



# Installing Cisco ONS 15454 SONET/SDH FC\_MR-4 Cards

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Product Name: 15454-ML-4FC=

This document lists regulatory requirements and describes installation procedures for the Cisco ONS 15454/ONS 15454 SDH FC\_MR-4 card. It also contains removal instructions and technical specifications. Use this document in conjunction with the *Cisco ONS 15454 SDH Reference Manual*, the *Cisco ONS 15454 SDH Procedure Guide*, the *Cisco ONS 15454 Reference Manual*, and the *Cisco ONS 15454 Procedure Guide*.

This document contains the following sections:

- [“FC\\_MR-4 Card Description” section on page 1](#)
- [“Installation Procedures” section on page 4](#)
- [“Related Documentation” section on page 5](#)
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This document contains the following procedures:

- [Procedure: Install the FC\\_MR-4 Card, page 5](#)
- [Procedure: Verify Turn Up of the FC\\_MR-4 Card, page 5](#)

## FC\_MR-4 Card Description



**Warning**

**Class 1 (21 CFR 1040.10, 1040.11, and IEC 60825-1 2001-01) laser products. Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not stare into the beam or view directly with optical instruments. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. Use of controls or adjustments, or performance of procedures other than those specified may result in hazardous radiation exposure.**

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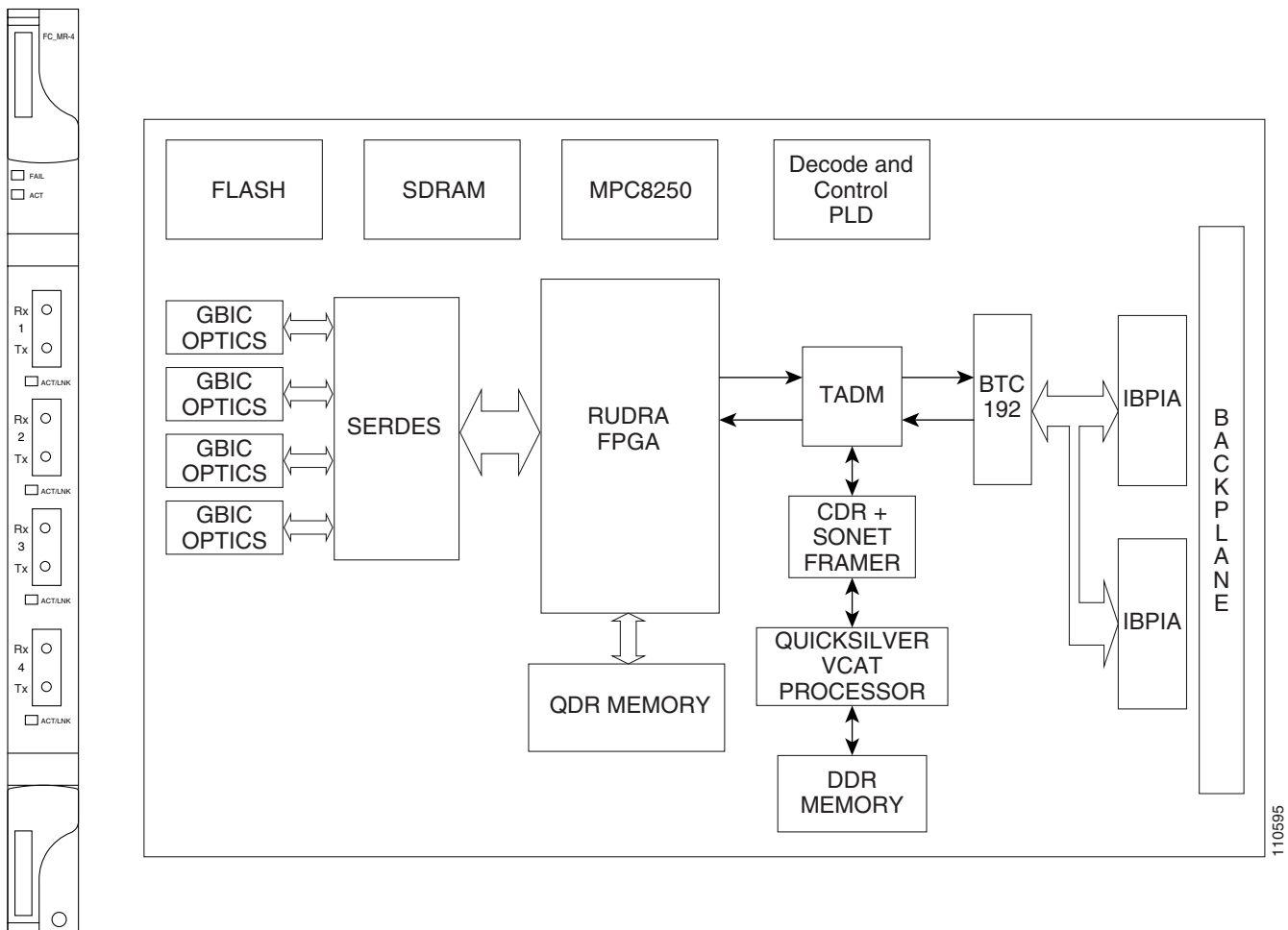
The FC\_MR-4 (Fibre Channel 4-port) card uses pluggable Gigabit Interface Converters (GBICs) to transport non-SONET/SDH-framed, block-coded protocols over SONET/SDH in virtually concatenated or contiguously concatenated payloads. The FC\_MR-4 can transport Fibre Channel over SONET/SDH using Fibre-Channel client interfaces and allows transport of one of the following at a time:

- Two contiguously concatenated (CCAT) STS-24c/VC4-8c circuits
- One STS-48c/VC4-16c CCAT
- Two virtually concatenated (VCAT) circuits (STC3c-8V/VC4-8v) compliant with ITU-T G.7041 GFP-T and Telcordia GR-253-CORE
- One STS-24c/VC4-8c CCAT and one STS-24c/VC4-8c VCAT

In Software Release 4.6, only two of the four ports can be active at one time.

Figure 0-1 shows the FC\_MR-4 faceplate and block diagram.

**Figure 0-1 FC\_MR-4 Faceplate and Block Diagram**



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## FC\_MR-4 Card-Level Indicators

Table 0-1 describes the two card-level LEDs on the FC\_MR-4 card.

**Table 0-1 FC\_MR-4 Card-Level Indicators**

| Card-Level Indicators | Description                                                                                                       |
|-----------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>Red FAIL LED</b>   | The red FAIL LED indicates that the card's processor is not ready. Replace the card if the red FAIL LED persists. |
| <b>Green ACT LED</b>  | If the ACTV/STBY LED is green, the card is operational and ready to carry traffic.                                |

## FC\_MR-4 Port-Level Indicators

Each FC\_MR-4 port has a corresponding ACT/LNK LED. The ACT/LNK LED is solid green if the port is available to carry traffic, is provisioned as in-service, and in the active mode. The ACT/LNK LED is flashing green if the port is carrying traffic. The ACT/LNK LED is steady amber if the port is not enabled and the link is connected, or if the port is enabled and the link is connected but there is a SONET transport error. The ACT/LNK LED is unlit if there is no link.

You can find the status of the card ports using the LCD screen on the ONS 15454 fan-tray assembly. Use the LCD to view the status of any port or card slot; the screen displays the number and severity of alarms for a given port or slot. Refer to the *Cisco ONS 15454 Troubleshooting Guide* for a complete description of the alarm messages.

## FC\_MR-4 Card Specifications

The FC\_MR-4 card has the following specifications:

- Environmental
  - Operating temperature  
C-Temp (15454-E100T): –5 to +55 degrees Celsius (23 to 131 degrees Fahrenheit)
  - Operating humidity: 5 to 95%, noncondensing
  - Power consumption: 60 W, 1.35 A, 221.93 BTU/hr
- Dimensions
  - Height: 321.3 mm (12.650 in.)
  - Width: 18.2 mm (0.716 in.)
  - Depth: 228.6 mm (9.000 in.)
  - Card weight: 1.17 kg (2.59 lb)
- Compliance
  - For compliance information, refer to the *Cisco Optical Transport Products Safety and Compliance Information*.

# Installation Procedures

Use this section if you are installing the FC\_MR-4 card for the first time. After you become familiar with ONS 15454 SONET/SDH card installation and boot up, use this section as a reference. For information about fiber optic cable installation, see the *Cisco ONS 15454 SDH Reference Manual*, the *Cisco ONS 15454 SDH Procedure Guide*, the *Cisco ONS 15454 Reference Manual*, or the *Cisco ONS 15454 Procedure Guide*.



## Warning

**Hazardous voltage or energy may be present on the backplane when the system is operating. Use caution when servicing.**

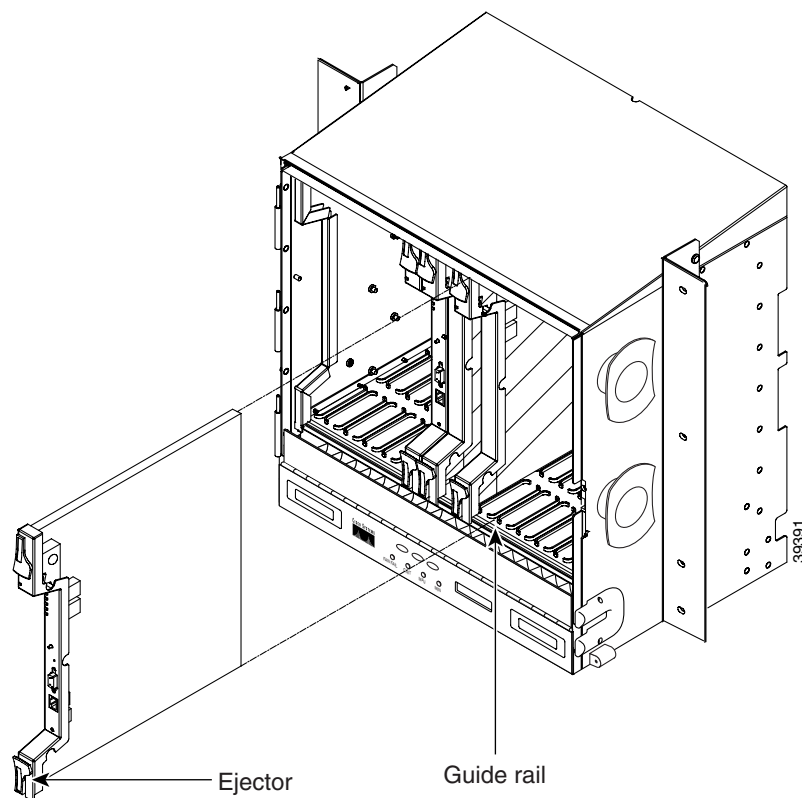


## Caution

Always use the supplied electrostatic discharge (ESD) wristband when working with an ONS 15454 SONET/SDH. Plug the wristband cable into the ESD jack located on the lower right outside edge of the shelf assembly and ensure the shelf assembly is properly grounded.

FC\_MR-4 cards have electrical plugs that plug into electrical connectors on the shelf assembly backplane. When the ejectors are fully closed, the card plugs into the shelf assembly backplane. [Figure 2](#) shows general card installation. The example shows the installation in an ONS 15454. The procedure in an ONS 15454 SDH is identical.

**Figure 2** Installing a card in an ONS 15454



## Procedure: Install the FC\_MR-4 Card

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- Step 1** Open the card ejectors.
- Step 2** Slide the card along the guide rails into the correct slot.
- Step 3** Close the ejectors.
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## Procedure: Verify Turn Up of the FC\_MR-4 Card

Follow the steps in this section to verify card turn up. If one or more of the Cisco Transport Controller (CTC) software screen conditions according to this procedure are not met, reinstall the card. Replace the unit if the faulty state persists.

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- Step 1** Verify that power is applied to the shelf assembly.
- Step 2** Verify the LED activity:
- The red FAIL LED turns on for 20 to 30 seconds. The ACT LED is amber for 3 to 5 seconds.
  - The red FAIL LED blinks for up to 2 minutes.
  - The FAIL and ACT LEDs blink once and turn off for 1 to 5 seconds.
  - The ACT LED turns on.
-  **Note** If the red FAIL LED does not turn on, check the power.
-  **Note** If you insert a card into a slot provisioned for a different card, all LEDs turn off.
- Step 3** Verify that the ACT or ACT/STBY LED is on. The signal fail (SF) LED can persist until all card ports connect to their far end counterparts and a signal is present.
- Step 4** When you have displayed Cisco Transport Controller (CTC) on your workstation, verify that the card appears in the correct slot on the CTC node view. See the *Cisco ONS 15454 SDH Reference Manual*, the *Cisco ONS 15454 SDH Procedure Guide*, the *Cisco ONS 15454 Reference Manual*, or the *Cisco ONS 15454 Procedure Guide*.
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## Related Documentation

- DOC-7815934= *Cisco ONS 15454 Procedure Guide*
- DOC-7815981= *Cisco ONS 15454 Reference Manual*
- DOC-7815982= *Cisco ONS 15454 Troubleshooting Guide*
- DOC-7815983= *Cisco ONS 15454 SDH Procedure Guide*
- DOC-7815988= *Cisco ONS 15454 SDH Reference Manual*
- DOC-7815989= *Cisco ONS 15454 SDH Troubleshooting Guide*

## Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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