Overview

Overview

Cisco APIC Server M3 and L3 (APIC-SERVER-M3 and APIC-SERVER-L3)—Small form-factor (SFF) drives, with 10-drive backplane. Supports up to 10 2.5-inch SAS/SATA drives. Drive bays 1 and 2 support NVMe SSDs.

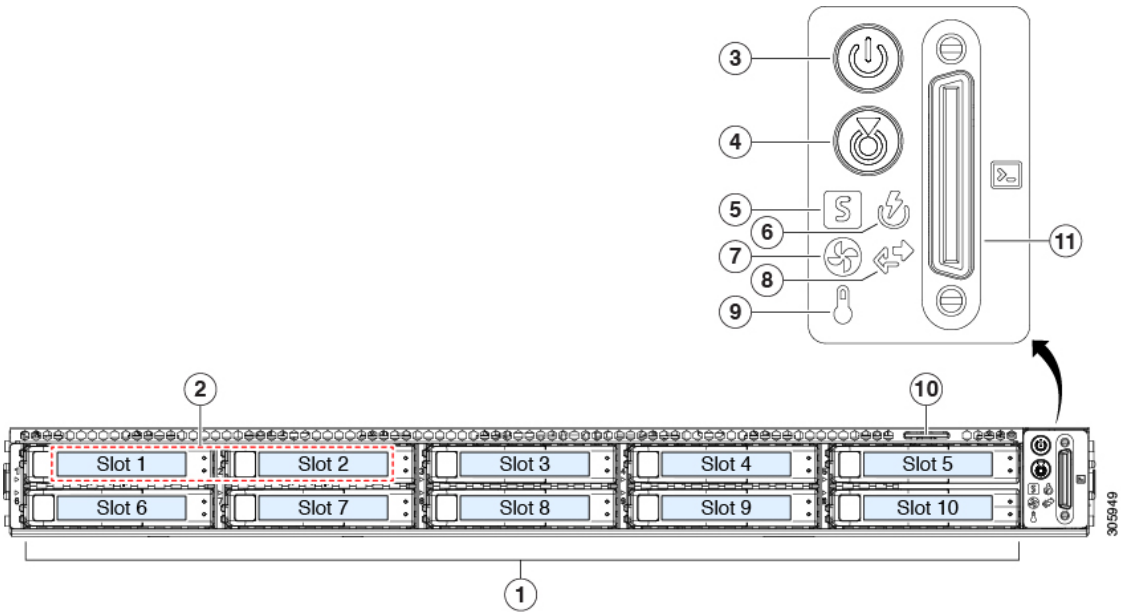
External Features

This topic shows the external features of the server versions.

Cisco APIC M3 and L3 Server (SFF Drives) Front Panel Features

The following figure shows the front panel features of the small form-factor drive versions of the server.

Figure 1: Cisco APIC M3 and L3 Server (SFF Drives) Front Panel

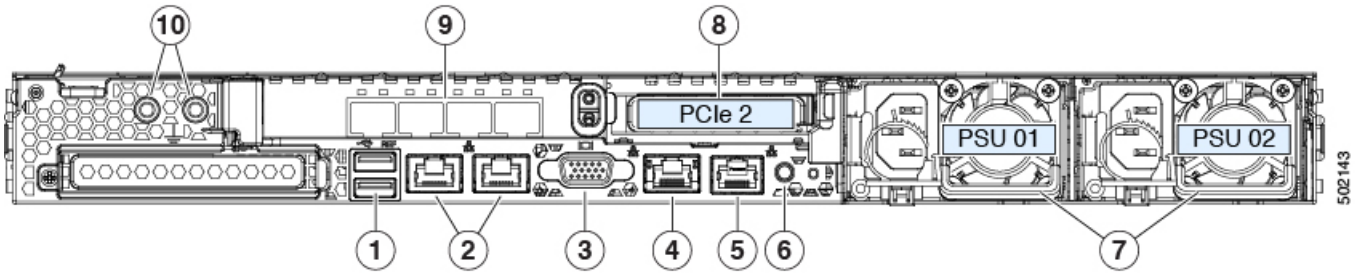


1 Drive bays 1 – 10 support SAS/SATA hard disk drives (HDDs) and solid state drives (SSDs)	7 Fan status LED
2 • APIC-Server-M3 and L3: Drive bays 1 and 2 support NVMe PCIe SSDs.	8 Network link activity LED
3 Power button/power status LED	9 Temperature status LED
4 Unit identification button/LED	10 Pull-out asset tag
5 System status LED	11 KVM connector (used with KVM cable that provides one DB-15 VGA, one DB-9 serial, and two USB connectors)
6 Power supply status LED	-

Cisco APIC M3 and L3 Server Rear Panel Features

The rear panel features are the same for all versions of the server.

Figure 2: Cisco APIC M3 and L3 Server Rear Panel



1 USB 3.0 ports (two)	6 Rear unit identification button/LED
2 Dual 1-Gb/10-Gb Ethernet ports (LAN1 and LAN2) The dual LAN ports can support 1 Gbps and 10 Gbps, depending on the link partner capability.	7 Power supplies (two, redundant as 1+1)
3 VGA video port (DB-15 connector)	8 PCIe riser 2/slot 2 (x16 lane)
4 1-Gb Ethernet dedicated management port	9 VIC 1455 with external 10/25-Gigabit Ethernet ports (4)
5 Serial port (RJ-45 connector)	10 Threaded holes for dual-hole grounding lug

Note The VIC 1455 has 4 ports, port-1, port-2, port-3, and port-4 from left to right.

- All ports must have the same speed, either 10-Gigabit or 25-Gigabit.
- Port-1 and port-2 is one pair, corresponding to eth2-1 on APIC and port-3 and port-4 is another pair, corresponding to eth2-2 on APIC. Only one connection is allowed for each pair. For example, you can connect one cable to either port-1 or port-2, and connect another cable to either port-3 or port-4 (**please do not connect two cables on any pair**).

Status LEDs and Buttons

This section contains information for interpreting front, rear, and internal LED states.

Front-Panel LEDs

Figure 3: Front Panel LEDs

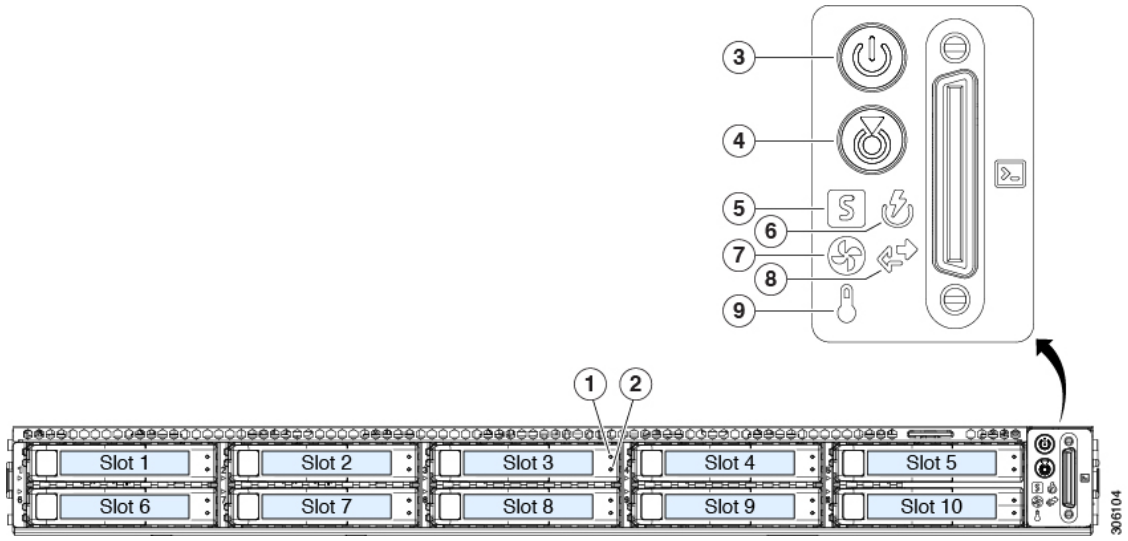


Table 1: Front Panel LEDs, Definition of States

LED Name	States
1 SAS/SATA drive fault Note NVMe solid state drive (SSD) drive tray LEDs have different behavior than SAS/SATA drive trays.	• Off—The hard drive is operating properly. • Amber—Drive fault detected. • Amber, blinking—The device is rebuilding. • Amber, blinking with one-second interval—Drive locate function activated in the software.
2 SAS/SATA drive activity LED	• Off—There is no hard drive in the hard drive tray (no access, no fault). • Green—The hard drive is ready. • Green, blinking—The hard drive is reading or writing data.
1 NVMe SSD drive fault Note NVMe solid state drive (SSD) drive tray LEDs have different behavior than SAS/SATA drive trays.	• Off—The drive is not in use and can be safely removed. • Green—The drive is in use and functioning properly. • Green, blinking—the driver is initializing following insertion or the driver is unloading following an eject command. • Amber—The drive has failed. • Amber, blinking—A drive Locate command has been issued in the software.

2 NVMe SSD activity M	• Off—No drive activity. • Green, blinking—There is drive activity.
3 Power button/LED	• Off—There is no AC power to the server. • Amber—The server is in standby power mode. Power is supplied only to the Cisco IMC and some motherboard functions. • Green—The server is in main power mode. Power is supplied to all server components.
4 Unit identification	• Off—The unit identification function is not in use. • Blue, blinking—The unit identification function is activated.

5 System health	• Green—The server is running in normal operating condition.
	• Green, blinking—The server is performing system initialization and memory check.
	• Amber, steady—The server is in a degraded operational state (minor fault). For example:
	  • Power supply redundancy is lost.
	  • CPUs are mismatched.
	  • At least one CPU is faulty.
	  • At least one DIMM is faulty.
	  • At least one drive in a RAID configuration failed.
	• Amber, 2 blinks—There is a major fault with the system board.
	• Amber, 3 blinks—There is a major fault with the memory DIMMs.
	• Amber, 4 blinks—There is a major fault with the CPUs.

6 Power supply status	• Green—All power supplies are operating normally. • Amber, steady—One or more power supplies are in a degraded operational state. • Amber, blinking—One or more power supplies are in a critical fault state.
7 Fan status	• Green—All fan modules are operating properly. • Amber, blinking—One or more fan modules breached the non-recoverable threshold.

8 Network link activity	• Off—The Ethernet LOM port link is idle. • Green—One or more Ethernet LOM ports are link-active, but there is no activity. • Green, blinking—One or more Ethernet LOM ports are link-active, with activity.
9 Temperature status	• Green—The server is operating at normal temperature. • Amber, steady—One or more temperature sensors breached the critical threshold. • Amber, blinking—One or more temperature sensors breached the non-recoverable threshold.

Rear-Panel LEDs

Figure 4: Rear Panel LEDs

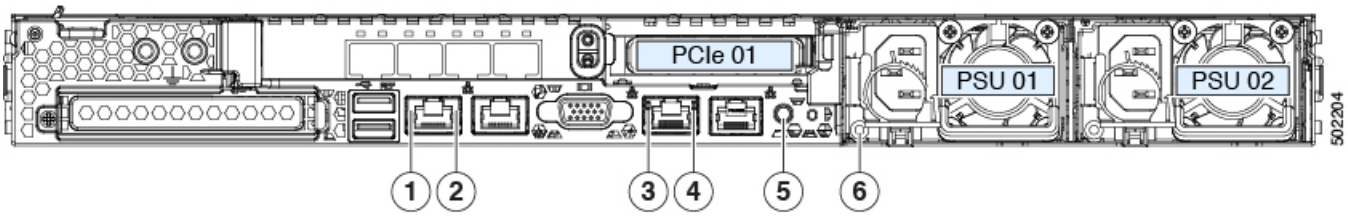


Table 2: Rear Panel LEDs, Definition of States

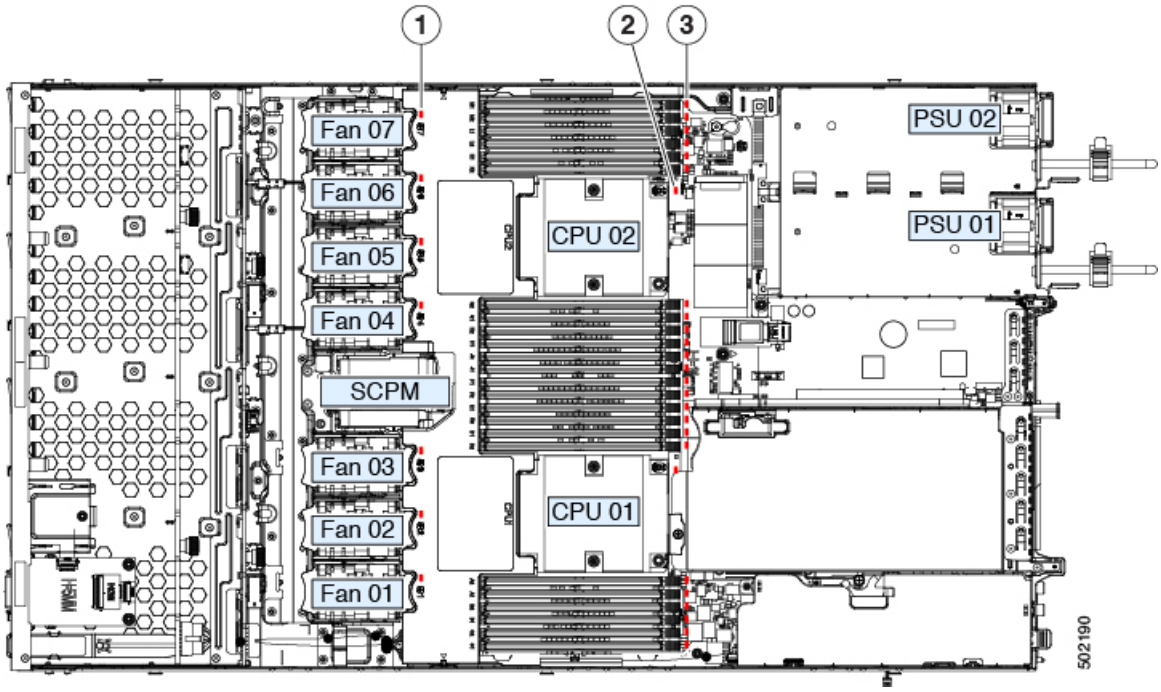
LED Name	States
1 -Gb/10-Gb Ethernet link speed (on both LAN1 and LAN2)	• Off—Link speed is 100 Mbps. • Amber—Link speed is 1 Gbps. • Green—Link speed is 10 Gbps.
2 -Gb/10-Gb Ethernet link status (on both LAN1 and LAN2)	• Off—No link is present. • Green—Link is active. • Green, blinking—Traffic is present on the active link.
3 -Gb Ethernet dedicated management link speed	• Off—Link speed is 10 Mbps. • Amber—Link speed is 100 Mbps. • Green—Link speed is 1 Gbps.

4	1-Gb Ethernet dedicated management link status	• Off—No link is present. • Green—Link is active. • Green, blinking—Traffic is present on the active link.
5	Rear unit identification	• Off—The unit identification function is not in use. • Blue, blinking—The unit identification function is activated.
6	Power supply status (one LED each power supply unit)	**AC power supplies:** • Off—No AC input (12 V main power off, 12 V standby power off). • Green, blinking—12 V main power off; 12 V standby power on. • Green, solid—12 V main power on; 12 V standby power on. • Amber, blinking—Warning threshold detected but 12 V main power on. • Amber, solid—Critical error detected; 12 V main power off (for example, over-current, over-voltage, or over-temperature failure). **DC power supplies:** • Off—No DC input (12 V main power off, 12 V standby power off). • Green, blinking—12 V main power off; 12 V standby power on. • Green, solid—12 V main power on; 12 V standby power on. • Amber, blinking—Warning threshold detected but 12 V main power on. • Amber, solid—Critical error detected; 12 V main power off (for example, over-current, over-voltage, or over-temperature failure).

Internal Diagnostic LEDs

The server has internal fault LEDs for CPUs, DIMMs, and fan modules.

Figure 5: Internal Diagnostic LED Locations

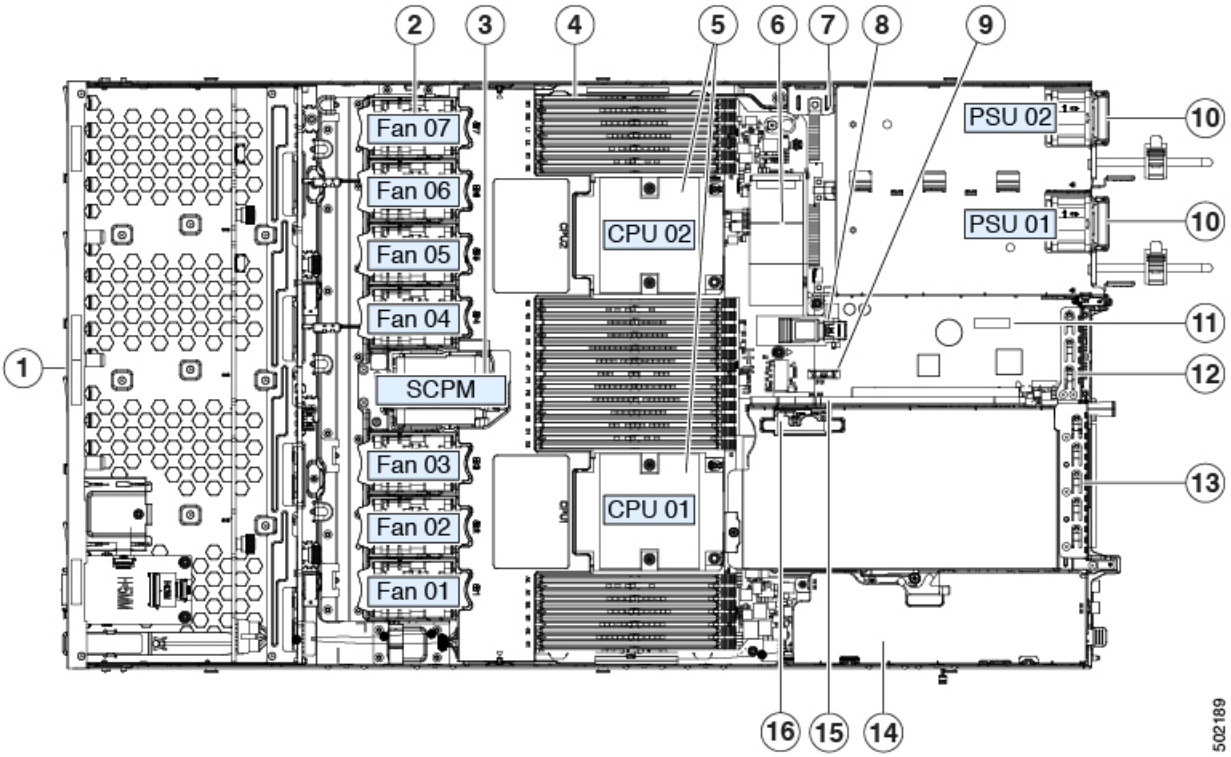


1 Fan module fault LEDs (one behind each fan connector on the motherboard) • Amber—Fan has a fault or is not fully seated. • Green—Fan is OK.	3 DIMM fault LEDs (one behind each DIMM socket on the motherboard) These LEDs operate only when the server is in standby power mode. • Amber—DIMM has a fault. • Off—DIMM is OK.
2 CPU fault LEDs (one behind each CPU socket on the motherboard). These LEDs operate only when the server is in standby power mode. • Amber—CPU has a fault. • Off—CPU is OK.	-

Serviceable Component Locations

This topic shows the locations of the field-replaceable components and service-related items. The view in the following figure shows the server with the top cover removed.

Figure 6: Cisco APIC M3 and L3 Server, Serviceable Component Locations



1 Front-loading drive bays 1–10 support SAS/SATA drives.	9 RTC battery, vertical socket
2 Cooling fan modules (seven, hot-swappable)	10 Power supplies (hot-swappable when redundant as 1+1)
3 Supercap unit mounting bracket (RAID backup)	11 Trusted platform module (TPM) socket on motherboard (not visible in this view)
4 DIMM sockets on motherboard (12 per CPU)	12 PCIe riser 1/slot 1 (half-height, x16 lane) Includes PCIe cable connectors for front-loading NVMe SSDs (x8 lane)
5 CPUs and heatsinks (up to two)	13 VIC 1455 with external 10/25-Gigabit Ethernet ports (4)
6 Mini storage module socket Supports either an SD card module with two SD card slots; or an M.2 module with two NVMe or SATA M.2 SSD slots.	14 Available (empty) PCIe slot
7 Chassis intrusion switch (optional)	15 PCIe cable connectors for front-loading NVMe SSDs on PCIe riser 2
8 Internal USB 3.0 port on motherboard	16 Micro-SD card socket on PCIe riser 1

Summary of Server Features

The following table lists a summary of server features.

Feature	Description
Chassis	One rack-unit (1RU) chassis
Central Processor	Up to two CPUs from the Intel Xeon Processor Scalable Family. This includes CPUs from the following series: • Intel Xeon Bronze 3XXX Processors • Intel Xeon Silver 4XXX Processors • Intel Xeon Gold 5XXX Processors • Intel Xeon Gold 6XXX Processors • Intel Xeon Platinum 8XXX Processors
Memory	24 DDR4 DIMM sockets on the motherboard (12 each CPU)
Multi-bit error protection	Multi-bit error protection is supported
Baseboard management	BMC, running Cisco Integrated Management Controller (Cisco IMC) firmware. Depending on your Cisco IMC settings, Cisco IMC can be accessed through the 1-Gb dedicated management port, the 1-Gb/10-Gb Ethernet LAN ports, or a Cisco virtual interface card.
Network and management I/O	Rear panel: • One 1-Gb Ethernet dedicated management port (RJ-45 connector) • Two 1-Gb/10-Gb BASE-T Ethernet LAN ports (RJ-45 connectors) The dual LAN ports can support 1 Gbps and 10 Gbps, depending on the link partner capability. • One RS-232 serial port (RJ-45 connector) • One VGA video connector port (DB-15 connector) • Two USB 3.0 ports Front panel: • One front-panel keyboard/video/mouse (KVM) connector that is used with the KVM cable, which provides two USB 2.0, one VGA, and one DB-9 serial connector.
Modular LOM	One dedicated socket (x16 PCIe lane) that can be used to add an mLOM card for additional rear-panel connectivity.
WoL	The two 1-Gb/10-Gb BASE-T Ethernet LAN ports support the wake-on-LAN (WoL) standard.

Feature	Description
Power	Two power supplies, redundant as 1+1: • AC power supplies 770 W AC each
ACPI	The advanced configuration and power interface (ACPI) 4.0 standard is supported.
Cooling	Seven hot-swappable fan modules for front-to-rear cooling.
PCIe I/O	Two horizontal PCIe expansion slots on a PCIe riser assembly.
InfiniBand	The PCIe bus slots in this server support the InfiniBand architecture.
Storage, front-panel	Cisco APIC M3 and L3 (APIC-SERVER-M3 and APIC-SERVER-L3)—Small form-factor (SFF) drives, with 10-drive backplane. Supports up to 10 2.5-inch SAS/SATA drives. Drive bays 1 and 2 support NVMe SSDs.

Storage, internal	The server has these internal storage options:
	• One USB port on the motherboard.
	• Mini-storage module socket, optionally with either:
	  • SD card module. Supports up to two SD cards.
	  • M.2 SSD module. Supports either two SATA M.2 SSDs or two NVMe M.2 SSDs.
	• One micro-SD card socket on PCIe riser 1.

Storage management	The server has a dedicated internal mRAID riser that supports one of the following storage-controller options: • A PCIe-style Cisco modular RAID controller card (SAS/SATA). • A PCIe-style interposer card for the server's embedded SATA RAID controller.
RAID backup	The server has a mounting bracket near the cooling fans for the supercap unit that is used with the Cisco modular RAID controller card.
Integrated video	Integrated VGA video.