



## Important! Please read!

The following GEM model revisions require software versions 4.01.32 or above, *excluding* software version 4.10, to function:

- CSS8-IOM-4GE/8 and CSS8-IOM-4GE/16 at revision C0
- CSS8-IOM-4GE/8= and CSS8-IOM-4GE/16= at revision D0

GEM revisions earlier than C0 or D0 are compatible with software versions 4.01.32 and above. GEMs at differing revisions in the same CSS running software versions 4.01.32 or above, *excluding* software version 4.10, function properly. The GEM revision is listed on the front panel label.

# Gigabit Ethernet Module (GEM) Reference

Product Number: CSS8-IOM-4GE/8  
CSS8-IOM-4GE/16

The Gigabit Ethernet Module (GEM) provides Gigabit Ethernet connectivity for a CSS 11800. The GEM supports four 1000 Mbps Ethernet connections using Gigabit Interface Converters (GBICs). The GBIC interfaces comply with Revision 5.1 of the GBIC specification for Class 4 GBICs. The GBIC network interfaces comply with the IEEE 1000BASE-SX specification for short wavelength lasers. Each GBIC network interface laser wavelength is 850 nm and uses SC-type fiber connectors.

The GEMs are available in the following models:

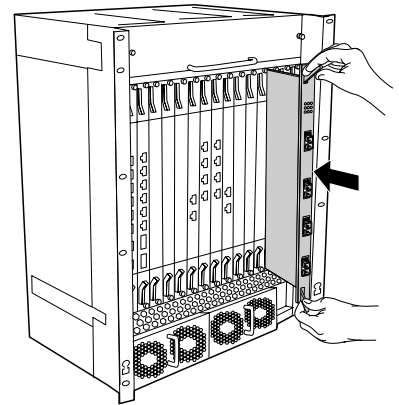
- CSS-11800-LAN-05 - Contains 8MB (128K SRAM) flow connection memory and supports a maximum of 64,000 simultaneous flows per module
- CSS-11800-LAN-06 - Contains 16 MB (256K SRAM) flow connection memory and supports a maximum of 128,000 simultaneous flows per module

## Installing a GEM

You must power down the CSS to install a module.

To install an GEM:

1. Properly ground yourself prior to handling the module. For example, wear an anti-static wrist strap (included in the Accessory kit) and stick the copper-tape end of the strap to an unpainted metal surface on the chassis. Make sure that the wrist strap makes good contact with your skin.
2. If necessary, power down the CSS.
3. Locate an open slot in the chassis. GEMs are restricted to the I/O slots; 1 through 4, or 11 through 14 (these slots are color-coded blue). If necessary, remove a blank panel from the chassis to expose a slot for the module.
4. Insert the module into the board guides at the top and bottom of the slot and slide it into the chassis by pressing firmly at the top and bottom of the faceplate.
5. Close both ejectors simultaneously to seat the module connector into the backplane.
6. Using a Phillips screwdriver, tighten the spring-loaded screws on the front of the module faceplate.
7. If necessary, insert any additional GBICs in ports 2 through 4. When you install a GBIC, position it with its receive connector above its transmit connector.
8. Boot up the CSS. The GEM begins diagnostics and initializes automatically.



**Note:** For GPIC installation instructions, refer to the *Gigabit Interface Converters (GBICs) Reference* sheet included with the GBIC.

## Replacing a GEM

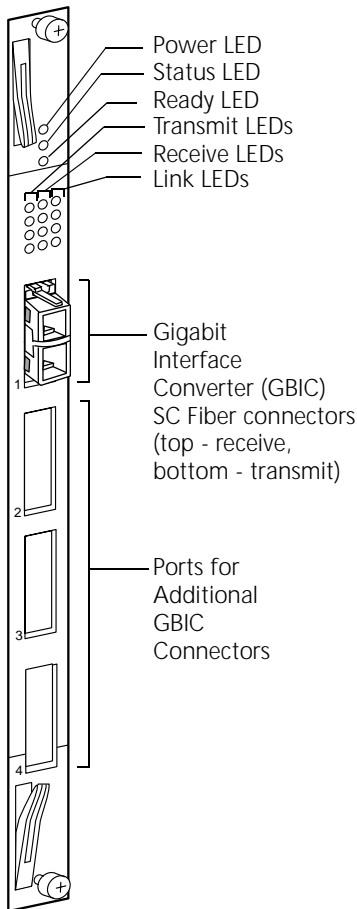
You must power down the CSS 11800 to install a GEM.

When you remove a module and replace it with a module of the *same* type, the Switch Control Module (SCM) downloads the former module's configuration to the new module automatically. The newly installed module boots up with the same configuration as the former module.

When you remove a module and replace it with a module of a *different* type, the SCM initializes the new module. You can then use CLI commands to configure the new module.

## Using the Gigabit Ethernet Module LEDs

Each GEM contains Power, Status, and Ready LEDs for module status and transmit (TX), receive (RX), and Link/Sync LEDs for each of the four connectors.



**Table 1. Gigabit Ethernet Module LED Descriptions**

LED Name	Color	LED Status	Indicates
Power	Green	Off	Module does not have power
		On	Module has power
Status	Yellow	Off	Module is operational
		On	Module is experiencing an error
Ready	Green	Off	Module not initialized
		On	Module initialized and ready
Tx (Transmit) (Ports 1 to 4)	Green	Off	No transmit packet activity
		Blinking	Transmit activity detected
Rx (Receive) (Ports 1 to 4)	Green	Off	No receive packet activity
		Blinking	Receive activity detected
Link/Sync (Ports 1 to 4)	Green	Off	No link
		On	Link exists and synchronization achieved
		Blinking	Link exists but not synchronized

## Related CLI Commands

To view the current state of the GEM and verify it is online, use the **show chassis slot\_number** command.