-4A  | VMware vCenter 5 Server Standard, 4 yr support required              |
| VMW-VC5-STD-5A  | VMware vCenter 5 Server Standard, 5 yr support required              |



NOTE: For additional information, see OS/hypervisor support matrix at the following link:

[http://www.cisco.com/en/US/products/ps10477/prod\\_technical\\_reference\\_list.html](http://www.cisco.com/en/US/products/ps10477/prod_technical_reference_list.html)

## STEP 11 CHOOSE OPERATING SYSTEM MEDIA KIT

Choose the optional operating system media listed in [Table 14](#).

Table 14 OS Media

| Product ID (PID) | PID Description                           |
|------------------|---|
| RHEL-6           | RHEL 6 Recovery Media Only (Multilingual) |
| SLES-11          | SLES 11 media only (multilingual)         |



## STEP 12 CHOOSE SERVICE and SUPPORT LEVEL

A variety of service options are available, as described in this section.

### Unified Computing Warranty, No Contract

If you have noncritical implementations and choose to have no service contract, the following coverage is supplied:

- Three-year parts coverage.
- Next business day (NBD) parts replacement eight hours a day, five days a week.
- 90-day software warranty on media.
- Downloads of BIOS, drivers, and firmware updates.
- UCSM updates for systems with Unified Computing System Manager. These updates include minor enhancements and bug fixes that are designed to maintain the compliance of UCSM with published specifications, release notes, and industry standards.

### Unified Computing Support Service

For support of the entire Unified Computing System, Cisco offers the Cisco Unified Computing Support Service. This service provides expert software and hardware support to help sustain performance and high availability of the unified computing environment. Access to Cisco Technical Assistance Center (TAC) is provided around the clock, from anywhere in the world.

For UCS blade servers, there is Smart Call Home, which provides proactive, embedded diagnostics and real-time alerts. For systems that include Unified Computing System Manager, the support service includes downloads of UCSM upgrades. The Unified Computing Support Service includes flexible hardware replacement options, including replacement in as little as two hours. There is also access to Cisco's extensive online technical resources to help maintain optimal efficiency and uptime of the unified computing environment. You can choose a desired service listed in [Table 15](#).

Table 15 Unified Computing Support Service

| Product ID (PID) | On Site? | Description                               |
|------------------|----------|---|
| CON-PREM-B200M4  | Yes      | ONSITE 24X7X2 UCS B200 M4 Blade Server    |
| CON-OSP-B200M4   | Yes      | ONSITE 24X7X4 UCS B200 M4 Blade Server    |
| CON-OSE-B200M4   | Yes      | ONSITE 8X5X4 UCS B200 M4 Blade Server     |
| CON-OS-B200M4    | Yes      | ONSITE 8X5XNBD UCS B200 M4 Blade Server   |
| CON-S2P-B200M4   | No       | SMARTNET 24X7X2 UCS B200 M4 Blade Server  |
| CON-SNTP-B200M4  | No       | SMARTNET 24X7X4 UCS B200 M4 Blade Server  |
| CON-SNTE-B200M4  | No       | SMARTNET 8X5X4 UCS B200 M4 Blade Server   |
| CON-SNT-B200M4   | No       | SMARTNET 8X5XNBD UCS B200 M4 Blade Server |

### Unified Computing Warranty Plus Service

For faster parts replacement than is provided with the standard Cisco Unified Computing System warranty, Cisco offers the Cisco Unified Computing Warranty Plus Service. You can choose from several levels of advanced parts replacement coverage, including onsite parts replacement in as little as four hours. Warranty Plus provides remote access any time to Cisco support professionals who can determine if a return materials authorization (RMA) is required. You can choose a service listed in [Table 16](#).

Table 16 UCS Computing Warranty Plus Service

| Product ID (PID) | Service Level GSP | On Site? | Description                                |
|------------------|-------------------|----------|--|
| CON-UCW7-B200M4  | UCW7              | Yes      | UC PLUS 24X7X4OS UCS B200 M4 Blade Server  |
| CON-UCW5-B200M4  | UCW5              | Yes      | UC PLUS 8X5XNBDOS UCS B200 M4 Blade Server |

### Unified Computing Partner Support Service

Cisco Partner Support Service (PSS) is a Cisco Collaborative Services service offering that is designed for partners to deliver their own branded support and managed services to enterprise customers. Cisco PSS provides partners with access to Cisco's support infrastructure and assets to help them:

- Expand their service portfolios to support the most complex network environments
- Lower delivery costs
- Deliver services that increase customer loyalty

Partner Unified Computing Support Options enable eligible Cisco partners to develop and consistently deliver high-value technical support that capitalizes on Cisco intellectual assets. This helps partners to realize higher margins and expand their practice.

PSS is available to all Cisco PSS partners, but requires additional specializations and requirements. For additional information, see the following URL:

[www.cisco.com/go/partnerucssupport](http://www.cisco.com/go/partnerucssupport)

The two Partner Unified Computing Support Options include:

- Partner Support Service for UCS
- Partner Support Service for UCS Hardware Only

Partner Support Service for UCS provides hardware and software support, including triage support for third party software, backed by Cisco technical resources and level three support.

See [Table 17](#).

Table 17 Partner Support Service for UCS

| Product ID (PID) | Service Level GSP | On Site? | Description                                   |
|------------------|-------------------|----------|---|
| CON-PSJ1-B200M4  | PSJ1              | No       | UCS SUPP PSS 8X5XNBD UCS B200 M4 Blade Server |
| CON-PSJ2-B200M4  | PSJ2              | No       | UCS SUPP PSS 8X5X4 UCS B200 M4 Blade Server   |
| CON-PSJ3-B200M4  | PSJ3              | No       | UCS SUPP PSS 24X7X4 UCS B200 M4 Blade Server  |
| CON-PSJ4-B200M4  | PSJ4              | No       | UCS SUPP PSS 24X7X2 UCS B200 M4 Blade Server  |

Partner Support Service for UCS Hardware Only provides customers with replacement parts in as little as two hours. See [Table 18](#).

Table 18 Partner Support Service for UCS (Hardware Only)

| Product ID (PID) | Service Level GSP | On Site? | Description                                  |
|------------------|-------------------|----------|--|
| CON-PSW2-B200M4  | PSW2              | No       | UCS W PL PSS 8X5X4 UCS B200 M4 Blade Server  |
| CON-PSW3-B200M4  | PSW3              | No       | UCS W PL PSS 24X7X4 UCS B200 M4 Blade Server |
| CON-PSW4-B200M4  | PSW4              | No       | UCS W PL PSS 24X7X2 UCS B200 M4 Blade Server |

### Unified Computing Combined Support Service

Combined Services makes it easier to purchase and manage required services under one contract. SMARTnet services for UCS help increase the availability of your vital data center infrastructure and realize the most value from your unified computing investment. The more benefits you realize from the Cisco Unified Computing System (Cisco UCS), the more important the technology becomes to your business. These services allow you to:

- Optimize the uptime, performance, and efficiency of your UCS
- Protect your vital business applications by rapidly identifying and addressing issues
- Strengthen in-house expertise through knowledge transfer and mentoring
- Improve operational efficiency by allowing UCS experts to augment your internal staff resources
- Enhance business agility by diagnosing potential issues before they affect your operations

You can choose a service listed in [Table 19](#).

**Table 19 UCS Computing Combined Support Service**

| Product ID (PID) | Service Level GSP | On Site? | Description                                    |
|------------------|-------------------|----------|--|
| CON-NCF2-B200M4  | NCF2              | No       | CMB SPT SVC 24X7X2 UCS B200 M4 Blade Server    |
| CON-NCF2P-B200M4 | NCF2P             | Yes      | CMB SPT SVC 24X7X2OS UCS B200 M4 Blade Server  |
| CON-NCF4P-B200M4 | NCF4P             | Yes      | CMB SPT SVC 24X7X4OS UCS B200 M4 Blade Server  |
| CON-NCF4S-B200M4 | NCF4S             | Yes      | CMB SPT SVC 8X5X4OS UCS B200 M4 Blade Server   |
| CON-NCFCS-B200M4 | NCFCS             | Yes      | CMB SPT SVC 8X5XNBDOS UCS B200 M4 Blade Server |
| CON-NCFE-B200M4  | NCFE              | No       | CMB SPT SVC 8X5X4 UCS B200 M4 Blade Server     |
| CON-NCFP-B200M4  | NCFP              | No       | CMB SPT SVC 24X7X4 UCS B200 M4 Blade Server    |
| CON-NCFT-B200M4  | NCFT              | No       | CMB SPT SVC 8X5XNBD UCS B200 M4 Blade Server   |

#### Unified Computing Drive Retention Service

With the Cisco Unified Computing Drive Retention (UCDR) Service, you can obtain a new disk drive in exchange for a faulty drive without returning the faulty drive. In exchange for a Cisco replacement drive, you provide a signed Certificate of Destruction (CoD) confirming that the drive has been removed from the system listed, is no longer in service, and has been destroyed.

Sophisticated data recovery techniques have made classified, proprietary, and confidential information vulnerable, even on malfunctioning disk drives. The UCDR service enables you to retain your drives and ensures that the sensitive data on those drives is not compromised, which reduces the risk of any potential liabilities. This service also enables you to comply with regulatory, local, and federal requirements.

If your company has a need to control confidential, classified, sensitive, or proprietary data, you might want to consider one of the Drive Retention Services listed in [Table 20](#).



**NOTE:** Cisco does not offer a certified drive destruction service as part of this service.

Table 20 Drive Retention Service Options

| Service Description                      | Service Program Name | Service Level GSP | Service Level  | Product ID (PID) |
|--|----------------------|-------------------|----------------|------------------|
| UCS Support Service With Drive Retention | UC SUPP DR           | UCSD5             | 8x5xNBD Onsite | CON-UCSD5-B200M4 |
|  |                      | UCSD7             | 24x7x4 Onsite  | CON-UCSD7-B200M4 |
| UCS Warranty Plus With Drive Retention   | UC PLUS DR           | UCWD5             | 8x5xNBD Onsite | CON-UCWD5-B200M4 |
|  |                      | UCWD7             | 24x7x4 Onsite  | CON-UCWD7-B200M4 |

For more service and support information, see the following URL:

[http://www.cisco.com/en/US/services/ps2961/ps10312/ps10321/Cisco\\_UC\\_Warranty\\_Support\\_DS.pdf](http://www.cisco.com/en/US/services/ps2961/ps10312/ps10321/Cisco_UC_Warranty_Support_DS.pdf)

For a complete listing of available services for Cisco Unified Computing System, see this URL:

[http://www.cisco.com/en/US/products/ps10312/serv\\_group\\_home.html](http://www.cisco.com/en/US/products/ps10312/serv_group_home.html)

ORDER OPTIONAL KVM LOCAL I/O CABLE\*

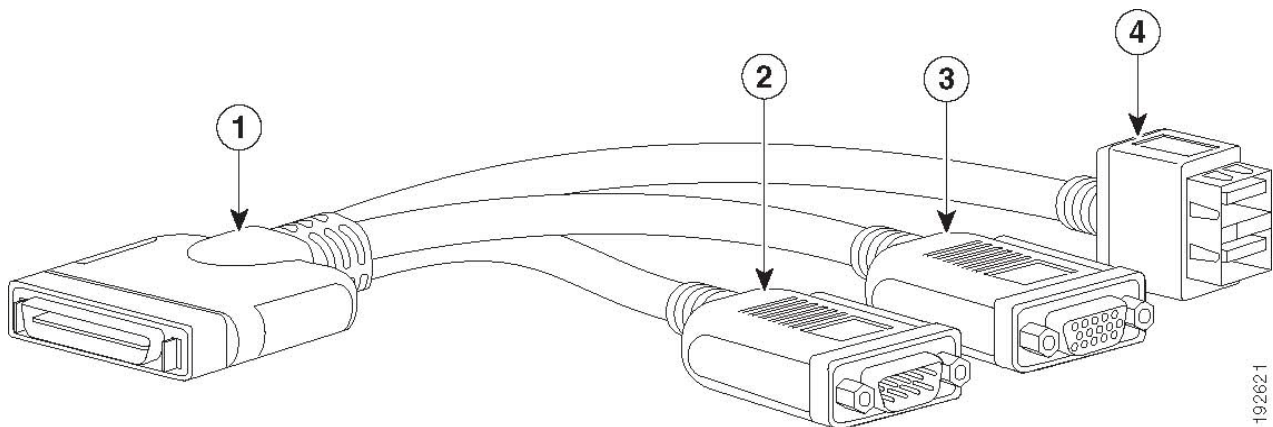
The KVM local I/O cable ships with every UCS 5100 Series blade server chassis accessory kit. The KVM local I/O cable provides a connection into the server, with a DB9 serial connector, a VGA connector for a monitor, and dual USB ports for a keyboard and mouse. With this cable, you can create a direct connection to the operating system and the BIOS running on the server.

The KVM local I/O cable ordering information is listed in [Table 21](#).

Table 21 KVM Local I/O Cable

| Product ID (PID) | PID Description                                 |
|------------------|---|
| N20-BKVM=        | KVM local IO cable for UCS servers console port |

Figure 6 KVM Local I/O Cable



|   |                                   |   |   |
|---|-----------------------------------|---|---|
| 1 | Connector (to server front panel) | 3 | VGA connector (for a monitor)                     |
| 2 | DB-9 serial connector             | 4 | Two-port USB connector (for a mouse and keyboard) |



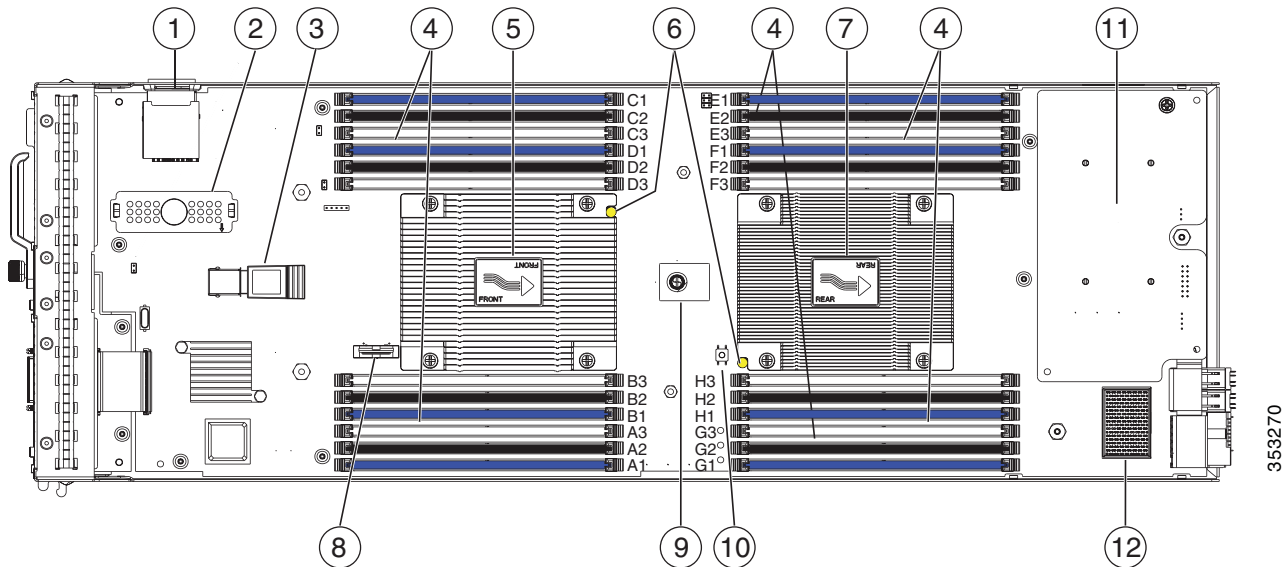
NOTE: \*The blade chassis ships with the KVM local I/O cable.

# SUPPLEMENTAL MATERIAL

## System Board

A top view of the UCS B200 M4 system board is shown in [Figure 7](#).

Figure 7 UCS B200 M4 System Board



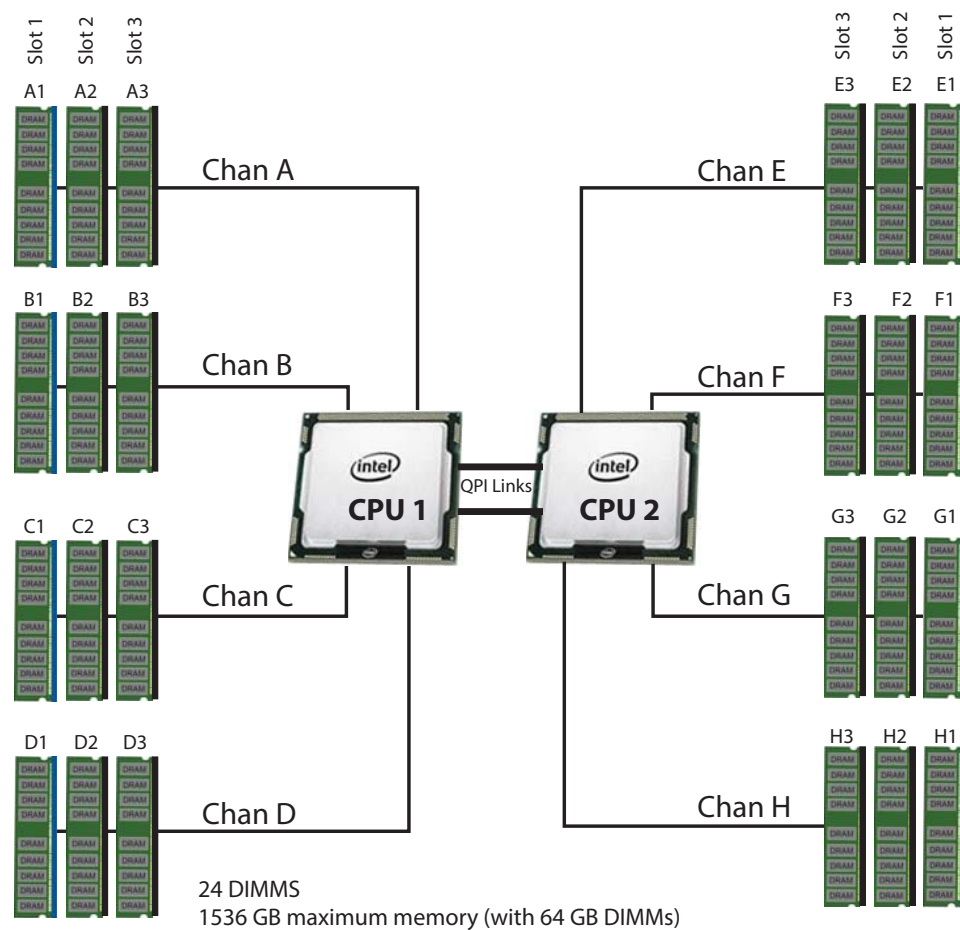
|   |   |    |                               |
|---|---|----|-------------------------------|
| 1 | SD card slots   | 7  | Rear heat sink and CPU 2      |
| 2 | Modular storage subsystem connector   | 8  | CMOS battery                  |
| 3 | USB connector<br>Cisco UCS-USBFLSHB-16GB= is recommended, but if another USB drive will be used it must be no wider than 0.8 inches, and no more than 1.345 inches long in order to provide needed clearances to install or remove the USB drive. | 9  | Trusted Platform Module (TPM) |
| 4 | DIMM slots  | 10 | DIMM diagnostic LED button    |
| 5 | Front heat sink and CPU 1   | 11 | Adapter slot 1                |
| 6 | CPU heat sink install guide pins  | 12 | Adapter slot 2                |

## CPUs and DIMMs

### Physical Layout

Memory is organized as shown in [Figure 8](#).

Figure 8 UCS B200 M4 Memory Organization



4 memory channels per CPU,  
up to 3 DIMMs per channel

Each CPU controls four memory channels (A, B, C, D) with three slots (1, 2, 3) within each channel:

- CPU1: Channels A, B, C, and D
  - Slot 1 - A1, B1, C1, and D1 (blue DIMM slots)
  - Slot 2 - A2, B2, C2, and D2 (black DIMM slots)
  - Slot 3 - A3, B3, C3, and D3 (white DIMM slots)
- CPU2: Channels E, F, G, and H
  - Slot 1 - E1, F1, G1, and H1 (blue DIMM slots)



- Slot 2 - E2, F2, G2, and H2 (black DIMM slots)
- Slot 3 - E3, F3, G3, and H3 (white DIMM slots)

The DIMM and CPU physical layout is shown in [Figure 7 on page 39](#). The 12 DIMM slots at the left are controlled by CPU 1 and the 12 DIMM slots on the right are controlled by CPU 2.

## DIMM Population Rules

When considering the memory configuration, take into account the following:

- Each channel has three DIMM slots (for example, channel A = slots A1, A2, and A3).
  - A channel can operate with one, two, or three DIMMs installed.
  - If a channel has only one DIMM, populate slot 1 first (the blue slot).
- When both CPUs are installed, populate the DIMM slots of each CPU identically.
  - Fill blue slots in the channels first: A1, E1, B1, F1, C1, G1, D1, H1
  - Fill black slots in the channels second: A2, E2, B2, F2, C2, G2, D2, H2
  - Fill white slots in the channels third: A3, E3, B3, F3, C3, G3, D3, H3
- Any DIMM installed in a DIMM socket for which the CPU is absent is not recognized.
- Observe the DIMM mixing rules shown in [Table 22](#)

Table 22 DIMM Rules for B200 M4 Servers

| DIMM Parameter          | DIMMs in the Same Channel   | DIMM in the Same Slot <sup>1</sup>  |
|-------------------------|---|---|
| <u>DIMM Capacity</u>    |   |   |
| RDIMM = 8, 16, or 64 GB | DIMMs in the same channel (for example, A1, A2, and A3) can have different capacities.                          | For best performance, DIMMs in the same slot (for example, A1, B1, C1, D1) should have the same capacity. |
| LRDIMM = 32 GB          | Do not mix LRDIMMs with RDIMMs  | Do not mix LRDIMMs with RDIMMs  |
| <u>DIMM Speed</u>       |   |   |
| 2133-MHz                | DIMMs will run at the lowest speed of the CPU installed   | DIMMs will run at the lowest speed of the CPU installed   |
| <u>DIMM Type</u>        |   |   |
| RDIMMs or LRDIMMs       | Do not mix DIMM types in a channel  | Do not mix DIMM types in a slot   |
| DIMMs per Channel (DPC) | 1 DPC, 2 DPC, or 3 DPC  |   |
|                         | See <a href="#">Table 5 on page 14</a> for valid LRDIMM and RDIMM 1 DPC, 2 DPC, and 3 DPC memory configurations |   |

Notes...

1. Although different DIMM capacities can exist in the same slot, this will result in less than optimal performance. For optimal performance, all DIMMs in the same slot should be identical.

## DIMM Population Order

Populate the DIMMs for a CPU according to [Table 23](#). See also [Figure 9](#).

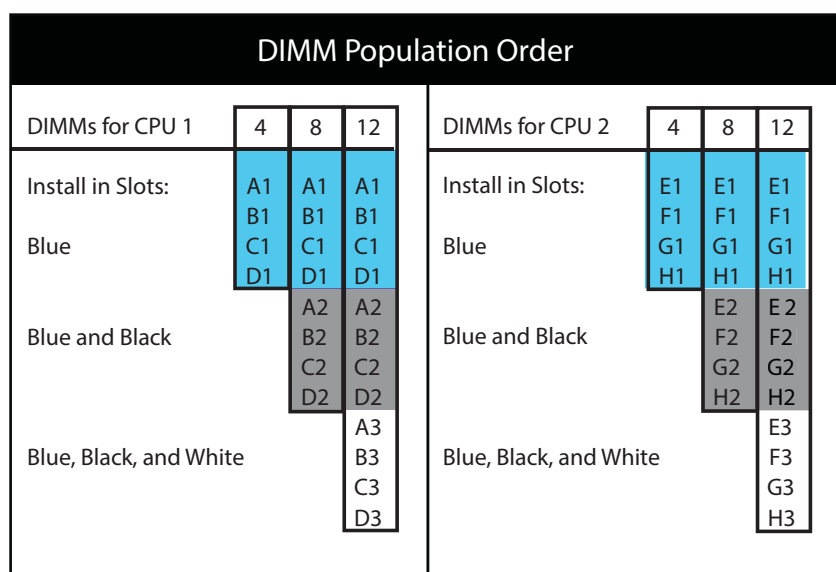
Table 23 DIMM Population Order per CPU

| DIMMs per CPU  | Populate CPU 1 Slots                                | Populate CPU 2 Slots                                |
|----------------|---|---|
| 1              | A1  | E1  |
| 2              | A1, B1  | E1, F1  |
| 3              | A1, B1, C1  | E1, F1, G1  |
| 4              | A1, B1, C1, D1                                      | E1, F1, G1, H1                                      |
| 6 <sup>1</sup> | A1, B1, C1,<br>A2, B2, C2                           | E1, F1, G1,<br>E2, F2, G2                           |
| 8              | A1, B1, C1, D1,<br>A2, B2, C2, D2                   | E1, F1, G1, H1,<br>E2, F2, G2, H2                   |
| 12             | A1, B1, C1, D1,<br>A2, B2, C2, D2<br>A3, B3, C3, D3 | E1, F1, G1, H1,<br>E2, F2, G2, H2<br>E3, F3, G3, H3 |

Notes...

1. Not recommended (for performance reasons)

Figure 9 DIMM Population Order



## Recommended Memory Configuration

This section explains the recommended DIMM population order rules for the B200 M4 blades.

- All DIMMs must be DDR4 DIMMs.
- Do not mix:
  - DIMMs with different clock rates in a channel
  - RDIMMs and LRDIMMs
- There are blue, black, and white DIMM slots. Populate blue slots first.
- When DIMMs ranks are mixed in the same channel, always populate the highest rank DIMM in the blue DIMM slot and lower rank DIMM(s) in the black and white DIMM slots.

Many memory configurations are possible. For best results, follow [Table 24](#) when populating 2133-MHz DIMMs for Intel Xeon E5-2600 v3 CPUs.

Table 24 Recommended Memory Configurations for Intel Xeon E5-2600 v3 CPUs (with 2133-MHz DIMMs)<sup>1</sup>

| Total System Memory Size | CPU 1 DIMMs                      |                                   |                                   | CPU 2 DIMMs                      |                                   |                                   | DIMM Max Speed (MHz) | Total DIMMs |
|--------------------------|----------------------------------|-----------------------------------|-----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|----------------------|-------------|
|                          | Blue Slots Slot 1 (A1,B1, C1,D1) | Black Slots Slot 2 (A2,B2, C2,D2) | White Slots Slot 3 (A3,B3, C3,D3) | Blue Slots Slot 1 (E1,F1, G1,H1) | Black Slots Slot 2 (E2,F2, G2,H2) | White Slots Slot 3 (E3,F3, G3,H3) |                      |             |
| 64 GB                    | 4x8 GB                           | —                                 | —                                 | 4x8 GB                           | —                                 | —                                 | 2133                 | 8           |
| 96 GB                    | 4x8 GB <sup>2</sup>              | 2x8 GB <sup>2</sup>               | — <sup>2</sup>                    | 4x8 GB <sup>2</sup>              | 2x8 GB <sup>2</sup>               | — <sup>2</sup>                    | 2133                 | 12          |
|                          | 3x16 GB                          | —                                 | —                                 | 3x16 GB                          | —                                 | —                                 | 2133                 | 6           |
| 128 GB                   | 4x8 GB                           | 4x8 GB                            | —                                 | 4x8 GB                           | 4x8 GB                            | —                                 | 2133                 | 16          |
|                          | 4x16 GB                          | —                                 | —                                 | 4x16 GB                          | —                                 | —                                 | 2133                 | 8           |
| 192 GB                   | 4x8 GB                           | 4x8 GB                            | 4x8 GB                            | 4x8 GB                           | 4x8 GB                            | 4x8 GB                            | 1600                 | 24          |
|                          | 4x16 GB <sup>2</sup>             | 2x16 GB <sup>2</sup>              | — <sup>2</sup>                    | 4x16 GB <sup>2</sup>             | 2x16 GB <sup>2</sup>              | — <sup>2</sup>                    | 2133                 | 12          |
|                          | 4x16 GB                          | 4x8 GB                            | —                                 | 4x16 GB                          | 4x8 GB                            | —                                 | 2133                 | 16          |
| 256 GB                   | 4x16 GB                          | 4x16 GB                           | —                                 | 4x16 GB                          | 4x16 GB                           | —                                 | 2133                 | 16          |
|                          | 4x32 GB                          | —                                 | —                                 | 4x32 GB                          | —                                 | —                                 | 2133                 | 8           |
| 384 GB                   | 4x16 GB                          | 4x16 GB                           | 4x16 GB                           | 4x16 GB                          | 4x16 GB                           | 4x16 GB                           | 1866                 | 24          |
| 512 GB                   | 4x32 GB                          | 4x32 GB                           | —                                 | 4x32 GB                          | 4x32 GB                           | —                                 | 2133                 | 16          |
| 768 GB                   | 4x32 GB                          | 4x32 GB                           | 4x32 GB                           | 4x32 GB                          | 4x32 GB                           | 4x32 GB                           | 1866                 | 24          |
| 1536 GB                  | 4x64 GB                          | 4x64 GB                           | 4x64 GB                           | 4x64 GB                          | 4x64 GB                           | 4x64 GB                           | 1600                 | 24          |

Notes...

1. Rows marked in yellow indicate best performance.
2. Unbalanced configuration (memory not populated equally across the four memory channels). These configurations are possible but not recommended due to poor performance.

## Additional DIMM Populations

The list in [Table 25](#) is not a complete list of all supported DIMM populations, but highlights common configuration options.

Table 25 Supported DIMM Configurations

| CPU 1 DIMMs | Total DIMMs for CPU 1 | CPU 1 Capacity | CPU 2 DIMMs | Total DIMMs for CPU 2 | CPU 2 Capacity | Total Capacity for 2 CPUs |
|-------------|-----------------------|----------------|-------------|-----------------------|----------------|---------------------------|
| 1 x 8 GB    | 1                     | 8 GB           | 1 x 8 GB    | 1                     | 8 GB           | 16 GB                     |
| 2 x 8 GB    | 2                     | 16 GB          | 2 x 8 GB    | 2                     | 16 GB          | 32 GB                     |
| 1 x 16 GB   | 1                     | 16 GB          | 1 x 16 GB   | 1                     | 16 GB          | 32 GB                     |
| 4 x 8 GB    | 4                     | 32 GB          | 4 x 8 GB    | 4                     | 32 GB          | 64 GB                     |
| 2 x 16 GB   | 2                     | 32 GB          | 2 x 16 GB   | 2                     | 32 GB          | 64 GB                     |
| 1 x 32 GB   | 1                     | 32 GB          | 1 x 32 GB   | 1                     | 32 GB          | 64 GB                     |
| 8 x 8 GB    | 8                     | 64 GB          | 8 x 8 GB    | 8                     | 64 GB          | 128 GB                    |
| 4 x 16 GB   | 4                     | 64 GB          | 4 x 16 GB   | 4                     | 64 GB          | 128 GB                    |
| 2 x 32 GB   | 2                     | 64 GB          | 2 x 32 GB   | 2                     | 64 GB          | 128 GB                    |
| 12 x 8 GB   | 12                    | 96 GB          | 12 x 8 GB   | 12                    | 96 GB          | 192 GB                    |
| 6 x 16 GB   | 6                     | 96 GB          | 6 x 16 GB   | 6                     | 96 GB          | 192 GB                    |
| 8 x 16 GB   | 8                     | 128 GB         | 8 x 16 GB   | 8                     | 128 GB         | 256 GB                    |
| 4 x 32 GB   | 4                     | 128 GB         | 4 x 32 GB   | 4                     | 128 GB         | 256 GB                    |
| 12 x 16 GB  | 12                    | 192 GB         | 12 x 16 GB  | 12                    | 192 GB         | 384 GB                    |
| 6 x 32 GB   | 6                     | 192 GB         | 6 x 32 GB   | 6                     | 192 GB         | 384 GB                    |
| 8 x 32 GB   | 8                     | 256 GB         | 8 x 32 GB   | 8                     | 256 GB         | 512 GB                    |
| 12 x 32 GB  | 12                    | 384 GB         | 12 x 32 GB  | 12                    | 384 GB         | 768 GB                    |
| 12 x 64 GB  | 12                    | 768 GB         | 12 x 64 GB  | 12                    | 768 GB         | 1536 GB                   |

## Upgrade and Servicing-Related Parts

This section lists the upgrade and servicing-related parts you may need during the life of your UCS B200 M4 server. Some of these parts are configured with every server or with every UCS 5108 blade server chassis, and some may be ordered when needed or may be ordered and kept on hand as spares for future use. See [Table 26](#).

Table 26 Upgrade and Servicing-related Parts for UCS B200 M4 Server

| Spare Product ID (PID) | Description  |
|------------------------|--|
| N20-BBLKD=             | 2.5-inch HDD Blanking Panel <sup>1</sup>                                 |
| N20-CBLKB1=            | Blade slot blanking panel for UCS 5108/single slot <sup>2</sup>          |
| UCSB-HS-EP-M4-F=       | CPU Heat Sink for UCS B200 M4 socket 1 (front) <sup>1</sup>              |
| UCSB-HS-EP-M4-R=       | CPU Heat Sink for UCS B200 M4 socket 1 (rear) <sup>1</sup>               |
| UCS-CPU-LPCVR=         | CPU load plate dust cover (for unpopulated CPU sockets)                  |
| UCSB-BAFF-B200-M4=     | Air Baffle Replacement Kit for B200 M4 Server <sup>1</sup>               |
| N20-MBLIBATT=          | Replacement Lithium Battery for Server Motherboard (CR2032) <sup>1</sup> |
| N20-BKVM=              | KVM local IO cable for UCS servers console port <sup>2</sup>             |
| UCS-CPU-GREASE3=       | CPU thermal grease syringe - needed for heatsink seal <sup>3</sup>       |
| UCSX-HSCK=             | UCS Processor Heat Sink Cleaning Kit (when replacing a CPU) <sup>3</sup> |

Notes...

1. This part is included/configured with your UCS server (in some cases, as determined by the configuration of your server).
2. This part is included/configured with the UCS 5108 blade server chassis.
3. This part is included with the purchase of each optional or spare Intel Xeon E5-2600 v3 CPU processor kit.

## Drive and Blade Server Blanking Panels

A drive blanking panel (N20-BBLKD=) must be installed if you remove a disk drive from a UCS server. Similarly, a blade server blanking panel (N20-CBLKB1=) must be installed if you remove a half-width blade server (such as a UCS B200 M4 server) from a blade server chassis. If no FlexStorage RAID controller module is used, the FlexStorage blanking panels (UCSB-LSTOR-BK=) must be installed. These panels are required to maintain system temperatures at safe operating levels, and to keep dust away from system components.

## Adding an Additional CPU (with CPU heat sink) or Replacing CPUs

All Cisco UCS two CPU socket-capable servers can be upgraded from having one to having two CPUs configured or can also support replacement of the CPUs. You will need to order and install a heat sink when adding any additional CPU to a server. Instructions for installing the new CPU or replacing CPUs and heat sink can be found at the following link:

[http://www.cisco.com/c/en/us/td/docs/unified\\_computing/ucs/hw/blade-servers/B200M4.html](http://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/hw/blade-servers/B200M4.html)



**NOTE:** Unlike previous generation servers, the B200 M4 has tool-less CPU sockets, so no separate tools (such as “pick n place” tools) are required to add or replace CPUs.

---

## Motherboard Lithium Battery

You can order a replacement motherboard battery. Installation instructions are found at this link:

[http://www.cisco.com/c/en/us/td/docs/unified\\_computing/ucs/hw/blade-servers/B200M4.html](http://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/hw/blade-servers/B200M4.html)

## Thermal Grease (with syringe applicator) for CPU to Heatsink Seal

Thermal grease must be applied to the top of the CPU where it comes in contact with the heat sink (a grease syringe also ships with each CPU spare option kit). Instructions for applying thermal grease are found at:

[http://www.cisco.com/c/en/us/td/docs/unified\\_computing/ucs/hw/blade-servers/B200M4.html](http://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/hw/blade-servers/B200M4.html)



**CAUTION:** Use only the thermal grease specified for this server (UCS-CPU-GREASE3=). This thermal grease comes in a white-tipped syringe.

**DO NOT** use thermal grease available for purchase at any commercial electronics store. If these instructions are not followed, the CPU may overheat and be destroyed.

---



**NOTE:** When you purchase a spare CPU, the thermal grease with syringe applicator is included.

---

## Air Baffle Replacement Kit

Air baffles are designed to direct airflow through the server to maintain server temperature at a safe operating level. The UCS B200 M4 server comes shipped with two identical air baffles covering the DIMM socket areas of the server. These baffles must always remain installed during server operation. The Air Baffle Replacement Kit includes the two (identical) air baffles needed for one UCS B200 M4 server. For instructions on how to remove and replace the air baffles, see the following link:

[http://www.cisco.com/c/en/us/td/docs/unified\\_computing/ucs/hw/blade-servers/B200M4.html](http://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/hw/blade-servers/B200M4.html)

## CPU Heat Sink Cleaning Kit

The cleaning kit is used to remove the existing thermal compound from the bottom of the heat sink during a CPU replacement process. Instructions for cleaning are found at the following link:

[http://www.cisco.com/c/en/us/td/docs/unified\\_computing/ucs/hw/blade-servers/B200M4.html](http://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/hw/blade-servers/B200M4.html)



**NOTE:** When you purchase a spare CPU, the CPU cleaning kit is included.

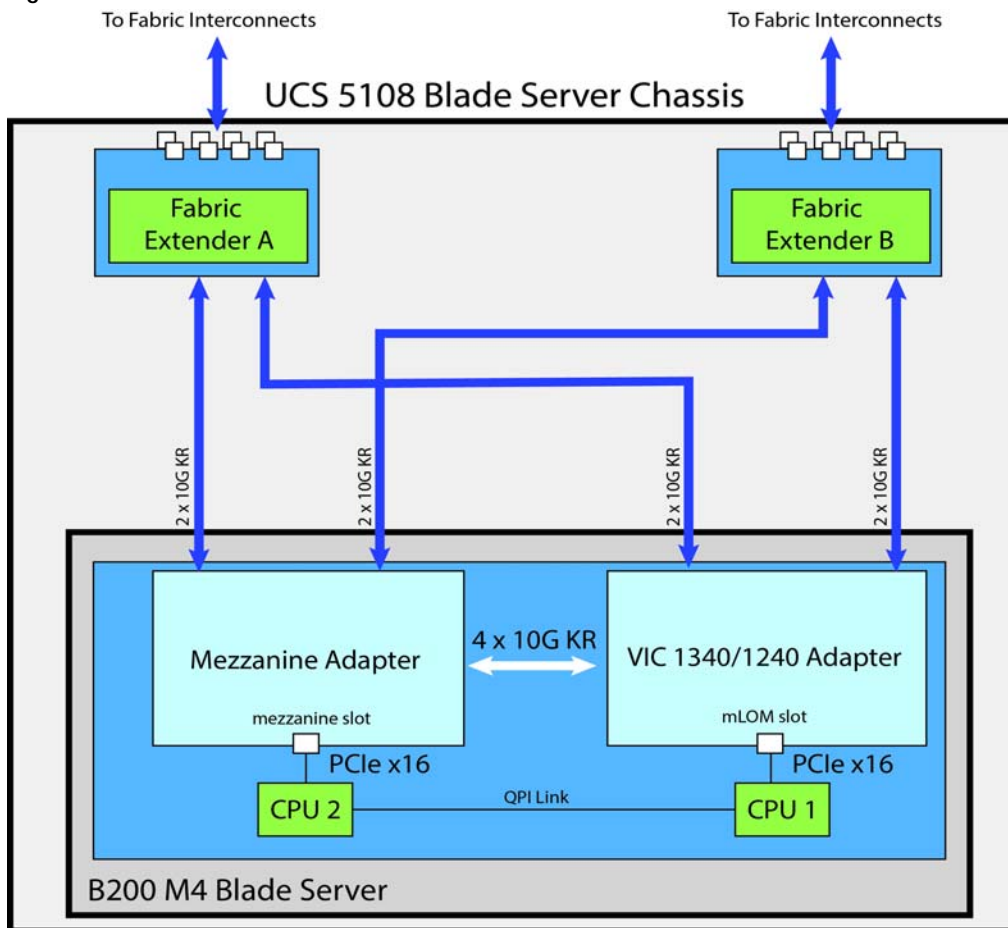
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## Network Connectivity

This section explains how the UCS B200 M4 server connects to Fabric Interconnects (FIs) using the network adapters in the UCS B200 M4 blade server and the Fabric Extender modules in the UCS 5108 blade server chassis. The UCS B200 M4 server plugs into the front of the UCS 5108 blade server chassis. The Fabric Extender modules plug into the back of the UCS 5108 Series blade server chassis. A midplane connects the UCS B200 M4 blade server to the Fabric Extenders. [Figure 10](#) shows an example configuration where 4 x 10G KR ports are routed from the VIC 1340/1240 adapter to the Fabric Extender modules and the remaining 4 x 10G KR ports are routed from the mezzanine adapter to the Fabric Extender modules.

Note that you cannot mix VIC 13xx Series adapters with VIC 12xx Series adapters. For example, if you install a VIC 1340, you cannot install a VIC 1280. In this case, you must install a VIC 1380. Also, the VIC 13xx Series adapters are compatible with systems implementing 62xx Series Fabric Interconnects, but 61xx Series FIs are not supported. All FIs are supported with the VIC 12xx Series adapters. 61xx/21xx Series FIs are supported on the B200 M4, but only with the VIC 12xx Series adapters.

Figure 10 UCS B200 M4 Connections to the Fabric Extenders



The B200 M4 server accommodates different types of adapter cards. The mLOM slot only accommodates the VIC 1240 and VIC 1340 adapters, while the mezzanine slot accommodates all other adapters (such as port expander, VIC 1280/1380, and Cisco adapters).



The network adapter options are:

- Cisco VIC 1340/1240 adapter. This adapter plugs into the mLOM slot. Both cards can support up to dual 4x10 Gbps ports (requires Port Expander for VIC) and 256 PCIe devices. The VIC 1340 is capable of supporting native 40 Gbps. The capabilities of the adapter can easily be expanded by using the Port Expander Card for VIC in the mezzanine slot.
- Cisco VIC 1380/1280 Mezzanine adapter. This adapter plugs into the mezzanine slot and is capable of up to dual 2x10 Gbps ports in the UCS B200 M4 server, depending on the Fabric Extender chosen (see [Table 9 on page 23](#)) and 256 PCIe devices.
- Cisco Port Expander Card for VIC. This I/O expander plugs into the mezzanine slot and enables additional bandwidth to and from the server with the VIC 1340/1240. Using the Port Expander Card for VIC with the VIC 1340/1240 allows the compute blade to have up to dual 4x10 Gbps each (depending on the Fabric Extender option chosen - see [Table 9 on page 23](#)).
- Cisco Storage Accelerators plug into the mezzanine slot. These flash storage devices do not have network connectivity; instead they provide independent high-speed storage controlled by CPU 2. See [Table 8 on page 22](#) for descriptions.



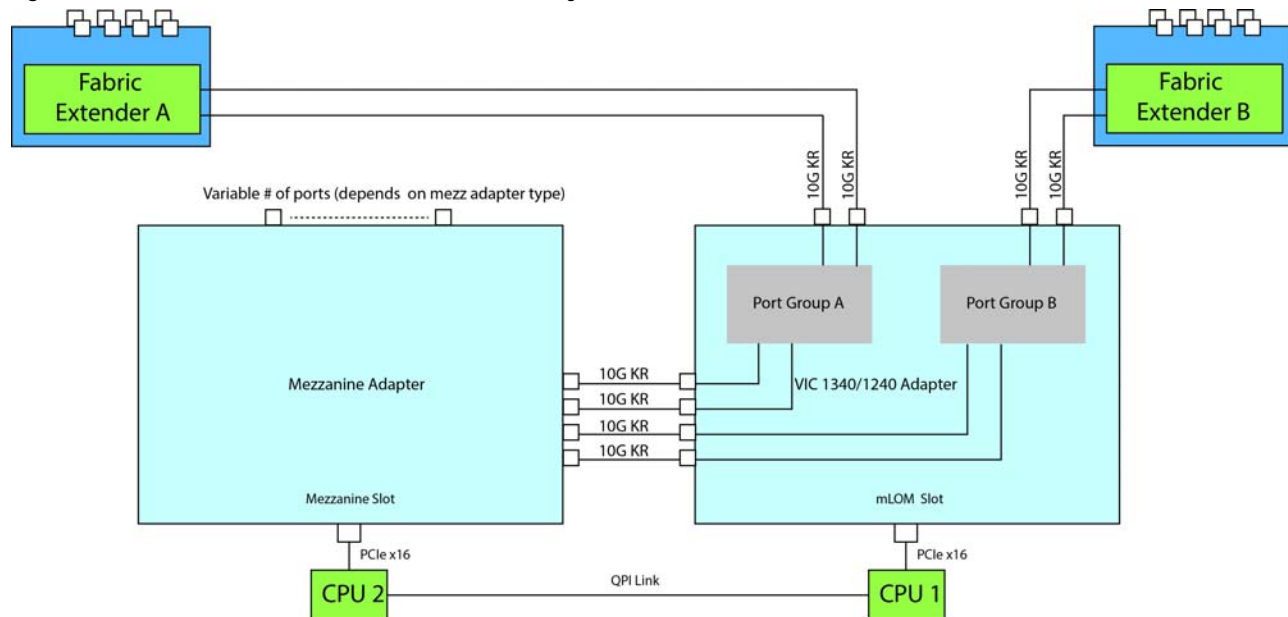
NOTE: The bandwidth/port count on these adapters depends on the Fabric Extender. For example, the VIC 1380/1280 only supports up to 4x10 Gbps in this blade because each mezzanine slot (or mLOM slot) only supports up to 4x10 Gbps.

## VIC 1340/1240 Adapter

The only adapter that can be plugged in to the mLOM slot is the VIC 1340/1240, Cisco-designed PCIe based adapters that provide up to eight (depending on the Fabric Extender option chosen) 10 Gigabit Data Center Ethernet (DCE) network interfaces.

There are two groups of four ports on the VIC 1340/1240. Two ports of the first group and two ports of the second group are wired through the UCS 5108 Blade Server chassis to Fabric Extender A and Fabric Extender B. The other two ports of each group are wired to the mezzanine slot, as represented in [Figure 11](#).

Figure 11 VIC 1340/1240 Port Connectivity



The number of ports available at the mezzanine adapter depends on the type of mezzanine adapter that is plugged into the mezzanine slot on the system board. The maximum number of ports is four. The VIC 1340/1240 senses the type of adapter plugged into the mezzanine slot. In the event a Port Expander Card for VIC occupies the mezzanine slot, the four 10G KR ports between the adapters are used for port expansion; otherwise, they are unused.

## Mezzanine Adapters

There are multiple options for the mezzanine slot:

- I/O-based PCIe adapters (such as network adapters), or
- Cisco Storage Accelerator adapters (such as Fusion-io cards)



**NOTE:** In a B200 M4 configured with 1 or 2 CPUs, a UCS B200 M4 blade server must have a VIC 1340/1240 installed to provide I/O connectivity.

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Specific examples of mezzanine adapters are:

- Cisco adapters
  - VIC 1380/1280
  - Port Expander Card for VIC
- Cisco Storage Accelerator adapters
  - Cisco UCS 785 GB MLC Fusion-io ioDrive2
  - Cisco UCS 1300 GB Fusion ioMemory3 PX Performance line
  - Cisco UCS 1600 GB Fusion ioMemory3 SX Scale line

The following sections explain the various I/O options that are possible with the different Fabric Extenders (Cisco UCS 2208XP, 2204XP, and 2104XP) and the VIC 1340/1240 and mezzanine adapters.

## B200 M4 Configured with 1 CPU

In a B200 M4 configured with 1 CPU, the mezzanine card slot is not under the control of a CPU (in a B200 M4 configured with 2 CPUs, CPU 2 controls the slot). Therefore, the only adapter that can be placed in the mezzanine slot in a B200 M4 configured with 1 CPU is the Cisco UCS Port Expander Card for VIC, and the VIC 1340/1240 is always required to be installed in the mLOM slot.

### Connectivity using the Cisco UCS 2208XP Fabric Extender

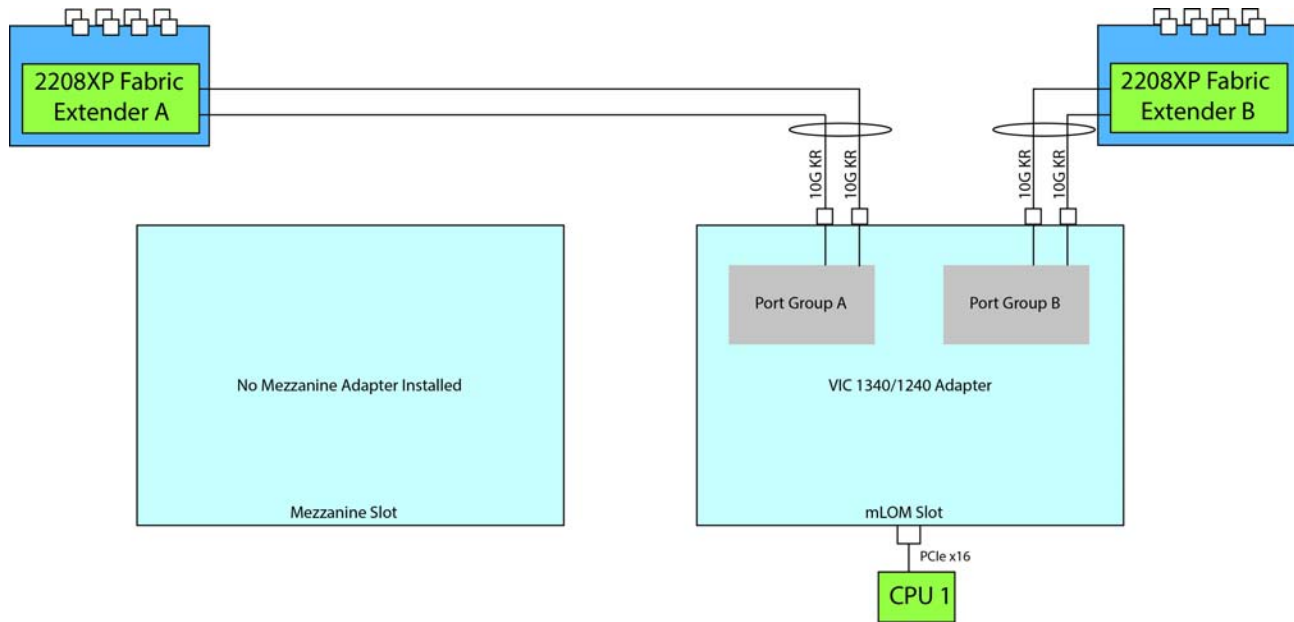
The Cisco UCS 2208XP is the second-generation Fabric Extender, and shares the same form factor as the current UCS 2100 Series. The 2208XP is backwards compatible with the UCS 5108 Blade server chassis.

The options shown in [Figure 12](#) and [Figure 13](#) demonstrate how the server uses these options:

- VIC 1340/1240 to 2208XP
- VIC 1340/1240 plus Port Expander Card for VIC to 2208XP

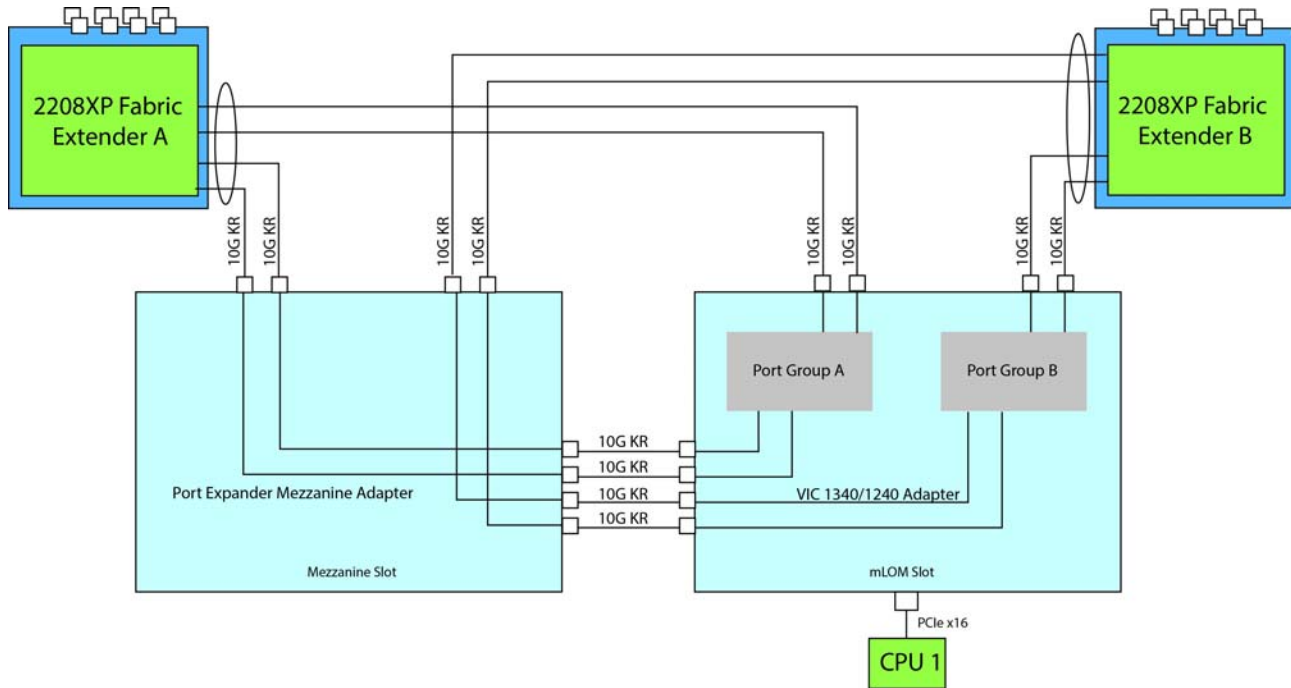
In [Figure 12](#), two ports from the VIC 1340/1240 are channelled to 2208XP Fabric Extender A and two are channelled to 2208XP Fabric Extender B. The result is 20 Gbps of bandwidth to each Fabric Extender.

Figure 12 Option 1 - VIC 1340/1240 to UCS 2208XP Fabric Extender (no mezzanine adapter)



In [Figure 13](#), two ports from the VIC 1340/1240 are channeled to 2208XP Fabric Extender A and two are channeled to 2208XP Fabric Extender B. The Port Expander Card for VIC installed in the mezzanine slot acts as a pass-through device to channel two ports to each of the Fabric Extenders. The result is 40 Gbps of bandwidth to each Fabric Extender.

Figure 13 Option 2 - VIC 1340/1240 and Port Expander Card for VIC to UCS 2208XP



## Connectivity using the Cisco UCS 2204XP Fabric Extender

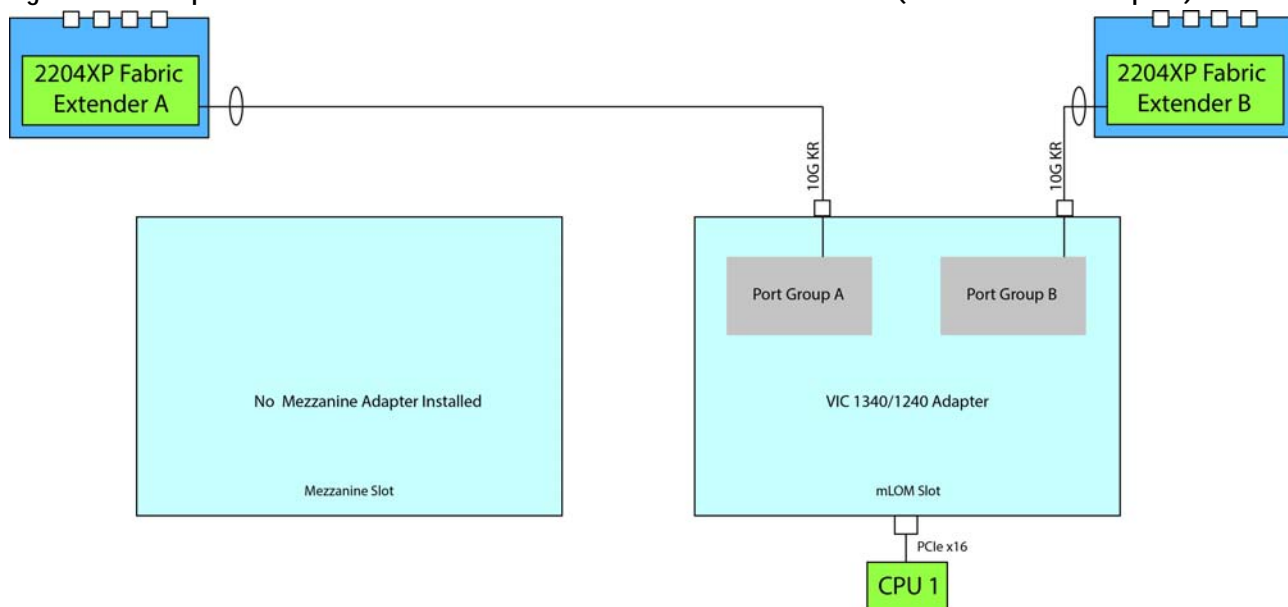
The Cisco UCS 2204XP is a second-generation Fabric Extender, and shares the same form factor as the current UCS 2100 Series. The 2204XP is backwards compatible with the UCS 5108 Blade serve chassis.

The options shown in [Figure 14](#) and [Figure 15](#) demonstrate how the server uses these options:

- VIC 1340/1240 to 2204XP
- VIC 1340/1240 plus Port Expander Card for VIC to 2204XP

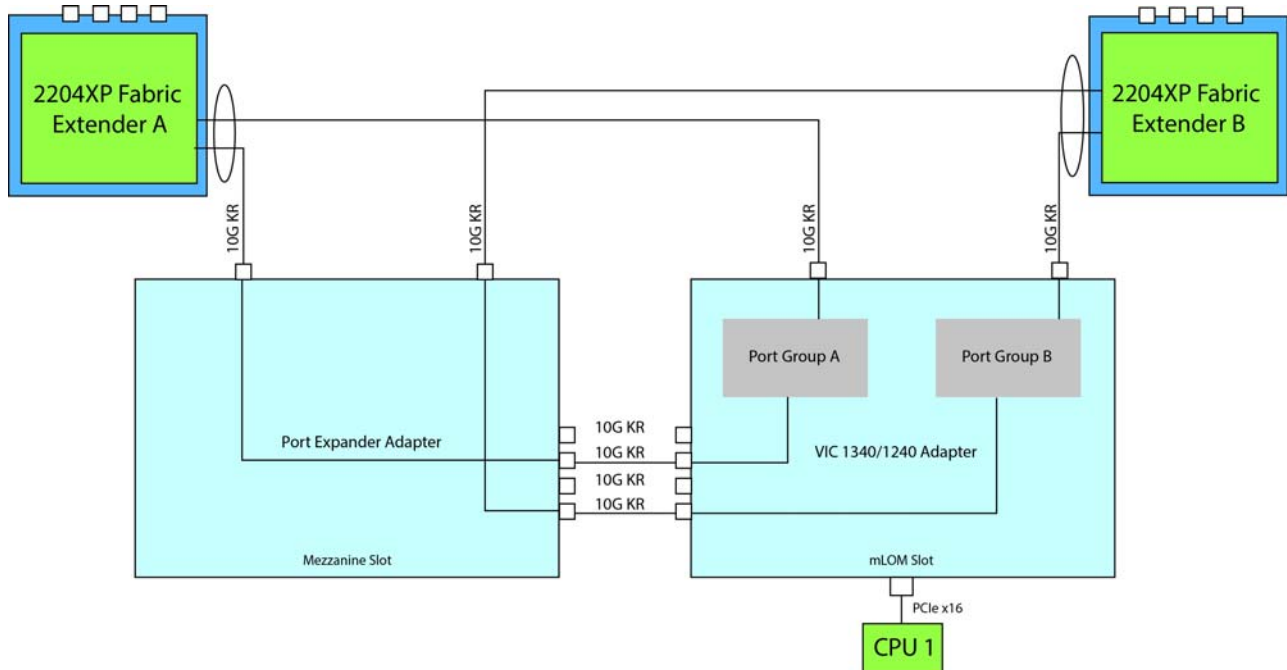
In [Figure 14](#), one port from the VIC 1340/1240 is channelled to 2204XP Fabric Extender A and one is channelled to 2204XP Fabric Extender B. The result is 10 Gbps of bandwidth to each Fabric Extender.

Figure 14 Option 1 - VIC 1340/1240 to UCS 2204XP Fabric Extender (no mezzanine adapter)



In [Figure 15](#), one port from the VIC 1340/1240 is channeled to 2204XP Fabric Extender A and one is channeled to 2204XP Fabric Extender B. The Port Expander Card for VIC installed in the mezzanine slot acts as a pass-through device to channel one port to each of the Fabric Extenders. The result is 20 Gbps of bandwidth to each Fabric Extender.

Figure 15 Option 2 - VIC 1340/1240 and Port Expander Card for VIC to UCS 2204XP Fabric Extender

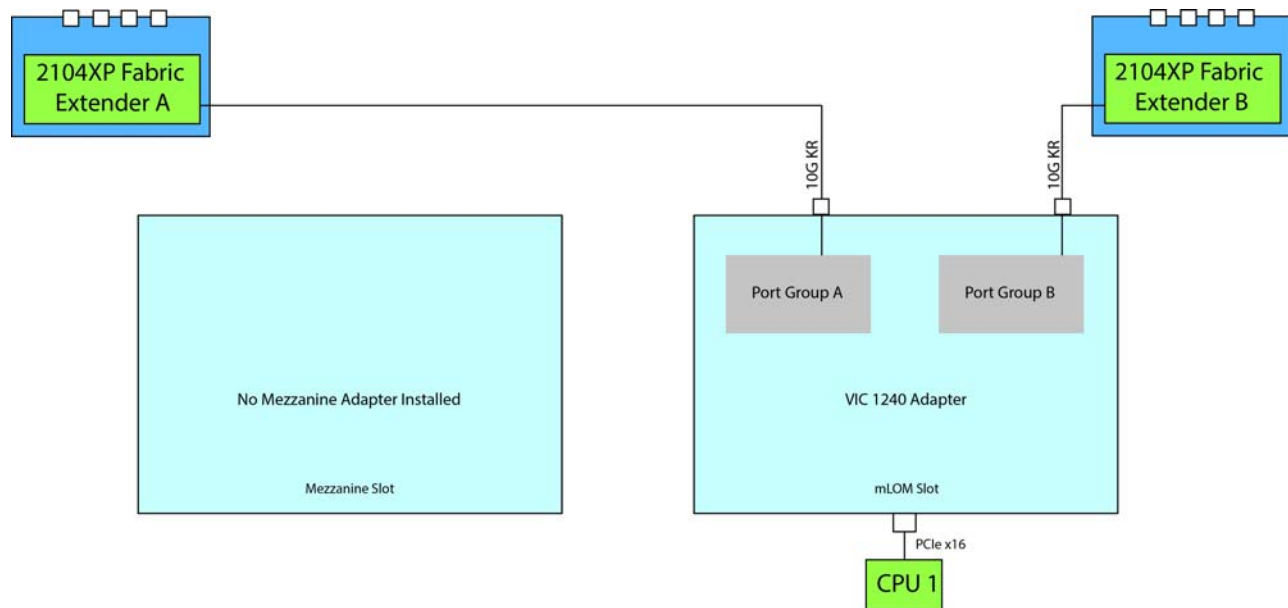


## Connectivity using the Cisco UCS 2104XP Fabric Extender

The option shown in [Figure 16](#) demonstrates how the UCS B200 M4 blade server connects to a UCS 2104XP Fabric Extender.

In [Figure 16](#), one port from the VIC 1240 is channeled to 2104XP Fabric Extender A and one is channeled to 2104XP Fabric Extender B. The result is 10 Gbps of bandwidth to each Fabric Extender.

Figure 16 Option 1 - VIC 1240 to UCS 2104XP Fabric Extender (no mezzanine adapter)





## B200 M4 Configured with 2 CPUs

### Connectivity using the Cisco UCS 2208XP Fabric Extender

The Cisco UCS 2208XP is the second-generation Fabric Extender, and shares the same form factor as the current UCS 2100 Series. The 2208XP is backwards compatible with the UCS 5108 Blade serve chassis.

The options shown in [Figure 17](#) through [Figure 19](#) demonstrate how the server uses these options:

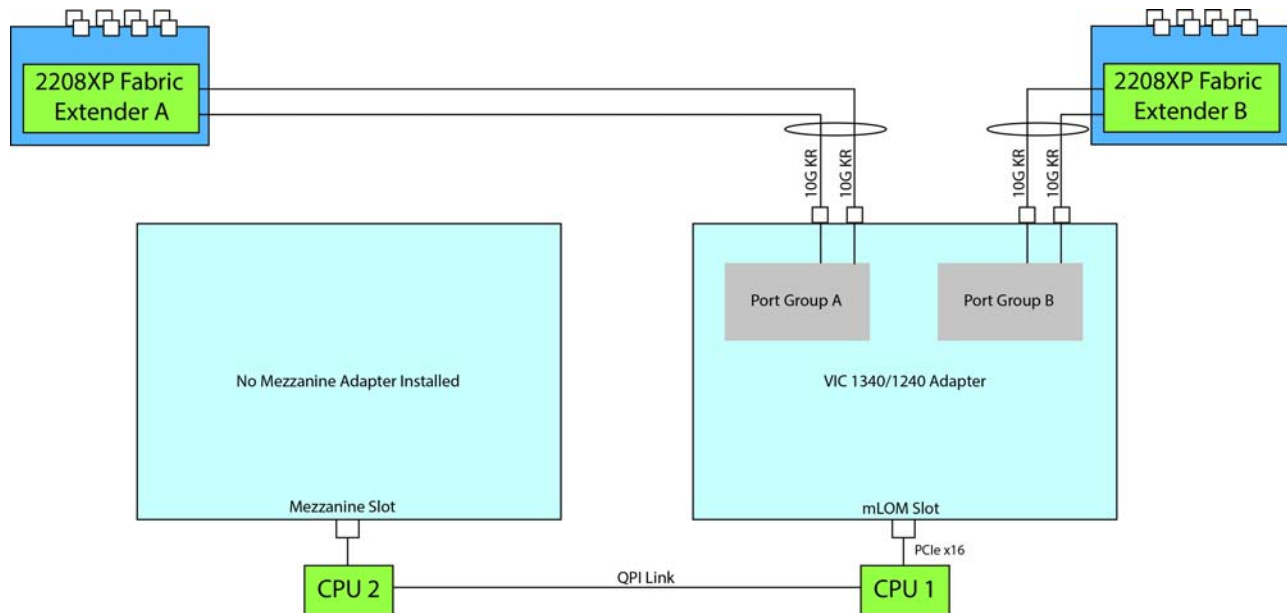
- VIC 1340/1240 to 2208XP
- VIC 1340/1240 and VIC 1380/1280 to 2208XP
- VIC 1340/1240 plus Port Expander Card for VIC to 2208XP



**NOTE:** A Cisco Storage Accelerator adapter may also be plugged into the mezzanine adapter. There is no network connectivity for this kind of adapter; instead it provides high-speed storage to the system and is controlled by CPU 2.

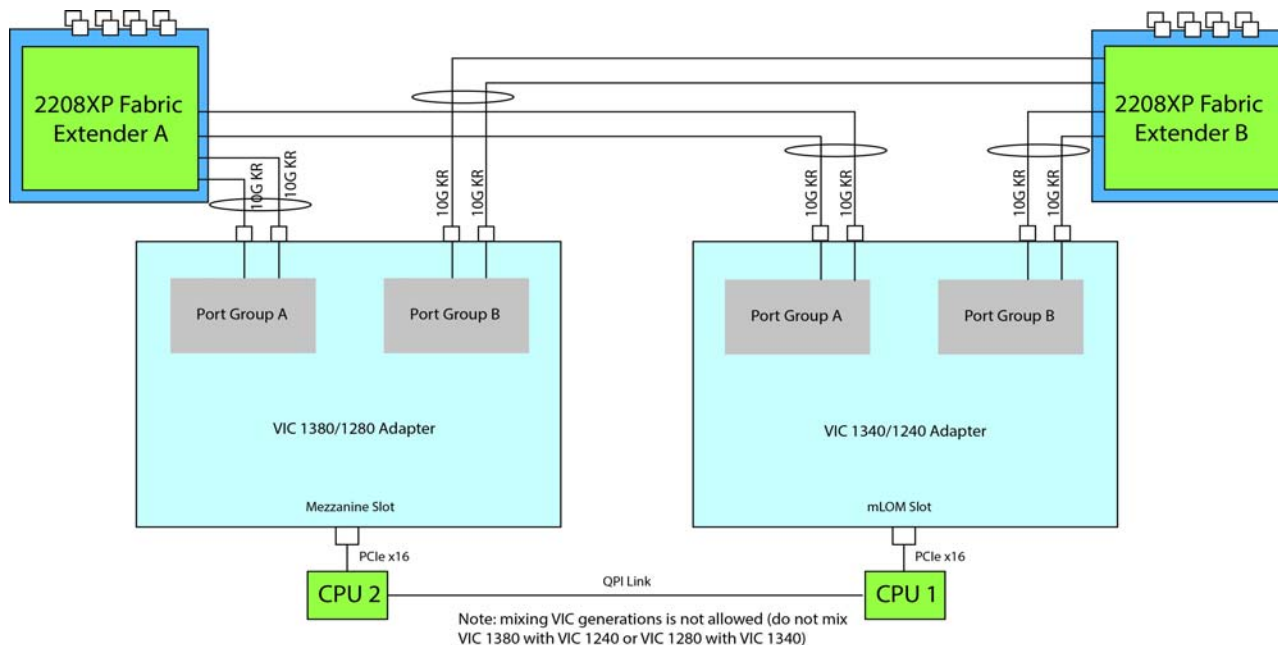
In [Figure 17](#), two ports from the VIC 1340/1240 are channelled to 2208XP Fabric Extender A and two are channelled to 2208XP Fabric Extender B. The result is 20 Gbps of bandwidth to each Fabric Extender.

Figure 17 Option 1 - VIC 1340/1240 to UCS 2208XP Fabric Extender (no mezzanine adapter)



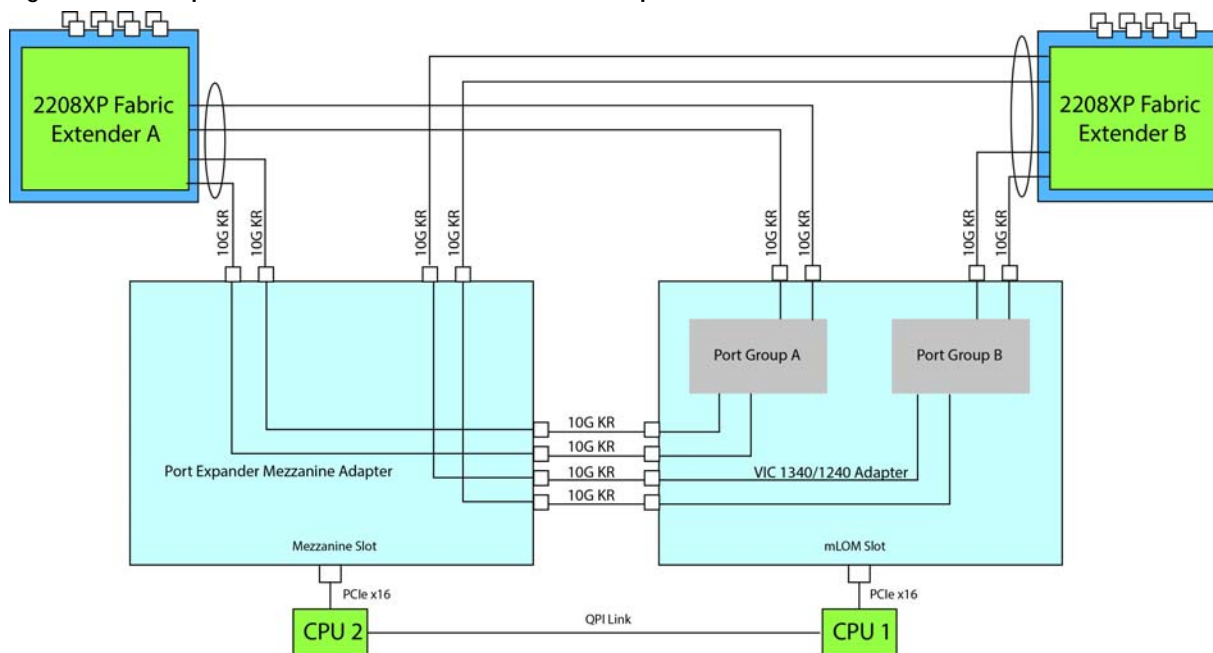
In [Figure 18](#), two ports from the VIC 1340/1240 are channeled to 2208XP Fabric Extender A and two are channeled to 2208XP Fabric Extender B. The VIC 1380/1280 installed in the mezzanine slot also channels two ports to each of the Fabric Extenders. The result is 40 Gbps of bandwidth to each Fabric Extender.

Figure 18 Option 2 - VIC 1340/1240 and VIC 1380/1280 to UCS 2208XP Fabric Extender



In [Figure 19](#), two ports from the VIC 1340/1240 are channeled to 2208XP Fabric Extender A and two are channeled to 2208XP Fabric Extender B. The Port Expander Card for VIC installed in the mezzanine slot acts as a pass-through device to channel two ports to each of the Fabric Extenders. The result is 40 Gbps of bandwidth to each Fabric Extender.

Figure 19 Option 3 - VIC 1340/1240 and Port Expander Card for VIC to UCS 2208XP FEX



## Connectivity using the Cisco UCS 2204XP Fabric Extender

The Cisco UCS 2204XP is a second-generation Fabric Extender, and shares the same form factor as the current UCS 2100 Series. The 2204XP is backwards compatible with the UCS 5108 Blade serve chassis.

The options shown in [Figure 20](#) through [Figure 22](#) demonstrate how the server uses these options:

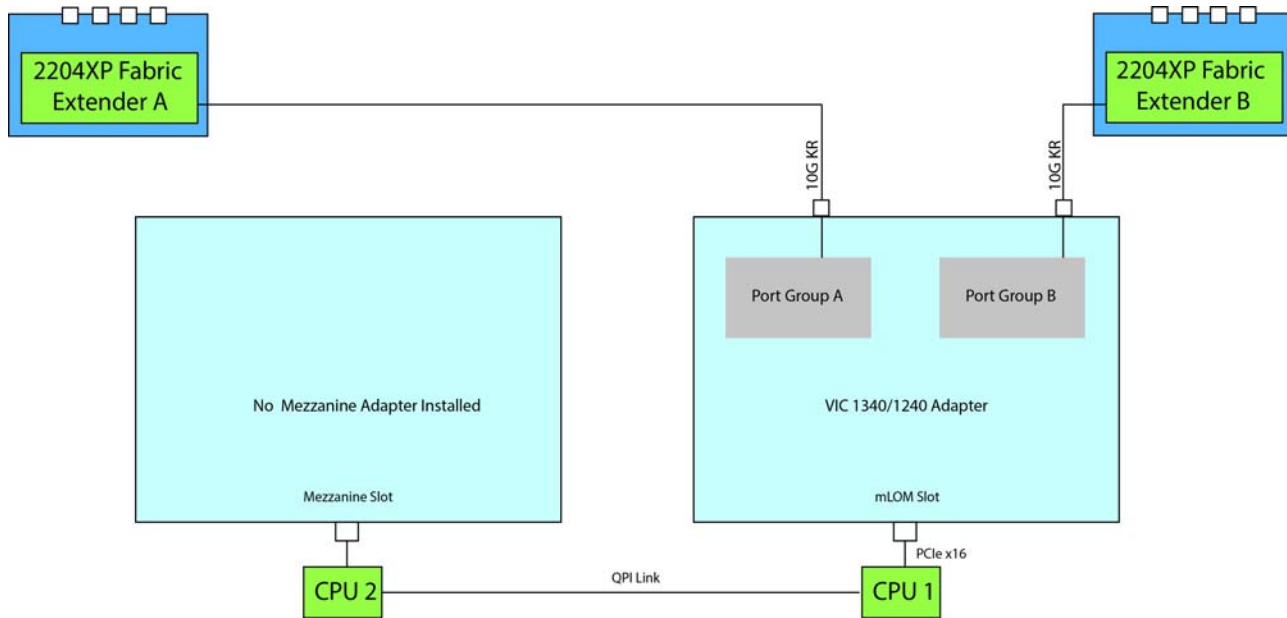
- VIC 1340/1240 to 2204XP
- VIC 1340/1240 and VIC 1380/1280 to 2204XP
- VIC 1340/1240 plus Port Expander Card for VIC to 2204XP



**NOTE:** A Cisco Storage Accelerator adapter may also be plugged into the mezzanine adapter. There is no network connectivity for this kind of adapter; instead it provides high-speed storage to the system and is controlled by CPU 2.

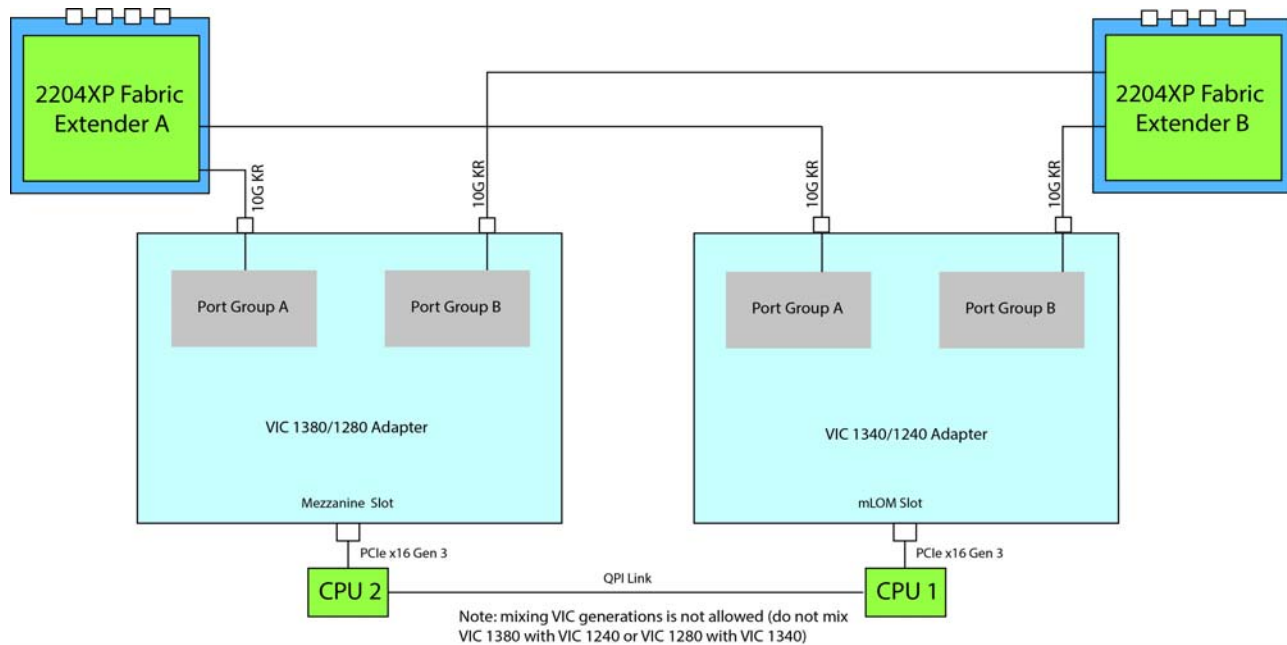
In [Figure 20](#), one port from the VIC 1340/1240 is channeled to 2204XP Fabric Extender A and one is channeled to 2204XP Fabric Extender B. The result is 10 Gbps of bandwidth to each Fabric Extender.

**Figure 20** Option 1 - VIC 1340/1240 to UCS 2204XP Fabric Extender (no mezzanine adapter)



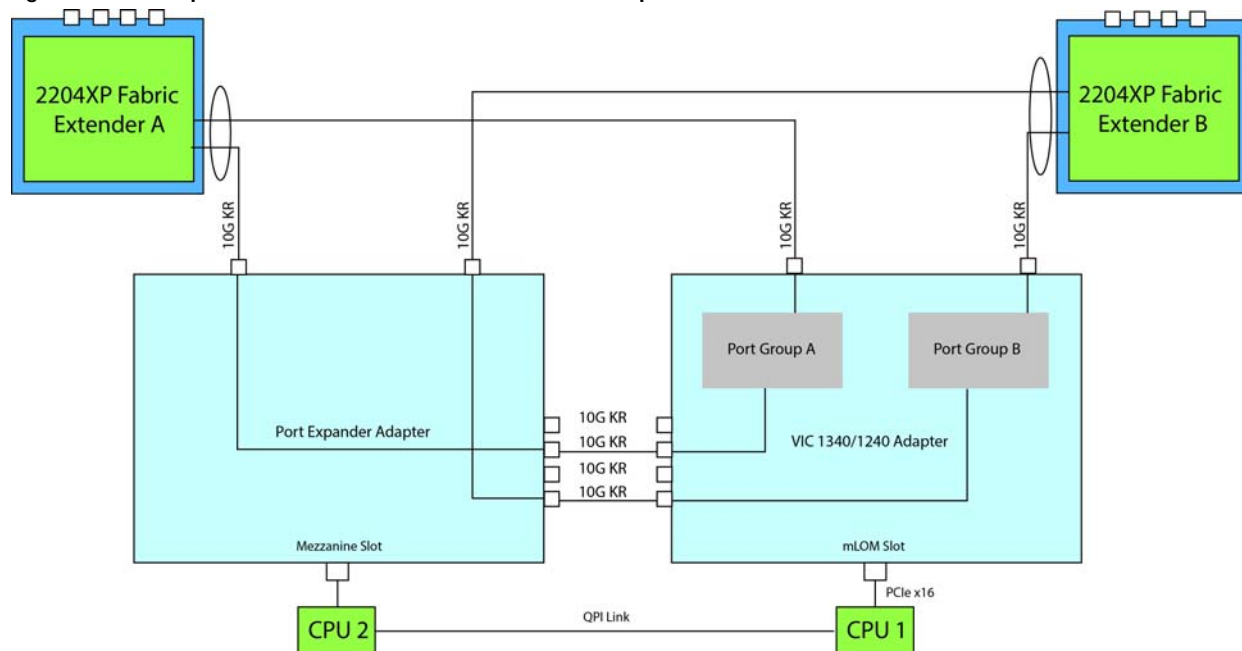
In [Figure 21](#), one port from the VIC 1340/1240 is channelled to 2204XP Fabric Extender A and one is channelled to 2204XP Fabric Extender B. The VIC 1380/1280 installed in the mezzanine slot also channels one port to each of the Fabric Extenders. The result is 20 Gbps of bandwidth to each Fabric Extender.

Figure 21 Option 2 - VIC 1340/1240 and VIC 1380/1280 to UCS 2204XP Fabric Extender



In [Figure 22](#), one port from the VIC 1340/1240 is channelled to 2204XP Fabric Extender A and one is channelled to 2204XP Fabric Extender B. The Port Expander Card for VIC installed in the mezzanine slot acts as a pass-through device to channel one port to each of the Fabric Extenders. The result is 20 Gbps of bandwidth to each Fabric Extender.

Figure 22 Option 3 - VIC 1340/1240 and Port Expander Card for VIC to UCS 2204XP FEX

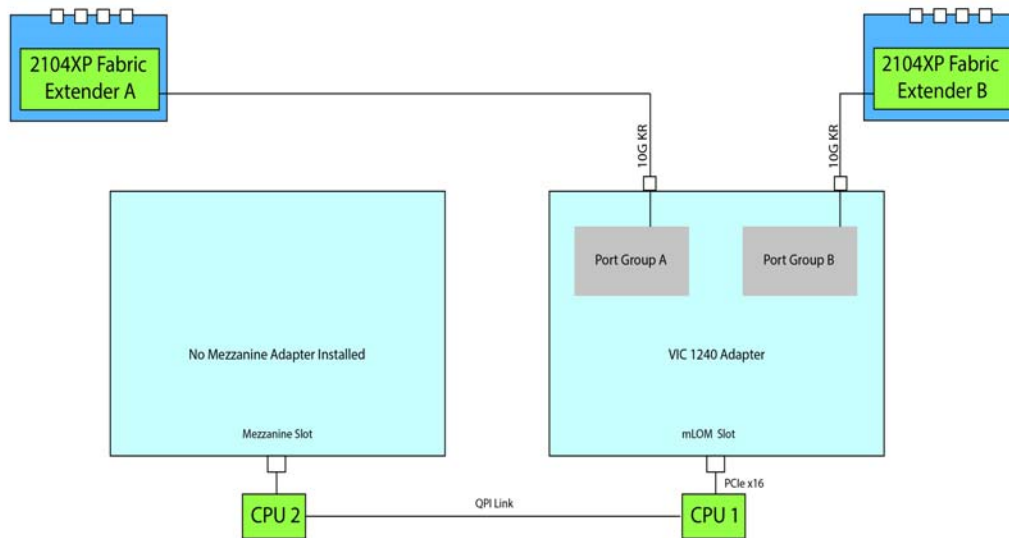


## Connectivity using the Cisco UCS 2104XP Fabric Extender

The options shown in [Figure 23](#) and [Figure 24](#) demonstrate how the UCS B200 M4 blade server connects to a UCS 2104XP Fabric Extender. With this option, the mezzanine connector can either be empty or contain an independent Cisco Storage Accelerator adapter that communicates with CPU 2 through the PCIe bus.

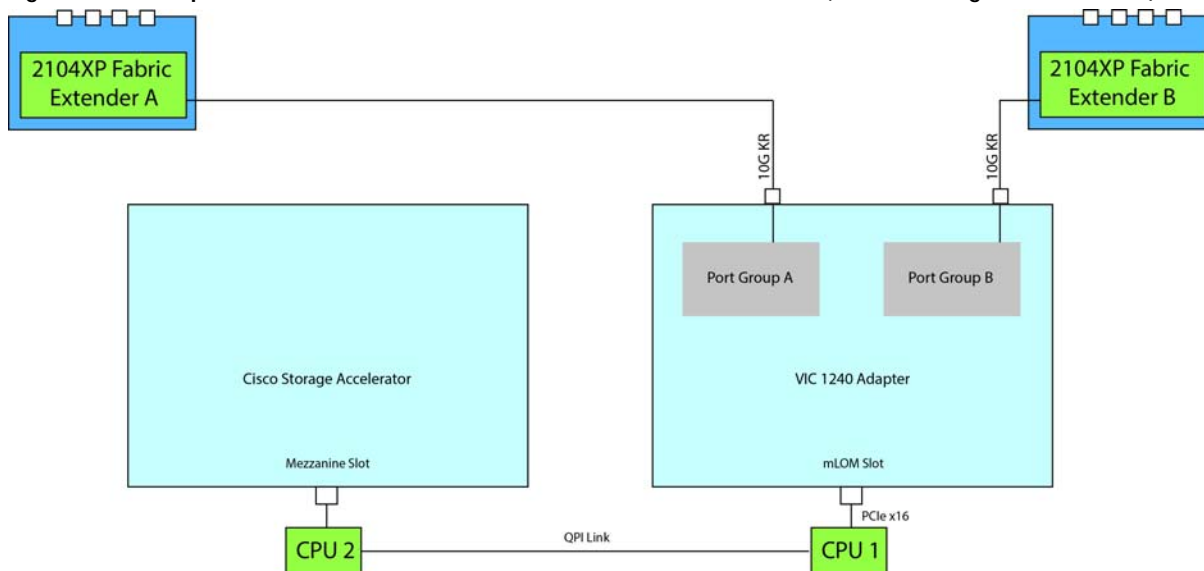
In [Figure 23](#), one port from the VIC 1240 is channeled to 2104XP Fabric Extender A and one is channeled to 2104XP Fabric Extender B. The result is 10 Gbps of bandwidth to each Fabric Extender. With this option, no adapter is located in the mezzanine connector.

Figure 23 Option 1 - VIC 1240 to UCS 2104XP Fabric Extender (no mezzanine adapter)



In [Figure 24](#), one port from the VIC 1240 is channeled to 2104XP Fabric Extender A and one is channeled to 2104XP Fabric Extender B. The result is 10 Gbps of bandwidth to each Fabric Extender. The Cisco Storage Accelerator adapter is located in the mezzanine connector as an independent device controlled by CPU 2.

Figure 24 Option 2 - VIC 1240 to UCS 2104XP Fabric Extender (Cisco Storage Accelerator)



# TECHNICAL SPECIFICATIONS

## Dimensions and Weight

Table 27 UCS B200 M4 Dimensions and Weight

| Parameter | Value  |
|-----------|--|
| Height    | 1.95 in. (50 mm)   |
| Width     | 8.00 in. (203 mm)  |
| Depth     | 24.4 in. (620 mm)  |
| Weight    | <ul style="list-style-type: none"> <li>■ Base server weight<br/>(no HDDs, no CPUs, no DIMMs, no mezzanine adapters or memory) = 9.51 lbs (4.31 kg)</li> <li>■ Minimally configured server<br/>(no HDDs, 1 CPU, 8 DIMMs, VIC 1340/1240 but no mezzanine adapter) = 11.29 lbs (5.12 kg)</li> <li>■ Fully configured server<br/>(2 HDDs, 2 CPUs, 24 DIMMs, VIC 1340/1240 and mezzanine adapter both populated) = 15.98 lbs (7.25 kg)</li> </ul> |

## Power Specifications

For configuration-specific power specifications, use the Cisco UCS Power Calculator at:

<http://ucspowercalc.cisco.com>



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