

Cisco UCS B440 M1 Blade Server

Overview

The Cisco[®] UCS B440 M1 Blade Server (shown in Figure 1) is a four-socket, full-width server that combines the performance of the Intel 7500 series processors with up to four hard disk drives (HDDs), 32 DIMM slots, and two dual-port mezzanine card connections for up to 40 Gbps of redundant I/O throughput. Up to four UCS B440 M1 servers can be accommodated in the Cisco UCS 5108 Blade Server chassis.

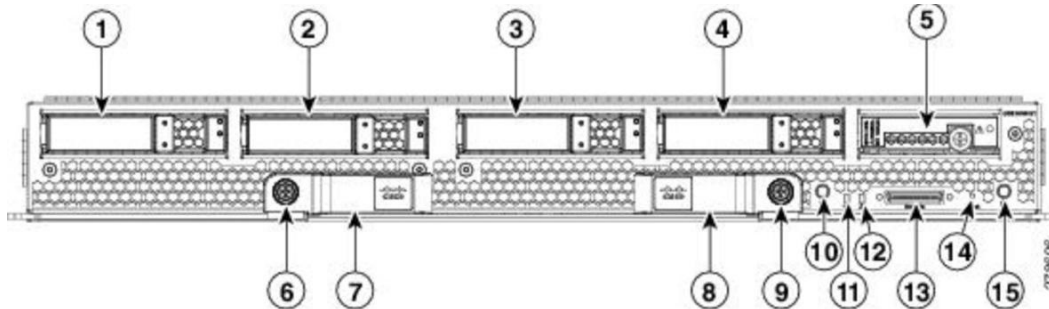
Figure 1. Cisco UCS B440 M1 Blade Server



Contents: Overview	Detailed Views	Base Unit Features	Configuring	Memory	HDD
Option Cards	RAID	Software	Services	Memory Notes	
RAID Controller Notes	Physical Specs	Power Specs	Environmental Specs		

Detailed Views

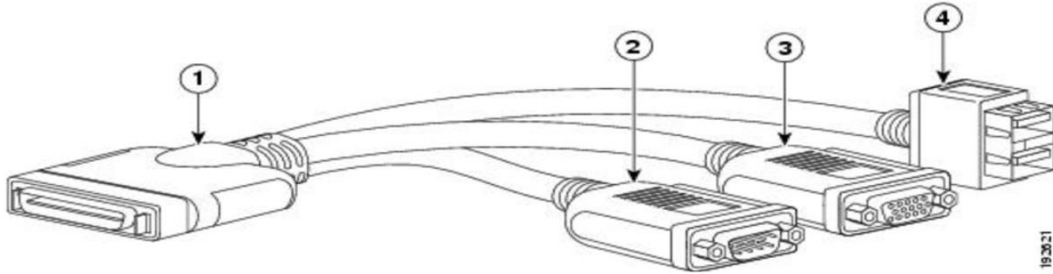
Figure 2. Front View of the Cisco UCS B440 M1 Blade Server



1	Hard drive bay 1	9	Right ejector thumbscrew
2	Hard drive bay 2	10	Power on/standby 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	KVM (Keyboard, video, monitor) console connector
6	Left ejector thumbscrew	14	Reset button
7	Left ejector handle	15	Locator button and LED
8	Right ejector handle		

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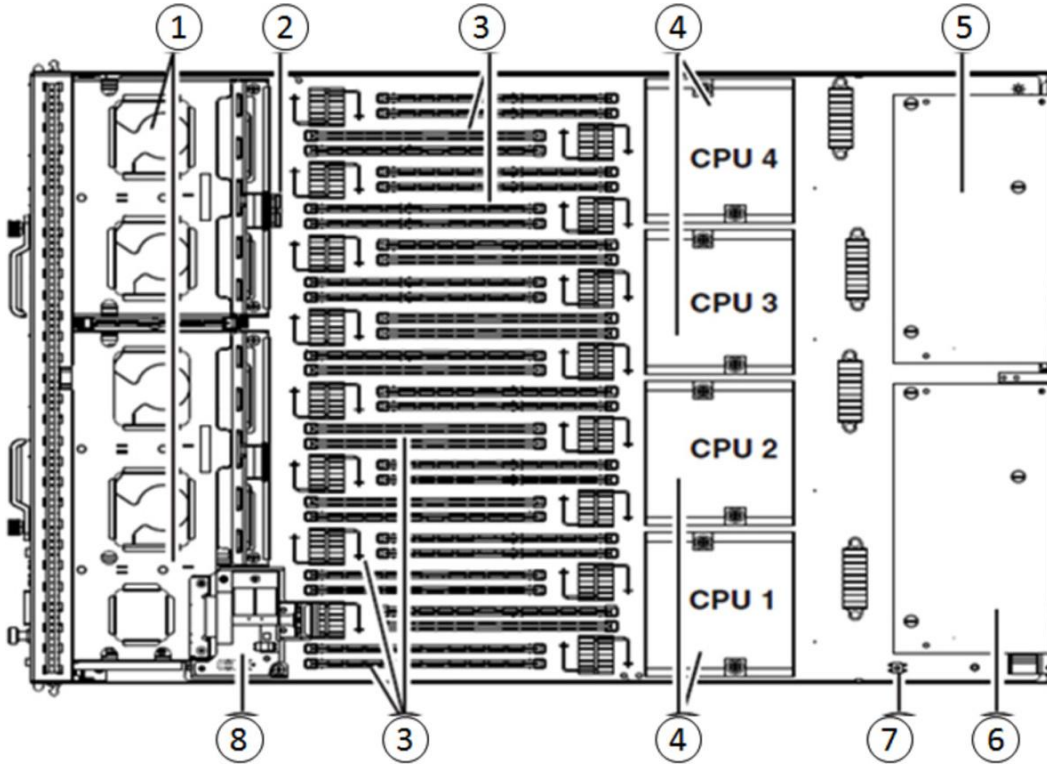
Figure 3. KVM Console Connector Cables



1	Connector to blade server slot	3	VGA Connection for a monitor
2	DB9 Serial connector	4	2-port USB connector for a mouse and keyboard

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Figure 4. Inside the Cisco UCS B440 M1 Blade Server



1	Hard drive bays	2	CMOS Battery
3	DIMM slots	4	CPUs and heat sinks
5	Mezzanine card 0	6	Mezzanine card 1
7	Diagnostic button	8	eUSB connector and optional RAID upgrade chip

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Base Unit Features

Table 1. Feature Specifications for the Cisco UCS B440 M1 Blade Server

Feature	Specifications
CPU	Up to four Intel® Xeon® 7500 Series processors
Chipset	Intel® 7500 chipset
Memory	32 DIMM slots (up to 512 GB)
Mezzanine slots	Two dual-port mezzanine card slots for up to 40-Gbs I/O per blade
Internal storage devices	Up to four front-accessible hot-swappable small form factor (SFF) hard drives with an LSI SAS2108 controller and integrated RAID.
Interfaces	<p>A console port is provided to give a direct connection to a blade server to allow operating system installation and other management tasks to be done directly rather than remotely. The port uses a local console cable dongle device included in the chassis accessory kit.</p> <p>The local console connector cable (N20-BKVM) provides a connection into a Cisco UCS blade server, providing a DB9 serial connector, a VGA connector for a monitor, and dual USB ports for a keyboard and mouse.</p>
Power subsystem	Integrated in Cisco UCS 5108 chassis.
Fans	Integrated in Cisco UCS 5108 chassis.
Integrated management processor	Cisco Integrated Management Controller (CIMC) interface to the Cisco UCS Manager

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Configuring the Cisco UCS B440 M1 Blade Server

UCS B440 M1 base server

N20-B6740-2-UPG

STEP 1: Select the CPU type.

Select two or four CPUs from the following list. The CPUs must match (you cannot choose different CPUs for the same server).

- 2.26 GHz Xeon X7560 130W 8C CPU/24MB cache A01-X0200
- 2.00 GHz Xeon X7550 130W 8C CPU/18MB cache A01-X0201
- 2.00 GHz Xeon E7540 105W 6C CPU/18MB cache A01-X0203

- 1.86 GHz Xeon E7520 95W 4C CPU/18MB cache A01-X0209
- 1.86 GHz Xeon L7555 95W 8C CPU/24MB cache A01-X0206

STEP 2: Select the memory type.

Please refer to the [Memory Notes](#) section for allowable memory configurations and rules/guidelines.

Select a minimum of one and a maximum of 16 DIMM kits from the following list:

- 8GB DDR3-1333MHz RDIMM/PC3-10600/2R/2x4GB Kit/Low Volt A02-M308GB3-2
- 16GB DDR3-1333MHz RDIMM/PC3-10600/2R/2x8GB Kit/Low Volt A02-M316GB3-2

- 32GB DDR3-1066MHz RDIMM/PC3-8500/4R/2x16GB Kit/Low Volt A02-M332GB3-2-L

- 8GB DDR3-1333MHz RDIMM/PC3-10600/2R/2x4GB Kit A02-M308GD5-2
- 16GB DDR3-1333MHz RDIMM/PC3-10600/2R/2x8GB Kit A02-M316GD5-2

Note: Memory must be populated in identical DIMM pairs.

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STEP 3: Select the 2.5-inch small form factor (SFF) HDD type. (optional)

You can select a maximum of four drives:

- | | |
|--|-------------|
| • 73 GB 6Gb SAS 15K RPM SFF HDD/hot plug/drive sled mounted | A03-D073GC2 |
| • 146 GB 6Gb SAS 15K RPM SFF HDD/hot plug/drive sled mounted | A03-D146GC2 |
| • 300 GB 6Gb SAS 10K RPM SFF HDD/hot plug/drive sled mounted | A03-D300GA2 |
| • 600 GB 6Gb SAS 10K RPM SFF HDD/hot plug/drive sled mounted | A03-D600GA2 |

STEP 4: Select from a list of mezzanine cards.

A mezzanine card is required. Select up to two cards and refer to the mix and match guidance below:

- | | |
|--|------------|
| • UCS M81KR Virtual Interface Card/PCIe/2-port 10Gb
(can be selected with N20-AQ0102, N20-AE0102, or N20-AQ002, N20-AE002)) | N20-AC0002 |
| • Cisco UCS M71KR-Q QLogic Converged Network Adapter
(can be selected with N20-AC0002) | N20-AQ0002 |
| • Cisco UCS M71KR-E Emulex Converged Network Adapter
(can be selected with N20-AC0002) | N20-AE0002 |
| • Cisco UCS NIC M51KR-B Broadcom BCM57711 Network Adapter
(no mixing with other card options) | N20-AB0002 |
| • Cisco UCS CNA M72KR-E Emulex Converged Network Adapter
(can be selected with N20-AC0002) | N20-AE0102 |
| • Cisco UCS CNA M72KR-Q QLogic Converged Network Adapter
(can be selected with N20-AC0002) | N20-AQ0102 |

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STEP 5: Select the RAID upgrade (optional).

The Cisco UCS B440 M1 Blade Server provides support for RAID 0, 1 with an option to upgrade to RAID 5, 6.

- RAID 5, 6 upgrade N20-BRAID-K1
- Write cache battery back up module N20-LBBU

STEP 6: Select the operating system (optional).

Various operating system options are available, as shown in the following list:

SUSE Linux Enterprise Server

- SLES/1yr subscription/svcs required/0 media SLES-1A
- SLES/3yr subscription/svcs required/0 media SLES-3A

Red Hat Enterprise Linux

- RHEL/2 Socket/1 Guest/1Yr Svcs Required RHEL-2S-1G-1A
- RHEL/2 Socket/1 Guest/3Yr Svcs Required RHEL-2S-1G-3A
- RHEL/2 Socket/4 Guest/1Yr Svcs Required RHEL-2S-4G-1A
- RHEL/2 Socket/4 Guest/3Yr Svcs Required RHEL-2S-4G-3A
- RHEL/2 Socket/U Guest/1Yr Svcs Required RHEL-2S-UG-1A
- RHEL/2 Socket/U Guest/3Yr Svcs Required RHEL-2S-UG-3A
- RHEL/4 Socket/1 Guest/1Yr Svcs Required RHEL-4S-1G-1A
- RHEL/4 Socket/1 Guest/3Yr Svcs Required RHEL-4S-1G-3A
- RHEL/4 Socket/4 Guest/1Yr Svcs Required RHEL-4S-4G-1A
- RHEL/4 Socket/4 Guest/3Yr Svcs Required RHEL-4S-4G-3A
- RHEL/4 Socket/U Guest/1Yr Svcs Required RHEL-4S-UG-1A
- RHEL/4 Socket/U Guest/3Yr Svcs Required RHEL-4S-UG-3A

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RHEL Add-Ons

- High-Availability/2 Socket/1Yr Svcs Required RHEL-HA-2S-1A
- High-Availability/2 Socket/3Yr Svcs Required RHEL-HA-2S-3A
- High-Availability/4 Socket/1Yr Svcs Required RHEL-HA-4S-1A
- High-Availability/4 Socket/3Yr Svcs Required RHEL-HA-4S-3A
- Resilient Storage With Ha/2 Socket/1 Yr Svcs Required RHEL-RS-2S-1A
- Resilient Storage With Ha/2 Socket/3 Yr Svcs Required RHEL-RS-2S-3A
- Resilient Storage With Ha/4 Socket/1 Yr Svcs Required RHEL-RS-4S-1A
- Resilient Storage With Ha/4 Socket/3 Yr Svcs Required RHEL-RS-4S-3A

Windows Server

- Windows Svr 2008 ST media (1-4CPU, 5CAL) MSWS-08-STHV
- Windows Svr 2008 EN media (1-8CPU, 25CAL) MSWS-08-ENHV
- Windows Svr 2008 ST media R2 ST (1-4CPU, 5CAL) MSWS-08R2-STHV
- Windows Svr 2008 EN media R2 EN (1-8CPU, 25CAL) MSWS-08R2-ENHV

- Windows Svr 2008 R2-2 CPU-Data Center MSWS-08R2-DCHV2S
- Windows Svr 2008 R2-4 CPU-Data Center MSWS-08R2-DCHV4S

VMware Server

- VMware vSphere Advanced (1 CPU), 1yr 24x7 support VMW-VS-ADV-1A
- VMware vSphere Advanced (1 CPU), 3yr 24x7 support VMW-VS-ADV-3A

- VMware vSphere Enterprise (1 CPU), 1yr 24x7 support VMW-VS-ENT-1A
- VMware vSphere Enterprise (1 CPU), 3yr 24x7 support VMW-VS-ENT-3A
- VMware vSphere Enterprise Plus (1 CPU), 1yr 24x7 support VMW-VS-ENTP-1A
- VMware vSphere Enterprise Plus (1 CPU), 3yr 24x7 support VMW-VS-ENTP-3A

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Select an OS Media Kit. (optional)

- | | |
|---|-------------------|
| • RHEL 6 Media Only (Multilingual) | RHEL-6 |
| • SLES 11 media only (multilingual) | SLES-11 |
| • Windows Svr 2008 ST media | MSWS-08-STHV-RM |
| • Windows Svr 2008 EN media | MSWS-08-ENHV-RM |
| • Windows Svr 2008 ST media R2 ST (1-4CPU, 5CAL) | MSWS-08R2-STHV-RM |
| • Windows Svr 2008 EN media R2 EN (1-8CPU, 25CAL) | MSWS-08R2-ENHV-RM |
| • Windows Svr 2008 ST media R2 DC (1-8CPU, 25CAL) | MSWS-08R2-DCHV-RM |

STEP 7: Select from a variety of value-added software. (optional)

- | | |
|--|------------------|
| • BMC BladeLogic CM for Virtualized Cisco Servers | BMC-001 |
| • BMC Blade Logic Compliance, VM Bundle, 2 Socket Server | BMC-001-COMP |
| • BMC BladeLogic CM for Physical Cisco Servers | BMC-002 |
| • BMC Blade Logic Compliance, Single OS | BMC-002-COMP |
| • BMC Bladelogic CM, Virtualized 4-Socket Server | BMC-003 |
| • BMC Blade Logic Compliance, VM Bundle, 4 Socket Server | BMC-003-COMP |
| • BMC BPPM Per Server | BMC-012 |
| • VMware vCenter Server Standard, 1yr 24x7 support | VMW-VCS-1A |
| • VMware vCenter Server Standard, 3yr 24x7 support | VMW-VCS-3A |
| • Nexus 1000V License PAK for 1 Virtual Ethernet module | N1K-VLEM-UCS-1 |
| • Nexus 1000V VSM Virtual Appliance Software | N1K-CSK9-UCS-404 |

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STEP 8: Select the appropriate services (optional).

You have a variety of service options, as listed here.

Cisco Unified Computing Mission Critical Support Service

This service delivers personalized technical account management, expedited technical support, and expert field support engineering for the Cisco Unified Computing System™

The Mission Critical Support Service provides a designated technical account manager (TAM) who acts as a strategic resource to help assure the unified computing environment runs at peak efficiency. Should a problem arise that threatens business continuity, the TAM provides crisis management leadership, and customer IT staff gets expedited access to Cisco's award-winning Technical Assistance Center (TAC).

Please note: This service has qualification criteria. There should be US\$1.2 million of Cisco Unified Computing System equipment, 200 blades, and a single location to qualify for this service level:

- UC Mission Critical 24x7x4 On-site CON-UCM7-B67402U
- UC Mission Critical 24x7x2 On-site CON-UCM8-B67402U

Cisco 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. This service includes access to the award-winning Cisco Technical Assistance Center (TAC) around the clock, from anywhere in the world.

For Cisco UCS blade servers, there is Smart Call Home, which provides proactive, embedded diagnostics and real-time alerts. For systems that include the Cisco UCS Manager, the support service includes downloads of UCS Manager 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.

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- UC Support 8X5XNBD Not on-site CON-UCS1-B67402U
- UC Support 8X5X4 Not on-site CON-UCS2-B67402U
- UC Support 24x7x4 Not on-site CON-UCS3-B67402U
- UC Support 24x7x2 Not on-site CON-UCS4-B67402U

- UC Support 8X5XNBD On-site CON-UCS5-B67402U
- UC Support 8X5X4 On-site CON-UCS6-B67402U
- UC Support 24x7x4 On-site CON-UCS7-B67402U
- UC Support 24x7x2 On-site CON-UCS8-B67402U

Cisco 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. Customers can choose from several levels of advanced parts replacement coverage, including onsite parts replacement in as little as two hours. Warranty Plus provides remote access anytime to Cisco support professionals who can determine if a return materials authorization (RMA) is required.

- UC Warranty Plus 24x7x4 CON-UCW3-B67402U
- UC Warranty Plus 8X5XNBD On- Site CON-UCW5-B67402U

For more information, consult:

[Unified Computing Warranty and Support Services](#)

For a complete listing of available Services for Cisco Unified Computing System, visit:

[Unified Computing Services](#)

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Product Notes

Memory Notes

The Cisco UCS B440 M1 High-Performance Blade Server contains 32 slots for installing DIMMs - eight for each CPU. Each CPU has eight DIMM slots and DDR channels, with four pairs of DIMMs operating in lockstep. Additional DIMMs must be installed in pairs, as laid out in Table 4.

The UCS B440 M1 blade server requires one matched pair of DIMMs attached to CPU 1 or CPU 2.

All four CPUs can boot and run from a single DIMM pair. DIMM pairs must be identical, but one DIMM pair on a CPU can be different from other pairs.

DIMMs installed in slots for an absent CPU will not be recognized.

For optimal performance, distribute DIMMs evenly across all CPUs. As Figure 5 shows, DIMM connector latches are color-coded blue, yellow, black, and white, and Cisco recommends installing memory in that order. It is also recommended to install memory evenly across the installed CPUs.

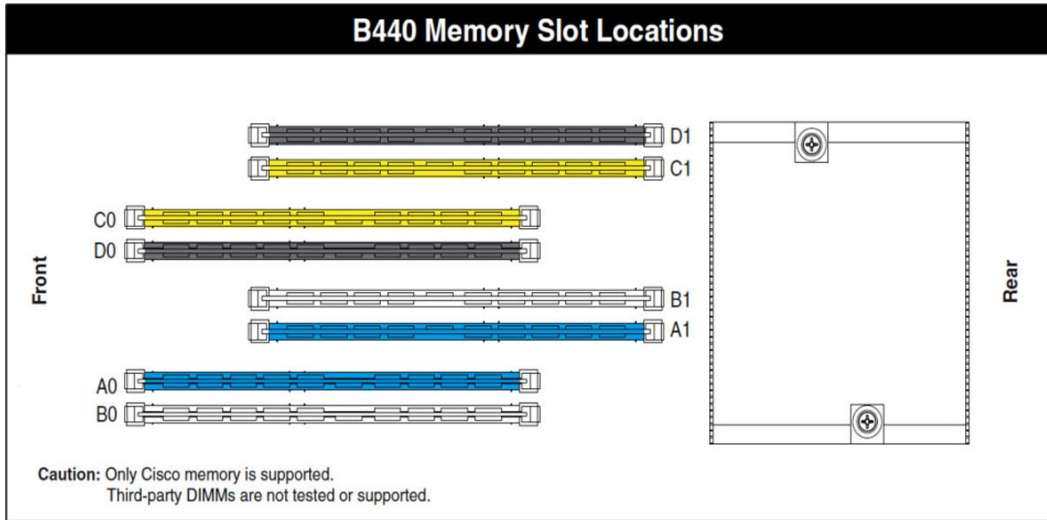
The Cisco UCS B440 M1 server has four processor sockets, and each socket has access to 32 memory DIMM slots. Table 3 shows current tested and qualified memory configurations.

Table 2. Memory Configuration for the Cisco UCS B440 M1 Blade Server

CPU 1 & 2	Total Mem (2 CPUs)	CPU 3 & 4	Total Mem (4 CPUs)
2 x (8G Kit)	16	2 x (8G Kit)	32
4 x (8G Kit)	32	4 x (8G Kit)	64
2 x (16G kit)	32	2 x (16G kit)	64
6 x (8G kit)	48	6 x (8G kit)	96
8 x (8G Kit)	64	8 x (8G Kit)	128
4 x (16G kit)	64	4 x (16G kit)	128
2 x (32G Kit)	64	2 x (32G Kit)	128
6 x (16G Kit)	96	6 x (16G Kit)	192
8 x (16G kit)	128	8 x (16G kit)	256
4 x (32G kit)	128	4 x (32G kit)	256
8 x (32G kit)	256	8 x (32G kit)	512

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Figure 5. DIMM Slot Numbering for the Cisco UCS B440 M1 Blade Server



Additional DIMMs must be installed in pairs, as laid out in Table 3. The slots inside the brackets are electrically paired with each other, and should be populated with identical 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.

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Table 3. DIMM Installation Order for the Cisco UCS B440 M1 Blade Server

DIMM Population Rules	DIMM Population Order	
	DIMM per CPU	Install in Slots
Install only in matched pairs. Memory for this server is sold in pairs that are matched in size, speed, manufacturer, and other parameters, and mixing DIMMs that are not matched can cause the memory to not be recognized by the system.	2 (blue)	(A0, A1)
Make sure the latches are fully seated into the DIMM.		
This blade server needs at least one matched pair of DIMMs attached to CPU 1 or CPU 2. Both CPUs can boot and run from a single DIMM pair.	4 (blue)	(A0, A1) - (C0, C1)
DIMMs installed in slots for an absent CPU are not recognized. For optimal performance, distribute DIMMs evenly across both CPUs.	8 (blue, yellow, white, black)	(A0, A1) - (C0, C1) - (D0, D1) - (B0, B1)

RAID Controller Notes

The LSI-2108 is an eight port, 6-Gbps SAS/SATA RAID On-a-Chip (ROC) VLSI IC. The LSI-2108 ROC provides and x8 PCIe Gen2 I/F, it will be connected as x4 on the UCS B440 M1 base card. The LSI-2108 uses a DDR2 SDRAM DIMM for write cache and a battery backup option to preserve the cache contents due to loss of main power.

LSI-2108 Flash ROM

The LSI-2108 requires a minimum of 8-Mbyte Flash ROM configured for 8-bit I/O. The Flash ROM contains code for the System Optional BIOS, which is needed for booting the RAID array, and also RAID firmware for the embedded CPU.

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Technical Specifications

Physical Dimensions Specifications

Table 4. Physical Dimension Specifications for the Cisco UCS B440 M1 Blade Server

Specification	Value
Height	1.95 inches (50 mm)
Width	16.50 inches (419.1 mm)
Depth	24.4 inches (620 mm)
Weight	34.5 lbs (15.65 kg) *

***Note:** The system weight listed here is an estimate for a fully configured system and will vary depending on number of peripheral devices.

Power Specifications

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

http://www.cisco.com/assets/cdc_content_elements/flash/dataCenter/cisco_ucs_power_calculator/

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Environmental Specifications

Table 5. Environmental Specifications for Cisco UCS B440 M1 Blade Server

Environment	Specification
Temperature operating	50 to 95°F (10 to 35°C)
Temperature nonoperating	-40 to 149°F (-40 to 65°C)
Altitude operating	0 to 10,000 ft (0 to 3000m); maximum ambient temperature decreases by 1°C per 300m
Altitude nonoperating	40,000 ft (12,000m)
Humidity	5 to 93% noncondensing
Safety	<ul style="list-style-type: none">• UL 60950-1• CAN/CSA-C22.2 No. 60950-1• EN 60950-1• IEC 60950-1• AS/NZS 60950-1• GB4943
EMC: Emissions	<ul style="list-style-type: none">• 47CFR Part 15 (CFR 47) Class A• AS/NZS CISPR22 Class A• CISPR2 2 Class A• EN55022 Class A• ICES003 Class A• VCCI Class A• EN61000-3-2• EN61000-3-3• KN22 Class A• CNS13438 Class A
EMC: Immunity	<ul style="list-style-type: none">• EN50082-1• EN61000-6-1• EN55024• CISPR24• EN300386• KN 61000-4 Series

For More Information

Please visit <http://www.cisco.com/go/ucs>.



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