



**This product has been
discontinued**

Spec Sheet

Cisco UCS B440 M2 Blade Server

CISCO SYSTEMS
170 WEST TASMAN DR.
SAN JOSE, CA, 95134
WWW.CISCO.COM

PUBLICATION HISTORY

REV B.9 MAY 20, 2015

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OVERVIEW

The Cisco® UCS B440 M2 Blade Server is a four-socket, full-width blade server that combines the performance of the Intel E7-4800/8800 series processors with up to four small form factor (SFF) hard disk drives (HDDs) or solid-state drives (SSDs), 32 DIMM slots that support up to 1 terabyte (TB) of memory, and two dual-port mezzanine card connections for up to 40 Gbps of redundant I/O throughput. The Cisco UCS B440 M2 server is designed to power the most demanding enterprise applications. The UCS B440 M2 server is shown in [Figure 1](#).

Figure 1 Cisco UCS B440 M2 Blade Server

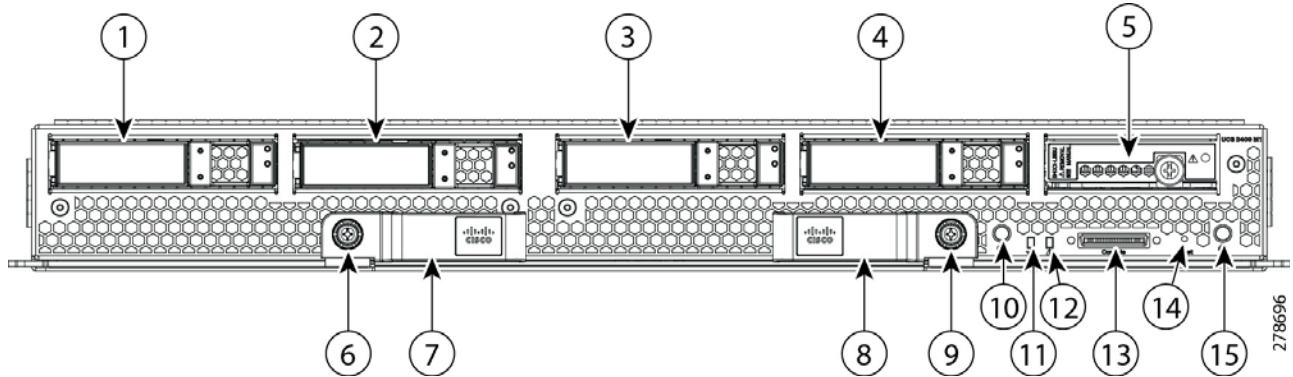


DETAILED VIEWS

Chassis Front View

Figure 2 shows the front of the Cisco UCS B440 M2 Blade Server.

Figure 2 Chassis Front View



1	Hard drive bay 1	9	Right ejector thumbscrew
2	Hard drive bay 2	10	Power button and LED
3	Hard drive bay 3	11	Network link status LED
4	Hard drive bay 4	12	Blade health LED
5	RAID battery backup module (BBU)	13	Local console connection ¹
6	Left ejector thumbscrew	14	Reset button access
7	Left ejector handle	15	Beaconing button and LED
8	Right ejector handle		

Notes . . .

1. For more information regarding the KVM cable connection, see [ORDER OPTIONAL KVM CABLE on page 27](#)

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*.

Table 1 Capabilities and Features

Capability/Feature	Description
Chassis	The B440 M2 Blade Server mounts in a Cisco UCS 5100-series chassis
CPU	Either 2 or 4 Intel® Xeon® E7-4800 or E7-8800 series processors
Chipset	Intel® 7510 chipset
Memory	32 slots for registered DIMMs, up to 1 TB.
Expansion slots	Two dual-port mezzanine slots are provided
Storage controller	LSI SAS2108 6G SAS RAID controller <ul style="list-style-type: none"> ■ RAID 0 and 1 ■ RAID 5 and 6 are optionally available through a license key upgrade ■ Battery backup unit for 1 GB write cache is optionally available
Internal storage devices	Up to four optional front-accessible, hot-swappable hard disk drives (HDDs) or solid-state drives (SSDs).
Video	The server CIMC chip includes a Matrox G200 core. The first 8 MB of memory are allocated to the video core.
Interfaces	One front-accessible console connector (see <i>ORDER OPTIONAL KVM CABLE on page 27</i>)
Power subsystem	Integrated in the Cisco UCS 5100 series chassis
Fans	Integrated in the Cisco UCS 5100 series 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.

Table 1 Capabilities and Features (*continued*)

Capability/Feature	Description
Cisco UCS Diagnostics for Cisco UCS B-Series Blade Servers	<p>The Cisco UCS Blade Server Diagnostics tool for Cisco UCS Blade Servers enables you to verify the health of the hardware components on your servers. The diagnostics tool provides a variety of tests to exercise and stress the various hardware subsystems on the Cisco UCS Blade Servers, such as memory and CPU. You can use the tool to run a sanity check on the state of your Cisco UCS Blade Servers after you fix or replace a hardware component. You can also use this tool to run comprehensive burn-in tests before you deploy a new Cisco UCS Blade Server in your production environment.</p> <p>See the following links for more information:</p> <p>User Guide: http://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/sw/ucs_diagnostics/b_UCS_Blade_Server_Diagnostics_User_Guide.html</p> <p>ISO Download: http://www.cisco.com/cisco/software/navigator.html</p>

CONFIGURING the SERVER

Follow these steps to configure the Cisco UCS B440 M2 Server:

- *STEP 1 VERIFY BASE SKU, page 8*
- *STEP 2 CHOOSE CPU(S), page 9*
- *STEP 3 CHOOSE MEMORY, page 10*
- *STEP 4 CHOOSE HARD DISK DRIVES or SOLID-STATE DRIVES, page 14*
- *STEP 6 CHOOSE MEZZANINE OPTION CARD(S), page 16*
- *STEP 7 CHOOSE OPERATING SYSTEM AND VALUE-ADDED SOFTWARE, page 18*
- *STEP 8 CHOOSE OPERATING SYSTEM MEDIA KIT, page 21*
- *STEP 9 CHOOSE SERVICE and SUPPORT LEVEL, page 22*

STEP 1 VERIFY BASE SKU

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

Table 2 PID of the Base B440 M2 Server

Product ID (PID)	Description
B440-BASE-M2	UCS B440 M2 Blade Server w/o CPU, memory, HDD, mezzanine

The B440-BASE-M2 base server:

- Does not include CPUs, memory DIMMs, SSDs, HDDs, or mezzanine cards.



NOTE: Use the steps on the following pages to configure the server with the components that you want to include.

STEP 2 CHOOSE CPU(S)

The standard CPU features are:

- Intel Xeon E7-4800 or E7-8800 series CPUs
- Intel 7510 chipset
- Cache size of 18, 24, or 30 MB

Choose CPUs

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

Table 3 Available CPUs: Intel Xeon E7-48xx/8867L Family

Product ID (PID)	Intel Number	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	QPI	Highest DDR3 DIMM Clock Support (MHz)
UCS-CPU-E78867L	E7-8867L	2.13	105	30	10	6.40	1333 ¹
UCS-CPU-E78837	E7-8837	2.66	130	24	8	6.40	1333 ¹
UCS-CPU-E74870	E7-4870	2.40	130	30	10	6.40	1333 ¹
UCS-CPU-E74860	E7-4860	2.26	130	24	10	6.40	1333 ¹
UCS-CPU-E74850	E7-4850	2.00	130	24	10	6.40	1333 ¹
UCS-CPU-E74830	E7-4830	2.13	105	24	8	6.40	1333 ¹
UCS-CPU-E74807	E7-4807	1.86	95	18	6	4.80	1333 ²

Notes . . .

1. Maximum operational speed = 1066 MHz
2. Maximum operational speed = 800 MHz

Approved Configurations

(1) Two-CPU Configuration

- Choose two identical CPUs from any one row in [Table 3](#).

(2) Four-CPU Configuration

- Choose four identical CPUs from any one row in [Table 3](#).

Caveats

- You must choose either two identical CPUs or four identical CPUs.

STEP 3 CHOOSE MEMORY

The standard memory features are:

- DIMMs
 - Maximum memory bandwidth: 800 MHz for E7-4807, 1066 MHz for all other CPUs
 - Ranks per DIMM: 1, 2, or 4
 - Operational voltage: 1.35 V
 - Registered DIMM (RDIMM)
 - Mirroring option
 - Advanced error correcting code (ECC)
 - Double device data correction (DDDC)



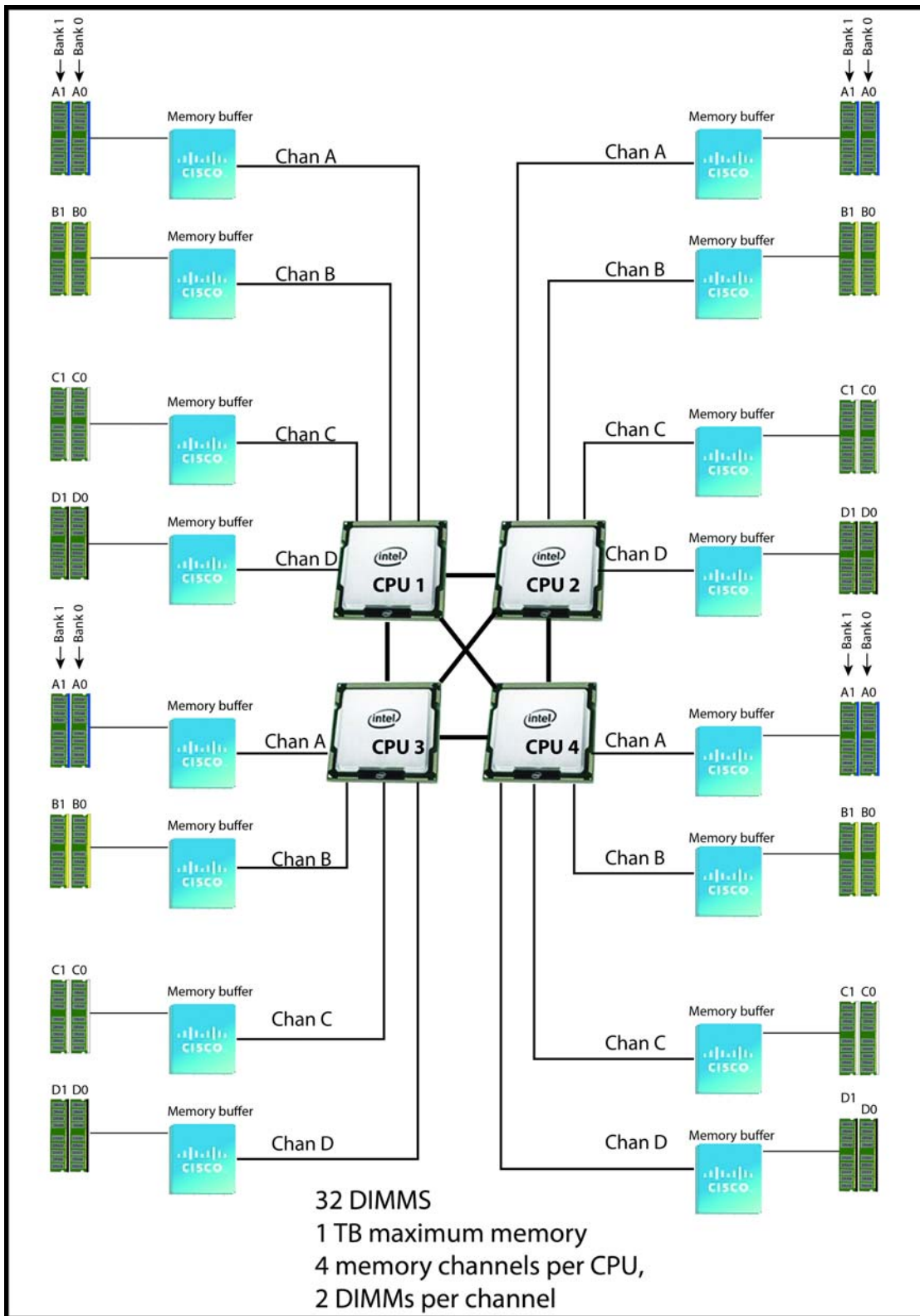
NOTE: DDDC support applies to x4 DIMMs only.

- Each CPU controls four DDR3 channels. Each of the channels controls a matched pair of DIMMs. The maximum number of DIMMs that can be installed per CPU is 8 (4 DIMM kits). See [Figure 3](#).



NOTE: Memory mirroring is supported and settable using the UCSM Service Profile “Memory RAS Configuration” setting.

Figure 3 B440 M2 Memory Organization



Select DIMMs

DIMMs are available as two-DIMM kits. Each of the product IDs in [Table 4](#) specifies two DIMMs.

Table 4 Available DDR3 DIMMs

Product ID (PID)	PID Description	Voltage	Ranks/ DIMM
DIMM Pair Kit Options (2 DIMMs per kit)			
UCS-MR-2X041RX-C	2x4GB DDR3 1333-MHz RDIMM/PC3-10600/1R/x4/1.35v	1.35 V	1
UCS-MR-2X082RX-C	2x8GB DDR3 1333-MHz RDIMM/PC3-10600/2R/x4/1.35v	1.35 V	2
UCS-MR-2x162RX-C	2x16GB DDR3-1333-MHz RDIMM/PC3-10600/2R/x4/1.35v	1.35 V	2
UCS-MR-2X324RX-C	2x32GB DDR3 1333-MHz RDIMM/PC3-10600/4R/x4/1.35V	1.35 V	4

Approved Configurations

(1) 2-CPU Configuration

- 16 DIMMs capacity total
- Select two or four DIMM kits (4 or 8 DIMMs) per CPU. The DIMMs for each CPU will be placed by the factory as shown in [Table 5](#).

Table 5 2-CPU Configuration DIMM Placement

Number of DIMMs per CPU	DIMM Placement in Numbered/Colored DIMM Slots (see Figure 6 on page 29)
4 ¹	(A0, A1) - blue slots; (C0, C1) - white slots
8 ²	(A0, A1) - blue slots; (C0, C1) - white slots (B0, B1) - yellow slots; (D0, D1) - black slots

Notes . . .

1. Two UCS-MR-2X041RX-C, UCS-MR-2X082RX-C, or UCS-MR-2X324RX-C DIMM kits per CPU
2. Four UCS-MR-2X041RX-C, UCS-MR-2X082RX-C, or UCS-MR-2X324RX-C DIMM kits per CPU, or two UCS-MR-2X082RX-C and two UCS-MR-2X324RX-C DIMM kits per CPU.

(2) 4-CPU Configuration

- 32 DIMMs capacity total
- Select two or four DIMM kits (4 or 8 DIMMs) per CPU. The DIMMs for each CPU will be placed by the factory as shown in [Table 6](#)..

Table 6 4-CPU Configuration DIMM Placement

Number of DIMMs per CPU	DIMM Placement in Numbered/Colored DIMM Slots (see Figure 6 on page 29)
4 ¹	(A0, A1) - blue slots; (C0, C1) - white slots
8 ²	(A0, A1) - blue slots; (C0, C1) - white slots (B0, B1) - yellow slots; (D0, D1) - black slots

Notes . . .

1. Two UCS-MR-2X041RX-C, UCS-MR-2X082RX-C, or UCS-MR-2X324RX-C DIMM kits per CPU
2. Four UCS-MR-2X041RX-C, UCS-MR-2X082RX-C, or UCS-MR-2X324RX-C DIMM kits per CPU, or two UCS-MR-2X082RX-C and two UCS-MR-2X324RX-C DIMM kits per CPU.

Caveats

- The only supported DIMM configurations are shown in [Table 5 on page 12](#) and [Table 6](#). The DIMMs are sold in matched pairs, which must be installed in pairs shown in the tables. Switching out one of the DIMMs within the matched pair will lead to memory errors.
- The B440 M2 server needs at least two DIMM pairs installed for each CPU for optimal performance
- DIMMs sold as kits are matched pairs and must remain together when installed in a particular pair of same-colored (blue, white, yellow, or black) pairs of slots.
- The DIMMs installed in slots for an absent CPU are not recognized.
- Memory DIMMs should be installed evenly across the installed CPUs, though it is not a requirement.
- Mixing DIMM speeds will cause the faster DIMMs to run at the speed of the slower DIMMs.
- Your selected CPU(s) can have some affect on performance. The CPUs must be of the same type.

STEP 4 CHOOSE HARD DISK DRIVES or SOLID-STATE DRIVES

The standard disk drive features are:

- Small form factor HDDs or SSDs
- Hot-pluggable
- Sled-mounted

Choose Drives

The available drives are listed in [Table 7](#).

Table 7 Available Hot-Pluggable Sled-Mounted HDDs or SSDs

Product ID (PID)	PID Description	Drive Type	Capacity
HDDs			
A03-D300GA2	300 GB 6 Gb SAS 10K RPM SFF HDD	SAS	300 GB
UCS-HDD300G12F105	300 GB 6 Gb SAS 15K RPM SFF HDD	SAS	300 GB
A03-D600GA2	600 GB 6 Gb SAS 10K RPM SFF HDD	SAS	600 GB
UCS-HDD900G12F106	900 GB 6 Gb SAS 10K RPM SFF HDD	SAS	900 GB
SSDs			
UCS-SD400G0KA2-G	400 GB SATA 2.5" Enterprise Value SSD	SATA	400 GB
UCS-SD300G0KA2-E	300 GB SATA 2.5" Enterprise Performance SSD	SATA	300 GB
UCS-SD200G0KA2-E	200 GB SATA 2.5" Enterprise Performance SSD	SATA	200 GB
UCS-SD100G0KA2-G	100 GB SATA 2.5" Enterprise Value SSD	SATA	100 GB

Approved Configurations

(1) Zero to Four Drives

- Select from 0 to 4 drives from [Table 7](#).

Caveats

- You can mix SAS/SATA drives, but not HDD/SSD drives. See [STEP 5 CHOOSE RAID CONFIGURATION, page 15](#) for available RAID configurations.
- You cannot mix HDDs and SSDs.

STEP 5 CHOOSE RAID CONFIGURATION

The B440 M2 server integrates the LSI SAS2108 6G SAS RAID controller.

Choose RAID Options

If desired, choose the RAID 5, 6 upgrade option and battery backup option listed in [Table 8](#). The BBU is an intelligent battery backup unit that protects disk write cache data during a power loss on the RAID controller for up to 72 hours. We recommend that you replace the battery backup unit (BBU) once per year or after 1,000 recharge cycles, whichever comes first.



CAUTION: Hot swapping the BBU is not supported. Please perform a graceful shutdown of the server prior to replacing the BBU.

Table 8 Available RAID Options

Product ID (PID)	PID Description
RAID Battery Backup Option	
N20-LBBU	Battery backup unit for 1 GB write cache
RAID Configuration	
N20-BRAID-K1	RAID upgrade supporting RAID 5 and 6

Caveats

- No RAID option will be effective if you have a mix of SAS and SATA drives.
- No RAID option is possible if you have no drives.
- You must have at least one drive installed in order to add an optional battery backup unit.

STEP 6 CHOOSE MEZZANINE OPTION CARD(S)

The standard PCIe card offerings are:

- Virtual Interface Card (VIC)
- Converged Network Adapters (CNA)

Choose a PCIe Option Card

The available PCIe option cards are listed in [Table 9](#).

Table 9 Available PCIe Option Cards

Product ID (PID)	PID Description
Virtual Interface Cards (VICs)	
UCS-VIC-M82-8P	Cisco UCS VIC 1280 dual 40Gb capable Virtual Interface Card
N20-AC0002 ¹	UCS M81KR Virtual Interface Card/PCIe/2-port 10Gb
Converged Network Adapters (CNA)	
UCSB-MEZ-QLG-03 ²	Cisco UCS CNA M73KR-Q Qlogic Adapter
UCSB-MEZ-ELX-03 ³	Cisco UCS CNA M73KR-E Emulex Adapter

Notes . . .

1. The UCS M81KR VIC is no longer orderable.
2. This new M73KR-Q adapter is the nearest equivalent replacement for the obsolete M72KR-Q adapter.
3. This new M73KR-E adapter is the nearest equivalent replacement for the obsolete M72KR-E adapter.

Approved Configurations

(1) Select at least one PCIe Mezzanine Card (mandatory)

You must select at least one card and may select up to two cards.



NOTE: The server must be running UCS Manager v1.3 (N10-MGT005) or later to support two adapter cards.

To help ensure that your operating system is compatible with the cards 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

(2) Supported Combinations

Table 10 Supported Adapter Combinations Options

Fabric Extender Compatibility	Adapter Slot 1	Adapter Slot 2	Ports	Reference
2208XP (PIDs UCS-IOM-2208XP, UCS-IOM2208-16FET) or 2204XP (PIDs UCS-IOM-2204XP, UCS-IOM2204-8FET)				
2208XP/2204XP	None	Emulex or QLogic adapter	2 x 10 Gb	Figure 8 on page 32
2208XP/2204XP	Emulex or QLogic adapter	None	2 x 10 Gb	Figure 9 on page 33
2208XP/2204XP	Emulex Adapter or QLogic adapter ¹	Emulex Adapter or QLogic adapter ¹	4 x 10 Gb	Figure 10 on page 33
2208XP/2204XP	VIC 1280	None	4 x 10 Gb	Figure 11 on page 34
2208XP/2204XP	None	VIC 1280	4 x 10 Gb	Figure 12 on page 34
2208XP/2204XP	VIC 1280	VIC 1280	4 x 10 Gb	Figure 13 on page 35
2208XP/2204XP	VIC 1280	Emulex or QLogic adapter	4 x 10 Gb	Figure 14 on page 35
2208XP/2204XP	Emulex or QLogic adapter	VIC 1280	4 x 10 Gb	Figure 15 on page 36
2104XP (PID N20-I6584)				
2104 XP	None	Emulex or QLogic adapter	2 x 10 Gb	Figure 16 on page 37
2104 XP	Emulex or QLogic adapter	None	2 x 10 Gb	Figure 17 on page 37
2104 XP	Emulex Adapter or QLogic adapter ²	Emulex Adapter or QLogic adapter ²	2 x 10 Gb	Figure 18 on page 38
2104 XP	VIC 1280	None	2 x 10 Gb	Figure 19 on page 38
2104 XP	None	VIC 1280	2 x 10 Gb	Figure 20 on page 39
2104 XP	VIC 1280	VIC 1280	2 x 10 Gb	Figure 21 on page 39
2104 XP	VIC 1280	Emulex or QLogic adapter	2 x 10 Gb	Figure 22 on page 40
2104 XP	Emulex or QLogic adapter	VIC 1280	2 x 10 Gb	Figure 23 on page 40

Notes . . .

1. Do not mix Emulex and QLogic adapters
2. Do not mix Emulex and QLogic adapters

STEP 7 CHOOSE OPERATING SYSTEM AND VALUE-ADDED SOFTWARE

Several operating systems and value-added software programs are available. Select as desired from [Table 1](#).

Table 11 OSs and Value-Added Software (for 4-CPU servers)

PID Description	Product ID (PID)
Microsoft Windows Server	
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
SUSE	
SLES-2S2V-1A	SUSE Linux Enterprise Srvr (1-2 CPU,1 Phys);1yr Support Reqd
SLES-2S2V-3A	SUSE Linux Enterprise Srvr (1-2 CPU,1 Phys);3yr Support Reqd
SLES-2S2V-5A	SUSE Linux Enterprise Srvr (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-2S2V-1A	SUSE Linux Enterprise Srvr (4 CPU,1 Phys); 1yr Support Reqd
SLES-2S2V-3A	SUSE Linux Enterprise Srvr (4 CPU,1 Phys); 3yr Support Reqd
SLES-2S2V-5A	SUSE Linux Enterprise Srvr (4 CPU,1 Phys); 5yr Support Reqd
SLES-2SUV-1A	SUSE Linux Enterprise Srvr (4 CPU,Unl Vrt); 1yr Support Reqd
SLES-2SUV-3A	SUSE Linux Enterprise Srvr (4 CPU,Unl Vrt); 3yr Support Reqd
SLES-2SUV-5A	SUSE Linux Enterprise Srvr (4 CPU,Unl Vrt); 5yr Support Reqd
SLES-2S-HA-1S	SUSE Linux High Availability Ext (1-2 CPU); 1yr Support Reqd
SLES-2S-HA-3S	SUSE Linux High Availability Ext (1-2 CPU); 3yr Support Reqd
SLES-2S-HA-5S	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

Table 11 OSs and Value-Added Software (for 4-CPU servers) *(continued)*

PID Description	Product ID (PID)
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
Red Hat Enterprise Linux	
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 Storage w/HA /2 Socket/1 Yr Svcs Reqd
RHEL-RS-2S-3A	RHEL Option/Resilient Storage w/HA /2 Socket/3 Yr Svcs Reqd
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
Nexus 1000V for Hyper-V and vSphere	
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
UCS Director	
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
UCS Performance Manager	
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
IMC Supervisor	
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
VMWare 5	
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

Table 11 OSs and Value-Added Software (for 4-CPU servers) *(continued)*

PID Description	Product ID (PID)
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
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

STEP 8 CHOOSE OPERATING SYSTEM MEDIA KIT

Choose the optional operating system media listed in [Table 12](#).

Table 12 OS Media

Product ID (PID)	PID Description
RHEL-6	RHEL 6 Recovery Media Only (Multilingual)
SLES-11	SLES 11 media only (multilingual)
MSWS-08R2-STHV-RM	Windows Svr 2008 R2 ST (1-4CPU, 5CAL), Media
MSWS-08RS-ENHV-RM	Windows Svr 2008 R2 EN (1-8CPU, 25CAL), Media
MSWS-08R2-DCHV-RM	Windows Svr 2008 R2 DC (1-8CPU, 25CAL), Media
MSWS-12-ST2S-RM	Windows Server 2012 Standard (2 CPU/2 VMs) Recovery Media
MSWS-12-DC2S-RM	Windows Server 2012 Datacenter (2 CPU/Unlimited VM) Rec Media
MSWS-12R2-ST2S-RM	Windows Server 2012 R2 Standard (2 CPU/2 VMs) Recovery Media
MSWS-12R2-DC2S-RM	Windows Server 2012 R2 Datacen(2 CPU/Unlimited VM) Rec Media

STEP 9 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) onsite parts replacement eight hours a day, five days a week.
- 90-day software warranty on media.
- Ongoing 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.

SMARTnet for UCS

For support of the entire Unified Computing System, Cisco offers the Cisco SMARTnet for UCS 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 Cisco SMARTnet for UCS 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 13](#).

Table 13 Cisco SMARTnet for UCS Service

Product ID (PID)	On Site?	Description
CON-PREM-B440M2	Yes	ONSITE 24X7X2 UCS B440 M2 Blade Server
CON-OSP-B440M2	Yes	ONSITE 24X7X4 UCS B440 M2 Blade Server
CON-OSE-B440M2	Yes	ONSITE 8X5X4 UCS B440 M2 Blade Server
CON-OS-B440M2	Yes	ONSITE 8X5XNBD UCS B440 M2 Blade Server
CON-S2P-B440M2	No	SMARTNET 24X7X2 UCS B440 M2 Blade Server
CON-SNTP-B440M2	No	SMARTNET 24X7X4 UCS B440 M2 Blade Server
CON-SNTE-B440M2	No	SMARTNET 8X5X4 UCS B440 M2 Blade Server
CON-SNT-B440M2	No	SMARTNET 8X5XNBD UCS B440 M2 Blade Server

SMARTnet for UCS Hardware Only Service

For faster parts replacement than is provided with the standard Cisco Unified Computing System warranty, Cisco offers the Cisco SMARTnet for UCS Hardware Only Service. You can choose from two levels of advanced onsite parts replacement coverage in as little as four hours. SMARTnet for UCS Hardware Only Service 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 14](#).

Table 14 SMARTnet for UCS Hardware Only Service

Product ID (PID)	Service Level GSP	On Site?	Description
CON-UCW7-B440M2	UCW7	Yes	UC PLUS 24X7X4OS UCS B440 M2 Blade Server
CON-UCW5-B440M2	UCW5	Yes	UC PLUS 8X5XNBDOS UCS B440 M2 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

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 15](#).

Table 15 Partner Support Service for UCS

Product ID (PID)	Service Level GSP	On Site?	Description
CON-PSJ1-B440M2	PSJ1	No	UCS SUPP PSS 8X5XNBD UCS B440 M2 Blade Server
CON-PSJ2-B440M2	PSJ2	No	UCS SUPP PSS 8X5X4 UCS B440 M2 Blade Server
CON-PSJ3-B440M2	PSJ3	No	UCS SUPP PSS 24X7X4 UCS B440 M2 Blade Server
CON-PSJ4-B440M2	PSJ4	No	UCS SUPP PSS 24X7X2 UCS B440 M2 Blade Server

Partner Support Service for UCS Hardware Only provides customers with replacement parts in as little as two hours. See [Table 16](#).

Table 16 Partner Support Service for UCS (Hardware Only)

Product ID (PID)	Service Level GSP	On Site?	Description
CON-PSW2-B440M2	PSW2	No	UCS W PL PSS 8X5X4 UCS B440 M2 Blade Server
CON-PSW3-B440M2	PSW3	No	UCS W PL PSS 24X7X4 UCS B440 M2 Blade Server
CON-PSW4-B440M2	PSW4	No	UCS W PL PSS 24X7X2 UCS B440 M2 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 17](#).

Table 17 UCS Computing Combined Support Service

Product ID (PID)	Service Level GSP	On Site?	Description
CON-NCF2-B440M2	NCF2	No	CMB SPT SVC 24X7X2 UCS B440 M2 Blade Server
CON-NCF2P-B440M2	NCF2P	Yes	CMB SPT SVC 24X7X2OS UCS B440 M2 Blade Server
CON-NCF4P-B440M2	NCF4P	Yes	CMB SPT SVC 24X7X4OS UCS B440 M2 Blade Server
CON-NCF4S-B440M2	NCF4S	Yes	CMB SPT SVC 8X5X4OS UCS B440 M2 Blade Server
CON-NCFCS-B440M2	NCFCS	Yes	CMB SPT SVC 8X5XNBDOS UCS B440 M2 Blade Server
CON-NCFE-B440M2	NCFE	No	CMB SPT SVC 8X5X4 UCS B440 M2 Blade Server
CON-NCFP-B440M2	NCFP	No	CMB SPT SVC 24X7X4 UCS B440 M2 Blade Server
CON-NCFT-B440M2	NCFT	No	CMB SPT SVC 8X5XNBD UCS B440 M2 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 18](#).



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

Table 18 Drive Retention Service Options

Service Description	Service Program Name	Service Level GSP	Service Level	Product ID (PID)
SMARTnet for UCS Service with Drive Retention	UCS DR	UCSD7	24x7x4 Onsite	CON-UCSD7-B440M2
		UCSD7	8x5xNBD Onsite	CON-UCSD5-B440M2

Table 18 Drive Retention Service Options (*continued*)

Service Description	Service Program Name	Service Level GSP	Service Level	Product ID (PID)
SMARTnet for UCS HW ONLY+Drive Retention	UCS HW+DR	UCWD7	24x7x4 Onsite	CON-UCWD7-B440M2
		UCWD5	8x5xNBD Onsite	CON-UCWD5-B440M2

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

http://www.cisco.com/en/US/services/ps2961/ps10312/Unified_Computing_Services_Overview.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

ORDER OPTIONAL KVM CABLE

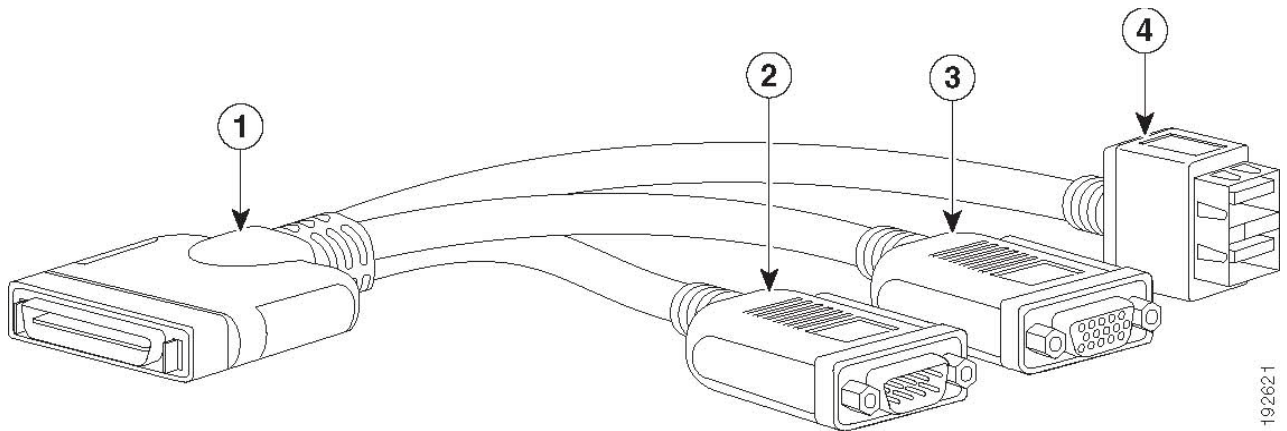
The KVM cable provides a connection into the server, providing a DB9 serial connector, a VGA connector for a monitor, and dual USB 2.0 ports for a keyboard and mouse. With this cable, you can create a direct connection to the operating system and the BIOS running on the server.

The KVM cable ordering information is listed in [Table 19](#).

Table 19 KVM Cable

Product ID (PID)	PID Description
37-1016-01	KVM Cable

Figure 4 KVM Cable



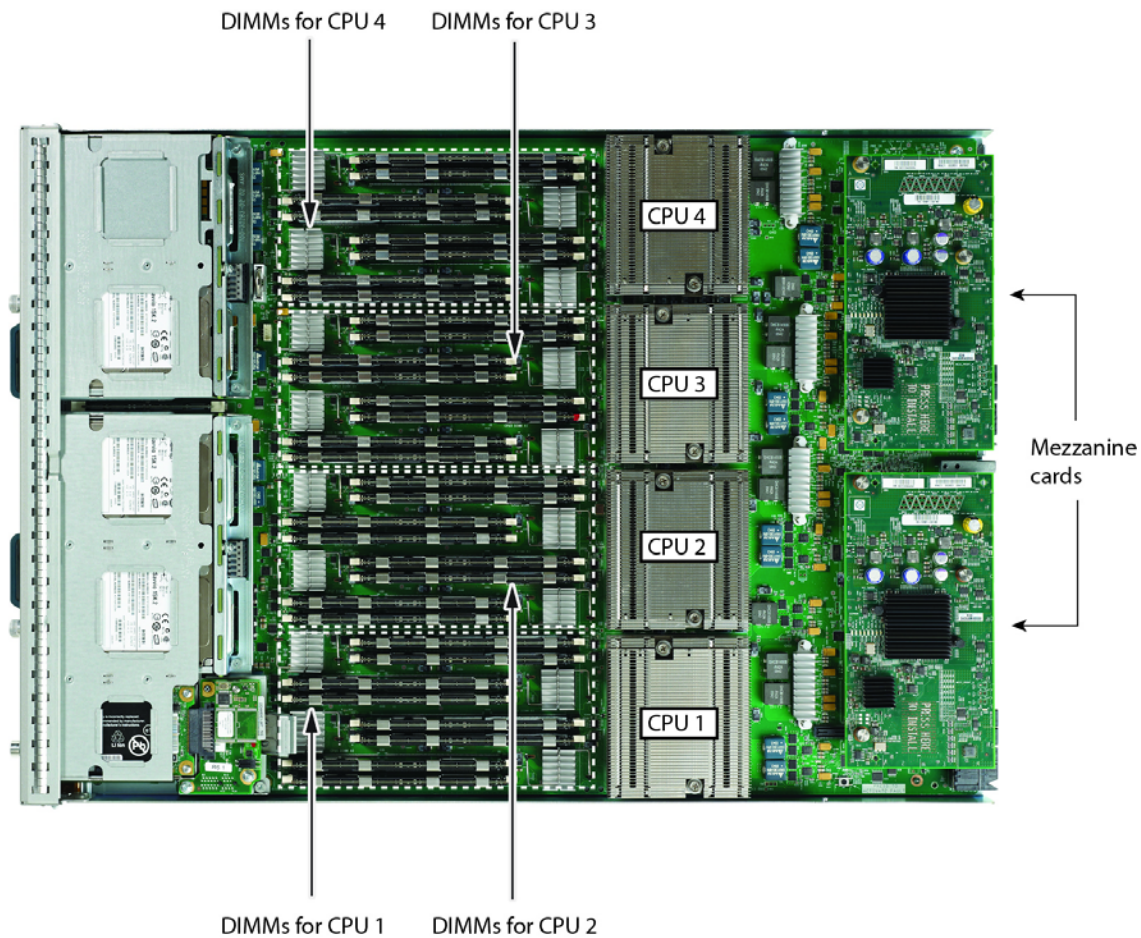
1	Connector (to server front panel)	3	VGA connector (for a monitor)
2	DB-9 serial connector	4	Two-port USB 2.0 connector (for a mouse and keyboard)

SUPPLEMENTAL MATERIAL

Motherboard

A top view of the B440 M2 motherboard is shown in *Figure 5*.

Figure 5 B440 M2 Motherboard



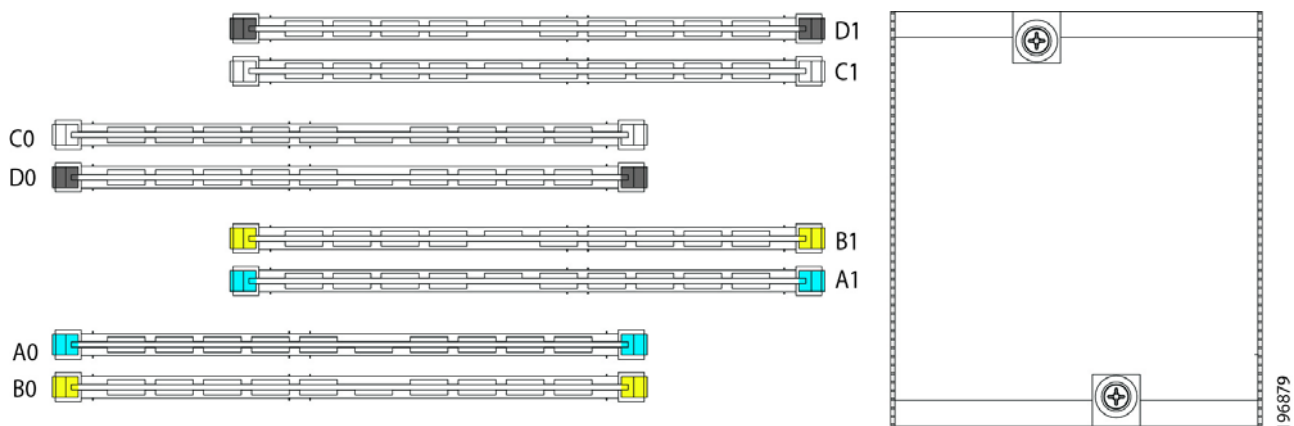
DIMM and CPU Layout

Each CPU controls four memory channels, as follows (refer to [Figure 3 on page 11](#)):

- Channels A, B, C, and D
 - Bank 0: A0 (blue DIMM slot), C0 (white DIMM slot), B0 (yellow DIMM slot), D0 (black DIMM slot)
 - Bank 1: A1 (blue DIMM slot), C1 (white DIMM slot), B1 (yellow DIMM slot), D1 (black DIMM slot)

The DIMM and CPU physical layout is shown in [Figure 6](#). Each CPU is located to the right of the DIMMs it controls.

Figure 6 DIMM and CPU Layout



NOTE: DIMMs installed in slots for an absent CPU are not recognized.

Memory Population Recommendations

See [Table 5 on page 12](#). Note that DIMMs in slots of the same color must be electrically paired with each other, and should be populated with identically matched DIMMs that were ordered as a pair. Do not swap a paired DIMM with a DIMM that is not identical in manufacturer part number.

When considering the memory configuration of your server, you should observe the following:

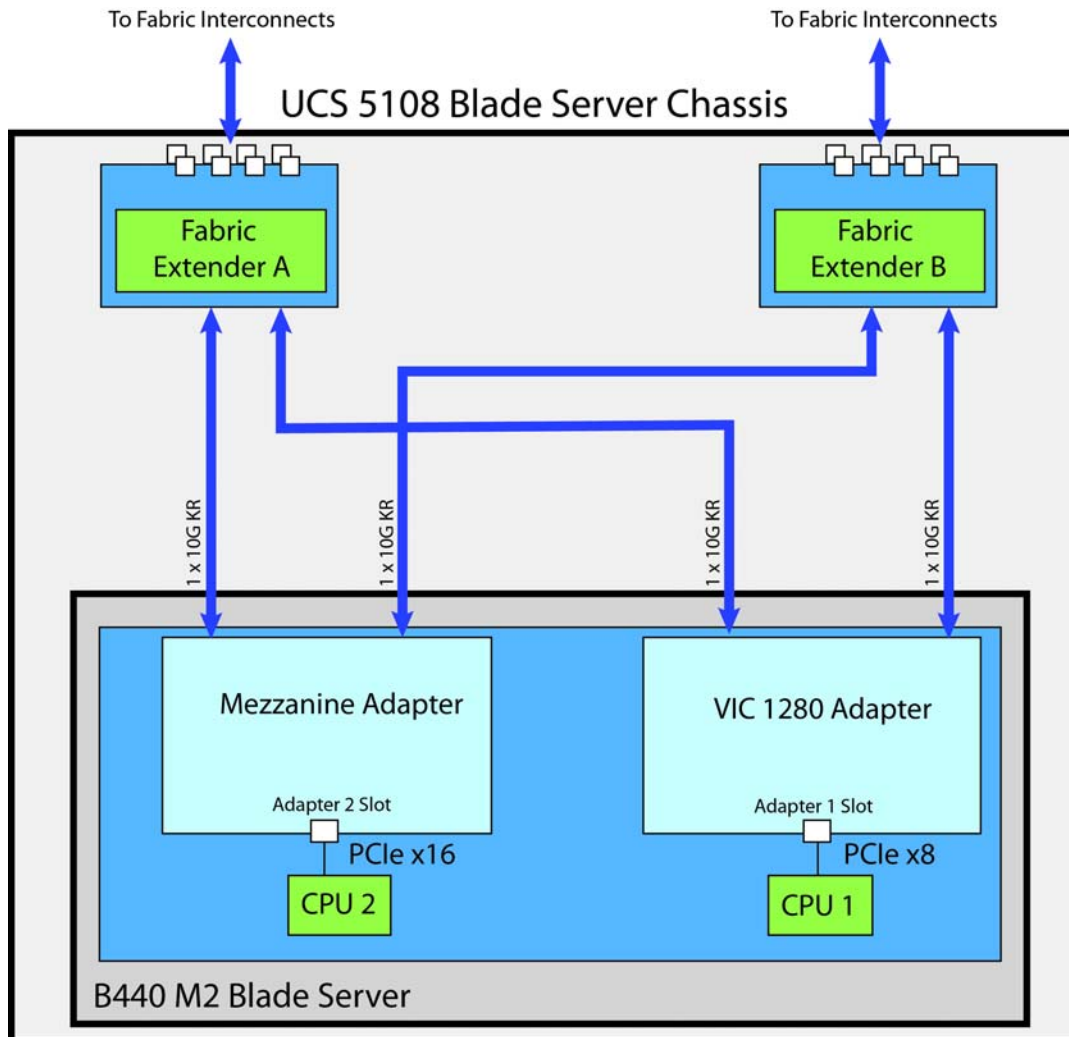
- There is only one DIMM slot (one bank) in each of the DDR channels. Therefore, all DIMM pairs in a B440 M2 server must be identical.
- Your selected CPU(s) can have some effect on performance. All CPUs in the server must be of the same type.
- Performance degradation can result from the following:
 - Mixing DIMM sizes and densities within a pair is not allowed and both DIMMs in the pair will be logically removed from the memory array

- Unevenly populating DIMMs between CPUs
- Populating channels with an odd number of total ranks (for example, mixing single-rank and dual-rank DIMMs)
- Using anything other than 4 or 8 DIMMs per CPU properly placed in the system

Network Connectivity

This section explains how the UCS B440 M2 server connects to Fabric Interconnects using the network I/O adapters in the UCS B440 M2 blade server and the Fabric Extender modules in the UCS 5108 blade server chassis. The UCS B440 M2 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 B440 M2 blade server to the Fabric Extenders. [Figure 7](#) shows an example configuration where two 1 x 10G KR ports are routed from the VIC 1280 adapter to the Fabric Extender modules, and two 1 x 10G KR ports are routed from the mezzanine adapter to the Fabric Extender modules.

Figure 7 UCS B440 M2 Connections to the Fabric Extenders



The server accommodates two types of network I/O adapters. One is the Cisco VIC 1280 network I/O adapter. The other is an Emulex or QLogic I/O adapter. Any adapter can be plugged into either slot; however, the supported combinations listed in [Table 10 on page 17](#) must be observed.

The network adapter options are:

- VIC 1280 Mezzanine adapter. This adapter plugs into either mezzanine slot and is capable of 4x10Gb ports in the UCS B440 M2 server, depending on the Fabric Extender chosen (see [Table 10 on page 17](#)) and 256 PCIe devices.
- Emulex or QLogic I/O adapter. These adapters plug into either mezzanine slot and are capable of 2x10Gb ports in the UCS B440 M2 server, depending on the Fabric Extender chosen.



NOTE: External bandwidth is a function of both the fabric extender and the adapter(s) installed. With two 2208XP or 2204XP fabric extenders, the maximum bandwidth per B440 M2 blade is 4 x 10Gb. With two 2104XP fabric extenders, the maximum bandwidth per B440 M2 blade is 2 x 10 Gb.

Connectivity using the Cisco UCS 2204/2208XP Fabric Extender

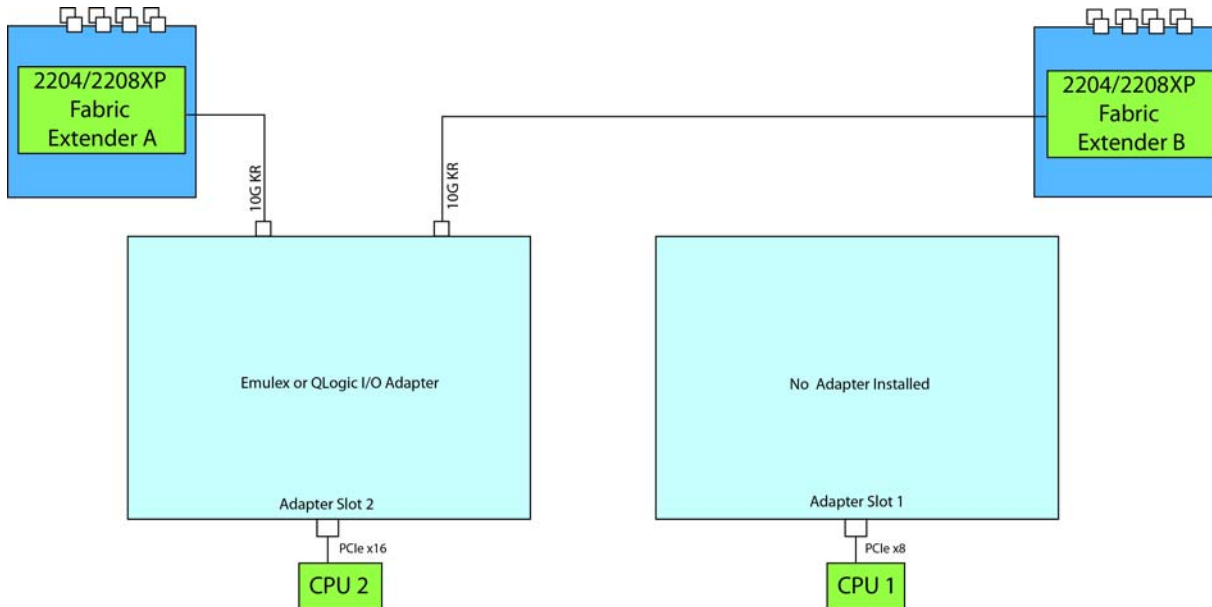
The Cisco UCS 2204XP and 2208XP are second-generation Fabric Extenders, and share the same form factor as the current UCS 2100 series. The 2204XP and 2208XP are backwards compatible with the UCS 5108 Blade server chassis.

The options shown in [Figure 8](#) through [Figure 15](#) demonstrate how the server uses these options:

- Emulex or QLogic I/O adapter to 2204/2208XP
- VIC 1280 to 2204/2208XP
- VIC 1280 and Emulex or QLogic I/O adapter to 2204/2208XP

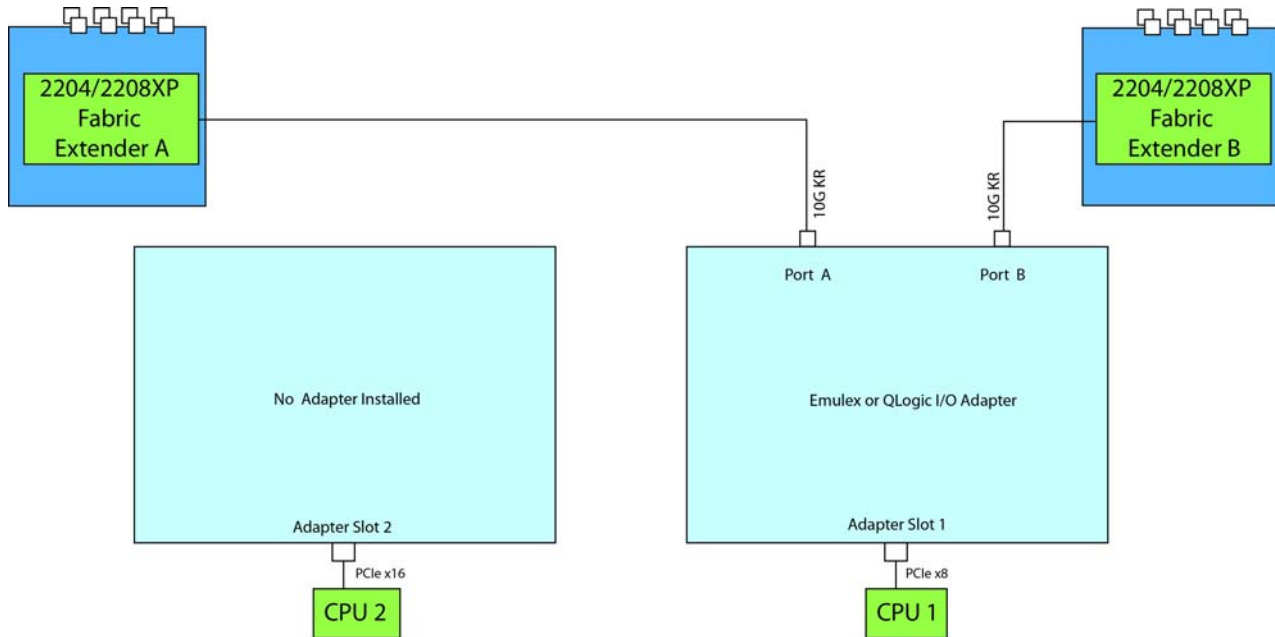
In [Figure 8](#), there is no adapter installed in adapter slot 1. In this case, an Emulex or QLogic I/O adapter is installed in adapter 2 slot. Ports A and B of the adapter connect to the Fabric Extenders, providing 10 Gbps per port, for a total of 20 Gbps throughput.

Figure 8 Emulex or QLogic I/O Adapter to UCS 2204/2208XP Fabric Extender (no slot 1 adapter)



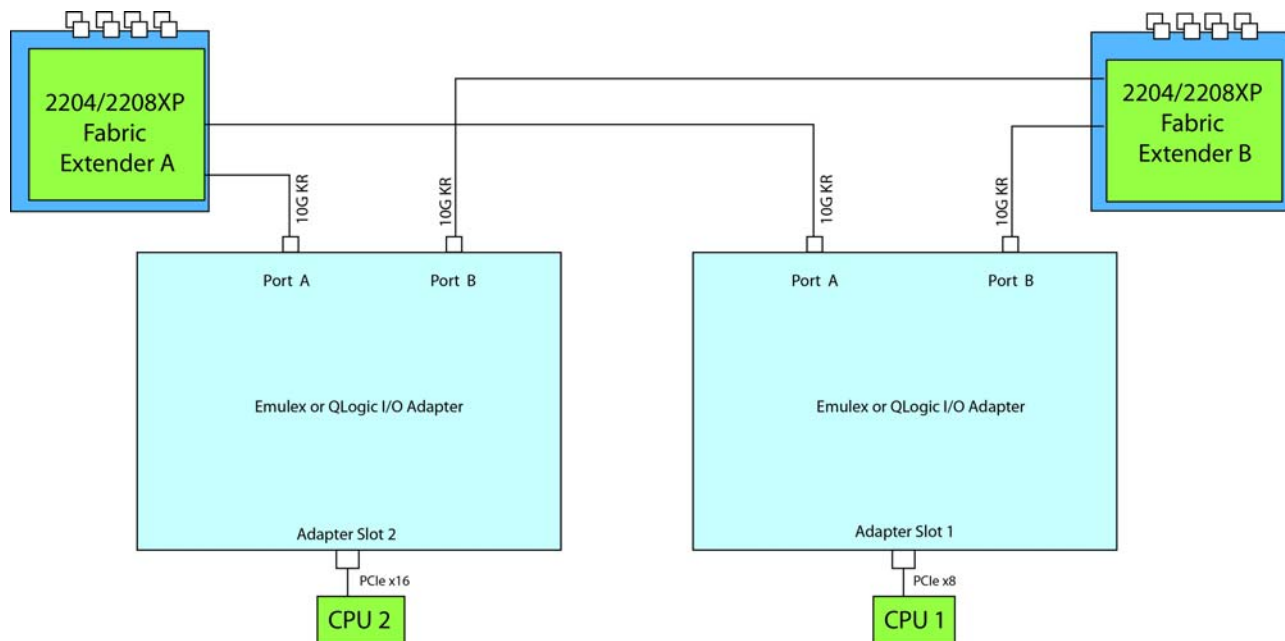
In *Figure 8*, there is no adapter installed in adapter slot 2. In this case, an Emulex or QLogic I/O adapter is installed in adapter 1 slot. Ports A and B of the mezzanine adapter connect to the Fabric Extenders, providing 10 Gbps per port, for a total of 20 Gbps throughput.

Figure 9 Emulex or QLogic I/O Adapter to UCS 2204/2208XP Fabric Extender (no slot 2 adapter)



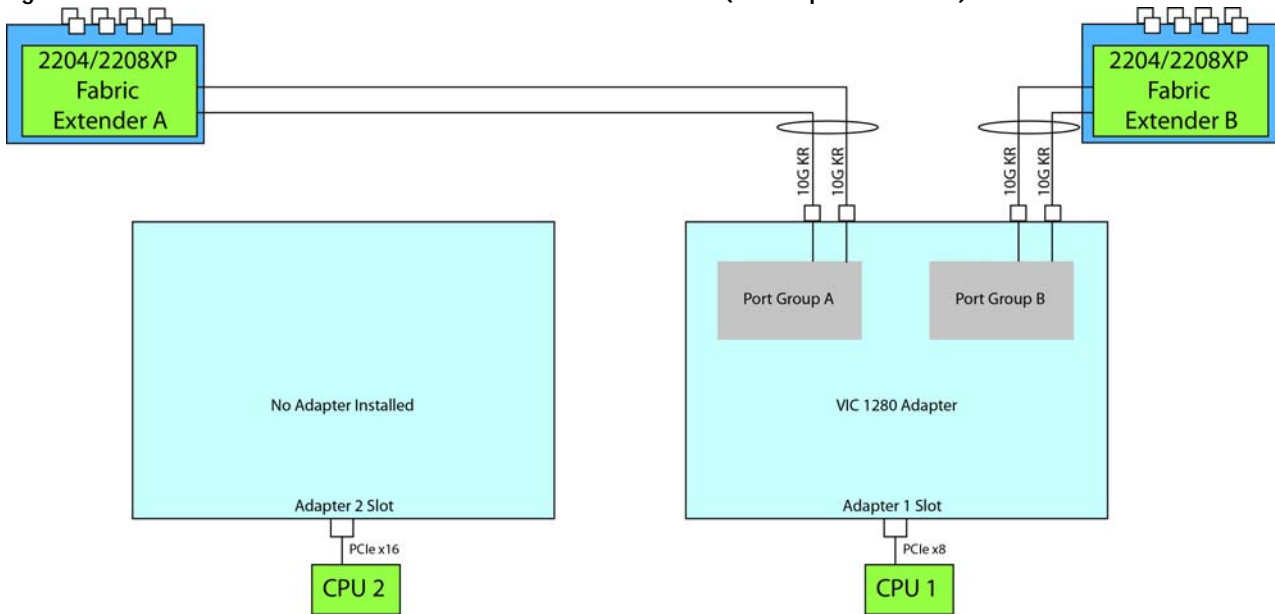
In *Figure 10*, either two identical Emulex or two identical QLogic adapters are installed (do not mix Emulex and QLogic adapters). Ports A and B of each adapter connect to the Fabric Extenders, providing 10 Gbps per port, for a total of 40 Gbps throughput.

Figure 10 Two Emulex or QLogic I/O Adapters to UCS 2204/2208XP Fabric Extender



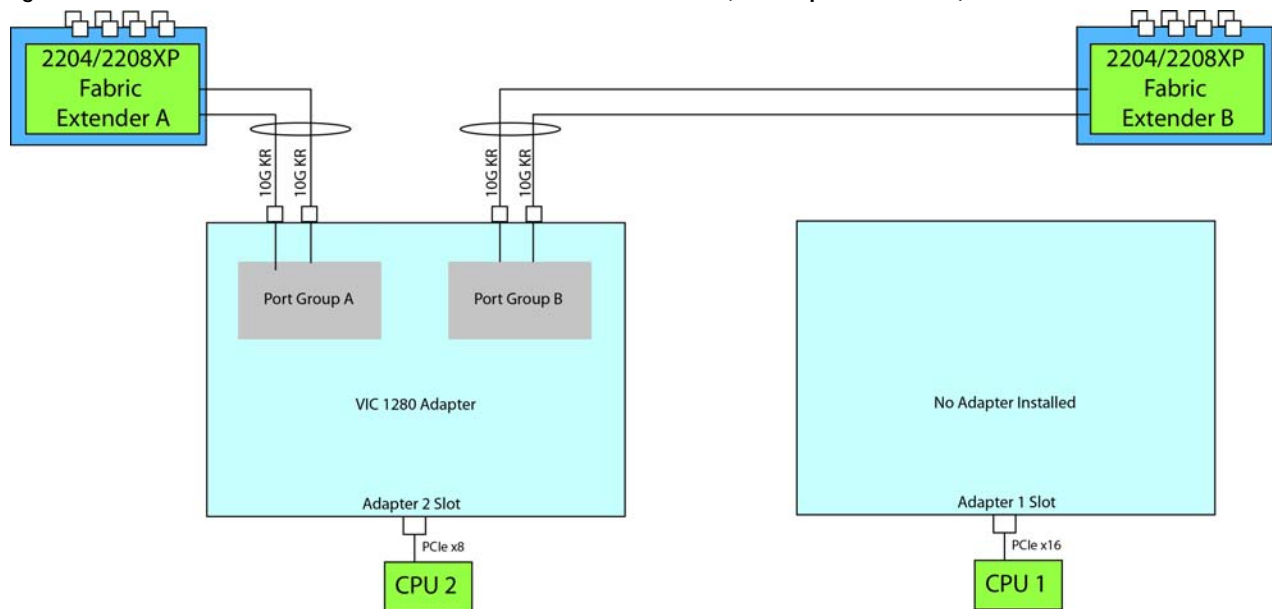
In *Figure 11*, two ports from the VIC 1280 in slot 1 are channeled to Fabric Extender A and two are channeled to Fabric Extender B. The result is 20 Gbps of bandwidth to each Fabric Extender. There is no adapter installed in adapter 2 slot.

Figure 11 VIC 1280 to UCS 2204/2208XP Fabric Extender (no adapter in slot 2)



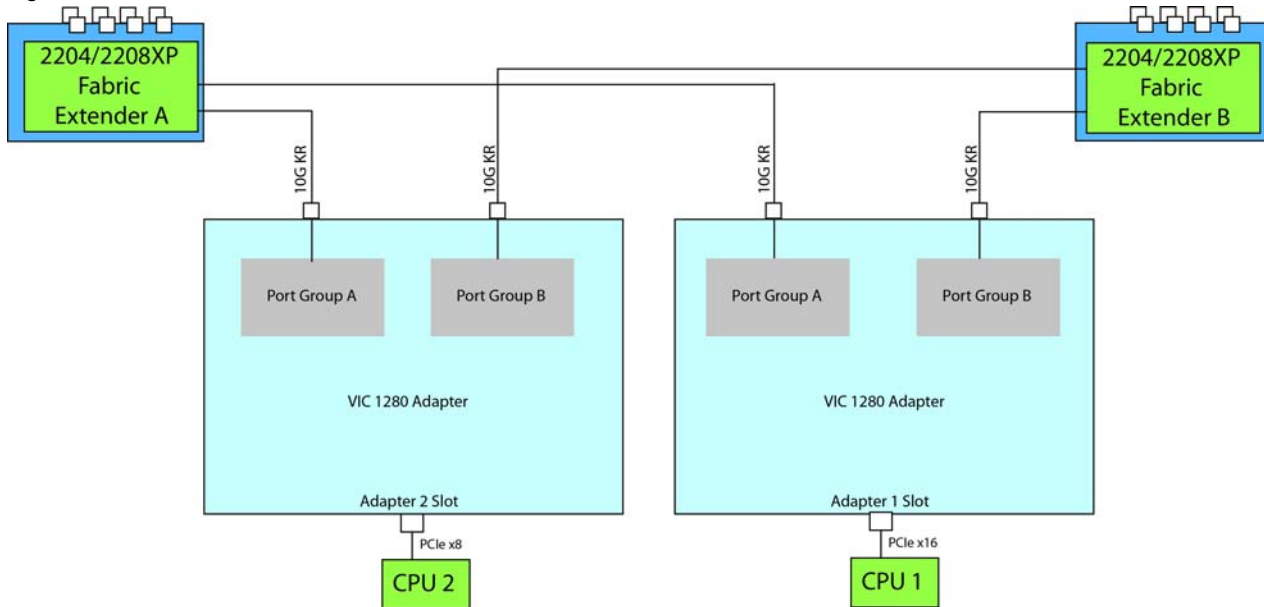
In *Figure 12*, two ports from the VIC 1280 in slot 2 are channeled to Fabric Extender A and two are channeled to Fabric Extender B. The result is 20 Gbps of bandwidth to each Fabric Extender. There is no adapter installed in adapter 1 slot.

Figure 12 VIC 1280 to UCS 2204/2208XP Fabric Extender (no adapter in slot 1)



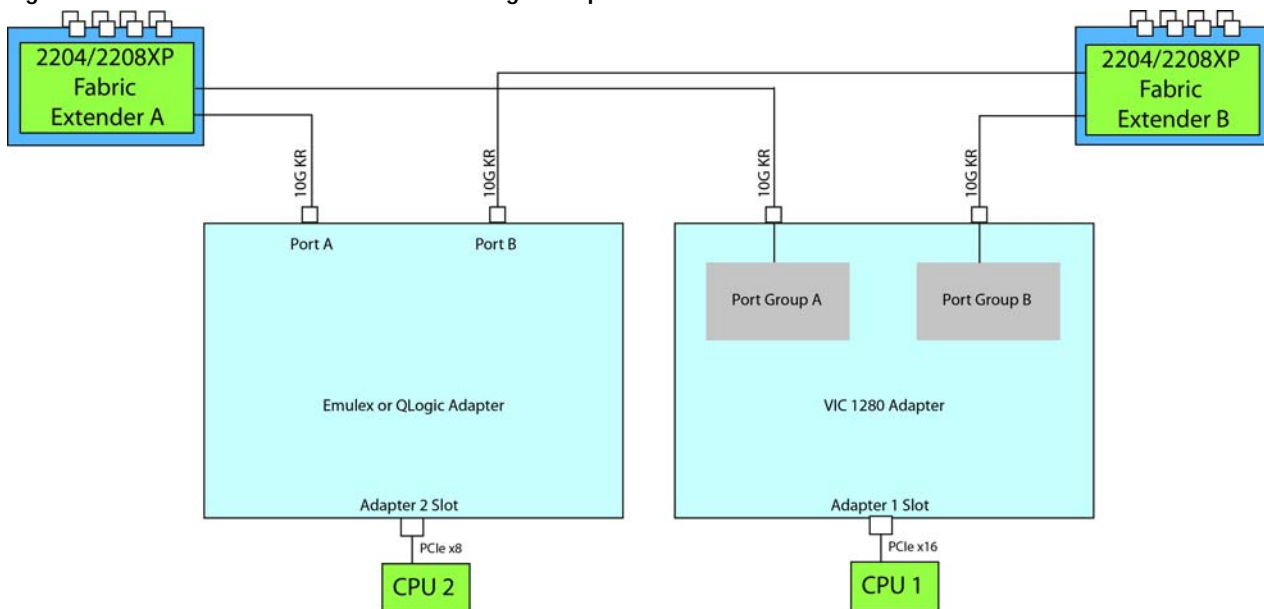
In *Figure 13*, there are two VIC 1280 adapters installed. One port from each VIC 1280 is connected to Fabric Extender A and one is connected to Fabric Extender B. The result is 20 Gbps of bandwidth to each Fabric Extender.

Figure 13 Two VIC 1280s to UCS 2204/2208XP Fabric Extender



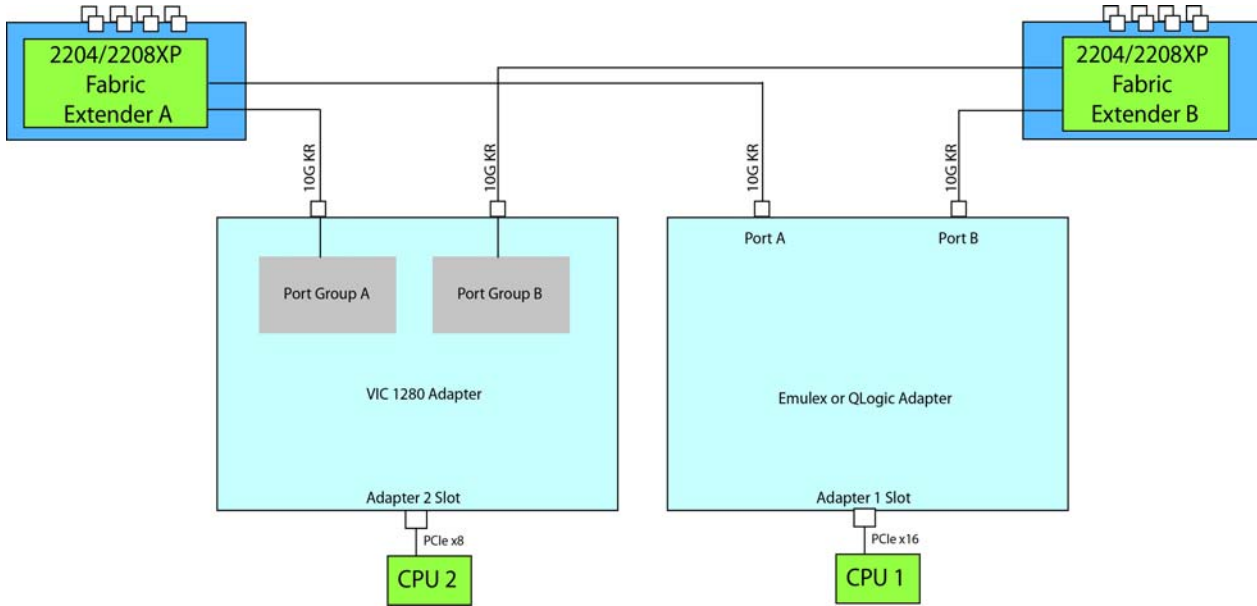
In *Figure 14*, one port from the VIC 1280 in slot 1 is connected to Fabric Extender A and one is connected to Fabric Extender B. Likewise, one port from the QLogic or Emulex adapter in slot 2 is also connected to each Fabric Extender. The result is 20 Gbps of bandwidth to each Fabric Extender.

Figure 14 VIC 1280 and Emulex or QLogic adapter to UCS 2204/2208XP Fabric Extender



In *Figure 15*, one port from the VIC 1280 in slot 2 is connected to Fabric Extender A and one is connected to Fabric Extender B. Likewise, one port from the QLogic or Emulex adapter in slot 1 is also connected to each Fabric Extender. The result is 20 Gbps of bandwidth to each Fabric Extender.

Figure 15 VIC 1280 and Emulex or QLogic adapter to UCS 2204/2208XP Fabric Extender



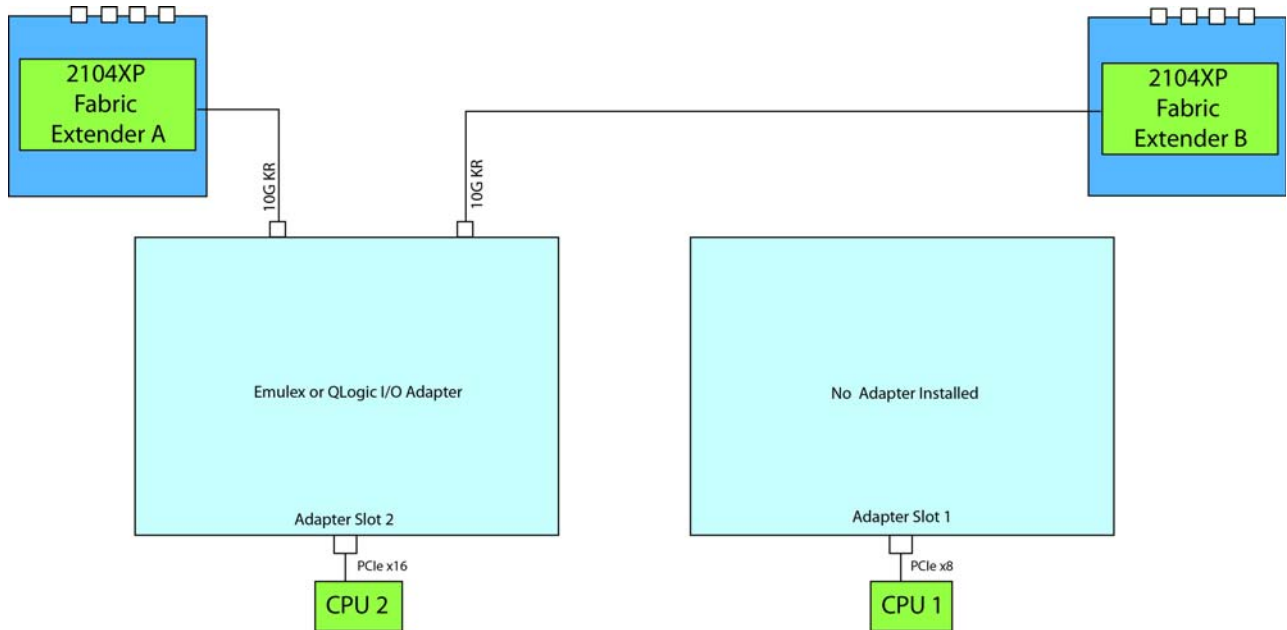
Connectivity using the Cisco UCS 2104XP Fabric Extender

The options shown in *Figure 16* through *Figure 23* demonstrate how the server uses these options:

- Emulex or QLogic I/O adapter to 2104XP
- VIC 1280 to 2204/2208XP
- VIC 1280 and Emulex or QLogic I/O adapter to 2104XP

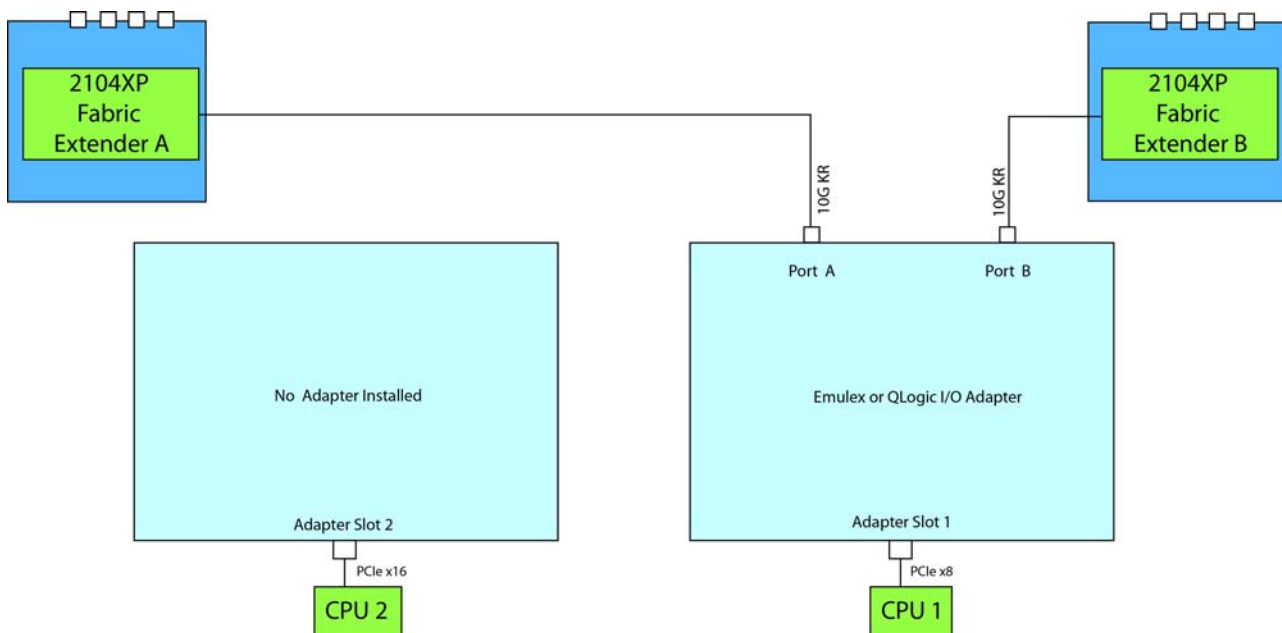
In *Figure 16 on page 37*, there is no adapter installed in adapter slot 1. In this case, an Emulex or QLogic I/O adapter is installed in adapter 2 slot. Ports A and B of the adapter connect to the Fabric Extenders, providing 10 Gbps per port, for a total of 20 Gbps throughput.

Figure 16 Emulex or QLogic I/O Adapter to UCS 2104XP Fabric Extender (no slot 1 adapter)



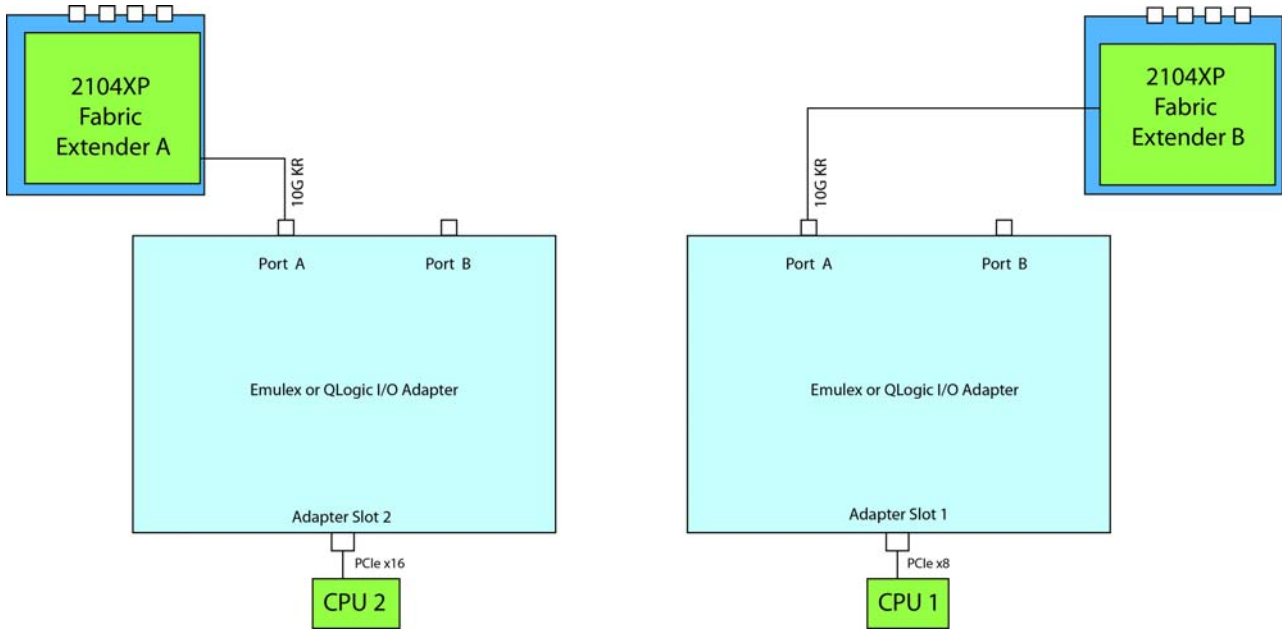
In *Figure 17*, there is no adapter installed in adapter slot 2. In this case, an Emulex or QLogic I/O adapter is installed in adapter 1 slot. Ports A and B of the mezzanine adapter connect to the Fabric Extenders, providing 10 Gbps per port, for a total of 20 Gbps throughput.

Figure 17 Emulex or QLogic I/O Adapter to UCS 2204/2208XP Fabric Extender (no slot 2 adapter)



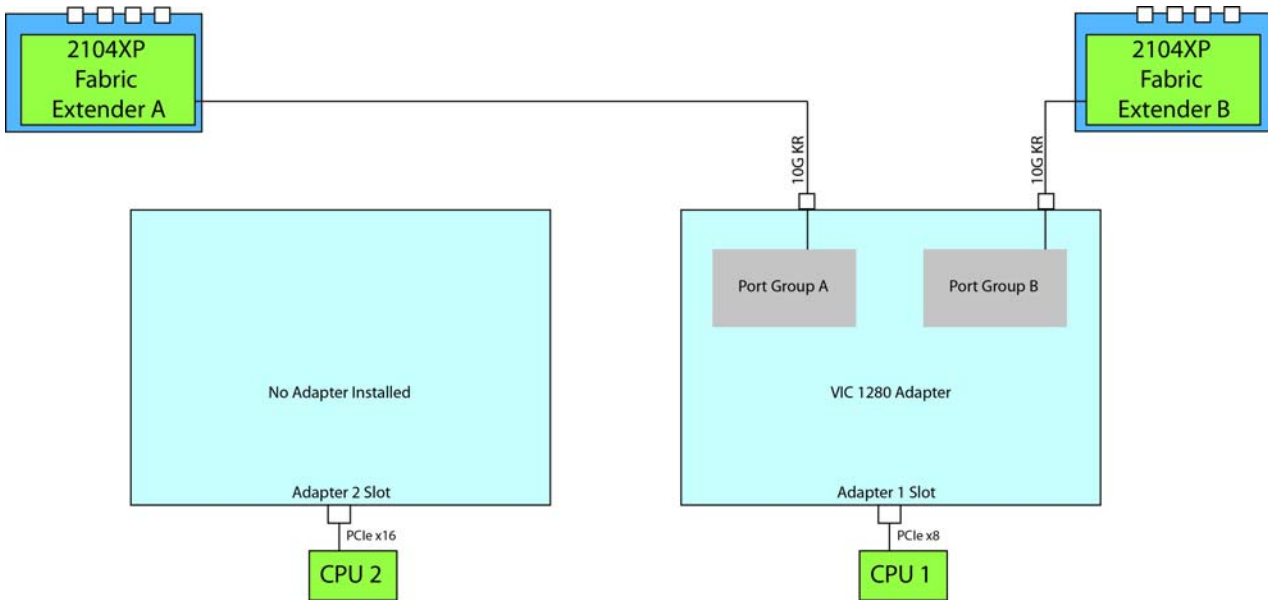
In *Figure 18*, either two identical Emulex or two identical QLogic adapters are installed (do not mix Emulex and QLogic adapters). Port A of each adapter connects to the Fabric Extenders, providing 10 Gbps per port, for a total of 20 Gbps throughput.

Figure 18 Two Emulex or QLogic I/O Adapters to UCS 2104XP Fabric Extender



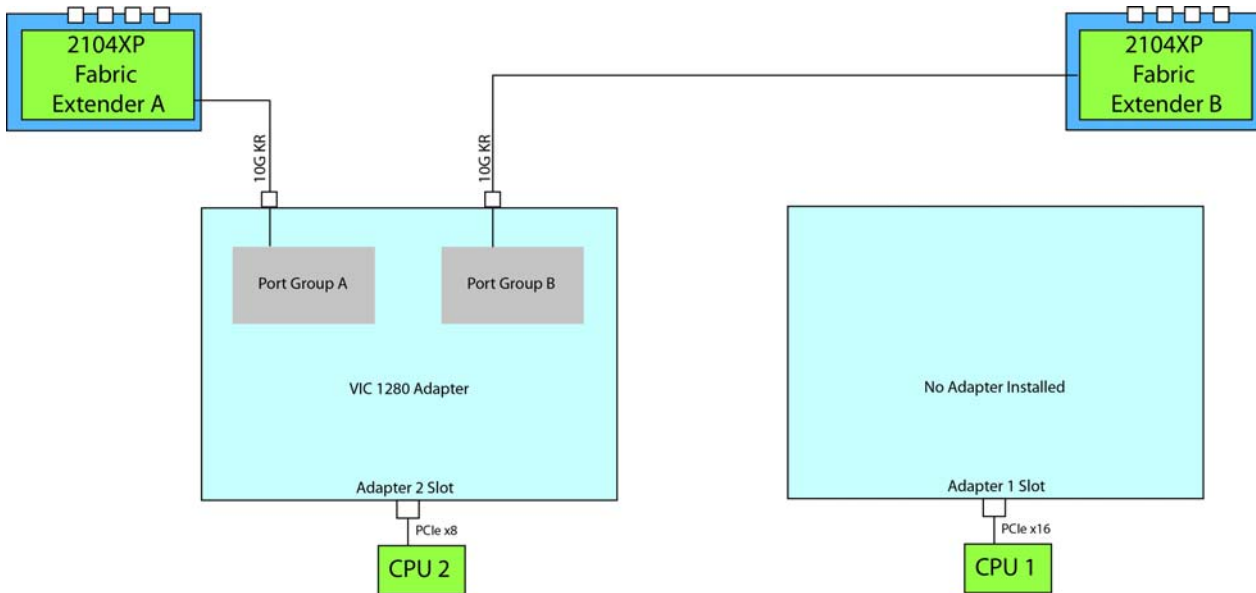
In *Figure 19*, one port from the VIC 1280 in slot 1 is connected to Fabric Extender A and one is connected to Fabric Extender B. The result is 10 Gbps of bandwidth to each Fabric Extender. There is no adapter installed in adapter 2 slot.

Figure 19 VIC 1280 to UCS 2104XP Fabric Extender (no adapter in slot 2)



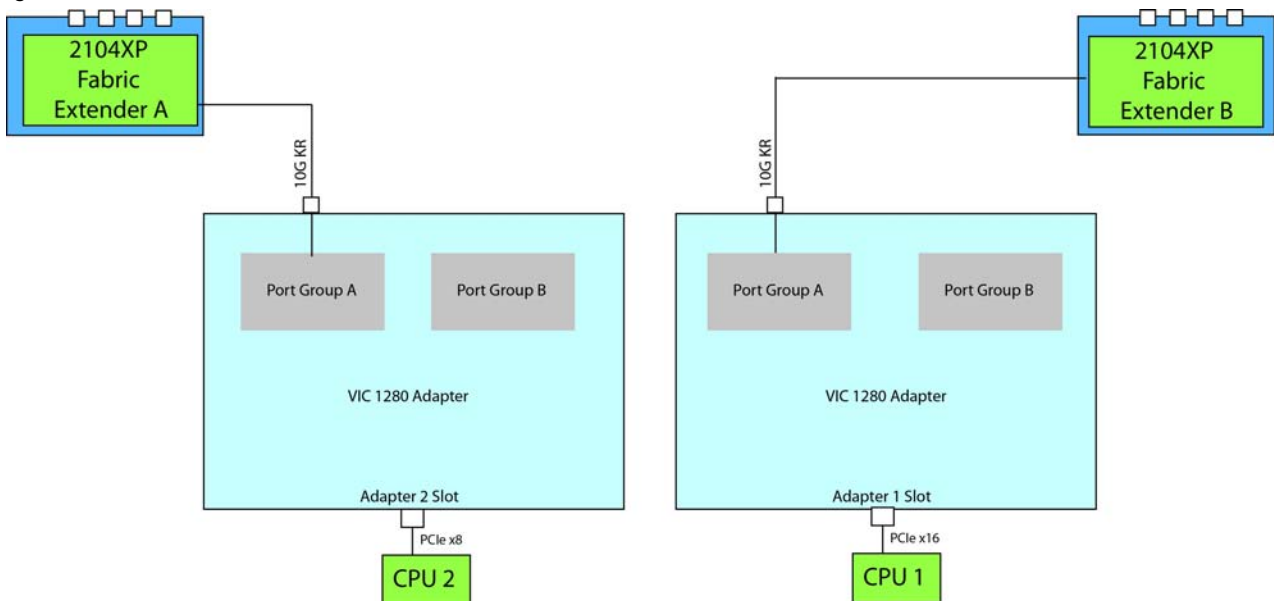
In *Figure 20*, one port from the VIC 1280 in slot 2 is connected to Fabric Extender A and one is connected to Fabric Extender B. The result is 10 Gbps of bandwidth to each Fabric Extender. There is no adapter installed in adapter 1 slot.

Figure 20 VIC 1280 to UCS 2104P Fabric Extender (no adapter in slot 1)



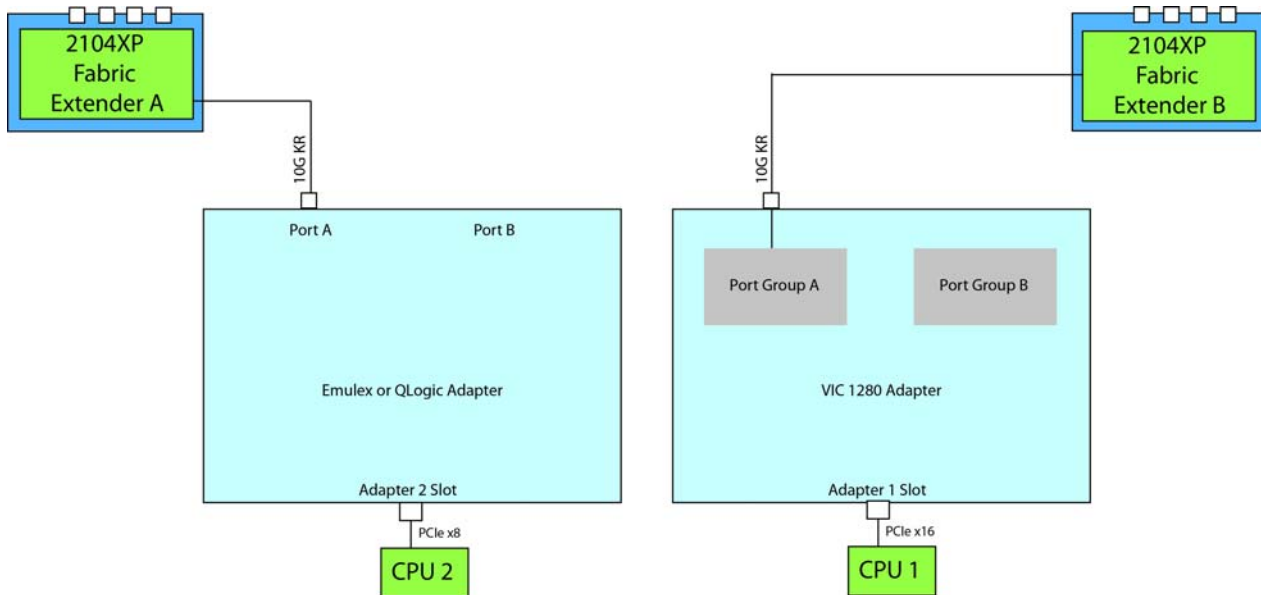
In *Figure 21*, there are two VIC 1280 adapters installed. One port from a VIC 1280 is connected to Fabric Extender A and one port from the other VIC 1280 is connected to Fabric Extender B. The result is 10 Gbps of bandwidth to each Fabric Extender.

Figure 21 Two VIC 1280s to UCS 2104XP Fabric Extender



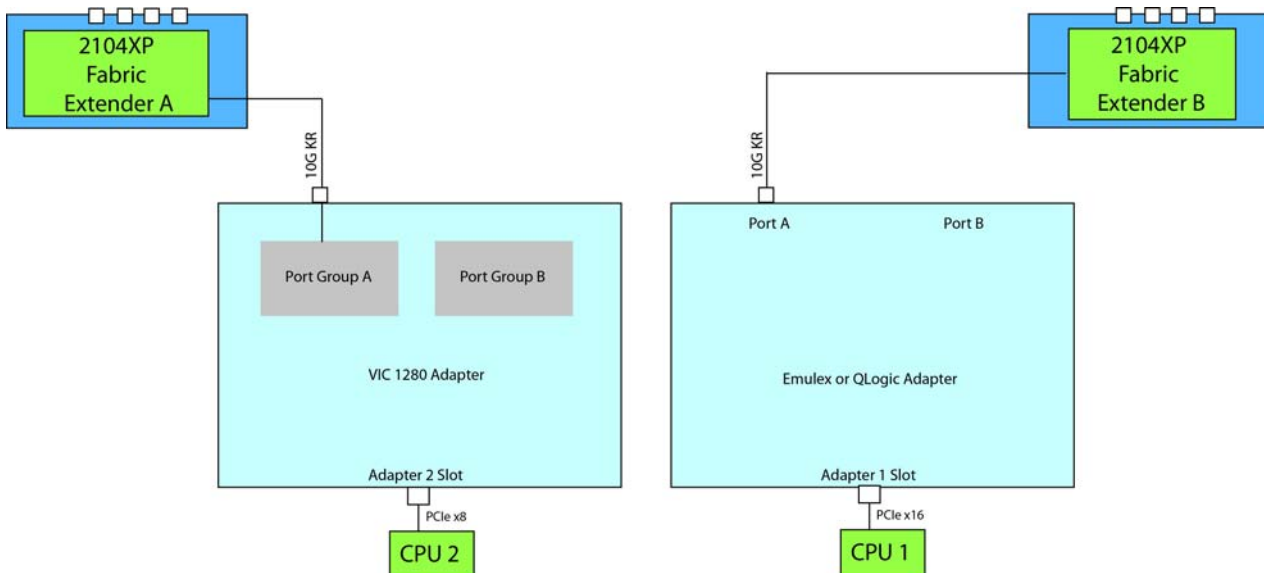
In *Figure 22*, one port from the VIC 1280 in slot 1 is connected to Fabric Extender B. Likewise, one port from the QLogic or Emulex adapter in slot 2 is connected to Fabric Extender A. The result is 10 Gbps of bandwidth to each Fabric Extender.

Figure 22 VIC 1280 and Emulex or QLogic adapter to UCS 2104XP Fabric Extender



In *Figure 23*, one port from the VIC 1280 in slot 2 is connected to Fabric Extender A. Likewise, one port from the QLogic or Emulex adapter in slot 1 is connected to Fabric Extender B. The result is 10 Gbps of bandwidth to each Fabric Extender.

Figure 23 VIC 1280 and Emulex or QLogic adapter to UCS 2104XP Fabric Extender



TECHNICAL SPECIFICATIONS

Dimensions and Weight

Table 20 UCS B440 M2 Dimensions and Weight¹

Parameter	Value
Height	1.95 in. (50 mm)
Width	16.50 in. (419.1 mm)
Depth	24.4 in. (620 mm)
Weight	34.5 lbs (15.65 kg)*

Notes . . .

1. The system weight given here is an estimate for a fully configured system and will vary depending on the number of CPUs, memory DIMMs, and other optional items.

Power Specifications

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

<http://ucspowercalc.cisco.com>.



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