



Overview

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System Overview

The Cisco UCS 5108 Server Chassis and its components are part of the Cisco Unified Computing System (UCS), which uses the Cisco UCS 5108 server system with the two I/O modules and the Cisco UCS Fabric Interconnects to provide advanced options and capabilities in server and data management. All servers are managed via the GUI or CLI with Cisco UCS Manager.

The Cisco UCS 5108 Server Chassis system consists of the following components:

- Chassis versions:
 - Cisco UCS 5108 server chassis—AC version (UCSB-5108-AC2 or N20-C6508)
 - Cisco UCS 5108 server chassis—DC version (UCSB-5108-DC2 or UCSB-5108-DC)
- I/O module (IOM) versions:
 - Cisco UCS 2408 I/O Module (UCS-IOM-2408)—Up to two I/O modules, each with 8 25-Gigabit SFP28 uplink ports and 32 10-Gigabit backplane ports
 - Cisco UCS 2304 I/O Module (UCS-IOM-2304V2 or UCS-IOM-2304)—Up to two I/O modules, each with 4 configurable 40-Gigabit uplink ports and 8 40-Gigabit backplane ports



Note You cannot mix UCS-IOM-2304V2 and UCS-IOM-2304 in the same chassis. UCS-IOM-2304V2 requires Cisco UCS Manager 4.0(4) or later.

- A number of SFP+ choices using copper or optical fiber
- Power supplies (N20-PAC5-2500W, UCSB-PSU-2500ACPL, or UCSB-PSU-2500DC48)—Up to four 2500 Watt, hot-swappable power supplies

- Fan modules (N20-FAN5)—Eight hot-swappable fan modules
- UCS B-Series blade servers, including:
 - Cisco UCS B200 M5 blade servers (UCSB-B200-M5)—Up to eight half-width blade servers, each containing two CPUs and holding up to two hard drives capable of RAID 0 or 1
 - Cisco UCS B200 M4 blade servers (UCSB-B200-M4)—Up to eight half-width blade servers, each containing two CPUs and holding up to two hard drives capable of RAID 0 or 1
 - Cisco UCS B480 M5 blade servers (UCSB-B480-M5)—Up to four full-width blade servers, each containing four CPUs and holding up to four hard drives capable of RAID 0, 1, 5, and 6
 - Cisco UCS B260 M4 blade servers (UCSB-EX-M4-1 or UCSB-EX-M4-2)—Up to four full-width blade servers, each containing two CPUs and a SAS RAID controller
 - Cisco UCS B460 M4 blade servers (UCSB-EX-M4-1 or UCSB-EX-M4-2)—Up to two full-width blade servers, each containing four CPUs and SAS RAID controllers
 - Cisco UCS B420 M4 blade servers (UCSB-B420-M4)—Up to four full-width blade servers, each containing four CPUs and holding up to four hard drives capable of RAID 0, 1, 5, and 10

Cisco UCS Mini Server Chassis, which is a smaller solution, consists of the following components:

- Cisco UCS 5108 server chassis—AC version (UCSB-5108-AC2)
- Cisco UCS 5108 server chassis—DC version (UCSB-5108-DC2)
- Cisco UCS 6324 Fabric Interconnect for the UCS Mini system (UCS-FI-M-6324)—Up to two integrated fabric interconnect modules, each providing four SFP+ ports of 10-Gigabit Ethernet and Fibre Channel over Ethernet (FCoE), and a QSFP+ port. This FI fits into the I/O module slot on the rear of the chassis.
- A number of SFP+ choices using copper or optical fiber
- Power supplies (UCSB-PSU-2500ACDV, UCSB-PSU-2500DC48, and UCSB-PSU-2500HVDC)—Up to four 2500 Watt, hot-swappable power supplies
- Fan modules (N20-FAN5)—Eight hot-swappable fan modules
- UCS B-Series blade servers, including the following:
 - Cisco UCS B200 M4 or M5 blade servers—Up to eight half-width blade servers, each containing two CPUs and holding up to two hard drives capable of RAID 0 or 1
- UCS C-Series rack servers, including the following:
 - Cisco UCS C240 M4 or C240 M5 rack servers and Cisco UCS C220 M4 or C220 M5 rack servers—Up to seven rack servers, either C240 or C220, or a combination of the two.

Features and Benefits

The Cisco UCS 5108 server chassis revolutionizes the use and deployment of blade-based systems. By incorporating unified fabric, integrated, embedded management, and fabric extender technology, the Cisco Unified Computing System enables the chassis to have fewer physical components, no independent management, and to be more energy efficient than traditional blade server chassis.

This simplicity eliminates the need for dedicated chassis management and blade switches, reduces cabling, and enables the Cisco Unified Computing System to scale to 40 chassis without adding complexity. The Cisco UCS 5108 server chassis is a critical component in delivering the Cisco Unified Computing System benefits of data center simplicity and IT responsiveness.

Table 1: Features and Benefits

Feature	Benefit
Management by Cisco UCS Manager	<p>Reduces total cost of ownership by removing management modules from the chassis, making the chassis stateless.</p> <p>Provides a single, highly available management domain for all system chassis, reducing administrative tasks.</p>
Unified fabric	Decreases TCO by reducing the number of network interface cards (NICs), host bus adapters (HBAs), switches, and cables needed.
Support for one or two UCS I/O Modules (or support for one or two UCS 6324 Fabric Interconnects in the UCS Mini chassis)	<p>Eliminates switches from the chassis, including the complex configuration and management of those switches, allowing a system to scale without adding complexity and cost.</p> <p>Allows use of two I/O modules for redundancy or aggregation of bandwidth.</p> <p>Enables bandwidth scaling based on application needs; blades can be configured from 1.25 Gbps to 40 Gbps or more.</p>
Auto discovery	Requires no configuration; like all components in the Cisco Unified Computing System, chassis are automatically recognized and configured by Cisco UCS Manager.
High-performance midplane	<p>Provides investment protection for new fabric extenders and future blade servers.</p> <p>Supports up to 2x 40 Gigabit Ethernet for every blade server slot.</p> <p>Provides 8 blades with 1.2 Tbps of available Ethernet throughput for future I/O requirements. (The Cisco UCS 6324 Fabric Interconnect in the UCS Mini chassis supports only 512 Gbps.)</p> <p>Provides reconfigurable chassis to accommodate a variety of form factors and functions.</p>
Redundant hot swappable power supplies and fans	<p>Provides high availability in multiple configurations.</p> <p>Increases serviceability.</p> <p>Provides uninterrupted service during maintenance.</p> <p>Available configured for AC or DC environments (mixing not supported)</p>
Hot-pluggable blade servers, FEXes, and fabric interconnects	Provides uninterrupted service during maintenance and server deployment.
Comprehensive monitoring	<p>Provides extensive environmental monitoring on each chassis</p> <p>Allows use of user thresholds to optimize environmental management of the chassis.</p>

Feature	Benefit
Efficient front-to-back airflow	Helps reduce power consumption and increase component reliability.
Tool-free installation	Requires no specialized tools for chassis installation. Provides mounting rails for easy installation and servicing.
Mixed blade configurations	Allows up to 8 half-width or 4 full-width blade servers, or any combination thereof, for outstanding flexibility. (When the UCS Mini chassis is configured with the 6324 Fabric Interconnect, only 8 half-width blades are supported.)

Chassis Components

This section lists an overview of chassis components.

Cisco UCS 5108 Server Chassis

The Cisco UCS 5100 Series Blade Server Chassis is a scalable and flexible blade server chassis for today's and tomorrow's data center that helps reduce total cost of ownership. There are two versions available that can be configured for AC (N20-C6508 and UCSB-5108-AC2) and two versions that can be configured for DC (UCSB-5108-DC and UCSB-5108-DC2) power environments. An additional version (UCSB-5108-HVDC) is available that can be configured for 200 - 380V DC environments.

The chassis is six rack units (6 RU) high and can mount in an industry-standard 19-inch rack with square holes (such as the Cisco R Series Racks) or in round hole racks when an adapter is used. The chassis can house up to eight half-width Cisco UCS B-Series Blade Servers and can accommodate both half- and full-width blade form factors.

Up to four hot-swappable AC, DC, or HVDC power supplies are accessible from the front of the chassis. These power supplies can be configured to support nonredundant, N+1 redundant, and grid-redundant configurations. The rear of the chassis contains eight hot-swappable fans, four power connectors (one per power supply), and two I/O bays for I/O modules. A passive backplane provides support for up to 80 Gbps of I/O bandwidth to each half-width blade and 160 Gbps of I/O bandwidth to each full width-blade.

Scalability is dependent on both hardware and software. For more information, see the appropriate [UCS software release notes](#).

LEDs

LEDs on the chassis indicate system connectivity and failure warnings. See [LED Locations, on page 20](#) for details. There is also a flashing blue Beacons LED and button that can be triggered manually or remotely from UCS Manager.

Buttons

The beacons function LED is also a button. When triggered, beacons of the server chassis is observable remotely from UCS Manager or by the flashing blue button/LED on the chassis.

Connectors

There are no user connectors such as RJ-45 ports on the chassis itself.

Midplane

The integral chassis midplane supports the following:

- 320 G total bandwidth to each of two I/O Modules
- Auto-discover of all components
- Redundant data and management paths
- 10 G Base-KR

The midplane is an entirely passive device.

Blade Servers

The Cisco UCS B-Series Blade Servers are based on industry-standard server technologies and provide the following:

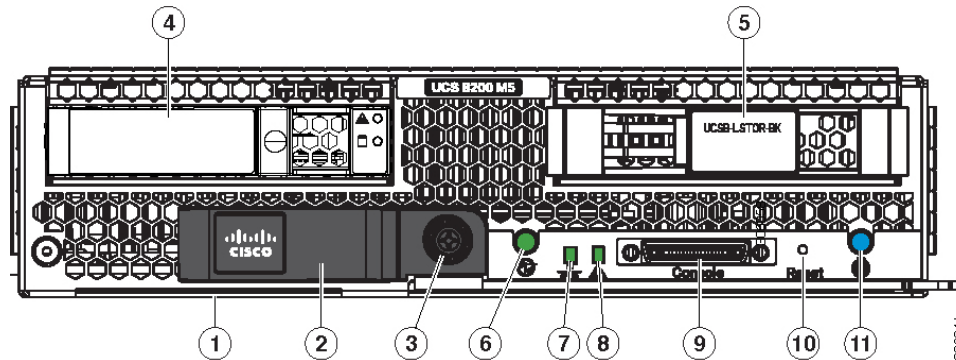
- Up to two or four Intel multi-core processors, depending on the server
- Front-accessible, hot-swappable hard drives or solid-state disk (SSD) drives
- Depending on the server, support is available for up to three adapter card connections for up to 160 Gbps of redundant I/O throughput
- Industry-standard double-data-rate 4 (DDR4) memory
- Remote management through an integrated service processor that also executes policy established in Cisco UCS Manager software
- Local keyboard, video, and mouse (KVM) and serial console access through a front console port on each server
- Out-of-band access by remote KVM, Secure Shell (SSH), and virtual media (vMedia) as well as Intelligent Platform Management Interface (IPMI)

The Cisco UCS B-Series offers multiple blade server models. The supported processor family is indicated by M4 or M5 designations on the model.

Cisco UCS B200 M5 Blade Server

For full service and installation instructions, see the [Cisco UCS B200 M5 Blade Server Installation and Service Note](#). You can install up to eight UCS B200 M5 Blade Servers in a chassis.

Figure 1: Cisco UCS B200 M5 Front Panel

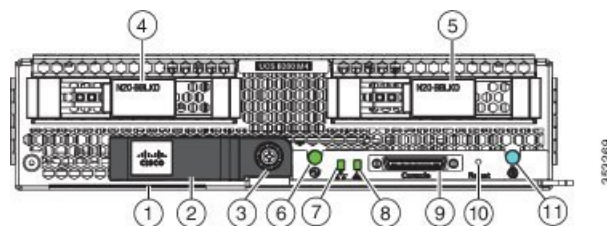


1	Asset pull tag Each server has a blank plastic tag that pulls out of the front panel which is provided so that you can add your own asset tracking label without interfering with the intended air flow.	2	Blade ejector handle
3	Ejector captive screw	4	Drive bay 1
5	Drive bay 2	6	Power button and LED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

Cisco UCS B200 M4 Blade Server

For full service and installation instructions, see the [Cisco UCS B200 M4 Blade Server Installation and Service Note](#). You can install up to eight UCS B200 M4 Blade Servers in a chassis.

Figure 2: Cisco UCS B200 M4 Front Panel



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

Cisco UCS B480 M5 Blade Server

For full service and installation instructions, see the [Cisco UCS B480 M5 Blade Server Installation and Service Note](#). Up to four Cisco UCS B480 M5 Blade Servers can be installed in the Cisco UCS 5108 chassis.

Figure 3: Cisco UCS B480 M5 Blade Server Front Panel

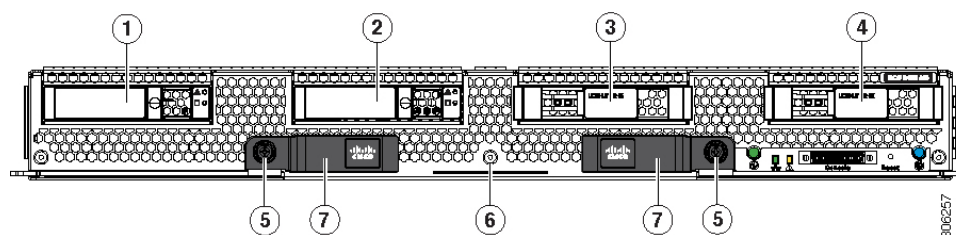
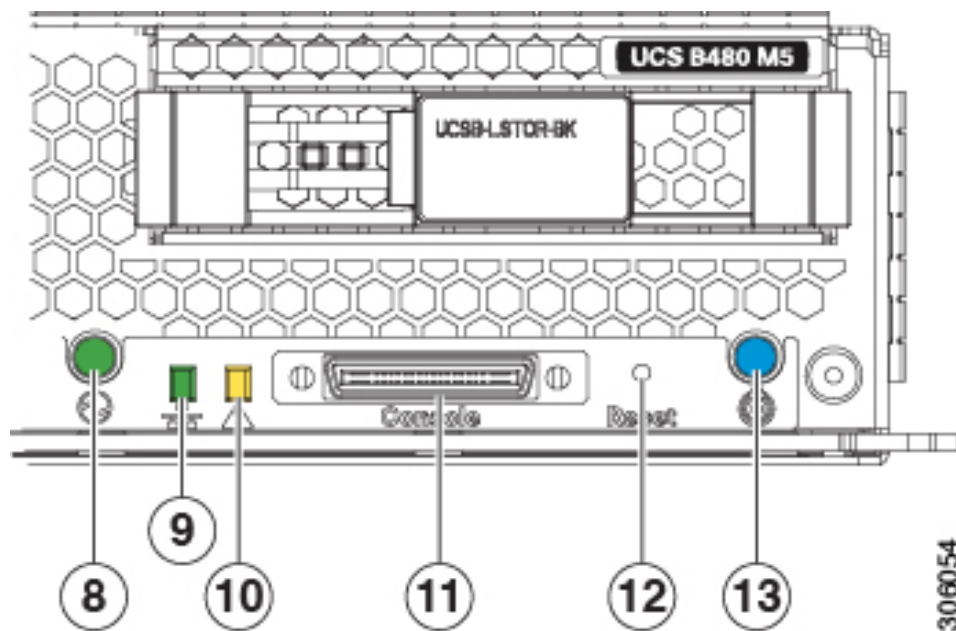


Figure 4: Cisco UCS B480 M5 Blade Server Front Panel LEDs



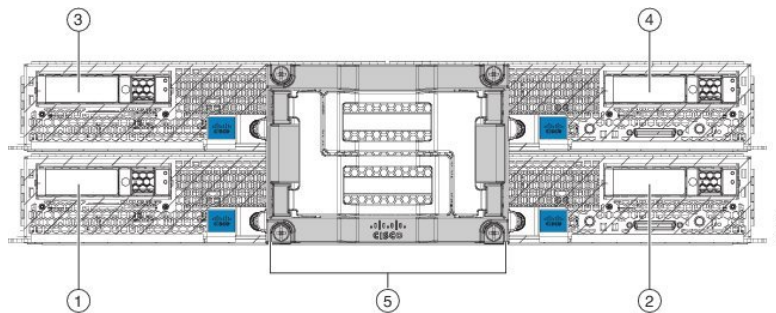
1	Drive bay 1	8	Power button/LED
2	Drive bay 2	9	Network link status LED
3	Drive bay 3	10	Blade health LED

4	Drive bay 4	11	Local console connector
5	Blade ejector thumbscrew	12	Reset button
6	Asset pull-tag	13	Locator button/LED
7	Blade ejector handle		

Cisco UCS B460 M4 Blade Server

For full service and installation instructions, see the [Cisco UCS B260 M4 and B460 M4 Scalable Blade Server Installation and Service Note](#). Up to two Cisco UCS B460 M4 Blade Servers can be installed in the Cisco UCS 5108 chassis.

Figure 5: Cisco UCS B460 M4 Blade Server

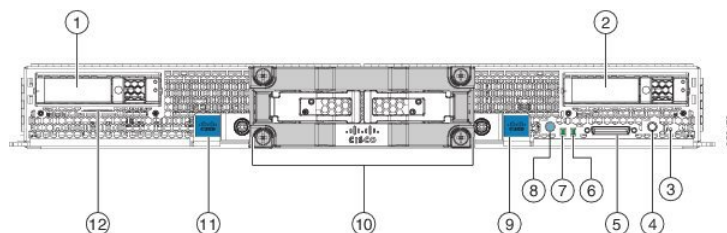


1	Drive bay 1	4	UCS Scalability Connector
2	Drive bay 2	5	Drive bay 4
3	Drive bay 3		

Cisco UCS B260 M4 Scalable Blade Server

For full service and installation instructions, see the [Cisco UCS B260 M4 and B460 M4 Scalable Blade Server Installation and Service Note](#). You can install up to four UCS B260 M4 Blade Servers in the Cisco UCS 5108 server chassis.

Figure 6: Cisco UCS B260 M4 Scalable Blade Server



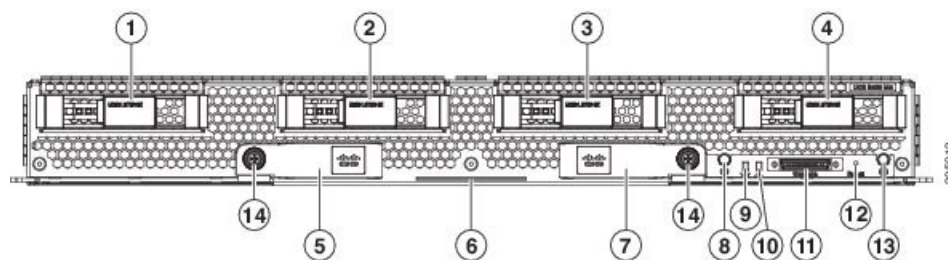
1	Drive bay 1	7	Network link status LED
2	Drive bay 2	8	Power button and LED

3	Reset button access	9	Right ejector handle
4	Beaconing button and LED	10	UCS Scalability Terminator
5	Local console connection	11	Left ejector handle
6	Blade health LED	12	Asset tag Each server has a blank plastic tag that pulls out of the front panel so you can add your own asset tracking label without interfering with the intended air flow.

Cisco UCS B420 M4 Blade Server

For full service and installation instructions, see the [Cisco UCS B420 M4 Blade Server Installation and Service Note](#). You can install up to four UCS B420 M4 High Performance Blade Servers in a chassis.

Figure 7: Cisco UCS B420 M4 Blade Server Front Panel



1	Hard drive bay 1	8	Power button and LED
2	Hard drive bay 2	9	Network link status button
3	Hard drive bay 3	10	Blade health LED
4	Hard drive bay 4	11	Local console connection
5	Left ejector handle	12	Reset button access
6	Serial pull tab	13	Locate button
7	Right ejector handle	14	Ejector thumb screw

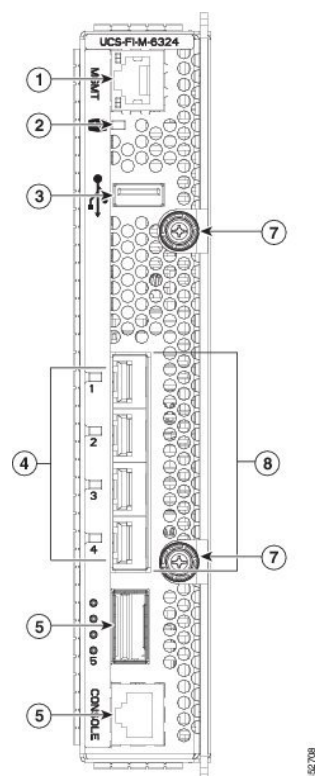
Adapter Cards

Depending on the model of server in question, one to three adapter cards will reside in each blade server, providing failover connectivity to each I/O module in the chassis. Cards are released on an ongoing basis.

Cisco UCS 6324 Fabric Interconnect For UCS Mini Chassis

The Cisco UCS 6324 Fabric Interconnect (UCS-FI-M-6324) is an integrated fabric interconnect and I/O module. It can be configured only with the UCS Mini versions of the chassis (UCSB-5108-AC2 and UCSB-5108-DC2).

Figure 8: Cisco UCS 6324 Fabric Interconnect



1	Management port	5	QSFP+ licensed server port
2	Power-on LED	6	Console management port
3	USB port	7	Ejector captive screws
4	Port LEDs	8	Four SPF+ unified ports

The Cisco UCS 6324 Fabric Interconnect connects directly to external Cisco Nexus switches through 10-Gigabit Ethernet ports and Fibre Channel over Ethernet (FCoE) ports.

The Cisco UCS 6324 Fabric Interconnect fits into the back of the Cisco UCS Mini chassis. Each Cisco UCS Mini chassis can support up to two UCS 6324 Fabric Interconnects, which enables increased capacity as well as redundancy.

Cisco UCS 2408 IOM

The Cisco UCS 2408 IOM is an I/O module (fabric extender) with 8 25-Gigabit SFP28 uplink ports to the fabric interconnect and 32 10-Gigabit backplane ports to support up to 8 half-width blade servers in the chassis.

It can be hot-plugged into the rear of a Cisco UCS 5108 blade server chassis. A maximum of two UCS 2408 IOMs can be installed in a chassis.

The Cisco UCS 2408 IOM joins the fourth generation of UCS products, including the following hardware:

- Cisco UCS 6400 Series Fabric Interconnects

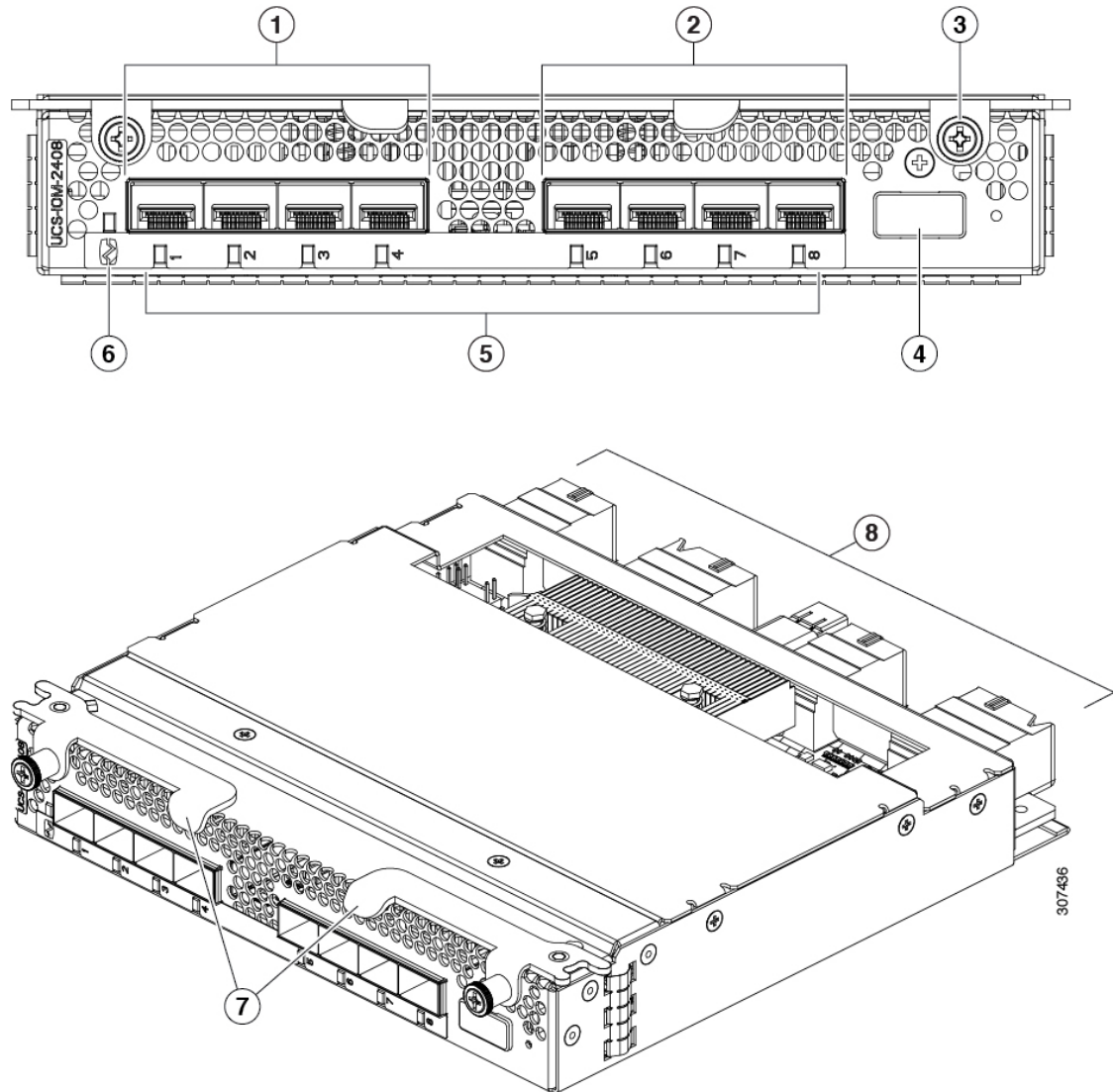


Note The UCS 2408 IOM is supported with the UCS 6400 Series FIs only.

- Multiple Cisco UCS 1300 Series and 1400 Series Virtual Interface Cards (VICs)
- M4 and M5 generations of Cisco UCS B-Series blade servers.
- The UCS 2408 IOM requires Cisco UCS Manager 4.0(4c) or later software.

The Cisco UCS 2408 IOM provides chassis management control and blade management control, including control of the chassis, fan trays, power supply units, and blades. It also multiplexes and forwards all traffic from the blade servers in the chassis to the 25-Gigabit Ethernet uplink network ports that connect to the fabric Interconnect. The IOM can also connect to a peer IOM to form a cluster interconnect (1G Ethernet connection).

Figure 9: Cisco UCS 2408 IOM



1	25-Gigabit uplink ports 1 - 4	2	25-Gigabit uplink ports 5 - 8
3	Thumbscrews for release latches (two)	4	HDMI combo connector: Ethernet management port and RS-232 serial via a Y-dongle cable.
5	SFP28 port-activity LEDs	6	IOM system status LED
7	Release latches (two)	8	Thirty-two 10-Gigabit backplane ports to the blade servers

LEDs

The front of the IOM has a system status LED and a port activity LED for each port.

Table 2: System Status LED States

State	Definition
Off	No power present
Green	Normal operation
Amber	Booting or minor over-temperature alarm
Amber, blinking	Stopped in uboot due to user intervention or unable to come online; or major over-temperature alarm

Table 3: Port Indicator LED States

State	Definition
Off	Link enabled but not connected
Green	Link enabled and connected
Amber	Disabled by user
Amber, blinking	Disabled due to error

Buttons

There are no buttons on the IOM.

Connectors

There are 8 25-Gigabit SFP28 uplink ports on the front of the IOM.

The HDMI connector uses a special Y-dongle cable that includes Ethernet management and serial console connectors.

Cisco UCS 2304 IOM

The Cisco UCS 2304 IOM (Fabric Extender) is an I/O module with 8 40-Gigabit backplane ports and 4 40-Gigabit uplink ports. It can be hot-plugged into the rear of a Cisco UCS 5108 blade server chassis. A maximum of two UCS 2304 IOMs can be installed in a chassis.



Note There is an updated, Version 2 of the UCS 2304 IOM (UCS-IOM-2304V2). You cannot mix the original UCS-IOM-2304 and UCS-2304V2 in the same chassis. If you replace UCS-IOM-2304 with UCS-IOM-2304V2, you must replace both IOMs in the chassis.



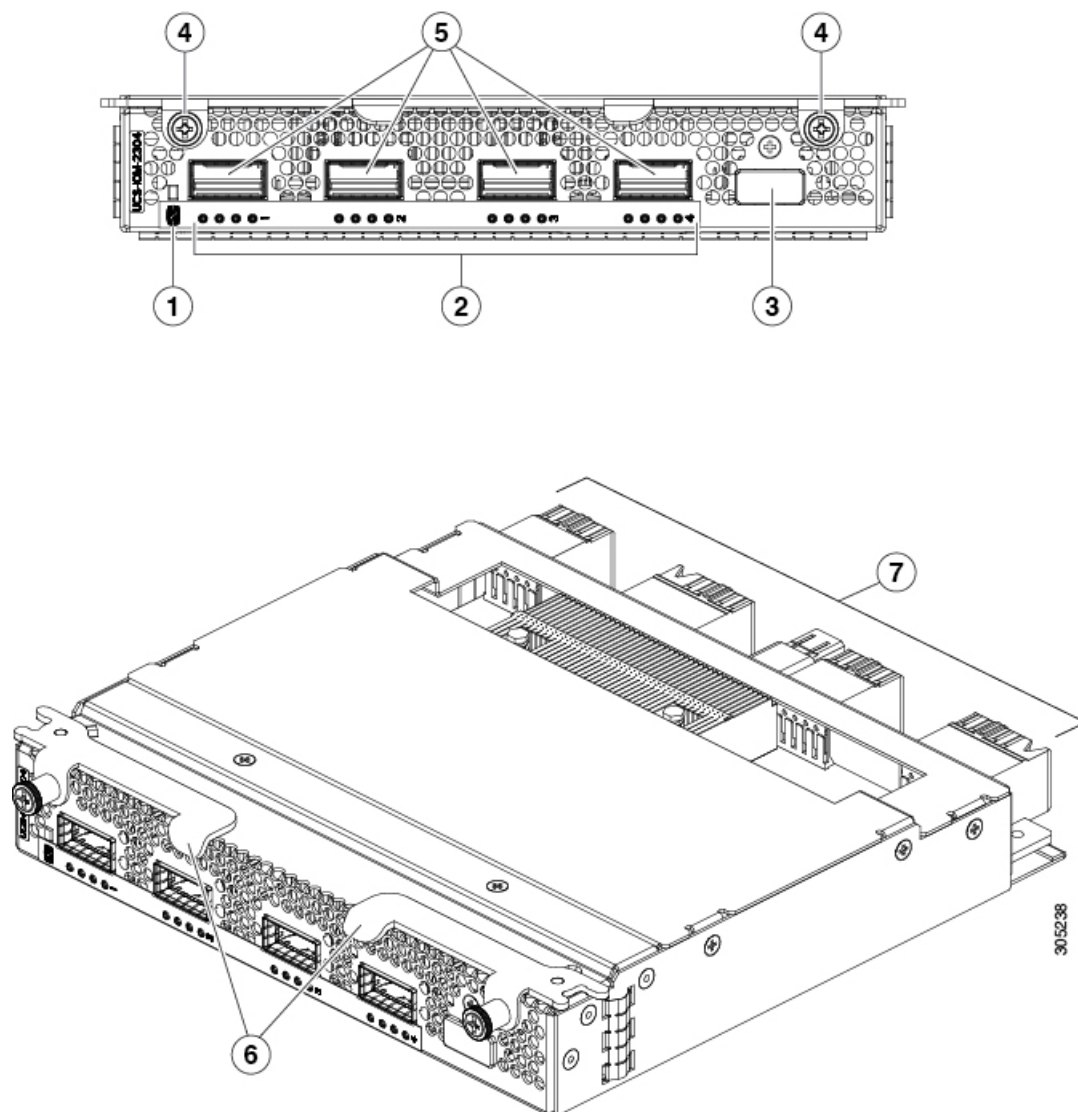
Note Version 2 of the UCS 2304 IOM (UCS-IOM-2304V2) requires Cisco UCS Manager 4.0(4) or later.

The Cisco UCS 2304 IOM joins the third generation of UCS products, including the following hardware:

- Cisco UCS 6332 fabric interconnect, an Ethernet or Fibre Channel over Ethernet (FCoE) chassis with 32 QSFP+ 40-Gigabit ports
- Cisco UCS 6332-16UP fabric interconnect, a Ethernet and Fibre Channel chassis with 16 1- or 10-Gigabit SFP+ ports or 16 4-, 8-, or 16-Gigabit Fibre Channel ports, and 24 40-Gigabit QSFP+ ports
- Multiple 1300 Series VICs

The Cisco UCS 2304 IOM provides chassis management control and blade management control, including control of the chassis, fan trays, power supply units, and blades. It also multiplexes and forwards all traffic from the blade servers in the chassis to the 10-Gigabit Ethernet uplink network ports that connect to the fabric Interconnect. The IOM can also connect to a peer IOM to form a cluster interconnect.

Figure 10: Cisco UCS 2304 IOM



1	System status LED	2	QSFP port activity LEDs
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3	HDMI console connector and Ethernet management port	4	Captive screws for the insertion latches
5	40-Gigabit uplink ports	6	Insertions latches
7	40-Gigabit backplane ports		

LEDs

The front of the IOM has a system status LED and port activity LEDs.

Buttons

There are no buttons on the IOM.

Connectors

There are four QSFP, 40-Gigabit uplink ports on the front of the IOM. The Ethernet management port and console connector use an HDMI connector that connects to a special Y dongle to expose the 10/100 RJ45 port and console connections.

Power Distribution Unit (PDU)

The AC PDU (N01-UAC1) provides load balancing between the installed power supplies, as well as distributing power to the other chassis components. DC versions of the chassis use a different PDU with appropriate connectors. The PDU is not field-serviceable, and converting an AC chassis to a DC chassis by swapping the PDU is not supported, as the PDU is not separately orderable.

LEDs

No LEDs are on the PDU.

Buttons

No buttons are on the PDU.

Connectors

The AC version of the PDU has four power connectors rated for 15.5 A, 200-240V @ 50-60 Hz. Only use power cords that are certified by the relevant country safety authority or that are installed by a licensed or certified electrician in accordance with the relevant electrical codes. All connectors, plugs, receptacles, and cables must be rated to at least the amperage of inlet connector on the PSU or be independently fused in accordance with the relevant electrical code. See for more information about the supported power cords. See [Supported AC Power Cords and Plugs](#) for more information.

The DC version of the PDU has eight dual-post lug power connections, four positive and four negative. A single dual-post lug grounding connection is also provided. The HDVC version of the PDU uses one Andersen SAF-D-GRID(R) connector per power supply.

Fan Modules

The chassis can accept up to eight fan modules (N20-FAN5). A chassis must have filler plates in place if no fan will be installed in a slot for an extended period.

LEDs

There is one LED indication of the fan module's operational state. See [Interpreting LEDs, on page 21](#) for details.

Buttons and Connectors

No buttons or connectors are on a fan module.

Power Supplies

Different power supplies are available to work with the AC (UCSB-PSU-2500ACPL or N20-PAC5-2500W) or DC (UCSB-PSU-2500DC48) versions of the chassis.

When configured with the Cisco UCS 6324 Fabric Interconnect, only the following power supplies are supported: UCSB-PSU-2500ACDV dual-voltage supply and UCSB-PSU-2500DC48 -48V DC power supply.

To determine the number of power supplies needed for a given configuration, use the [Cisco UCS Power Calculator](#) tool.

LEDs

Two LEDs indicate power connection presence, power supply operation, and fault states. See [Interpreting LEDs, on page 21](#) for details.

Buttons

There are no buttons on a power supply.

Connectors

The power connections are at the rear of the chassis on the PDU, with different types for AC, DC, or HVDC input. Four hot-swappable power supplies are accessible from the front of the chassis. These power supplies can be configured to support non-redundant, N+1 redundant, and grid-redundant configurations.

Power Supply Redundancy

Power supply redundancy functions identically for AC and DC configured systems. When considering power supply redundancy you need to take several things into consideration:

- AC power supplies are all single phase and have a single input for connectivity to customer power source (a rack PDU such as the Cisco RP Series PDU or equivalent).
- The number of power supplies required to power a chassis varies depending on the following factors:
 - The total "Maximum Draw" required to power all the components configured within that chassis—such as I/O modules, fans, blade servers (CPU and memory configuration of the blade servers).

- The Desired Power Redundancy for the chassis. The supported power configurations are non-redundant, N+1 redundancy (or any requirement greater than N+1), and grid redundancy.

To configure redundancy, see the *Configuration Guide* for the version of Cisco UCS Manager that you are using. The configuration guides are available at the following URL:

http://www.cisco.com/en/US/products/ps10281/products_installation_and_configuration_guides_list.html.

Non-redundant Mode

In non-redundant mode, the system may go down with the loss of any supply or power grid associated with any particular chassis. We do not recommend running a production system in non-redundant mode. To operate in non-redundant mode, each chassis should have at least two power supplies installed. Supplies that are not used by the system are placed into standby. The supplies that are placed into standby depends on the installation order (not on the slot number). The load is balanced across active power supplies, not including any supplies in standby.

When using Cisco UCS Release 1.3(1) or earlier releases, small configurations that use less than 25000W may be powered up on a single power supply. When using Cisco UCS Release 1.4(1) and later releases, the chassis requires a minimum of 2 power supplies.



Note In a non-redundant system, power supplies can be in any slot. Installing less than the required number of power supplies results in undesired behavior such as server blade shutdown. Installing more than the required amount of power supplies may result in lower power supply efficiency. At most, this mode will require two power supplies.

N+1 Redundancy

The N+1 redundancy configuration implies that the chassis contains a total number of power supplies to satisfy non-redundancy, plus one additional power supply for redundancy. All the power supplies that are participating in N+1 redundancy are turned on and equally share the power load for the chassis. If any additional power supplies are installed, Cisco UCS Manager recognizes these “unnecessary” power supplies and places them on standby.

If a power supply should fail, the surviving supplies can provide power to the chassis. In addition, UCS Manager turns on any “turned-off” power supplies to bring the system back to N+1 status.

To provide N+1 protection, the following number of power supplies is recommended:

- Three power supplies are recommended if the power configuration for that chassis requires greater than 2500 W or if using UCS Release 1.4(1) and later releases
- Two power supplies are sufficient if the power configuration for that chassis requires less than 2500 W or the system is using UCS Release 1.3(1) or earlier releases
- Four power supplies are recommended when running the dual-voltage power supply from a 100 - 120V source.

Adding an additional power supply to either of these configurations will provide an extra level of protection. Cisco UCS Manager turns on the extra power supply in the event of a failure and restores N+1 protection.



Note An n+1 redundant system has either two or three power supplies, which may be in any slot.

Grid Redundancy

The grid redundant configuration is sometimes used when you have two power sources to power a chassis or you require greater than N+1 redundancy. If one source fails (which causes a loss of power to one or two power supplies), the surviving power supplies on the other power circuit continue to provide power to the chassis. A common reason for using grid redundancy is if the rack power distribution is such that power is provided by two PDUs and you want the grid redundancy protection in the case of a PDU failure.

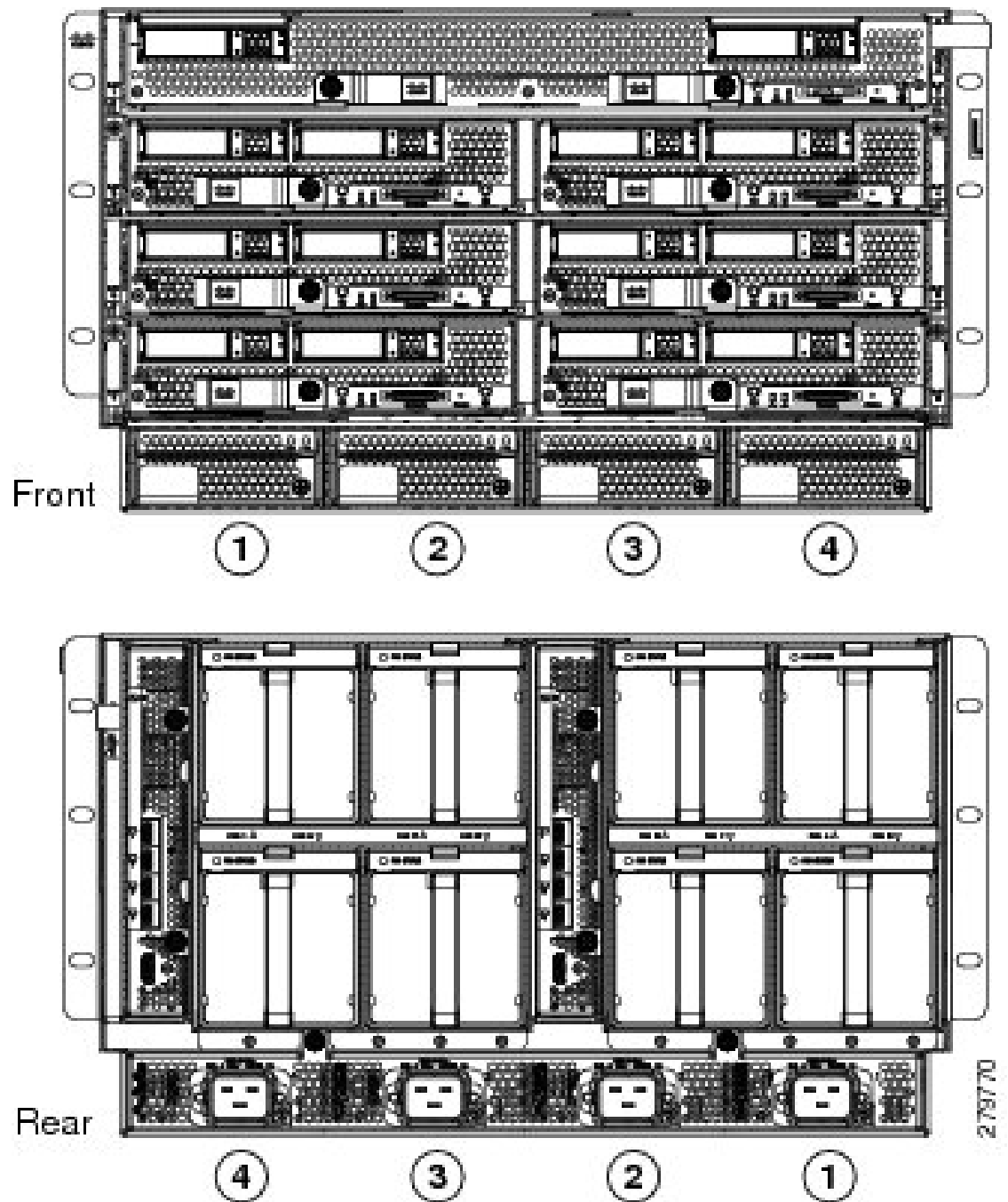
To provide grid redundant (or greater than N+1) protection, the following number of power supplies is recommended:

- Four power supplies are recommended if the power configuration for that chassis requires greater than 2500W or if using Cisco UCS Release 1.4(1) and later releases
- Two power supplies are recommended if the power configuration for that chassis requires less than 2500W or the system is using Cisco UCS Release 1.3(1) or earlier releases



Note Both grids in a power redundant system should have the same number of power supplies. If your system is configured for grid redundancy, slots 1 and 2 are assigned to grid 1 and slots 3 and 4 are assigned to grid 2. If there are only two power supplies (PS) in the a redundant mode chassis, they should be in slots 1 and 3. Slot and cord connection numbering is shown below.

Figure 11: Power Supply Bay and Connector Numbering



LEDs

LEDs on both the chassis and the modules installed within the chassis identify operational states, both separately and in combination with other LEDs.

LED Locations

Figure 12: LEDs on a Cisco UCS 5108 Server Chassis—Front View

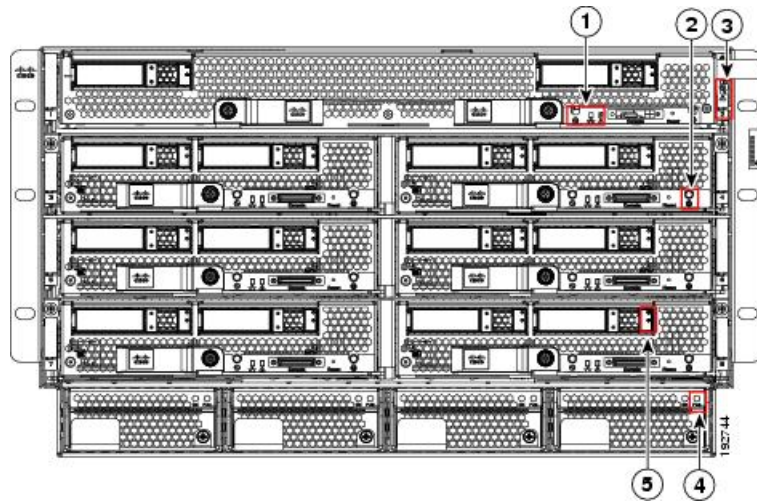


Figure 13: LEDs on the Cisco UCS 5108 Server Chassis—Rear View

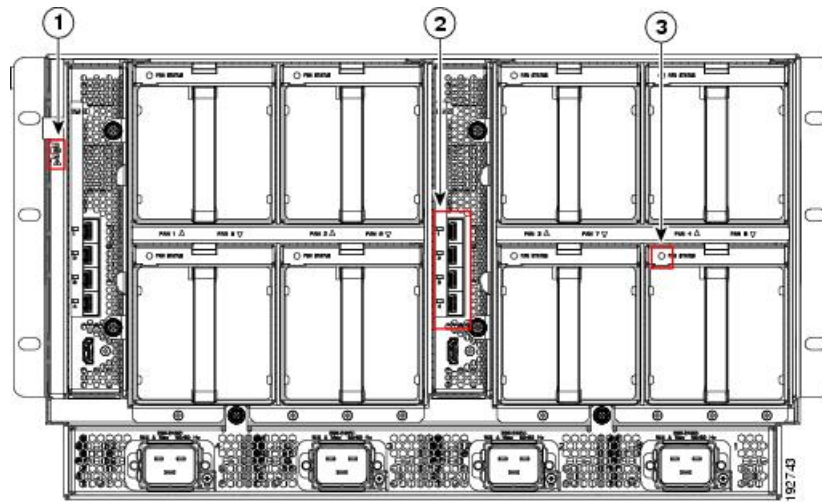
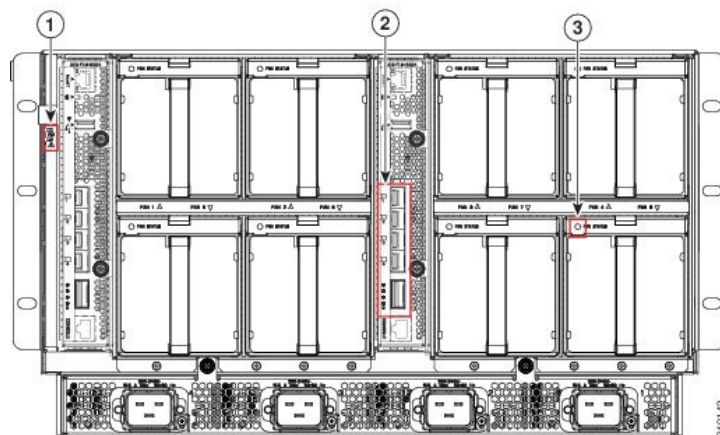




Figure 14: Cisco UCS 5108 Server Chassis—Rear View with the Cisco UCS 6324 Fabric Interconnect



Interpreting LEDs

Table 4: Chassis, Fan, and Power Supply LEDs

LED	Color	Description
Beaconing LED and button	Off	Beaconing not enabled.
	Blinking blue 1 Hz	Beaconing to locate a selected chassis—If the LED is not blinking, the chassis is not selected. You can initiate beaconing in UCS Manager or with the button.
Chassis connections 	Off	No power.
	Amber	No I/O module is installed or the I/O module is booting.
	Green	Normal operation.
Chassis health 	Solid amber	Indicates a component failure or a major over-temperature alarm.
Fan Module	Off	No power to the chassis or the fan module was removed from the chassis.
	Amber	Fan module restarting.
	Green	Normal operation.
	Blinking amber	The fan module has failed.
Power Supply		

LED	Color	Description
OK	Off	No power to the slot.
	Green	Normal operation.
	Blinking green	AC power is present but the PS is either in redundancy standby mode or is not fully seated.
Fail	Off	Normal operation.
	Amber	Over-voltage failure or over-temperature alarm.

Table 5: I/O Module LEDs


LED	Color	Description
Body 	Off	No power.
	Green	Normal operation.
	Amber	Booting or minor temperature alarm.
	Blinking amber	POST error or other error condition.
Port 1-4	Off	Link down.
	Green	Link up and operationally enabled.
	Amber	Link up and administratively disabled.
	Blinking amber	POST error or other error condition.

Table 6: UCS 2304 I/O Module LEDs


LED	Color	Description
System 	Off	Power off.
	Green	Normal operation.
	Amber	Booting or minor temperature alarm.
	Blinking amber	Stopped in U-Boot due to user intervention or unable to come online or major temperature alarm.
Port 1-4	Off	Link enabled but no connected.
	Green	Link connected.
	Amber	Operator disabled.
	Blinking amber	Disabled due to error.

Table 7: Cisco UCS 6324 Fabric Interconnect LEDs







LED	Color	Description
Body 	Off	No power.
	Green	Normal operation.
	Amber	Booting or minor temperature alarm.
	Blinking amber	Stopped due to user intervention or unable to come online, or major temperature alarm.
Port 1-4	Off	Link enabled but not connected.
	Green	Link connected.
	Amber	Operator disabled.
	Blinking amber	Disabled due to error.

Table 8: Blade Server LEDs

LED	Color	Description
Power 	Off	Power off.
	Green	Normal operation.
	Amber	Standby.
Link 	Off	None of the network links are up.
	Green	At least one network link is up.
Health 	Off	Power off.
	Green	Normal operation.
	Amber	Minor error.
	Blinking Amber	Critical error.
Activity  (Disk Drive)	Off	Inactive.
	Green	Outstanding I/O to disk drive.
Health  (Disk Drive)	Off	No fault.
	Amber	Some fault.

