



# Installing the CTX2500 Card in the Cisco ONS 15310-MA

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**Product Names: 15310-CTX-2500-K9**

This document provides a card description, specifications, and an installation procedure for the Cisco ONS 15310-MA CTX2500 card. As appropriate use this document in conjunction with the *Cisco ONS 15310-CL and Cisco ONS 15310-MA Procedure Guide*, the *Cisco ONS 15310-CL and Cisco ONS 15310-MA Reference Manual*, and the *Cisco ONS 15310-CL and Cisco ONS 15310-MA Troubleshooting Guide* when working with CTX2500 cards.

This document contains the following sections:

- [CTX2500 Card Description, page 1](#)
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- [Related Documentation, page 7](#)
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## CTX2500 Card Description

The CTX2500 card, for use with the ONS 15310-MA, is a fully nonblocking cross-connect card that operates in either a simplex or duplex (redundant) configuration. It performs system initialization, provisioning, alarm reporting, maintenance, diagnostics, IP address detection/resolution, SONET DCC termination, system fault detection, and cross-connect maintenance and management for the ONS 15310-MA. The card also provides the circuitry for the OC-3/OC-12/OC-48 interfaces, and ensures that the system maintains timing with SMC stability.



### Caution

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If the system loses power or the CTX2500 card is reset, you must reset the ONS 15310-MA clock unless the node has been previously provisioned to use Simple Network Time Protocol (SNTP) to update the clock over the LAN.

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The CTX2500 card provides 576 x 576 STS-1 level cross-connections and 2688 x 2688 VT1.5s.

The CTX2500 card can be installed in Slot 3 or 4. Protection switches between the active and standby CTX 2500 are hitless (less than a 50-ms impact to any traffic).

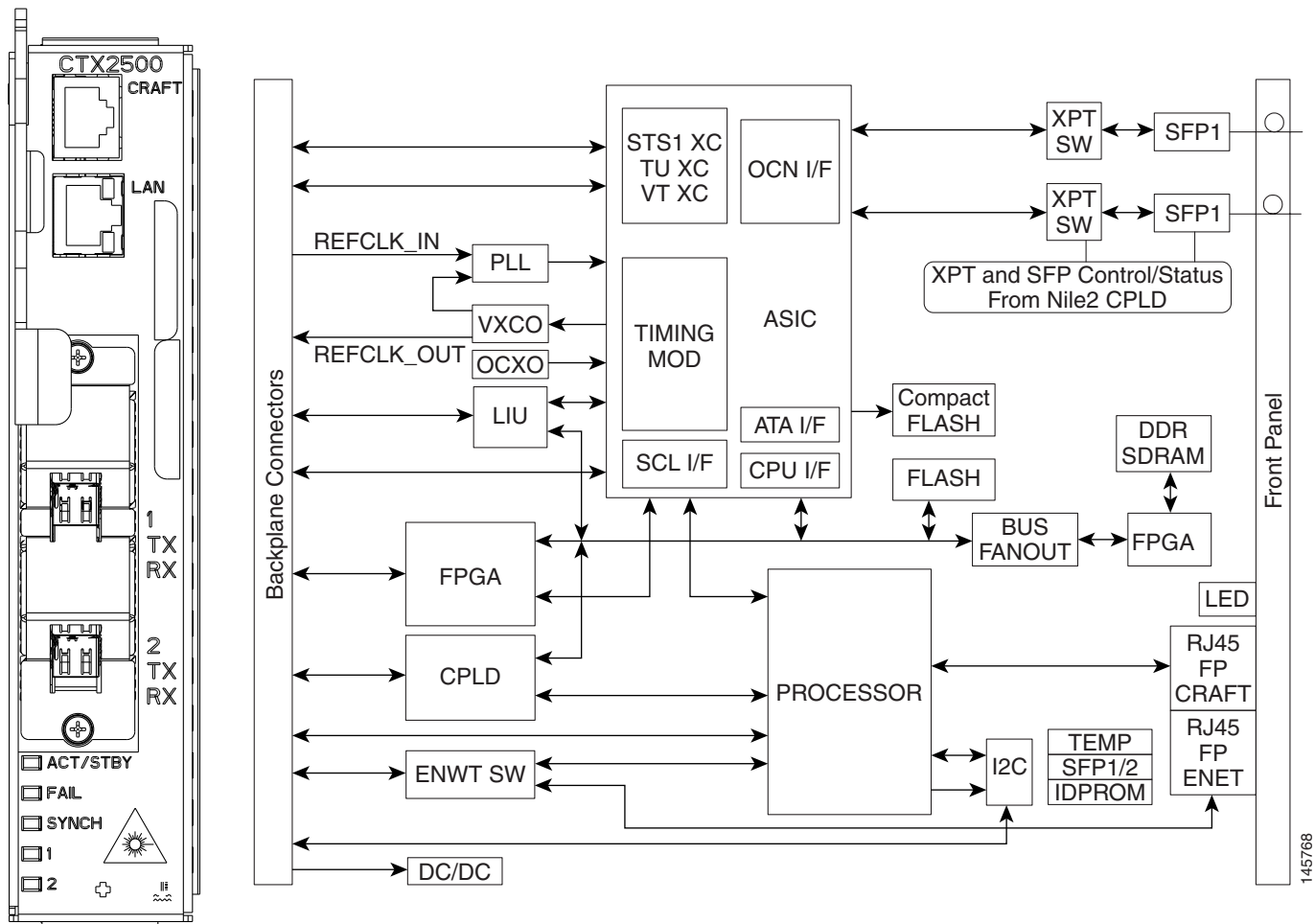
The CTX2500 supports errorless side switches (switching from one CTX2500 on one side of the shelf to the other CTX2500 on the other side of the shelf) when the switch is initiated through software or is caused by a software upgrade.

There are two PPM (SFP) slots on the CTX2500 faceplate. Each slot can contain a one-port PPM. Cisco-qualified SFPs can be single-rate (OC-3, OC-12, or OC-48) or multirate (OC-3/OC-12). Single-rate PPMs are autoprovisioned when they are installed, but multirate PPMs must be provisioned. This behavior can be controlled by NE defaults.

## Faceplate and Block Diagram

Figure 1 shows the CTX2500 card faceplate and block diagram.

Figure 1 CTX2500 Faceplate and Block Diagram



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## CTX2500 Card-Level Indicators

The CTX card has four card-level LEDs, described in [Table 1](#).

**Table 1** CTX2500 Card-Level Indicators

Card-Level LEDs	Description
FAIL LED (Red)	The red FAIL LED indicates that the card processor is not ready or that a catastrophic software failure occurred on the card. As part of the boot sequence, the FAIL LED turns on and flashes until the software deems the card operational.
ACT/STBY LED (Green/Amber)	The ACT/STBY LED is green if the card is the active CTX2500 card. It is amber if the card is the standby card.
SYNC LED (Green/Amber)	The SYNC LED is green if the CTX2500 card detects both a primary and secondary clock reference. It is amber if the card detects only a single clock reference.

## CTX2500 Port-Level Indicators

Two bicolor LEDs show the status per port (Ports 1 and 2). The port LED is green if the port is available to carry traffic and is provisioned as in-service. The port LED is red if there is a signal failure or loss of signal on the port.

## CTX2500 Card Specifications

### Optical Ports

- Line
  - Bit rate: OC-3 (155.520 Mbps), OC-12, (622.080 Mbps), and OC-48 (2488.320 Mbps), depending on the SFP installed
  - Code: Scrambled NRZ
  - Fiber: Depends on the SFP used (see the SFP specifications in the *Cisco ONS 15310-CL and Cisco ONS 15310-MA Reference Manual*)
  - Loopback modes: Terminal and facility
  - Connectors: LC duplex connector for each SFP
  - Compliance: Telcordia SONET, Telcordia GR-253-CORE, ITU-T G.707, ITU-T G.957

- Transmitter
  - Maximum transmitter output power: Depends on the SFP used  
(see the SFP specifications in the *Cisco ONS 15310-CL and Cisco ONS 15310-MA Reference Manual*)
  - Minimum transmitter output power: Depends on the SFP used  
(see the SFP specifications in the *Cisco ONS 15310-CL and Cisco ONS 15310-MA Reference Manual*)
  - Center wavelength: See wavelength plan
  - Center wavelength accuracy: 1 nm to 4 nm, depending on the SFP used
  - Transmitter: DFB laser
- Receiver
  - Maximum receiver level: Depends on the SFP used  
(see the SFP specifications in the *Cisco ONS 15310-CL and Cisco ONS 15310-MA Reference Manual*)
  - Minimum receiver level: Depends on the SFP used  
(see the SFP specifications in the *Cisco ONS 15310-CL and Cisco ONS 15310-MA Reference Manual*)
  - Receiver: PIN PD
  - Receiver input wavelength range: Depends on the SFP used  
(see the SFP specifications in the *Cisco ONS 15310-CL and Cisco ONS 15310-MA Reference Manual*)
- Environmental
  - Operating temperature:
    - C-Temp: +23 to +131 degrees Fahrenheit (–5 to +55 degrees Celsius)
    - I-Temp: –40 to +149 degrees Fahrenheit (–40 to +65 degrees Celsius)
  - Operating humidity: 5 to 95 percent, noncondensing
  - Power consumption: 9.28 W, 0.19 A, 31.68 BTU/hr
- Dimensions
  - Height: 6.94 in. (167.28 mm)
  - Width: 1.45 in. (36.83 mm)
  - Depth: 8.35 in. (212.09 mm)
  - Weight not including clam shell: 1.6 lb (0.73 kg)

## LAN Port

- Supports a 10/100-Mbps Ethernet interface for Cisco Transport Controller/Transaction Language One (CTC/TL1) provisioning.

## CRAFT Port

- An EIA/TIA-232 craft interface is provided and is used for TL1 provisioning.
- The craft interface is set to 9600 baud, no parity, and 1 stop bit by default.

## Nonvolatile Memory

The ONS 15310-MA nonvolatile memory has the following specifications:

- 128 MB, Compact Flash card

## Install the CTX2500 Cards



**Warning**

**Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.**

Statement 1029



**Warning**

**During this procedure, wear grounding wrist straps to avoid electrostatic discharge (ESD) damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.** Statement 94



**Warning**

**Invisible laser radiation could be emitted from the end of the unterminated fiber cable or connector. Do not stare into the beam 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 could pose an eye hazard.** Statement 1056



**Warning**

**Class I (CDRH) and Class 1M (IEC) laser products.** Statement 1055



**Warning**

**Use of controls, adjustments, or performing procedures other than those specified may result in hazardous radiation exposure.** Statement 1057



**Caution**

Do not install a CTX2500 card in an ONS 15310-MA if the ambient temperature exceeds 149 degrees F (65 degrees C).



**Caution**

Always use the supplied ESD wristband when working with a powered ONS 15310-MA. Plug the wristband cable into either of the ESD jacks, on the far left and right faceplates in the shelf.

**Note**

If protective clips are installed on the backplane connectors of the cards, remove the clips before installing the cards.

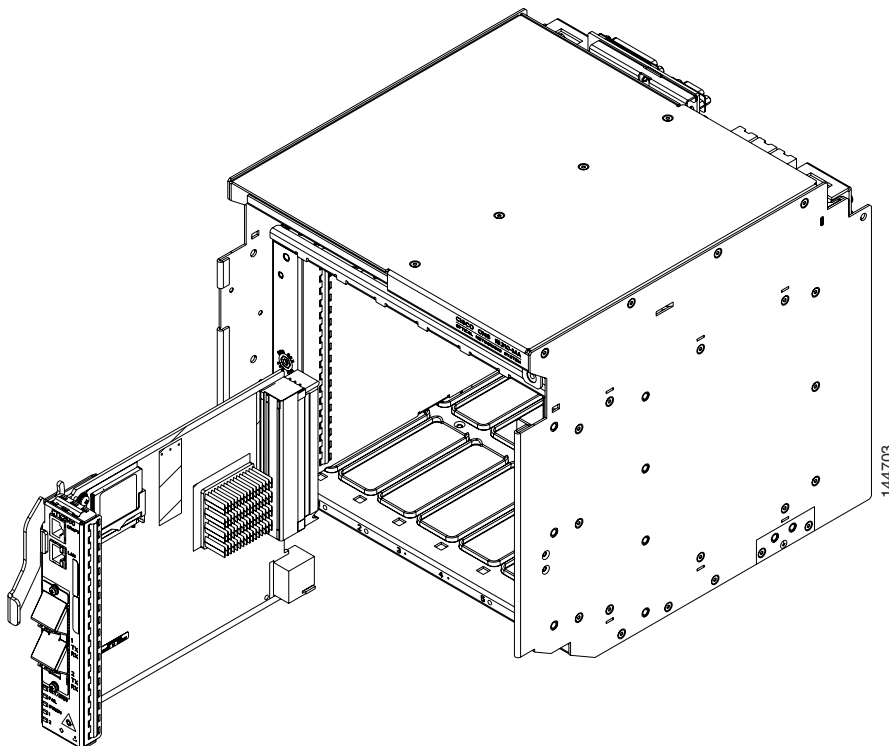
**Step 1** Install a CTX2500 card in Slot 3 or 4 ([Figure 2](#)):

- a. Open the card ejector.
- b. Use the ejector at the top of the card and firmly slide the card along the guide rails until the card plugs into the receptacle at the back of the slot.
- c. Verify that the card is inserted correctly and close the ejector on the card.

**Note**

The CTX2500 cards are hot-pluggable, so they can be inserted or removed without turning off the power to the ONS 15310-MA.

**Figure 2** *Installing a CTX2500 Card in ONS 15310-MA*



**Step 2** Verify the CTX2500 card LED activity:

- a. The red FAIL LED turns on for 30 to 45 seconds. It then turns off for 5 seconds, and turns back on for 30 seconds.
- b. The red FAIL LED blinks for 20 seconds, and turns off for 5 seconds.
- c. All LEDs turn on for 2 seconds.

- d. The ACT/STBY LED turns on. It is green if the card is active, or amber if the card is standby.
- Step 3** When you log into CTC, verify that the card appears properly in CTC node view.
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## Related Documentation

- *Cisco ONS 15310-CL and Cisco ONS 15310-MA Procedure Guide*
- *Cisco ONS 15310-CL and Cisco ONS 15310-MA Reference Manual*
- *Cisco ONS 15310-CL and Cisco ONS 15310-MA 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>

Subscribe to the *What's New in Cisco Product Documentation* as an RSS feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service. Cisco currently supports RSS Version 2.0.


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This document is to be used in conjunction with the documents listed in the “Related Documentation” section.

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