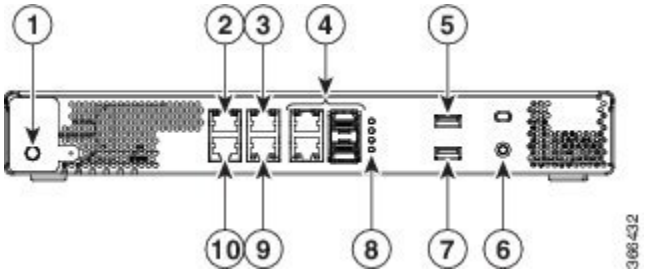
Overview of the Cisco 5100 Enterprise Network Compute System

The Cisco 5100 Enterprise Network Compute System (ENCS) combines routing, switching, storage, processing, and a host of other computing and networking activities into a compact one Rack Unit (RU) box. This high-performance unit achieves this goal by providing the infrastructure to deploy virtualized network functions while at the same time acting as a server that addresses processing, workload, and storage challenges.

Cisco 5100 Series Enterprise Network Compute System Chassis

Chassis - Front Panel

Figure 1: Front Panel of the Cisco 5100 ENCS



1.	Power on/standby switch	2	Ethernet management port
3	Front panel Gigabit Ethernet ports GE0-2	4	Front panel Gigabit Ethernet combo ports GE0-0 and GE0-1
5	USB	6	Ground

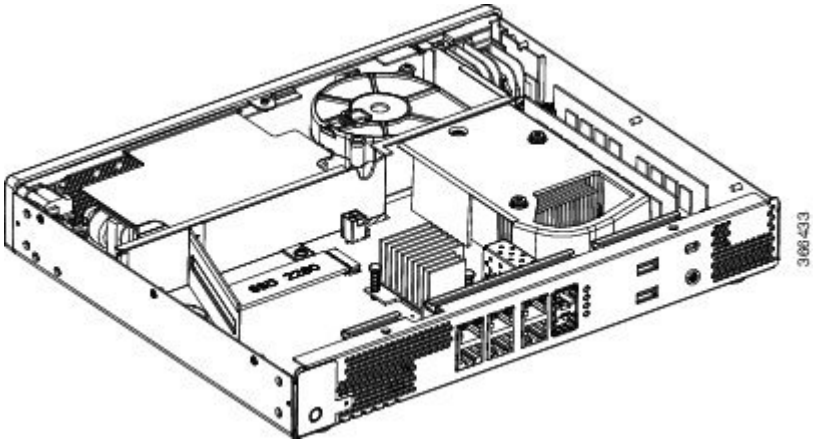
7	USB	8	LEDs for front panel Gigabit Ethernet ports
9	Front panel Gigabit Ethernet ports GE0-3	10	Serial console port

Chassis - Bezel Side

Figure 2: Bezel View of the Cisco 5100 ENCS

Chassis - Internal

Figure 3: Internal View of the Cisco 5100 ENCS



Hardware Features - Standard

- **USB 3.0 port:** You can use this port to connect a mouse, keyboard, or any other USB device. Using a USB hub, you can connect more than one USB device to this port. Because this port is backward compatible, you can also use an older version of USB devices on this port.
- **Ethernet management port for CPU:** Use this port to connect to the CPU in your device.
- **Front panel Gigabit Ethernet ports:** There are a set of two dual ports GE0-0 and GE0-1. For those RJ45 ports, there is a corresponding fiber optic port. At a given time, the user can use either the RJ45 connection or the corresponding fiber optic port. There are a set of two copper ports GE0-2 and GE0-3. Those two ports support copper RJ45 only.

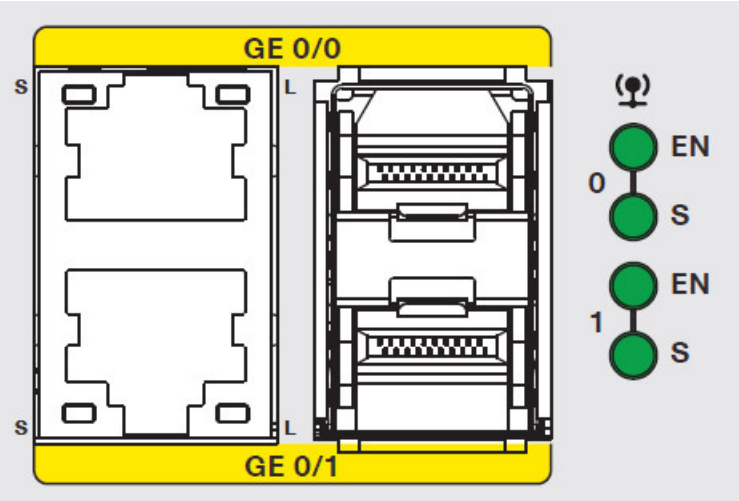
Warning For connections outside the building where the equipment is installed, the following ports must be connected through an approved network termination unit with integral circuit protection: Gigabit Ethernet (GE). Statement 1044.

- **Serial console port:** This serial port provides a connection to initially configure the main system's CPU, including the NFVIS software that runs there, using a traditional serial terminal. The terminal should be configured for 9600 8-N-1.

LEDs for Gigabit Ethernet Ports

The front panel Gigabit Ethernet ports (numbered 4 in Figure 1) are a set of two dual ports: for every RJ45 port, there is a corresponding fiber optic port. There are four LEDs for the front panel Gigabit Ethernet ports (numbered 8 in Figure 1). The first two LEDs are for the first set of ports and the last two LEDs are for the second set of ports. If both RJ45 and fiber optic ports are enabled when the system boots, the fiber optic port is used and the RJ45 port is disabled.

Figure 4: LEDs for Gigabit Ethernet Ports

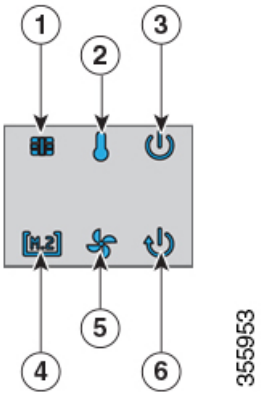


The LEDs labeled **EN** indicates whether the corresponding ports are enabled.

The frequency of the blinks of the LEDs labeled **S** shows the speed of the corresponding ports. This table maps the blink frequency of a LED to the speed of the corresponding port.

Blink Frequency	Speed
No blink	No link
1 blink	10Mbps
2 blinks	100Mbps
3 blinks	1000Mbps

Bezel Side LED Status



No.	LED Label	Color	Behavior
1	Modem	Blue	Modem up, SIM installed and active.
		Blinking blue	LTE data activity.
		Amber	Modem up, SIM installed but not active.
		Off	Modem not up or modem up with no SIM.
2	SSD	Blue	SSD present.
		Amber	SSD present with failure.
		Off	SSD not present.
3	Temperature	Blue	Temperature in acceptable range.
		Amber	One or more temperature are not in acceptable range.
		Off	Device power off
4	Fan	Blue	Fan speed is correct.
		Amber	Incorrect fan speed, exceeding the tolerance +-500RPM.
		Off	FAN is not being monitored.

No.	LED Label	Color	Behavior
5	Power	Blue	power sequence ok
		Blinking amber	Powering up or power fault.
		Off	Device power off
6	AMD	Blue	AMD power up.
		Amber	AMD power down.
		Off	Device power off

Rear (I/O) Side LED Status

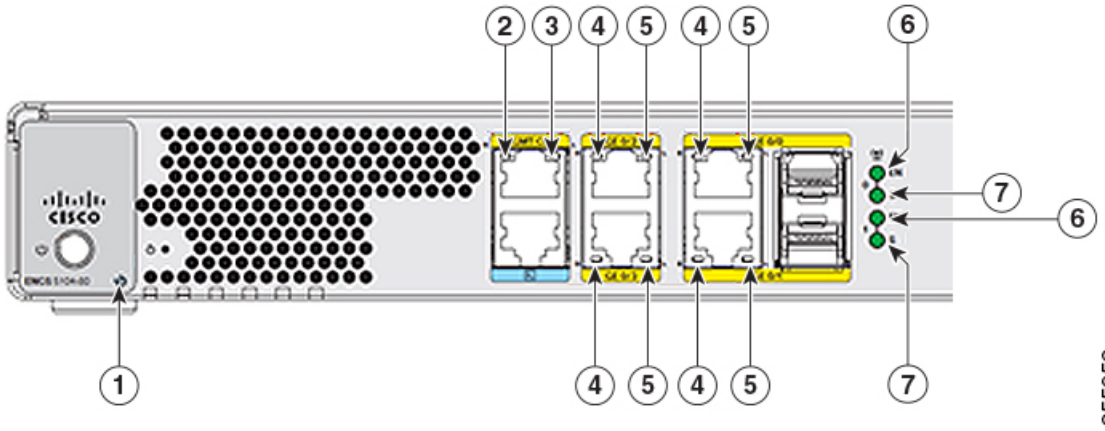


Table 1: Rear (I/O) Side LED Status

No.	LED Label	Color	Behavior
1	System Boot LED	Green	AMD power up.
		Amber	AMD power down.
2	AMD Management port Speed LED	Green	Link
		Blinking green	Green Blinking: blink frequency indicates port speed: 1 blink – 10Mbps link speed 2 blinks – 100Mbps link speed 3 blinks – 1000Mbps link speed

No.	LED Label	Color	Behavior
3	AMD Management port Link LED	Green	Ethernet cable present and link established with other side.
4	WAN port GE Speed LED	Blinking green	Green Blinking: blink frequency indicates port speed: 1 blink – 10Mbps link speed 2 blinks – 100Mbps link speed 3 blinks – 1000Mbps link speed
5	WAN port GE Link LED	Green	Ethernet cable present and link established with other side.
6	WAN port SFP Enable LED	Green	Indicates SFP module detected and recognized.
		Amber	Indicates SFP is not recognized or in a fault state.
7	WAN port SFP Speed LED	Blinking green	Blink frequency indicates port speed: 3 blinks – 1000Mbps link speed

Hardware Features

The following are the units of Cisco 5100 ENCS:

- **M.2 storage module:** This is a high capacity storage component on the motherboard. The OS is installable in this module. The storage capacity of this module is upgradeable. The different storage capacities that are currently available for this module are 64GB, 200GB, and 400GB. Other storage capacities might be made available in the future.
- **DDR4 DIMM Slots:** There are two DDR4 dual in-line memory module (DIMM) slots on the motherboard. Each slot can hold 8 GB or 16 GB memory module. The memory module in each of the slots can be upgraded to a maximum of 16 GB. As a result, you can have a maximum capacity of 32 GB.

Models

The Cisco 5100 ENCS is available in these models:

Product ID	Description
ENCS5104-64/K9	This device has 64 GB storage capacity.
ENCS5104-200/K9	This device has 200 GB storage capacity.
ENCS5104-400/K9	This device has 400 GB storage capacity.

Note With the exception of M.2 drive and memory, other hardware features are common across all models.

Note In the Cisco 5100 Enterprise Network Compute System, when the hardware units (for example, BIOS) are implemented separately, the compliance labels for each of them are different leading to label mismatch. To avoid the confusion, you must use the compliance label as the master for the 74 TAN.

SFP Modules

This section provides information on Cisco Small Form-Factor Pluggable (SFP) Modules in Cisco ENCS 5100. The switch Gigabit Ethernet SFP and SFP+ modules provide copper or optical connections to other devices. These modules are hot-swappable and provide the uplink interfaces. The SFP modules have fiber-optic LC connectors or RJ-45 copper connectors.

Use only supported SFP modules on the switch. Each module has an internal serial EEPROM that is encoded with security information.

Note If non-supported SFP is plugged into the system, you need to reboot the system after removing the non-supported SFP for other SFPs to work normally.

Warning Class 1 laser product. Statement 1008

The Cisco ENCS 5100 supports the following SFP modules:

Part Number	Description
GLC-LH-SMD	Cisco 1000BASE-LX/LH SFP module for MMF[1] and SMF, 1300-nm wavelength, commercial operating temperature range.

Part Number	Description
GLC-SX-MMD	Cisco 1000BASE-SX SFP module for MMF, 850-nm wavelength, extended operating temperature range.
SFP-GE-S	Cisco 1000BASE-SX SFP module for MMF, 850-nm wavelength, extended operating temperature range.

1 A mode-conditioning patch cord, as specified by the IEEE standard, is required. Using an ordinary patch cord with MMF, 1000BASE-LX/LH SFP transceivers, and a short link distance can cause transceiver saturation, resulting in an elevated bit error rate (BER). When using the LX/LH SFP transceiver with 62.5-micron diameter MMF, you must also install a mode-conditioning patch cord between the SFP transceiver and the MMF cable on both the sending and receiving ends of the link. The mode-conditioning patch cord is required for link distances greater than 984 feet (300 m).